Process Decomposition of an Acquisition Organization

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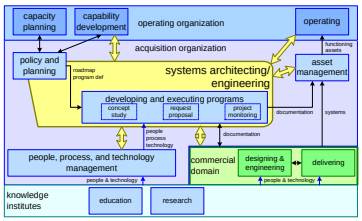

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Abstract

This article positions the system architecture process in an acquisition organization. The positioning helps to understand the processes in which the system architect (or team of system architects) is involved. It focuses on an organization that acquires systems that help to realize capabilities.

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1 Introduction to Acquisition Organizations

Acquisition organizations purchase and manage the assets for operational organizations. That means that they have a large financial responsibility, since their assets tie up a lot of capital. They also determine the operational capabilities and readiness of the operational organizations. Examples of such organizations are the acquisition organizations in defense, e.g. the DoD acquisition in the USA, the Norwegian Defense Material Agency (NDMA), and the Dutch Materiel and IT Command (COMMIT). In the railway sector examples are ProRail in the Netherlands, and BaneNOR in Norway.

2 Process Decomposition of Acquisition Organizations

The customer of an acquisition organization is typically an operating organization. The operating organizations will, besides operating, look ahead and plan capacity and develop capabilities. The capacity planning and capability developments are inputs for the acquisition organization. The operating organization is using assets that the acquisition organization manages and maintains. Figure 1 shows these three main processes of the operating organization at the top of the figure.

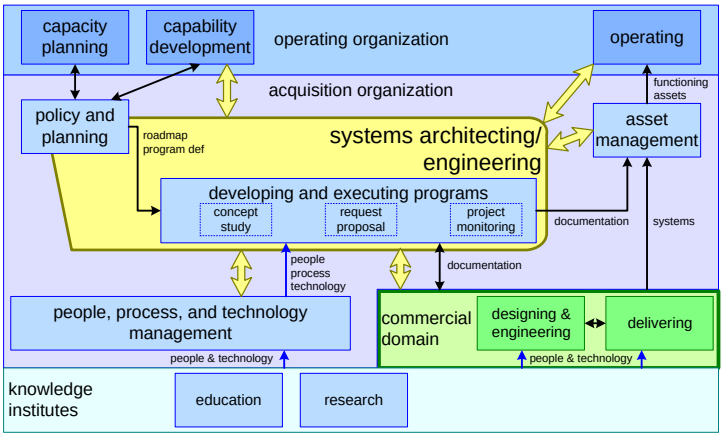

Figure 1: Simplified Decomposition of an Acquisition Organization

The acquisition organization itself is running various processes. The asset management process ensures availability of functioning assets. The acquisition organization acquires new assets in the developing and executing programs. It explores new acquisitions in concept studies, drives the acquisition itself through proposal requests and then monitors the acquisition projects. The acquisition primarily procures solutions from the commercial domain. The line management process manages people, process, and technology. The policy and planning process balances

the tensions between the asset management, developing and executing programs, and managing people, process, and technology.

Most of the design and engineering takes place at contractors and suppliers in the commercial domain. Knowledge institutes offer education and perform research. Knowledge institutes can be governmental or commercial.

3 Procurement

One of the core activities of acquisition organizations is procurement of new assets. The policy is to buy as much as possible and staying as close as possible to existing channels. The Dutch acquisition organization calls this the ladder of simplicity. Figure 2 show the ladder of simplicity in the pink box. The preference is to stay as much as possible to the right side of this axis.

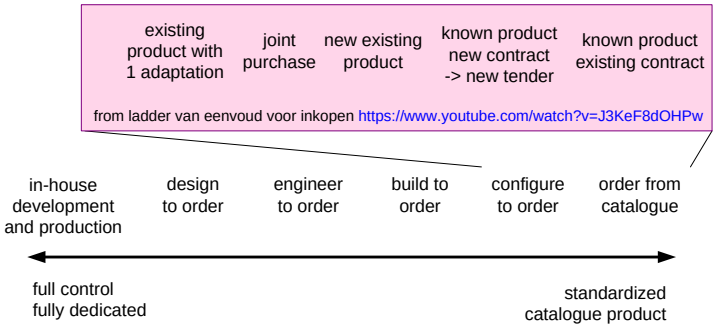

Figure 2: Ladder of Simplicity: Buy as Simple as Possible

When there are no suppliers selling the new capabilities an operation needs, then there are again many options the acquisition organization can choose. Configure to order is selecting a combination of ready-to-go solutions from the supplier. The supplier can also assemble the standard components, or as next step, do some engineering work to deliver the integrated solution. When existing components don't deliver the desired solution, then suppliers may have to do design work. The most extreme option is that the acquisition organization itself develops and manufactures the solution. Developing and manufacturing itself brings full control, the ability to make it fully dedicated, at the cost of needing many specialized resources now and during the life cycle.

4 Value Chain

Figure 3 shows a simplified version of Figure 1, where the operating and acquisition organization are together in the highest layer. The commercial domain

combines a contractor layer and a supplier layer. The figure shows the main processes in each layer, where the top process delivers the value to the next layer.

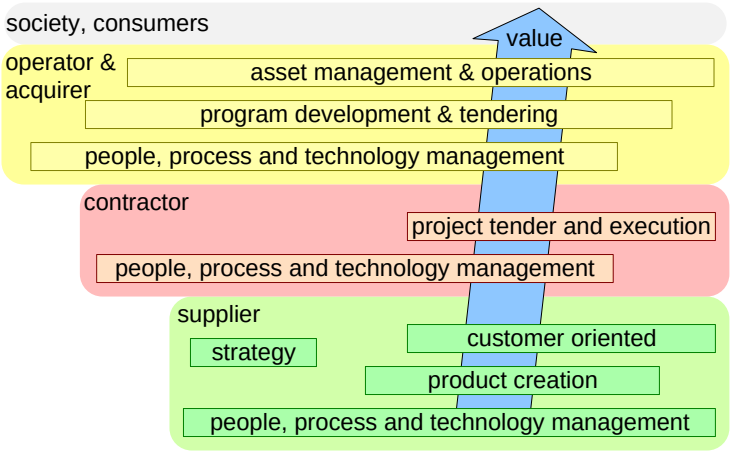

Figure 3: The Value Chain across the Layers

Value from technology and knowledge of people transforms into value in each step from the supplier upwards. In other words, there are many steps from technical components and the introduction of technologies to assets that deliver value to consumers and society. A consequence of this long value chain is that technology innovations take time to get from the beginning to the end (benefits in the real world). Another consequence is that many parties and individuals are involved, with many handovers on the way. Any handover is a point where losses occur with the risk of introducing mistakes.

5 Competency Development

Research and education providers deliver competent people to all layers. They also provide lifelong learning to keep employees competent in a changing world. Lastly, they research to keep their own competency up-to-date. Figure 4 shows the research and education providers at the bottom of the figure. The value chain actually starts with competent people.

A challenge is that competency requires context. Competency is the ability and attitude to use knowledge and skills effectively in the context of interest. In practice, research and education providers can be too far away from the relevant context. Hence, researchers and educators have to ensure that they connect with the relevant context.

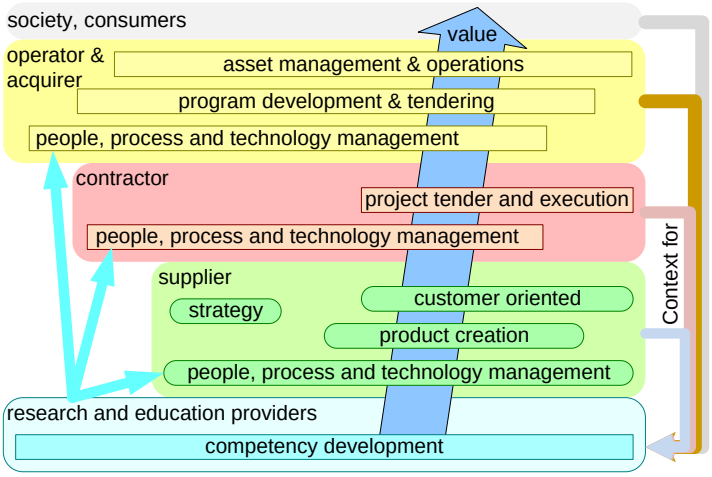

Figure 4: Research and Education as Long-Long-Term Process

References

[1] Gerrit Muller. The system architecture homepage. `http://www.gaudisite.nl/index.html`, 1999.

History

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- corrected figure reference and logo PDOAprocessDecomposition

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- corrected linguistic errors

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