Enabling Businesses and Enterprises

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Part 5 on Enabling Systems Engineering explores how systems engineering (SE) is enabled at three levels of an organization: the business or enterprise (hereafter usually just called "business" --- See Enabling Systems Engineering for more information), the team, and individuals.

The **Enabling Businesses and Enterprises** Knowledge Area describes the knowledge needed to enable SE at the top level of the organization. Part 3, Systems Engineering and Management, describes how to perform SE once it has been enabled using the techniques described in Part 5. Moreover, a business is itself a system and can benefit from being viewed that way. (See Enterprise Systems Engineering in Part 4.)

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Contents

Topics

Each part of the SEBoK is divided into knowledge areas

(KAs), which are groupings of information with a related theme. The Kas, in turn, are divided into topics. This KA contains the following topics:

- Systems Engineering Organizational Strategy
- Determining Needed Systems Engineering Capabilities in Businesses and Enterprises
- Organizing Business and Enterprises to Perform Systems Engineering
- Assessing Systems Engineering Performance of Business and Enterprises
- Developing Systems Engineering Capabilities within Businesses and Enterprises
- Culture

Relationship Among Topics

- Systems Engineering Organizational Strategy describes how SE delivers value to the business, who makes decisions about SE in the business, how those decisions are made, how resources are allocated, and how the soundness and performance of those decisions are monitored.
- Determining Needed Systems Engineering Capabilities in Businesses and Enterprises describes how a business decides what specific SE capabilities are needed; e.g., a business that creates cutting edge products would likely require very strong architecting capabilities, including modeling tools. A business that has a global development team would likely need a very robust collaboration toolset.
- Organizing Business and Enterprises to Perform Systems Engineering describes various organizational models; e.g., which SE functions should be centralized, which should be distributed, how much SE every engineer should know.
- Assessing Systems Engineering Performance of Business and Enterprises describes how a business understands how well it is doing with respect to the SE actually being performed using the techniques described in Systems Engineering and Management.
- Developing Systems Engineering Capabilities within Businesses and Enterprises describes how SE talent that delivers the desired SE capabilities is grown and acquired

- Finally, Culture describes how the culture of a business affects SE; e.g., a risk-averse business will likely use plan-driven SE processes; an entrepreneurial, fast-paced business will likely use agile SE processes (See Life Cycle Models).

To some extent, these topics have the character of a "plan-do-check-act" cycle, where the "do" part of the cycle is performing SE using the techniques described in Part 3, Systems Engineering and Management (Deming Part 3). For example, if assessing the business' SE performance shows shortfalls, then additional SE capabilities may need to be developed, the organization may need to be adjusted, processes may need to be improved, etc., all working within the existing cultural norms. If those norms prevent the business from successfully performing SE, then transformational efforts to change the culture may be needed as well.

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< Previous Article | Parent Article | Next Article >
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