Chapter 5.7

Social Impact of Collaborative Services to Maintain Electronic Business Relationships

Stefan Klink
Universität Karlsruhe (TH) – Research University, Germany

Peter Weiß
FZI Research Center for Information Technology, Germany

ABSTRACT

This chapter looks at the impact and opportunities of semantic technologies and Web services to business relationships and how social Semantic Web techniques foster e-business and collaborative networks in many dimensions. For this the authors follow the vision to support collaborative services for business relationship management within semantic services. Based on a newly approach for business partner management with ontologies in large business communities, the chapter elaborates the conceptual framework for the design and implementation of collaborative services. The often postulated adaptiveness and intelligence of novel collaborative structures, foremost collaborative networks, require new approaches to deal with the increasing difficulty to cope with the resulting complexity of relational ties in communities and business networks. This research strives to leverage the capabilities to deal with large number of business relationships. The chapter formulates a vision based on three stages developing digital business ecosystems. Semantic Web technologies, mainly modelling business partner profiles (BPP) with ontology, combined with sound techniques of information retrieval and selected concepts and methods of social network analysis build the conceptual framework. On this basis, a newly approach is elaborated which offers support for communication processes and complex interactions of business entities in collaborative spaces.

INTRODUCTION

During the last decade, along with growing interest and increasing use of electronic networks, society, science and business have been affected by remarkable changes. Electronically networks have had a

tremendous impact on the every day and working life changing the way people interact, live and work. In our economy today, networking plays a crucial role in various application domains. Services are designed to support collaboration and networking among agents, whether humans or machines, in electronic networks.

Services are designed to overcome identified boundaries for Collaborative Networks (Martin-Flatin et al., 2006). The focus of this research is social ties between network entities. In electronic networks the linkages of entities (e.g., business partners, employees, experts, etc.) have to be supported by electronic services. Semantics, self-organization, security, trust and privacy, awareness and incentives are variables influencing the relational ties between units. However, linkages between agents require the right climate and conditions of a collaboration environment. This environment should provide opportunities for or constraints on individual action in a specific given context. These horizontal dimensions facilitate and catalyze the emergence of relational processes and structures to evolve.

This chapter claims that organisational structures with the asked abilities to self-manage, self-configure and self-optimise require besides the necessary culture, and "[…] semantic-informed self-organizing structures […]" (Camarinha-Matos et al., 2003, p. 8). Culture and structure are constituted in the collaboration and innovation environment and provides the "breeding environment" for establishing relational ties between agents (e.g., units, actors, etc.).

In this environment relational ties are to emerge between agents (e.g., units, actors, etc.). From a network perspective, linkages and related relational processes and structures are subject of analysis. The status of relational ties is either latent (passive) or evident (active). If made evident in a specific context given, they offer the channels for transfer or "flow" of resources (either material or nonmaterial). Our research aims at provisioning of a framework allowing to analyse and to con-

ceptualise structures in form of models as lasting patterns of emerging relationships among agents. Again the conditions and environment catalysing the emergence of relational processes and structures in the context of collaboration and innovation processes are looked into. The goal is to analyse related interactions at the level of individuals, teams (or groups), organisations, networks and communities (After Figure 1, see Figure 2).

The concept of semantically enriched business partner profiles and sound, proven techniques of information retrieval, data mining, and machine learning, respectively, are combined together to develop a collaborative service environment. Discovery, matching and trust services provide the field for further enhanced services and functionality in collaborative networks.

One of the challenging tasks analysing business networks is to propose the clearest possible view of network characteristics. The concept of network suggests the existence of nodes, which interplay in different patterns according to the network structure. In the future networks will be characterised by the ability to self-organise their shape and to adapt rapidly to changes in their direct environment as e.g. the change of market conditions or new developments in technology. In this chapter we look at the fundamental basis for the design, development and implementation of collaborative services for the efficient partner relationship management in dynamic business ecosystems.

The approach aims to extent existing b2b integration technology architectures. For this, Weiß (2005, 2007) developed a methodology ODAMY[1] transforming the metrics of an empirical model into an ontology based model. The conceptual framework is based on the KAON tool set and infrastructure (KAON 2003). KAON tool set allows iteratively checking at this early stage of development how the conceptual framework shall be used and implemented.

Our research concentrates on the extension of the centralised approach presented by Weiß

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