

# Chapter 7

## Semantic Social Network Analysis: A Concrete Case

**Guillaume Erétéo**  
*Orange Labs, France*

**Freddy Limpens**  
*EDELWEISS, INRIA Sophia-Antipolis, France*

**Fabien Gandon**  
*EDELWEISS, INRIA Sophia-Antipolis, France*

**Olivier Corby**  
*EDELWEISS, INRIA Sophia-Antipolis, France*

**Michel Buffa**  
*University of Nice Sophia Antipolis, France*

**Mylène Leitzelman**  
*University of Nice Sophia Antipolis, France*

**Peter Sander**  
*University of Nice Sophia Antipolis, France*

### ABSTRACT

*The World Wide Web has been evolving into a read-write medium permitting a high degree of interaction between participants, and social network analysis (SNA) seeks to understand this on-line social interaction, for example by identifying communities and sub-communities of users, important users, intermediaries between communities, etc. Semantic web techniques can explicitly model these interactions, but classical SNA methods have only been applied to these semantic representations without fully exploiting their rich expressiveness. The representation of social links can be further extended thanks to the semantic relationships found in the vocabularies (tags, folksonomies) shared by the members of these networks. These enriched representations of social networks, combined with a similar enrichment of the semantics of the meta-data attached to the shared resources, will allow the elaboration of*

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*shared knowledge graphs. In this chapter we present our approach to analyzing such semantic social networks and capturing collective intelligence from collaborative interactions to challenge requirements of Enterprise 2.0. Our tools and models have been tested on an anonymized dataset from Ipernity.com, one of the biggest French social web sites centered on multimedia sharing. This dataset contains over 60,000 users, around half a million declared relationships of three types, and millions of interactions (messages, comments on resources, etc.). We show that the enriched semantic web framework is particularly well-suited for representing online social networks, for identifying their key features and for predicting their evolution. Organizing huge quantity of socially produced information is necessary for a future acceptance of social applications in corporate contexts.*

## INTRODUCTION

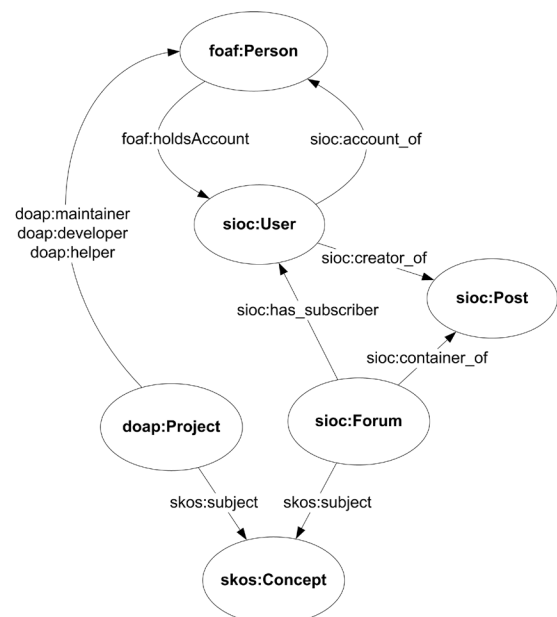
The web is now a major medium of communication in our society and, as the web is becoming more and more social, a huge amount of content is now collectively produced and widely shared online. Even early on, the social interactions on the web highlighted a social network structure (Wellman 1996), a phenomena dramatically amplified by web 2.0 which follows inexorably Metcalfe's Law<sup>1</sup> (Hendler and Golbeck 2008). Individuals and their activities are at the core of the web, along with all the easily-available social software and services, e.g., Delicious, Flickr, LinkedIn, Facebook. After the explosion of the "web of content" at the end of 90's, we are witnessing the outburst of the "web of people". Taken together, "we use people to find content whereas we use content to find people" (Morville 2004), and we need new means to investigate the relationship between people and content.

### New Challenges in Understanding Online Social Interactions: The Case of Business Intelligence Process

Today every organization is forced to anticipate opportunities and threats by detecting "weak signals", to look for value-added information and knowledge, and to integrate networks of experts into its domains of activity. In this context, structured and unstructured information from the

web has become a key factor of economic development and innovation. The competitiveness of firms is related to the adequacy of their decisions, which depends heavily on the quality of available information and their ability to capitalize, enrich and distribute this relevant information to people who will make the right decisions at the right moment. The Business Intelligence market is clearly bound to be seriously shaken up by the social and viral 2.0 revolution. As shown in Figure 1, it is already possible to organize (through mashups, open plugins and APIs) various free modules over

Figure 1. Tools that transform business intelligence process



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