

Chapter 77

A Framework for Customer Knowledge Management based on Social Semantic Web: A Hotel Sector Approach

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ABSTRACT

Social websites contain a wealth of data that constitute new information sources to be integrated in Customer Knowledge Management (CKM) companies' initiatives. The hotel sector is strongly affected by the comments written in such sites. These comments often help guests decide whether making a reservation. Hotel managers need Information Systems to better explore customers knowledge from Social Web to support decision making. In this chapter, we propose a framework to integrate knowledge from Social Web to support CKM. This framework is supported by a strong CKM theoretical referential, principles of Social Web, and the core of Semantic Web, an ontology. This is a new multilingual ontology for the hotel sector. We are researching the hotel sector and analysing the actual use of emerging technologies in order to customize the framework proposed.

INTRODUCTION

This chapter is the result of a multidisciplinary effort from the Management and Computer Science areas aimed at integrating Customer Knowledge Management (CKM) and Web technologies,

namely Social Semantic Web (SSW). SSW can be defined as a research area, which combines technologies, strategies and methodologies from the Semantic Web and Social Web. These technologies present a promising method for improving

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the competitive advantage of organizations, such as those of hotel sector.

The hotel sector has grown rapidly in recent years. Organizations in this sector have adopted Customer Relationship Management (CRM) initiatives for establishing closer relationships with its customers. They can use knowledge about the customer's needs in order to improve organizational processes with Knowledge Management (KM) strategies. CKM is the combination of CRM and KM and can be seen as an organizational strategy that aims at managing knowledge about the customer. Customers have an active role as a knowledge partner in CKM. Considering the Web context, this active role is often expressed by comments in social sites. These comments are frequently found in the hotel and restaurant sectors and can be very useful. Such comments can be exploited in order to identify claims from customers and provide information for managerial decisions.

Comments on web sites are part of one of the most visible trends on the Web. This is referred to as Web 2.0 technology platform. The term Web 2.0 refers to a second-generation of Web-based communities and hosted services. Although the term suggests a new version of the Web, it does not refer to an update of the WWW technical specifications, but rather, to the structures and abstractions that have emerged on the top of the Web. It includes services and technologies like blogs, wikis, podcasts, Really Simple Syndication (RSS) feeds and social network sites.

According to Tim O'Reilly (2006), Web 2.0 is a business revolution in the computer industry caused by the move on Internet technology as a platform, and an attempt to understand rules for success on that new platform. A property of Web 2.0 technologies is that they facilitate collaboration and sharing between users. These collaborative aspects can be referred to as the Social Web. The term "Social Web" has been used to describe a subset of web interactions that are social, conversational and participatory. The term Social Web

may be used instead of Web 2.0 as it is clearer what features of Web 2.0 are being referred to.

The rapid growth of the Social Web and the increasing use of social networks have created a huge knowledge base which is essentially unstructured and multilingual. However, this knowledge is only legible by humans and automatic processing is very limited. The Semantic Web uses ontologies to structure knowledge. Ontologies properly represent the set of concepts (i.e. the vocabulary) of the knowledge in a domain. Using ontologies for annotation of comments enables managers to locate specific comments related to particular ontology concepts. For instance, all comments about the hotel services, such as "The hotel does not offer free Internet.", can be identified as the "Internet service" concept in the ontology.

Conceptually, Social Web and Semantic Web are orthogonal areas. Social Web was created for humans with unstructured data (i.e. using natural language or free tagging). Semantic Web was created for machines using formally structured data. The problem arises when KM and CRM applications need to use data from both areas (e.g., How the Social Web and Semantic Web approaches can be combined in a synergetic way?).

Hotel information systems using Social Web data are rare. For instance, most hotels forms rarely contain fields for guests fill out their "user id" on Twitter. Guests can post comments about their experience while staying in a hotel on Twitter or other social web sites as well as in hotel review sites. A problem for hotel managers is to find where guests publish on the web and how to collect this data then transform it into useful knowledge for the business. Another of the main concerns for Hotel managers is how to process the huge volume of information available on social sites. The challenge is making this information useful for both managers and machines.

Managers would like to know the quality of the breakfast, whether the room service was satisfactory or if the hotel is well located from a customers' point of view. Guests' comments

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