SERREA: A Semantic Management System for Retail Real Estate Agencies

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ABSTRACT

In the scenario of market competition in the Retail Real Estate Agencies (RREA) business, having exact information regarding properties in supply and their associated demand is a differentiating factor for organizations. The Semantic Web represents an opportunity to create extensible services that hold precise information concerning these types of markets. The objective of the current initiative is to use this market data as a competitive advantage for organizations. In this article, the authors propose SERREA, a management system for RREA based on semantics and constructed using Web Services, which has been implemented successfully in one of the leading agencies in Spain. The goal of this paper is to show how RREA benefits from using Semantic Technologies in the context of their business operations.

Keywords: Customer Relationship Management, Geographic Information Systems, Retail Real Estate, Semantics, SERREA

INTRODUCTION

The importance of Information Systems (IS) in different domains in today’s society is without doubt. Moreover, according to Targowski (2009) Web technology is key solution for the provision of e-Service systems. In the domain of Real Estate, the importance of technology has been emphasized by numerous authors since the 1990s (e.g., Weber, 1990; Fung et al., 1995; Rodriguez et al., 1995; Bible & Hsieh, 1996; Pace & Gilley, 1997), a trend which continued during the 21st century (Crowston et al., 2001; Fryrear et al., 2001; Zeng & Zhou, 2001; Kummerow & Lun, 2005; Pagourtzi et al., 2006; Krol et al., 2008).

Turban et al. (2003) present several advantages for the use of Information Technology (IT) in Real Estate, such as saving time for the client and the broker, and improving the organization of properties according to criteria, facilitating the search process. According to Crowston et al. (2001), Real Estate is an information-intensive business. Agents, who are pure market-inter-
mediaries, connect buyers to sellers and do so through control and dissemination of information, being particularly vulnerable to changes in the availability of such information.

In a general sense, according to Kummerow and Lun (2005), a Real Estate Agency entails brokerage - bringing together buyers and sellers (sales and leasing). Thus, retail real estate may be referred to as the activity responsible for successfully performing the management of retail stores, in the context of sales and leasing. Examining the work of Q4 in 2008 by Cushman and Wakefield (2008), the demand for retail, particularly in prime locations, continues to be active in various countries (Austria, Greece, France, Germany), while in others (Italy, Portugal, Spain) investment is in a period of “wait and see”, given that the profitability of prime shopping centers is about 6%.

In this scenario, in spite of the global economic situation, which has decelerated growth, RRE continues to be an attractive area for investment and technological development, and also is presenting a dramatic increase in its interactions with new technological artifacts, known as highly specialized service systems (Spohrer & Kwan, 2009). This paper presents SERREA, a platform for RREA support designed using semantic technology for the definition of the characteristics of retail stores. The application, which has been developed to act as support to the service which a particular RREA offer, enables them to provide an improved service using a set of leading technologies, including semantics. This application is different from other RREA solutions. Many of the features of the application are similar (search, locate…), but semantics brings a well defined meaning, that in words of Berners-Lee, Hendler and Lassila (2001) can “enable computers and people to work in co-operation better”. In other words, semantics and ontologies can bring new features to service sector: better integration of services and improved cooperation among organizations. The aim of this paper is twofold. On the one hand, to introduce SERREA as a novel and promising solution that supports RREA business process using semantic technologies and, on the other hand, by means of the application of a questionnaire, to show results of its implementation in a particular RREA.

The remainder of the paper is organized as follows. The next section defines the state of the art in semantics, semantic information systems and their use in the RREAs environment. This is followed by a description of SERREA, detailing its architecture and implementation. Subsequently, the paper provides a case study of this implementation in a Spanish RREA. Next section analyzes the results of the evaluation of the tool. Lastly, the paper presents the principal conclusions and future work of the study.

STATE OF THE ART

The platform presented in the current work integrates two types of technologies, or more specifically, two distinct IT philosophies. In the first place, it incorporates the vision of the Semantic Web for the annotation and efficient use of the information which characterize the different retail stores. In the second place, the platform benefits from the technology provided by Web Services to equip the system developed with extensible features.

The arrival of the Semantic Web represents a revolution for the form of access and storage of information. The term “Semantic Web” was coined by Berners-Lee, Hendler, and Lassila (2001), to describe the evolution from a document-based web towards a new paradigm that includes data and information for computers to manipulate. The Semantic Web enables automated information access based on machine-processable semantics of data. The Semantic Web was defined by these authors as “an extension of the current web in which information is given well defined meaning,” and can “enable computers and people to work in co-operation better”. The Semantic Web provides a complementary vision as a knowledge management environment (Warren, 2006) that, in many cases has expanded and replaced previous knowledge and information.