A benefit analysis model
for collaborative networks

A. Abreu, L. M. Camarinha-Matos

The identification and characterization of collaboration benefits is an important element for the wide adoption of the collaborative networks paradigm. In order to establish a basis for analysis of benefits in collaborative networks (related to the behavioral dimension in the ARCON reference model) this chapter introduces an approach for the analysis of benefits in collaborative processes for enterprise networks. The potential application of some suggested indicators and the emergence of a "collaborative spirit" based on the reciprocity mechanism derived from this analysis are also discussed in a VO breeding environment context.

1. INTRODUCTION

The sustainable development of collaborative networks requires a clear understanding of the potential benefits and their structure. Collaborative networks (CNs) are frequently referred to as a survival mechanism for organizations in face of turbulent markets due to the implicit agility of these organizational forms (Camarinha-Matos, Afsarmanesh, 2004).

However, it is also recognized that collaboration introduces high overheads due to the higher coordination costs, diversity of working methods and corporate culture, which induces higher transaction costs, loser control structures, etc (Williamson, 1985). Is the balance between the potential benefits and the increased overheads substantially positive? Literature in the field as well as a growing number of practical case studies seem to indicate that the answer is yes. It is however difficult to prove it. For instance, it is difficult to find some objective indicators in order to show to a small and medium enterprise that there are potential benefits in joining a collaborative network.

Furthermore it is not always easy to determine the contribution of each partner to value generation. For instance, in innovation projects the contribution of each partner to the value generation is not necessarily proportional to the involved resources.

In order to address this problem, the issue of performance measurement and benefit analysis in collaborative networks has been attracting attention (Seifert, Eschenbaecher, 2004) (Brewer, Speh, 2000). Being able to measure the performance of a collaborative network as a whole, as well as the performance of each of its singular members, could represent an important boosting element for the wide
acceptance of the paradigm. However performance indicators tailored to collaborative networks or even an adequate conceptual basis for benefit analysis are not available yet.

On the other hand, in CNs the continuous and repetitive interactions among partners make that the value benefits generated by a collaboration process is no more determined only by its tangible assets (given by products/services supplied), but also by its intangible assets (e.g. relationship value, or “social capital”).

In order to establish a basis for the analysis of benefits in collaborative networks, it is necessary to consider multiple aspects that can better be captured by a combination of soft and crisp modeling approaches. This chapter discusses the nature of collaborative benefits, and their role in the sustainability of a “collaborative spirit” based on the reciprocity mechanism. It also suggests some indicators focused on collaborative networks, and discusses their measurability.

2. BENEFITS CONCEPT

From the traditional literature on virtual enterprises / virtual organizations (Camarinha-Matos, Afsarmanesh, 2004), (Saiz, Rodriguez, Ortiz, 2005) a number of variables related to the identification of collaboration benefits have been suggested as illustrated in Fig. 1.

Table 1 shows, for each target goal, some examples of associated (intuitive) advantages of collaboration (Camarinha-Matos, Abreu, 2004).

Table 1– Examples of some advantages in CNs