

AS-IS CONTINUOUS REPRESENTATION IN ORGANIZATIONAL ENGINEERING

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Keywords: Organizational Engineering, Organizational Model, Annotations, UML.

Abstract: If the organizational model was a trustworthy and updated representation of the organizations, in all of its aspects and perspectives, it could be permanently used as support base to most operational and management tasks, using all its capacities for capturing, representing and distributing organizational knowledge. However, the use of this model is normally restricted in time in order to support some organizational activities, instead of being a solid foundation to support the organizational daily activities acting as an organizational knowledge repository. This is a result of the difficulty to maintain the model updated and aligned with the reality. The research in Organizational Engineering is already mature in defining modeling artefacts, modelling languages and the necessary views to adequate the model to the users, promoting its usage in a continuous baseline. This paper propose a process to maintain the As-Is Organizational Model updated. The strategy presented considers the organizational model as a representation of the organizational conscience, continuously aligned with the reality.

1 INTRODUCTION

Organizational Engineering (OE) put together concepts, methods and technologies, allowing understanding, modeling, developing and analyzing all the aspects of the changing business through the focus on the relationships and dependencies among strategy, business processes and the supporting information (Tribolet, 2005).

The business models (used in OE) allow the communication, documentation and comprehension of the organizational activities (Caetano, 2004b).

The as-is business model have the following general goals (Davemport, 1993), (Hammer, 1993): To be the starting point for Process Improvement (e.g. TQM) and Process Innovation (e.g. BPR); Act as support and documentation of the construction process of the ISA (Information Systems Architecture); To be the starting point of the requirement capture to develop information systems (Software Engineering); To be a common knowledge repository of organization.

This last goal could optimize the capacity of organizations to become Learning Organizations (Boudreau, 1996), (Magalhães, 2005). This concept derive from social science and organization

psychology disciplines and, in this scope, is important to recognize the organizational dynamics and the interaction contexts among human being who executes the business processes and creates the organizational knowledge (Nonaka,1995), (Argyris, 1996).

In order to represent this knowledge, the organizational models have to be used by people, thus is necessary to promote the models usability: it is necessary to know better the interaction dynamics among several organizational actors – people and machines. The context concept is the key element in filtering the relevant information to actors and to manage the interactions among the organizational network of actors (Zacarias, 2004). It is also necessary to define the model perspectives which promote integrated, shared and abstract views of the several realities and, at the same time, respect the specific needs of each particular actor and context, contributing to capturing both individual and group knowledge of organizations.

In the next section some of the contributions to this work are described. Then, the characteristics the model should have to be continuously updated and the continuous organizational model updating process are defined, using the CEO Framework.

2 CONTRIBUTIONS

2.1 Organizational Knowledge

The organizational knowledge theory is supported by the individual interpersonal and group relationships and depends of the facilitation contexts (Magalhães, 2005). The organizational creation theory says that the knowledge creation is a continuous process of socialization, externalization, combination and internalization. Nonaka and Takeuchi apply the hypertext metaphor to the organizations based in the analogy of the organizational structure of the web sites (hierarchical but navigable). The hypertext organization facilitates the horizontal work without loose the hierarchical formal structure. This organization has three layers or contexts: business system, project team and knowledge (Nonaka, 1995).

The learning process evolves errors detection and correction (Smith, 2005). When, within organizations, something goes wrong, the deployment of an alternative strategy which allows working under the same governing variables is a way to continue working. Given or chosen the goals, plans and rules, the action is set to run and is not questioned. This is the single loop learning. Another way of see this question is though questioning the governing variables submitting it to some critical scrutiny. This is an example of double loop learning. This kind of learning could lead to change the governing variables, and then, to a change in strategy and its consequences (Smith, 2005).

2.2 CEO Framework

The CEO Framework has four modeling basic primitives (Matos, 2007): Entity - used to model things or concepts important to the universe of organizational modeling. It can be a resource (an informational entity, a material entity, a human resource, an organizational unit, a goal, etc.). The entities are numerable, identifiable and are denoted through substantives; Activity - used to model actions in organizational work context. Are denotable trough verbs; Role - is the modeling mechanism that allows concern separation through a property set representation and the particular behaviour of an entity when in a particular collaboration (Caetano, 2004), (Caetano, 2005); Context - is a business object network characterized by a set of state variables associated with the

individual elements of the network and with the emergent properties of the network (Zacarias, 2006). These primitive are used to model several perspectives of the enterprise architecture, each one has a set of diagrams (Sousa, 2005). In each diagram, different point of views can be defined. One of the goals of enterprise architecture is the maintenance of the alignment among architectures (perspectives) despite its independency.

2.3 Annotations

The use of annotations is based in the work of Becker-Kornstaedt e Roman Reinert who applied this mechanism to capture the reasons to the changes usually made to software projects based on the implicit knowledge of the developing team members (Becker-Kornstaedt, 2002).

To adapt this concept, the idea of Gregory Mentzas, who enunciates the process called *Human Quality Control* as a way to achieve the total quality of the work executed in organizations, was used (Mentzas, 1999).

3 THE AS-IS REPRESENTATION

The organizational model is used as a common and shared knowledge repository of the organization, allowing:

- To increase the knowledge of what each one is doing as a part of the whole organization (the points of view are important in the modeling process).
- To facilitate the communication by allowing to focus the right point of view.
- To turn explicit the whole organization.
- To clarify who are the actors in the processes trough the identification of the client/supplier relationship, the identification of who and what is contributing with what for the process and the clarification of what internal and external factors influence the process.

The presentation of business information has to be synchronized with the context and needs of the users of the organizational model (EMIPA-SIG, 1992).

The model should formulate and answer relevant questions associated to the several operations of the organizations. The results should supply feedback in order to execute new iterations. Considering the model as source for decision support, it should include the access to previous decisions, the current state of whole organization and simulation capacities of current decisions.

It seems that beyond of the organizational model traditional function related with the support of organizational activities isolated in time (that makes its existence short) the organizational model have a facilitator function in collecting and sharing organizational knowledge, making itself an essential tool to deploy learning organizations.

4 THE DYNAMIC ORGANIZATIONAL MODEL MANAGEMENT PROCESS

The dynamic organizational model management process aims to reduce the misalignment between the distributed model and the reality.

This process, which includes activities like observation, analysis and control, should be executed by people (agents or organizational actors) who execute also the business activities of the operational processes in the organizations. The annotations are the mechanisms which can be used as a tool to manage this process.

The annotations are used to make proposals to correct the presented model (corrective maintenance), capture changes to the action or interaction contexts (adaptive maintenance), make free comments which could anticipate problems (preventive maintenance) and promote continuous improvement process (perfective maintenance).

In 1.4.2 UML specification (ISO/IEC 19501 standard), an annotation is used to express a comment and should be attached to a modeling element or a set of modeling elements. It does not have semantic strength, but it could have useful information for the modeler (UML ISO/IEC, 2005). It has a unique attribute, a character string which forms the annotation body, and is linked to the element or elements through an association and it could have two basic stereotypes: <<requirement>> and <<responsibility>>.

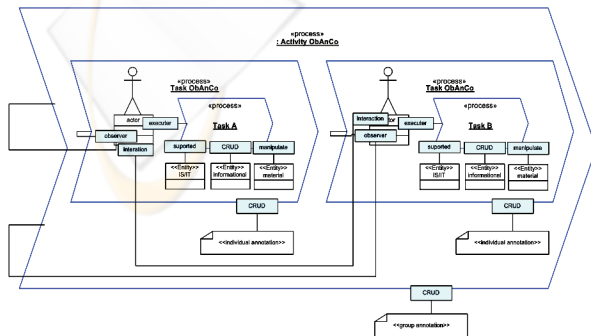


Figure 1: Activities for model updating (1st and 2nd cycle).

At the individual execution level, the actors must have an available view or perspective that relates their own business object (entity) with the activities that they execute (which belongs to organizational processes) and with the entities manipulated (informational, material, IS/IT's).

Not all the actors have to make this analysis, because control points can be defined in processes with the right granularity adjusted to the model.

In the context of the dynamic organizational model management, the annotations can be of three types: individual, group or organizational. The organizational annotation can be divided in two subtypes, process annotation and functional annotation.

- Individual annotation (figure 1);
- Group annotation (figure 1);
- Organizational Annotation (figure 2):
 - Process annotation;
 - Functional annotation.

These three types implement three cycles which represent the three layers vision of hypertext organization (Nonaka, 1995) and present an extension to the double cycle learning (Smith, 2005), adding the intermediary cycle of group interaction context.

The first cycle handles the observation and analysis of the individual task executed by the individual actors of the organization in the action context, and has the individual annotation as output.

The second cycle handles the observation and analysis of the tasks executed by more than one actor in the interaction context (group work or orchestration work in a business process). This cycle's output is the group annotation.

The third cycle starts with the vision of the two predecessor cycles, aligning them with the functional dimension (of organizational units) and the process dimension (of business processes).

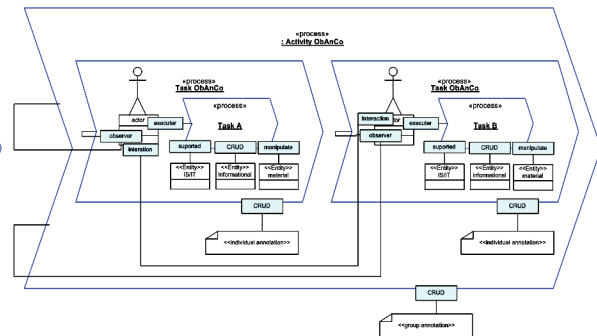


Figure 2: Activities for model updating (3rd cycle).

In the functional dimension, the individual and group cycles are projected adding the functional annotation by the owners of the organizational units where the activities are executed. In the process dimension the individual and group cycles are projected adding the process annotation by the owners of the organizational units where the activities are executed. The figure 3 shows a representation of the general process, where the output of the organizational model dynamic management process – the annotation, are then considered as an input to the redesign model process.

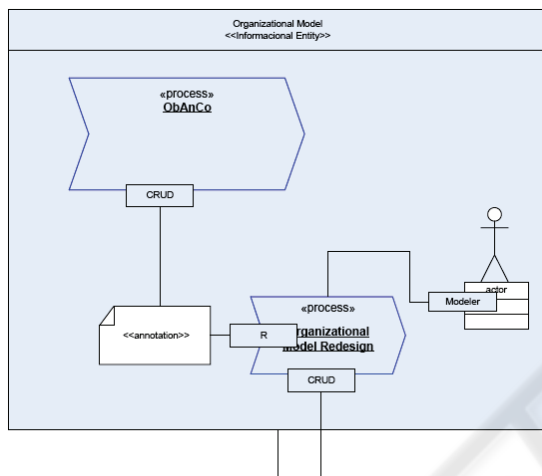


Figure 3: Model updating process.

5 CONCLUSIONS

This work is based in the idea that the dynamic updating of the organizational model could bring strategic advantages to the organizations. Thus it was presented a first step to defend and deploy the dynamic maintenance of an organizational model. This maintenance is based in the defined mechanism: the annotation.

This mechanism is the output of several activities executed in the various layers of the model, which allows the redesign of the as-is model, promoting its alignment with the reality.

A prototype tool is allready being created to support this Model Updating Process in a governmental agency in Portugal.

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