Chapter 1.21
Classes of Collaborative Networks

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INTRODUCTION

A *collaborative network* (CN) is an alliance constituted by a variety of entities (e.g., organizations and people) that are largely autonomous, geographically distributed, and heterogeneous in terms of their operating environment, culture, social capital, and goals but that collaborate to better achieve common or compatible goals, and whose interactions are supported by computer network.

Some authors see the roots of this paradigm in early works of economists like Oliver Williamson in the 1970s. Along his vast work, Williamson established the study of transaction cost economics (Williamson, 1975) and defended that manufacturing firms should make much greater use of externally purchased goods and services, rather than those internally supplied. These ideas had a more evident impact with the booming of the "outsourcing" wave in the 1980s. Outsourcing became very attractive when managers had to reduce the organization overheads and eliminate the internal inefficient services, the so called lean organization, as it transfers the problem to the outside, namely to other efficient service providers. In this line of developments, the idea of virtual enterprise/virtual organization was not "invented" by a single researcher but rather it is a concept that has matured through a long evolution process. Some of the early references first introducing the terms like virtual company, virtual enterprise, or virtual corporation go back to the early 1990s, including the work of Jan Hopland, Nagel and Dove, and Davidow and Malone (Davidow & Malone, 1992; Introna, More, & Cushman, 1999; Walton & Whicker, 1996). Since then, a large but disjoint body of literature has been produced mainly in two communities: the information and communications technology (ICT) community and the management community.

TOWARD A TAXONOMY OF COLLABORATIVE NETWORKS

In today's society, collaborative networks manifest in a large variety of forms, including virtual organizations, virtual enterprises, dynamic supply chains, professional associations, industry clusters, professional virtual communities, collaborative virtual laboratories, and so forth. Several examples can be found in a synthesis work elaborated by the VOSTER project (Camarinha-Matos, Afsarmanesh, & Ollus, 2005).

Although not all, most forms of collaborative networks imply some kind of *organization* over the activities of their constituents, identifying roles for the participants, and some governance rules. Therefore, these can be called manifestations of *collaborative networked organizations* (CNOs) (Figure 1) (Camarinha-Matos & Afsarmanesh, 2005, 2006).

Other more spontaneous forms of collaboration in networks can also be foreseen. For instance, various *ad-hoc collaboration processes* (Figure 1) can take place in virtual communities, namely those that are not business oriented—for example, individual citizens contributions in case of a natural disaster, in which people or organizations may volunteer and come together hoping to improve the general aim, but there is no plan and/or organization how their activities should go.

COLLABORATIVE NETWORKED ORGANIZATIONS

Among the CNOs, some networks are goal-oriented where intense *collaboration* (towards a common goal) is practiced among their *partners*, as opposed to long term strategic alliances described below, where *cooperation* is practiced among their *members*.

Goal-oriented networks can be driven by continuous production/service provision activities or driven by the aim of grasping a single (collaboration) opportunity. The first case includes those networks that have a long-term duration and remain relatively stable for that duration with a clear definition of members' roles along the value chain. Typical examples are:

Figure 1. Examples of classes of collaborative networks