

Virtual Organizations Management



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INTRODUCTION

While single-domain and application-specific “organized networks” are known and have been in use throughout history, the concept of virtual organizations (VO) as such is very young (Camarinha-Matos, Banahan, & Sousa, 2004). In addition, virtual organizations encompass a wide range of typologies in structure, topology, and time span, as well as life cycle coverage (Karvonen, Salkari, & Ollus, 2005). Even though specific categories of VOs are more and more understood (i.e. supply chains, extended enterprises and other types of networks) and systematically supported by dedicated methods and tools, the “management” of their activities in terms of fostering the coordinated target achievement is still in its beginnings. Hence the management of generic VOs is even less systematically researched, which in itself constitutes a major challenge.

It is important to note that VO management is about the management of business processes going over and across the VO members, it is not about the management of the constituent members themselves. VO management denotes the organization, allocation, and coordination of resources and their activities, as well as their interorganizational dependencies, to achieve the objectives of the VO within the required time, cost, and quality frame (ECOLEAD, 2005).

BACKGROUND

Collaboration in networks is continuously increasing. Consequently, the area of collaborative networked organizations (CNO) has received a lot of interest in both research and practical applications. Different approaches to the so-called e-business have been in focus. In Europe, the European Commission has supported over 40 projects within the Fifth Framework Programme under the concept of “smart organizations” (Filos, 2006). These considerable efforts have created a critical mass and good potential in both research and applications.

Several different important issues and aspects (e.g., legal issues, reference architectures, interoperability platforms, business functions, socioeconomic aspects) have been covered in previous projects but usually in a fragmented way with individual approaches. Some overview projects in the Fifth Framework Programme, like VOSTER (2006) and THINKcreative (2006), studied approximately 50 initiatives in the area. A common result was the concern about the lack of consolidated and holistic approaches. Another initiative, the virtual organizations roadmap project (VOMap, 2006), found that in most cases emerging collaborative networks are based on ad-hoc experiments. Companies and other stakeholders use the tools and technology available

on the markets to build up their solutions. ICT-related issues have been in the foreground. Management issues, including socio-organizational aspects, have received minimal attention. Consequently, the behavior of virtual organizations is not understood well enough and a solid theoretical basis to support developments in these areas is missing. When the basic concepts are not understood, it is difficult to develop support services for setup, operation, and disclosure of VOs.

The management of VOs is the focus of this article. The VO consists of independent organizations collaborating for a common goal. Towards the customers and the outer world, they are assumed to look and behave as though they were a single organization. This expectation does not necessarily mean that a VO can be managed like a single organization. Major obstacles come from the fact that the partners are independent, with their own internal aims and processes. Furthermore, the management means are not the same as in a single organization, nor does the manager of a VO have similar management means to a manager in a single company.

VIRTUAL ORGANIZATIONS MANAGEMENT

The major challenges for VO management (VOM), as stated in the introduction section, stem from two characteristics: the temporary nature of a VO and the distribution of operations in independent, but interdependent, organizations with their own aims, behavior, and culture. This means that the VO management must rely on coordination to reach the objectives of the VO:

- Without forcing power
- Through creating trust and considering risks
- While acting on incomplete information

To clarify the understanding of management in this context, the following presents some aspects of VOM in the form of questions and answers.

What is VOM? VOM is about the inter-organizational supervision, control, and coordination of the activities and resources in a VO. In addition to actions, VOM also includes predefined mechanisms and rules that affect the VO operation.

Why is VOM necessary? An adequate VOM facilitates the achievement of the goals of the VO within the required time, cost, quality, and other frames.

What are the enablers of VOM? VOM is normally enabled by a combination of human, organizational, and technological elements, which usually include knowledge, skills, mechanisms, and tools. Successful and cost-effective VOM requires preparedness of the underlying environment.

How does VOM affect the VO actors? VOM affects the VO operation by actions performed before the start of the VO: planning, definition of rules, mechanisms, contingency plans, and by actions performed during the VO operation, either reactively or proactively. The impact is motivated by short- and long-term benefits, penalties, or human interaction (values, feelings, etc.).

Who is responsible for carrying out VOM? The roles of the management and the structure, or organization, define the responsibilities related to VOM. Establishment of the management structure is the main task of VOM, and it changes depending on the environment and the nature of the tasks of the VO. In a self-organizing VO environment, there might not be a need for a specific manager. In other human-centered environments, the responsibility for the VOM is given to the VO managers who coordinate the activities according to agreed rules. Intentional acts and attitudes normally characterize the VO manager. Depending on the case (for example, VO size), different management roles may be needed, such as distinguishing between the administrative and technical management of the VO or defining specific roles for the VO broker, project manager, and VO auditor.

Where does VOM take place? VOM consists of actions, and there is not necessarily any physical or fixed place from where it is performed. Where the VOM takes place depends on the structure of the VOM as well as on the mobility of the persons participating in the VOM. Quite often, VOM may be partly distributed.

When does VOM occur? VOM occurs during the whole operation phase of the VO life cycle. VOM is activated in the VO creation phase and dissolved again in the dissolution phase. Thus, the lifetime of VOM may even be longer than the lifetime of the VO.

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