

Challenges of VO Inheritance

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INTRODUCTION

Collaboration with other companies has long been a practice in several industrial fields like construction and one-of-a-kind manufacturing. During the last decades, it has, however, increased and extended further to other industries and operations. One catalytic factor is, of course, the extensive development in ICT.

Also, research in collaborative networks is substantial. It has often focused on ICT tools, components, and infrastructures supporting the collaboration. The basic rules, operating principles, and practices in the collaboration world are still dispersed and not well defined. A need to consolidate and synthesize the existing knowledge of collaborative networks by creating a scientific discipline for it has been announced (Camarinha-Matos & Afsarmanesh, 2004).

This article discusses a specific issue in collaborative networks. The challenges of the so called “virtual organization inheritance.” A virtual organization (VO) is built from a network (or a virtual organization breeding environment (VBE)) for a specific task, most often to create value for a customer (Kürümlüoğlu, Nøstdal, & Karvonen, 2005). A VO is a temporary consortium and thus has a lifecycle of the main phases: creation, operation, and dissolution. A VO is created for a customer request and after the product has been delivered to the customer, it is dissolved. When a new need comes, it is again built up but the product and the participants in the new VO are necessarily not the same as in the previous one.

This discontinuing nature of operation in VOs may increase flexibility, agility, and resource utilization efficiency. On the other hand, it also causes challenges for VO management (Karvonen, Jansson, Salkari, & Ollus, 2004), for example risk of increasing VO coordination costs and losses of information, knowledge, or other values. VO inheritance mechanisms aim to bring solutions for the latter, how to preserve and even refine the common valuable outcome (“VO heritage”)

from a VO. Currently in operating networks or VBEs the inheritance is often weak or missing.

BACKGROUND

Projects, as defined in PMBOK (1996): “temporary endeavours undertaken to create a unique product or service” are conceptually close to VOs. In fact, many projects are performed as VOs. Projects also have the problem of discontinuity and transferring the knowledge from one project to future use. There are mainly two differences against VOs:

- Projects do not assume participation of different organizations (even if it often is the case).
- Projects do not assume long term cooperation as is the case with VOs created from VBEs.

Thus, project practices for coping with discontinuity may also be utilized in VOs/VBEs, even if they cannot offer solutions to the special VO/VBE environment. In PMBOK (1996), which can be considered as a reference model for projects, the project closing phase is described very briefly. The inheritance is handled mainly by “lessons learned” but there is no sufficient guidance how to do this.

In the VO field most of the previous and current research addresses VO creation (for example partner selection, VO planning) or VO operation (inter-operability, inter-enterprise processes) phases. The dissolution phase has not gained much attention so far (Karvonen et al., 2004). In the field of one-of-a-kind manufacturing some development has been made to support the product lifecycle, using product-centric networks (Karvonen et al., 2002) and product knowledge creation in a network (Välikangas & Puttonen, 2003).

In ECOLEAD (EU/FP6 IP 506958, Camarinha-Matos et al., 2005) there is a specific task focusing on the inheritance challenge. The work is still going on,

and it aims to the development of mechanisms and services supporting VO inheritance.

The main result of the VO operation is the created value (a product or a service) to the customer, and the main focus of VO management is to achieve this goal (ECOLEAD, D32.1). While creating the value for the customer, the VO additionally increases its knowledge and gains valuable experience, which can be used internally in the coming VOs, to improve the preparedness of the breeding environment (network). Further, if the VO has been successful, the references and reputation created in it can be used externally to convince new customers.

Thus in addition to the value created to the customer, the VO can create value also to the breeding environment. After the task has been fulfilled and the VO is dissolved, the increased knowledge and experience should be returned, “inherited” to the breeding environment (network).

Figure 1 presents the interaction between the VBE and VO: in the VO creation phase partners are selected to the specific VO and they bring with them their resources, knowledge, and capabilities. In addition, the VBE may hold common knowledge and preparedness assets, which may be used in the VO operation.

After the VO operation it is dissolved, the product/service is transferred to the customer and the common outcome of VO should be inherited to the VBE. A draft definition for VO inheritance is proposed:

VO inheritance is the practice of storing and passing on the experience and other non-proprietary assets created through collaboration in a VO.

Thus, VO inheritance increases the “bag of assets” of the VBE (ECOLEAD D21.4a, 2006). The term VBE asset is used here in a wide meaning: it includes all the elements that have potential to give value or benefit to the VBE or its single members when VOs are created from the VBE. This benefit may be realized by:

- Improving the preparedness of the VBE: VOs can be created faster.
- Making the VOs more effective both in time and costs, and improving or ensuring the quality.
- Increasing the value of the VBE for the members, for example by increasing their knowledge and market position.

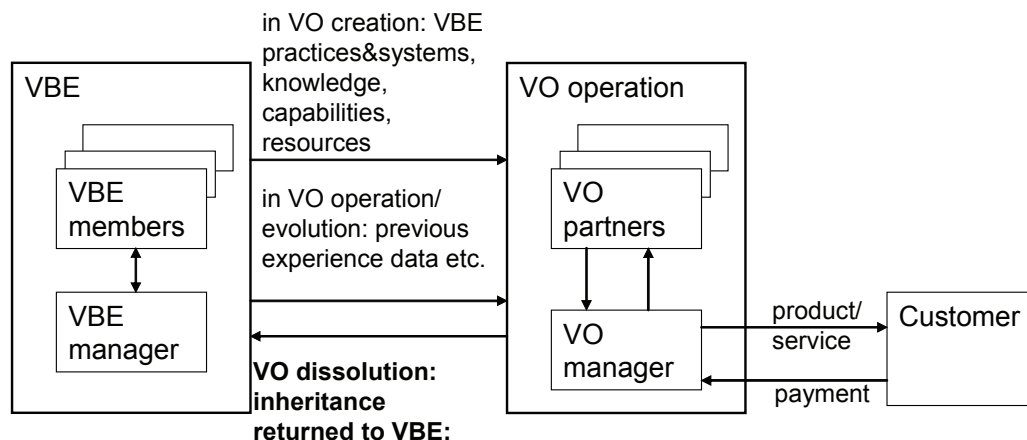
The contents of VO inheritance is analysed more in the next chapter.

IDENTIFICATION OF VO EXPERIENCE AND OTHER ASSETS

As stated before, VO inheritance includes the common assets created in the VO. These assets are not as concrete and visible as the product created to the customer, and thus often the VBE does not even become aware of their existence. To identify the potential common assets the following questions can be set up:

- What does the VO produce (in addition to the customer product?) How does the state of the VBE differ before and after the VO?

Figure 1. VO inheritance in the VO-VBE interaction (ECOLEAD D33.1, 2006)



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