What is a Process?

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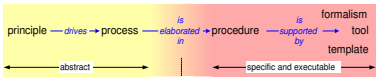

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Abstract

This article is defining the concept of a "process" for the context of the Gaudí project, since this word is heavily overloaded and heavily used in the Gaudí articles. It also discusses the relationship of processes with organizations and the drive for process improvement.

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1 Introduction

We rely in this part heavily on the notion of a process. This intermezzo is defining "process" for the context of this book. We define "process", since this word is heavily overloaded in our daily world. We also discuss the relationship of processes with organizations and the drive for process improvement.

2 What is a process

We use process as an abstracted way of working. A process can be characterized the attributes shown in Figure 1

Purpose What is to be achieved and why

Structure How will the goal be achieved

Rationale What is the reasoning behind this process

Roles What roles are present, what responsibilities are associated, what incentives are present, what are the criteria for these roles

Ordering What phasing or sequence is applied

Figure 1: Process Attributes

In [1] the following definition is given:

A process is an activity which takes place over time and which has a precise aim regarding the result to be achieved. The concept of a process is hierarchical which means that a process may consist of a partially ordered set of subprocesses.

This definition parallels the characterization above. It adds explicitly the potential hierarchical decomposition of the process itself.

The notion of a process can be seen as one step in an abstraction hierarchy, as shown in 2. The most abstract notion in this hierarchy is the "principle". A principle is a generic insight that can be used for many different purposes. An example of a principle is *decomposition*: Whenever we have something big, e.g. a problem or project, then we can decompose it in smaller pieces. These smaller pieces are easier to solve or create than the original big one.

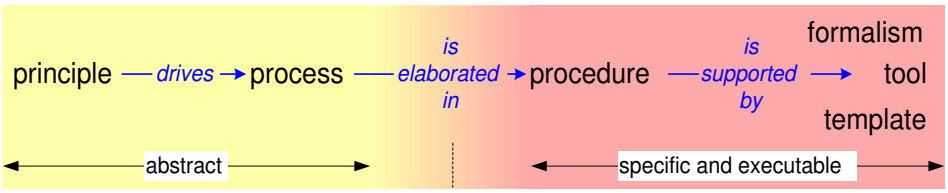

Figure 2: A process within an abstraction hierarchy

A process is rather abstract. It describes the essentials of the purpose, structure, rationale, roles and timing, leaving plenty of implementation freedom. The power of a process is its abstraction, which enables its application in a wide range of applications, by tailoring its implementation to the specific application.

A process can be tailored and elaborated in one or more procedures that describe cookbook-like what needs to be done when and by whom. The why in a procedure has often disappeared, to be replaced by practical information for the execution.

The implementation of a procedure can be supported by tools, notations, templates and other means.

In practice managers and employees ask for tools (means) and procedures (what and how). However, without understanding of the thinking behind the procedure (why), as given in the process, these tools and procedures can be meaningless. The process captures the rationale behind procedures, tools, notations, templates, and other means.

3 The relation between Processes and Organizations

Traditional management is focused on “organizations”. Where organization are characterized by the attributes shown in Figure 3.

What **functions** are needed?

Who is **responsible** for this function?

What is the **hierarchical relation** between the functions?

What **meeting structure** is required?

Figure 3: Organization Attributes

This management views is insufficient in today’s fast moving complex world. The weak spots of the organizational view are shown in Figure 4.

Processes are more modern instruments for management. Many processes are required to ensure the effective functioning of an organization. These processes are

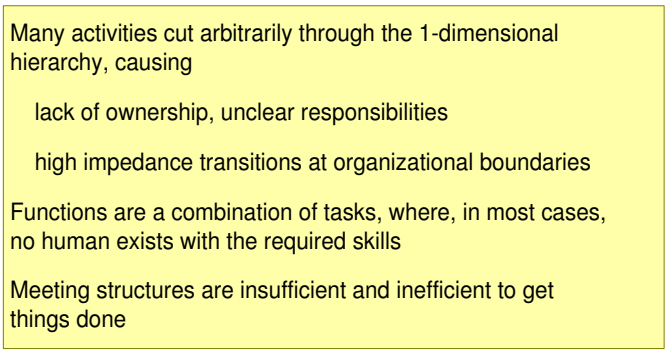

Figure 4: Weaknesses of the organizational view

interrelated and overlapping. Processes are non-orthogonal and don't fit in a strict hierarchical structure.

Most complex product developments don't fit in the classical hierarchical organization model, but require a much more dynamic organization model, such as the currently popular more chaotic network organization. Processes are the means which help to ensure the output of dynamic organization models such as a network organization.

Processes can be seen as the blueprint for the behavior of the people within the organization. People will fulfill multiple roles in multiple processes. The process description is intended to give them an hold on what is expected from them.

All important activities will be covered by a process, requiring the definition of ownership, relation with other processes et cetera. The allocation of roles to people is much more dynamic than in conventional hierarchies. More dynamic allocation enables a better match between personal capabilities and required skills. In practice dynamic allocation leads to more distribution of responsibilities, making it more feasible to match capabilities and skills.

The 80/20 rule is also valid for processes: 80% of the behavior is covered by the processes, while 20% requires independent creative behavior. An organization without processes drowns in chaos, while an organization which blindly implements them will be killed by its own inertia, its inability to adapt to the fast changing world.

For reasons of continuity and stability an hierarchical organization will remain. The slowest evolving dimension is mostly used as a basis for this hierarchy. This hierarchy functions as anchor point for people in the continuously changing process world, but should play only a minor role in the entire operation.

The **Centurion** turn around operation within Philips, orchestrated by CEO Jan Timmer in the early nineties, urged the Philips managers and employees to change from an introvert organization point of view to an external result oriented process point of view.

4 Process Improvement

Urged by competitive pressure organizations look for ways to improve their efficiency. Many opportunities for improvement have a strong process component.

The 7S model by McKinsey gives a practical way to improve an organization in a balanced way. The message behind this model is that at least 7 views must be balanced when changing an organization. See Figure 5 for the 7 views.

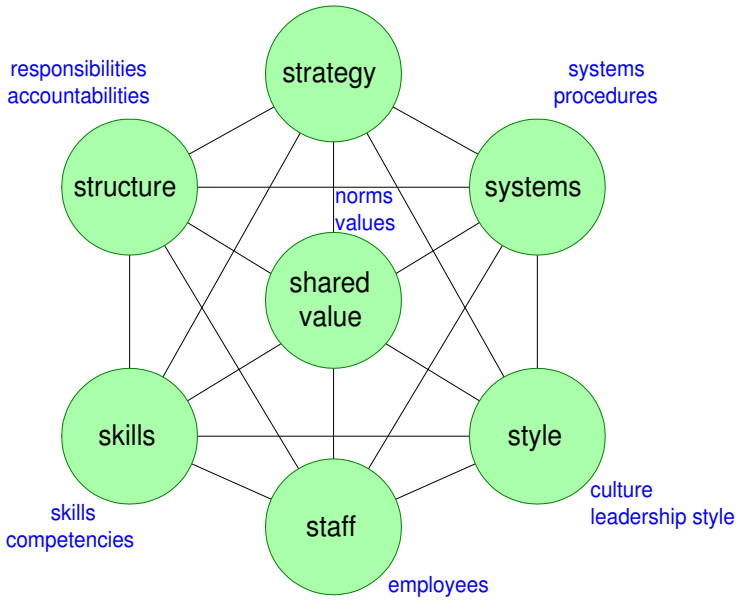

Figure 5: McKinsey 7S model

The most common pitfall in improvement programs is the over-emphasis on the process component, or worse the isolation of the process improvement. Organizations assessing their maturity level, for instance by Maturity Models [3], quite often get too much process focus. The Process Improvement Officer[1] is focused on process issues only. Hence where the process view is introduced as an extrovert result oriented approach, it suddenly turns into an introvert improvement program, where business goals and drivers are unknown.

This is a quite sad situation: The opportunities for improvement are ample with a strong process component, however due to the wrong focus a negative effect is obtained (such as rigid procedures).

Recommendation: Process improvements should originate from the directly involved people, for instance project leaders, engineers, architects et cetera. Invite participation by this group in such a way that they feel the ownership.

[1]The existence of this function in itself is quite dangerous, it invites the unbalanced isolated "improvement" behavior

5 Acknowledgements

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[1] Klaus Kronlöf, editor. *Method Integration; Concepts and Case Studies*. John Wiley, Chichester, England, 1993. A useful introduction is given in Chapter 1, The Concept of Method Integration.

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

[3] Carnegie Mellon Software Engineering Institute SEI. Software engineering management practices. `http://www.sei.cmu.edu/managing/managing.html`, 2000.

History

Version: 1.0, date: June 16, 2010 changed by: Gerrit Muller

- several text updates. Some texts slightly more nuance, e.g. chaos based network organization replaced by more chaotic network organization
- replaced lists by figures
- changed status to concept

Version: 0.4, date: April 20, 2010 changed by: Gerrit Muller

- replaced lists by figures

Version: 0.3, date: August 5, 2002 changed by: Gerrit Muller

- minor changes

Version: 0.1, date: December 18, 2001 changed by: Gerrit Muller

- abstract added, layout updated

Version: 0, date: February 23, 2000 changed by: Gerrit Muller

- Created by taking the first sections of the article "Positioning the System Architecture Process" and adding more Process specific information to it.