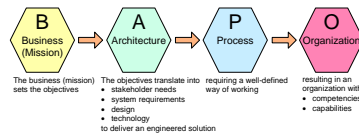


Frameworks for Architecting

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Abstract

Frameworks offer structure to look at and better understand the aspects these frameworks address. Frameworks provide a frame for understanding. They are by definition simplified conceptualizations; its users have to use them with care.

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1 Introduction to frameworks

Figure1 shows the frameworks this paper is using.

BAPO is the overarching framework, connecting Business, Architecture, Process, and Organization

Quadruplet elaborating Business and Architecture

The social to technical aspects elaborating Process and Organization

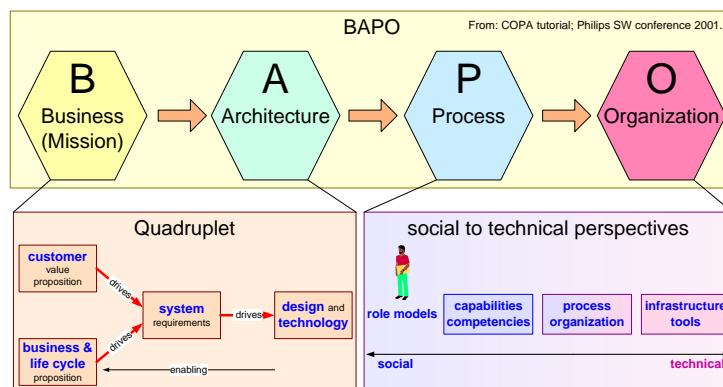


Figure 1: Frameworks for Architecting

2 The BAPO framework

BAPO stands for Business, Architecture, Process, and Organization. The order of these views is relevant:

- The Business drives the architecture that guides the engineered solution.
- The architecture requires a suitable way of working, which is captured in the processes.
- The processes fit in an organization with capabilities and requires individuals with specific competences.

Figure2 shows the BAPO framework.

Obbink et al. [3] created the BAPO framework. Later Henk Obbink suggested extending the framework to BAPOC by adding Culture as additional view. The thinking behind adding culture is that culture has much impact on individual and organizational behavior. Culture is challenging to change, which takes energy and

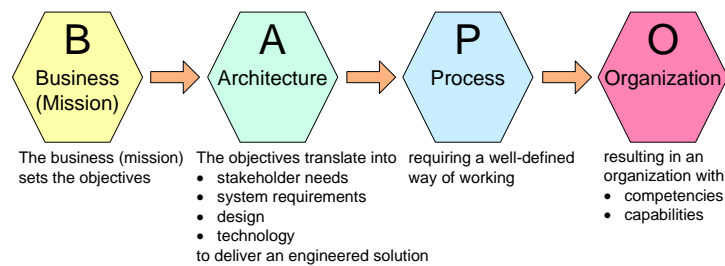


Figure 2: The Encompassing BAPO Framework

time. Changing process and organization may seem easier, however, culture may limit its effect.

When using the framework in the defense domain, the term business is ill-fitting. In defense a term like mission or main task, capturing the main objective of defense is more suitable.

3 The quadruplet framework for architecture descriptions

The quadruplet is a framework to guide the creation and capturing of architecture descriptions. The core of the framework is that the customer value and the business and lifecycle propositions drive the definition of the system, which in turn drives the design and technology choices. Figure3 shows the quadruplet framework.

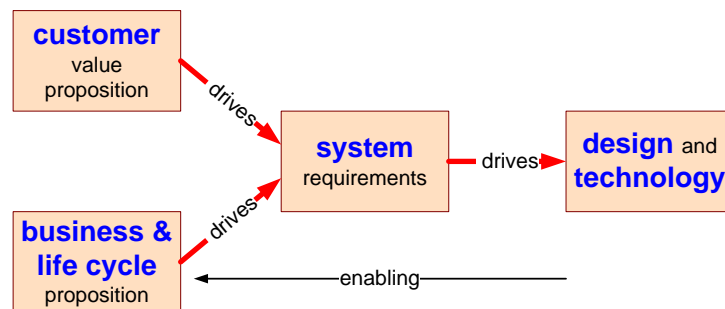


Figure 3: The Customer and Business Propositions are Driving

The quadruplet framework is building on the CAFCR+ framework; see[2]:

- The CA-views map on the customer value proposition.
- The F-view maps on the system requirements.
- The CR-views map on the design and technology

- The +-view maps on the business and life cycle.

The quadruplet simplifies CAFCR+ by combining C and A, and C and R views. The simplification helps in some of the ways of using the framework. The adapted visualization order expresses the driving logic better. This improved order balances the customer and business and lifecycle propositions better.

4 A framework covering the spectrum social-technical

Figure 4 shows a spectrum from social to technical with 4 main views:

Role models are essential to help people copying desired behavior

Capabilities and competencies that need development. Organizational capabilities build upon individual competencies. A capable team is more than a group of competent individuals.

Process and organization is the structure that we agree upon to work together. Processes are the dynamic behavior, while the organization is the static structure, e.g. what groups with what relations.

Infrastructure and tools Infrastructure and tools form the most technical components. They support the processes and organization to enable the desired capabilities.

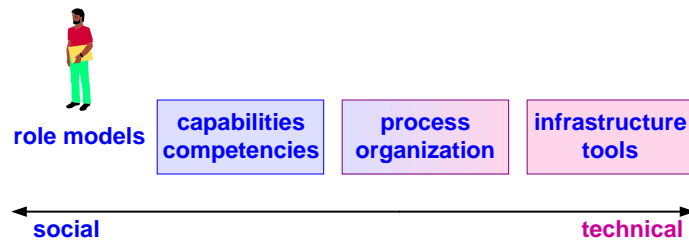


Figure 4: Change Requires Addressing the Full Spectrum

The framework showing a spectrum from social to technical finds its origin in change and transformation programs. Organizational transformations require attention over the full spectrum from social to technical. This may seem obvious; however, I have seen amazingly many transformations addressing only one of these views.

References

- [1] Gerrit Muller. The system architecture homepage. <http://www.gaudisite.nl/index.html>, 1999.
- [2] Gerrit Muller. CAFCR: A multi-view method for embedded systems architecting: Balancing genericity and specificity. <http://www.gaudisite.nl/ThesisBook.pdf>, 2004.
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History

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