Chapter 18
Semantic-Awareness for a Useful Digital Life

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ABSTRACT

In this book chapter the authors address two main challenges for building compelling social applications. In the first challenge they focus on the user by addressing the issue of building dynamic interaction profiles from the content they produce in a social system. Such profiles are key to find the best person to contact based on an information need. The second challenge presents their vision of “object-centered sociality”, which allows users to create spontaneous communities centered on a digital or physical object. In each case, proof-of-concept industrial prototypes show the potential impact of the concepts on the daily life of users. The main contribution of this chapter is the design of conceptual frameworks for helping users to take maximum advantage from their participation in online communities, either in the digital web ecosystem or real-life spontaneous communities.

INTRODUCTION

With Web 2.0 practices such as collaborative tagging, social networking and bookmarking, where users are able to easily generate content and make it immediately available for others, users were supposed to increase their social connectedness, as those practices related to content sharing allow them to be permanently aware of others’ activities, thoughts, plans and preoccupations. However, this participation requires effort, but there is rarely an added-value for users, as in current systems there is no seamless way to access content relevant to a specific information need. This often leads to
a phenomenon called “social network fatigue”,
i.e. the situation where users have lots of connec-
tions and thus lots of corresponding notifications
that are not relevant to their current information
needs (information overload). One possible con-
sequence is that users will not participate as much
as before in the life of the virtual community, as
the added-value is constantly low compared to
the effort needed to share interesting and quality
content with others. In order to avoid this issue,
and increase the motivation of users to be active
members of online communities, social applica-
tions should have the ability of better analyzing
social activities of users (in particular interactions),
in order to recommend them the right people or
communities at the right moment as information
providers for their current information needs.

In this book chapter, we aim at providing a
framework for the implementation of compel-
ling social applications, intended to facilitate the
access of users to the right information in real
time, depending on their current information
needs. Our approach is based on an analysis of
the constituents of online communities, namely
users and “objects” (i.e. user-generated content
or any resource) and to exploit each of them as
two directions to leverage the semantics of user
interactions within communities: (1) focusing
on the user constituent of communities, how
to better understand their interactions through
their social streams and recommend appropriate
people of the same community to interact with?
In order to do that, we propose to study how to
build dynamic user interaction profiles from user
content production and sharing; and (2) focusing
on the “objects”, how to build paths between the
communities these objects are creating, so that us-
ers can easily move cross different communities;
i.e. more specifically, how to use object-centered
sociality as a paradigm for user communication
making possible the interlinking of communities.

Thus, the next section introduces these two
pillars of social applications – users and objects.
Users are characterized by a profile, activities,
connections, whereas objects are characterized
by annotations that users put and that serve as
starting point for interactions between users. Then,
we explain how the need of awareness of people
interactions motivates the two challenges for social
applications we are addressing in this chapter:
first, discovering new connections based on the
semantic similarity of social awareness streams,
and second, enable seamless and dynamic links
between communities. The following section
introduces how to build dynamic user interaction
profiles. We present the specificities of dynamic
user interaction profiles compared to usual user
profiles, how to build such profiles from social
streams and how to use them to recommend the
best people to interact with in order to maximize
successful communications. We illustrate the
usefulness of such profiles through an application
called the “Social Adviser”. Then, we propose
to look at social networks through the angle
of objects. Therefore, we introduce and define
object-centered social networks (OCSN) and how
to make people participate in pertinent communi-
ties by the semantic interlinking of those kinds
of communities. This social network paradigm
is illustrated by an example of application, the
sBook. Finally, as conclusion we present a set
of remaining challenges to make this vision and
concepts real.

THE SOCIAL WEB ECOSYSTEM

In this section we present an upper-view of the
social web ecosystem. We first discuss online
communities and its main pillars. Finally, we
examine the nature of content productions in
these communities and corresponding challenges
to extract knowledge from it.

Online Communities

As mentioned before, online communities are the
building blocks of almost any social system. Com-