Preface

The ever-growing influence of the Internet in everyday life has implied a paradigm shift in the relations between customers and companies. New ways of interaction and connection, that overcome the Web 1.0, have undergone a dramatic change in quantity and quality of Web communications with the advent of the so-called Web 2.0, the Social Web (Murugesan, 2007). The major development of the 21st century, according to Ganesan et al. (2009), has been the widespread availability of social-type technologies among customers, first on computers but now on smartphones. In the last few years, there has been an increasing focus on social software applications and services as a result of the rapid development of Web 2.0 concepts (Chatti, Jarke & Frosch-Wilke, 2007). To get advantage from these technologies, organizations must adapt to this new scenario by considering the management, organizational, and technological perspectives. The potential of using Web 2.0 technologies appears to be being gradually realized through adoption (Du & Wagner, 2006). Moreover, the advantages of “Web 2.0” have increased the interest of companies as a way to obtain benefits from this technology (Ferreira, 2010).

Thus, according to Bughin (2008), Web 2.0 technologies are invading the corporate sphere. Recently, Bughin, and Chui (2010) stated that a new class of company is emerging—one that uses collaborative Web 2.0 technologies intensively to connect the internal efforts of employees to reach customers, partners, and suppliers. These issues are receiving very much attention not only by practitioners and organizations but also by scholars, who are investigating how organizations and businesses may benefit from using Web technologies and social needs to create well established social networks and communities around firms, groups, or causes.

Customer Relationship Management (CRM), as a part of the enterprise, has also changed. Thus, the traditional paradigm of CRM has evolved with the emergence of new forms of interaction (García-Crespo et al., 2010). Thomas and Sullivan (2005) pointed out that CRM requires the company to manage and coordinate communications with customers across different media. In this sense, the Internet is one of the leading channels today for companies to communicate and connect with customers. Now companies are in search for alternative ways to relate with customers than the traditional CRM applications and social software open up a new horizon for companies to engage in a more exciting and meaningful relationship with customers (Zhang, 2011).

The Web 2.0 is becoming more and more used by both companies and clients alike (Vargo & Lusch, 2004). This new Web offers limitless opportunities for companies to engage their customers (Eikelmann, Haji, & Peterson, 2008). Moreover, new professions such as the online community manager have emerged recently. While the role has existed since online systems first began offering features and functions that allowed for community creation, only recently it has been recognized as a separate job position. Online community managers usually have the collective vision, generate and manage relationships in order to
build, grow, and manage communities around a brand, firm, or cause. (Anklam, 2007). The importance of online communities for CRM is not superficial. According to Weinberg and Pehlivan (2011), this type of social media would be well-suited for customer relationship management tools, and facilitating the establishment and maintenance of relationships between consumers and organizations/brands/products. Moreover, the knowledge gained on customer behaviour, attitudes and mood will help drive benefits throughout the value chain, impacting on suppliers and intermediaries (Woodcock, Green & Starkey, 2011). However, and in spite that both CRM and Web 2.0 have been researched broadly in the past years, but their successful combination, which we call social CRM, is not fully explored (Faase, Helms & Spruit, 2011).

When we talk about the development of the Web and where we stand today, we stumble across two main buzzwords: the Web 2.0 and the Semantic Web (Lux & Dössinger, 2007). The upcoming Web 3.0, called the Semantic Web, will also transform how companies understand CRM. With the rise of semantic technologies, more and more information gets enriched with metadata. This semantic metadata brings the possibility of processing this information in an automatic way. As CRM is about data and its analysis, now, CRM faces the challenge of integrating the Web 2.0 with its huge amounts of data, and the Web 3.0, with its intrinsic capability of data processing. Not in vain, industry has also begun Semantic Web developments with interest and a number of large companies have started to experiment with Semantic Web technologies to ascertain if these new technologies can be leveraged to add more value for their customers or internally within the company, while there are already several offers of vendors of Semantic Web solutions on the market (Breslin et al., 2010).

The main objective of this book is to provide an overview of the field of the Semantic Web, social Web, and CRM by bringing together various research studies from different subfields. In addition, this book seeks to provide evidence about the increasing influence of the social and Semantic Web within the CRM environments. To achieve these objectives, a broad inter-disciplinary contribution to the literature in this area is accomplished in the form of eighteen book chapters, treating various issues around the topic of the book the Semantic Web, the social Web, and CRM.

A summary of the book structure is depicted in the following lines.

Chapter one, titled “Semantic Technologies in Motion: From Factories Control to Customer Relationship Management,” by Colomo-Palacios, provides an overview of the use of semantic technologies in several application domains, namely: construction & real estate, customer relationship management, e-government, e-learning, environmental sciences, health domain, human resource management, Information Technology, manufacturing, media and tourism, and cultural heritage. More than one hundred references are provided to support the idea that semantic technologies are applicable to almost all areas these areas of interest, and the chapter addresses several challenges that arise from these fields.

Chapter two, titled “Knowledge-Driven Customer Support Services: A Socio-Engineering Approach,” by Aviv, Levy, and Hadar, presents a CRM solution integrating knowledge management and social Web 2.0 applications. The proposed CRM solution is based on a research case study conducted within a customer service department of a large software organization. This knowledge-driven customer support services solution is expected to enhance organizational efficiency.

Chapter three titled “Improving CRM 2.0 through Collective Intelligence by Using CBIR Algorithms,” by Perez-Gallardo, Alor-Hernandez, and Cortes-Robles, covers the two main elements of a CRM: the technological platform and social features. The chapter introduces an overview of different content based images retrieval algorithms, with the aim of developing Web 2.0 applications for improving CRM 2.0 by using collective intelligence. The use of these techniques can be valuable to organizations that sell products on the Internet.
Chapter four, titled “Semantic Web Applications to Enhance the Market Opportunities of SMEs: The Case of NeP4B,” by Morandi and Sgobbi, explores the contribution of Semantic Web technologies to SMEs. More specifically, the chapter explores the benefits and the challenges of NeP4B, an Information Technology architecture based on Semantic Web, developed by a pool of Italian research centres, as a means to enable and reinforce cooperation among smaller firms. Change management and innovation are found to play a key role in driving the success of Semantic Web applications.

Chapter five, titled “CRM for Innovation in European Companies,” by López-Nicolás and Molina-Castillo, analyzes the implementation of CRM and its influence on a firm’s ability for innovation. A theoretical model is proposed after a broad literature review on the CRM and innovation topics. Results from a sample of European companies prove that CRM is beneficial for innovation in many countries, although results were mixed for other countries. These chapter’s findings have important implications in assisting organizations in their CRM initiatives for managing customer knowledge and enhancing innovation.

Chapter six, titled “CRM 2.0 and E-Government: Challenges for Public Administration and Social Effects,” by Pérez González and Solana González, explains how public administrations and governments can make use of CRM together with the Web 2.0. In this sense, the authors analyze how CRM can be integrated with the Web 2.0, creating what might be called CRM 2.0 and how governments can make use of CRM 2.0 to optimize their work processes and improve their services. Several benefits related to this mixture are presented along the chapter.

Chapter seven, titled “Exploiting Systematically Web 2.0 Social Media in Government for Extending Communication with Citizens,” by Charalabidis, Kleinfeld, Loukis, and Steglich, contributes to the literature on Web 2.0 social media through presenting a methodology for the systematic and centrally managed exploitation of Web 2.0 social media by government agencies to extend their communications with citizens. The two basic critical success factors of this proposed methodology, interoperability with Web 2.0 social media and composition of their users’ base, are discussed.

Chapter eight, titled “Customer Relationship Management (CRM) Implementation Intensity and Performance: A Study of Web-Hosting Companies,” by Liew, Ramayah, and Leen, focuses on competition in the Web-hosting industry, which has become very intense in recent years as the market becomes saturated with existing as well as new players. More specifically, the chapter assesses the effect of CRM implementation intensity on CRM performance among Web-hosting companies. Data was collected via online questionnaires from 81 respondents representing various online Web-hosting companies around the globe. Results indicated that CRM implementation intensity had a direct positive influence on CRM performance.

Chapter nine, titled “A Framework for Customer Knowledge Management based on Social Semantic Web: A Hotel Sector Approach,” by Chaves, Trojahn, and Pedron, analyses the use of the social Semantic Web within the hotel industry. The chapter centers on how customer knowledge management and the Web 2.0 can help the hotel industry. In this sense, a framework to integrate knowledge from Social Web to support customer knowledge management is introduced.

Chapter ten, titled “Partner Relationship Management: Semantic Extension of CRM Systems for the Partner Searching and Management in R&D Environments,” by Jiménez-López, Ruano-Mayoral, Fernández-González, and Cabezas-Isla, investigates on the use of CRM systems and semantic technologies to address partner searching and management challenges in the research and development projects. This chapter introduces an architecture, especially suitable for small and medium enterprises, which integrates research and development processes with the CRM philosophy.
Chapter eleven, titled “Sales Force Automation Usage and Performance,” by Lee, Mohamad, Ramayah, and Ching, examines the relationships between sales force automation usage and sales performance. The chapter adopts the technology adoption model perspective and collects from 150 IT salespersons. Findings from data analysis confirm the significant role of appropriate sales force automation usage in enhancing the performance of sales personnel in the IT industry. The study also provides interesting implications and suggestions for future research on sales force automation.

Chapter twelve, titled “Database Marketing Process Supported by Ontologies: An Oil Company Distribution Network Case Study,” by Pinto, describes a research of an ontological approach for leveraging the semantic content of ontologies to improve knowledge discovery in databases. The authors analyze how ontologies and knowledge discovery process may interoperate and present an effort to bridge the two fields, that is, how knowledge discovery in databases and ontology learning may be used for successful database usage projects. A case study conducted on an oil company support the conclusions.

Chapter thirteen, titled “Exploding Web 3.0 and Web 2.0 for Sales Processes Definition,” by López-Cuadrado, González-Carrasco, García-Crespo, and Ruiz-Mezuea, explores the use of introducing Web 2.0 and Web 3.0 technologies within CRM initiatives and the effects on sale processes communications. The chapter introduces the main trends and implications of these technologies and proposes a new architecture that facilitates the communications between customers and sales experts. The proposed framework intends to automate sales processes through collaborative knowledge representation.

Chapter fourteen, titled “Sentiment Analysis in Business Intelligence: A Survey,” by Plaza and Carrillo de Albornoz, focuses on the application of sentiment analysis, a novel and broad area of natural language processing, to automatically evaluate online products and services reviews. The chapter argues that, since online opinions clearly influence the companies’ reputation, sentiment analysis is expected to become a key component of CRM solutions. In this sense, it presents the main ideas of sentiment analysis and its practical applications in business intelligence, discussing the approaches and techniques used so far and the resources most widely used in the development of sentiment-driven systems.

Chapter fifteen, titled “A Framework for Designing Recommender System for Consumers Using Distributed Data Clustering,” by Gorgónio, Neto, and Silva, focuses on Web recommender systems, the new way a number of consumers are using the Internet to find information about the quality of products and services, which permits to compare features of similar products. This chapter proposes a framework for designing Web recommender systems that combines a meta-search engine and a data clustering strategy for product evaluation, enabling to help consumers to decide which products should be chosen.

Chapter sixteen, titled “Social Network Analysis in Marketing,” by Kazienko, Doskocz, and Kajdanowicz, focuses on social network analysis methods to acquire new customers. The chapter describes a method how to perform a classification task without any demographic features and based only on the social network data. The concept of such collective classification facilitates to identify potential customers by means of services used or products purchased by the current customers, i.e. classes they belong to, as well as using social relationships between the known and potential customers. As a result, a personalized offer can be prepared for the new clients. This innovative marketing method can boost targeted marketing campaigns.

Chapter seventeen, titled “Applying Semantic Web Technologies to Meet the Relevance Challenge of Customer Relationship Management for the U.S. Academic Libraries in the 21st Century Using 121 e-Agent Framework,” by Yang and Xu, introduces a conceptual model, the 121 e-Agent Framework, for CRM in academic libraries. The set of Semantic Web standards and technologies proposed enable U.S. academic libraries to reach out to their user communities through systematic customer group iden-
tification, differentiation, interaction, and customization by building a linked data layer that is deeply interwoven into the Semantic Web space. In this space, social networking and collaboration meet the Semantic Web infrastructure with trust management, in addition to existing and future Web collections and services provided by the participating academic libraries in the U.S.

Chapter eighteen, titled “The Use of Customer Relationship Management Software in Meta-Enterprises for Virtual Enterprise Integration,” by Cruz-Cunha, Putnik, and Varajão, focuses on the virtual enterprise topic. The virtual enterprise is comprised of several meta-enterprises. These firms need to use broker and computer-aided tools to manage, control and enable the virtual enterprise creation, operation, and reconfiguration. The paper present the virtual enterprise model, which focuses on one specific meta-enterprise environment, called the market of resources, that incorporates the use of CRM.

Cliens Conexus is as an adaptation of the Homo Conexus term coined by Fallows (2006). This new term refers to a customer that uses technology and the social Web to express clearly their preferences. Thus, let’s learn how to listen to them. Let’s work out how to understand them. Let’s know our customers better.

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