

On-Demand Online Real Estate Information System

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ABSTRACT

Internet is helping change the structure of the residential real estate industry by offering new services in the system aiming to enhance the facilities provided to the user. This would enhance the demand chain management. The first purpose of this paper is to illustrate these changes by specifying the functional components of the demand chain management system for online real estate. The author uses a formal specification language to model the interaction between the online real estate management system, the new entities and the other actors. The proposed online real estate management system includes advanced modules that can be bundled together, creating differentiation and enhancing the value chain. The second objective is to propose a simplified implementation architecture for an integrated demand and supply chain management system for online real estate services. The author chose an open source Customer Relationship Management system as a platform to manage some of the online real estate modules. Other value-added modules are integrated from third-party providers using their open interfaces.

Keyword: Application Programming Interface (API), Change, Customer Relationship Management (CRM), Internet, Model, Real Estate, System, Unified Modeling Language (UML)

INTRODUCTION

The real estate industry became a news topic because of the 2008 crisis in this industry. Consequently the real estate companies try to optimize their activities and services. The internet is an excellent vehicle for creating and capturing value and it has a tremendous impact on the industry.

Real estate is an information-intensive business. Agents connect buyers to sellers through control and dissemination of information (e.g., via the Multiple Listing Service, MLS). Agents have valued information skills that they bring to make both listing and sales. Since houses

are expensive, not easily describable and infrequently bought or sold, most people still feel the need for assistance with this transaction from a professional. As well, these are all factors that tend to keep the transactions costs high.

Nowadays, buyers and sellers can use the Internet to list and search for houses, potentially by-passing traditional real-estate agents. Thus, the mediating role of real estate agents have been reduced or eliminated because the Internet permits the buyer and seller to manage their relationship directly.

The growth of real estate commerce on the internet and the number of new sites providing real estate tools and information has also

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affected both real estate practices and the roles of industry players. As a result, changes in this industry will have significant impact on the interaction between the real estate system and the real estate entities.

Also, the rapid development of the internet, especially web-based information transfer between companies, their suppliers, their customers, and various service providers, has improved information management in supply chains (Johnson & Whang, 2002).

Supply management has focused on moving products and services downstream towards the customer. Demand chain management changes the emphasis towards 'customization', responding to product and service opportunities offered by specific customers or customer groups sharing particular characteristics.

The markets have become much more volatile, and under such conditions the old assumptions are not always valid. (Gattorna, 2010; Christopher & Holweg, 2011; Harrington et al., 2011; Ericsson, 2011a) argue for a critical review and reinvention of current supply chain models.

Gattorna (2010) stresses that people and their behavior, and not technology, is driving the development of supply chains. Several areas of human activity along the supply chains must be examined and treated as social, economic and behavioral systems (Ericsson, 2011a).

The secret of designing superior supply chains is to start by re-segmenting customers along behavioral lines and then reverse engineer from there (Gattorna, 2010). The segmentation of customers together with product service and process differentiation to fit the segments are fundamental concepts in marketing. However, the use of marketing knowledge to guide the development of differentiated supply chains has not been overwhelming.

Juttner et al. (2010) discuss a strategic integration framework that captures the integration between marketing and supply chain strategies at the business unit level. It also supports the notion that marketing and supply chain strategy integration contributes to the effectiveness of business strategies in the whole network.

Frohlich and Westbrook (2002) introduce four web-based demand and supply integration strategies that describe the extent to which companies are using the Internet in integration with their suppliers or customers.

Taylor (2000) studied the effect of demand amplification in the supply chain and proposes a 7 step process approach to eliminate it.

The value driven operations model is the combination of business processes, management systems, organization structure and culture that makes it possible to deliver the value offer.

The operations model can be designed and developed in the way described by Ericsson (2011a).

Gartner comes very close to the DCM philosophy in the definition of a demand -driven value chain as "A system of technologies and processes that senses and responds to real-time demand signals across a supply network of customers, suppliers and employees" (Gartner, 2011).

Ericsson (2011a) creates a distinctive competence for the chain as a whole that helps to identify and satisfy customer needs and wishes. Ericsson (2011b) presents one practical approach to implement the theories put forth by (Ericsson, 2011a).

Christopher (2000) discusses the concept of agility and identifies the four characteristics of an agile supply chain that includes market sensitivity as it relates to demand chain.

Georgiadis et al. (2001) describe the design and the implementation of a demand driven freight transport application, concentrating mainly on IT system architecture of the solution.

Childerhouse et al. (2002) proposed six steps methodological framework to develop focused demand chain strategy for each cluster of products commercialized by a company.

Ayers and Malmberg (2002) develop a four stages maturity model to show key enablers of supply chain improvement. Both for supply chain organization and demand chain supply chain.

Harrison (2003) proposes a framework to match supply chain strategies with product

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