

An Architecture Proposal for the Prosumerized Enterprise

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ABSTRACT

The prosumer movement has made a great impact in different areas of the consumer goods industry and provides new market opportunities for both individuals and companies. The following article investigates the implications of the prosumer movement taking the perspective of companies. Examples from different industries are provided which incorporate different aspects of the prosumer movement. Based on this, requirements are derived for an IT-enabled, “prosumerized” enterprise and a draft of such an enterprise architecture is outlined.

Categories and Subject Descriptors

H.4 [Information Systems Applications]: General

General Terms

Management, Measurement, Economics, Human Factors, Theory

Keywords

Prosumer architecture, Business model, User-centered

1. TOWARDS A PROSUMER SOCIETY

The last few years have seen an increasing focus on the demand view: Service orientation, customer orientation and user centricity have amongst others supported a paradigm shift towards the consumer. These developments are in line with the concept of prosumers also known as “power users” that show an increased degree of interaction with product or services and that can even be producers of products or services. This paper will present research in progress about the prosumer movement, its generic characteristics and its impact on business information systems. Furthermore, a preliminary design for a prosumer-oriented architecture will be presented.

2. CHARACTERIZING THE PROSUMER

The term “prosumer” coined by the novelist Alvin Toffler has been often referenced in business-related and IT related contexts. A “Prosumer” describes a consumer and producer at the same

time. By actively contributing to the requirements development, the customers actually become part of the value creation process [7]. Prosumers also demonstrate an increased degree of interaction with products or services [6]. The prosumers strive for highly individualized products and services, that fit to their specific expectations, abilities and needs [8][5]. End-user development for enterprise resource planning systems propagates customer-driven DIY customization [3]. In the following examples from industry are presented.

eGovernment: Here, prosumerization can be described as users (citizens or businesses) not only consuming public services, but also being actively involved in producing content in relation to public service provision. [1].

Insurance sector: Mainstream insurance products will be dynamic and provide more consistent performance. As a result, customer service must go beyond the traditional feedback channels since in a user-centric approach a lot of high-quality customer feedback is crucial. Therefore, a multi-channel customer service, i.e. many communication channels with high-quality communication possibilities, is necessary to have valuable feedback.[2]

Telecommunication: UGC (user-generated content) technologies and services emphasizes the user as the content creator at the point of inspiration. Current smartphones offer functionalities to capture the context and thus enable mobile users to create content on-the-go. Furthermore, several sites, such as Facebook, Twitter, etc. are providing huge amounts of user-created content. [4] describes these sites as prosumer sites.

3. A PROSUMER ARCHITECTURE

3.1 Requirements Synthesis

Requirement 1 – Implicit and explicit prosumer feedback should be considered.

Requirement 2 – Enterprise IT must be able to react on any customer feedback in real-time.

Requirement 2.1 – Feedback processing should have an impact on business models.

Requirement 2.2 – Feedback should have a direct impact on business process management.

Requirement 2.3 – Feedback should result in an instantaneous information delivery to the prosumer.

Requirement 3 – Feedback should be carried out via many different communication / feedback channels.

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Requirement 4 – Not only direct interactions with the producer and its services should be taken into account, but also external information sources.

3.2 Architecture Draft

The above collected requirements result in a draft of IT architecture for the “prosumerized” enterprise (see figure 1)

The most important factor are the communication channels used for communicating with the prosumer. Every type of feedback needs to be monitored. Furthermore, the company can use this data to provide the consumer with individually customized recommendations or advertisements. In addition, the company can adapt the business model, e.g. via changing the pricing policy or using new sales channels. The company is also able to provide business intelligence for the prosumer, which is of particular interest for prosumers, since they don't have the infrastructure to do it themselves.

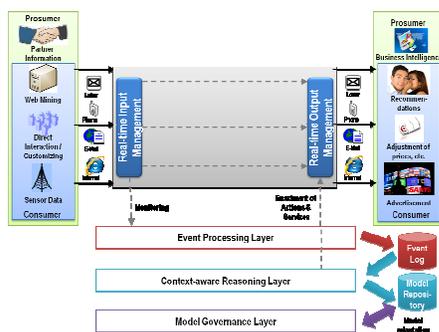


Figure 1: IT Architecture for the Prosumer Enterprise

Internally, the business processes are not directly affected, since initially all events are monitored and processed. Individual events do not necessarily trigger a business process. For instance, in terms of sensor data individual sensor events need to be aggregated first in terms of a *Complex Event Processing* to be able to derive information about the situation. The *Event Processing Layer* is responsible for this task and saves the aggregated events in the *Event Log*. The *Context-Aware Reasoning Layer* connects the events from the *Event Log* with enterprise models from the *Model Repository*. The *Model Repository* contains business process and business models of the enterprise as well as models of the components of the products or services. Via semantic reasoning the impact of the events on the models in the *Model Repository* is analysed. This enables on the one hand personalized and targeted recommendations and advertisement, on the other the provision of business intelligence functionalities for the prosumer. Statistical analysis in combination with community-driven ontology management approaches help to identify new concepts and relationships from the collected data. Based on that, adaptations of business models and business processes are conducted in the *Model Governance Layer*. Hence, the company can align its business models as well as its business processes with the requirements of the consumer and prosumer from an internal point of view.

The demand for the inclusion of explicit and implicit feedback results in a consideration of direct interaction (for explicit feedback on the product or service), product- or service-related feedback (usage data from sensors or service platforms, or third

parties) and external information sources. Traditional components such as input management and output management must be able to process this feedback in real-time (s. requirements 1 and 2).

Unlike traditional data warehousing scenarios, these data are not merely collected for the later use in OLAP operations. Their impact is being directly analyzed for business models, business processes and also feedback for the prosumer (s. also requirements 2.1 to 2.3). The information for requirement 2.3 should be propagated through the same variety of channels (s. also requirement 3), as the input is used, in order to reach a maximum number of users. The warehousing of external information sources (such as product rating websites, social networks, etc.) is crucial to get as much feedback about the products and services as possible (s. requirement 4).

4. CONCLUSION AND OUTLOOK

This paper has discussed the impact of the prosumer concept on business and business information systems. A literature review revealed the most important characteristics and intentions of a prosumer, and surveyed how this approach challenges current thinking in various application domains. An architecture proposal has been designed according to characteristics extracted from a thorough literature review of different application domains that already adopt the prosumer approach. Especially the semantic mediation of feedback events and their application to business model and business process evolution will be crucial for prosumer-centric dynamic and evolving business environments.

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