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# Business Models for the Implementation of Mediating Electronic Product Catalogs

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## Abstract

*Despite the rapidly growing number of companies that present their products on the Internet a global search for products and comparative analysis of their respective features and attributes is impeded by semantic differences between the catalogs offered. Over the last years a few approaches to electronic product catalogs have emerged that specifically try to deal with the problems of semantic heterogeneity of product specifications. For the practical application of these technologies three basic types of business models can be identified enabling a wide variety of business scenarios ranging from the support of purchasing and sales operations to the streamlining and optimization of sourcing processes of resellers and large organizations.*

## Introduction

The success of electronic markets and new electronic distribution channels depends largely on the creation of added value compared to established traditional distribution channels. In the last few years much research and development effort has been focused on the settlement phase of electronic market transactions while the degree to which the potential of the new electronic medium has been exploited at the stage of product identification and evaluation remains rather rudimentary. Most electronic product catalog systems available today are proprietary structures that lack interoperability and cross navigation. Despite the rapidly growing number of companies that present their products on the Internet a global search for products and comparative analysis of their respective features and attributes is impeded by semantic differences between the product catalogs. Thus, even though buyers enjoy broad access to different vendors' product specifications and can easily retrieve product information from all over the world, integration and evaluation of product information still has to be performed manually. These impediments have considerably slowed down the adoption of the Internet as a distribution channel especially for more complex goods.

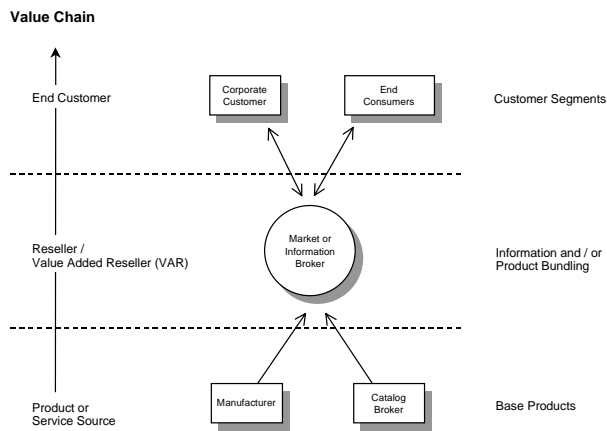
Over the last years a few approaches to electronic product catalogs have emerged that specifically try to solve the problems associated with the semantic heterogeneity of product specifications. What all these interoperable catalog technologies have in common is that they employ a broker architecture which provides translation and mapping mechanisms between divergent taxonomies to enable the consistent integration of heterogeneous product databases. Fundamental differences exist mainly in the specific mechanisms employed. A Mediating Electronic Product Catalog (MEPC) [1] [2] system takes a pure bottom-up approach towards catalog integration thereby ensuring full autonomy of participating vendors and the organizational scalability of the overall system. The concept of Smart and Virtual Catalogs [3] on the other hand follows a partial top-down approach requiring all participating catalog providers to agree on a set of base ontologies for a specific vertical market.

For the application of these technologies a wide variety of business scenarios can be envisioned ranging from the support of purchasing and sales operations in the retail and business to business segment to the streamlining and optimization of sourcing processes of resellers and large organizations. In the following sections this paper presents a generic market model from which three basic types of business models for the use of MEPCs can be identified and analyzes the roles of the different parties involved and the benefits they stand to gain.

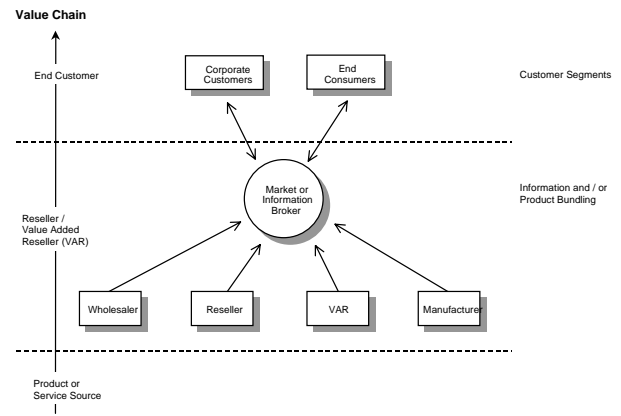
## Market Model

Taking into account the mediator architecture of a MEPC federation two different types of market constellations can be observed among the participating parties:

- *Cooperative Constellation.* Cooperative market constellations [Figure 1] are basically characterized by the catalog intermediary taking a position in the value chain on a level following the suppliers whose catalogs are being integrated. In such a configuration, usually a cooperative and non-competitive relationship between broker and catalog suppliers can be assumed. The intermediary creates an additional new distribution channel which vendors can take advantage of to sell their goods and services. Because of the recursive structure of the MEPC architecture, which allows multi-level catalog hierarchies to be constructed [1], catalog intermediaries themselves can act as catalog suppliers at the base product level.
- *Competitive Constellation.* In a competitive setting both, intermediary and catalog suppliers, are positioned at the same level in the value chain often pursuing the same kind of business [Figure 2]. In such a configuration, usually a competitive relationship between catalog broker and product suppliers can be assumed, especially if the intermediary does not restrict itself to a role as a pure information broker. Business models that are based on a competitive market constellation tend to



**Figure 1. Cooperative Market Constellation**



**Figure 2. Competitive Market Constellation**

show a narrow focus on certain product categories or a specific vertical market [cf. Vertical Integration]. Thus, often there is fierce competition between the suppliers being integrated, which means that in such cases they will need to stand to gain significant benefits in order to be motivated to participate in a MEPC.

### Basic Types of Business Models

From the different market configurations and roles of the market participants identified above three distinct basic types of business models for the application of MEPC can be derived:

#### *Vertical Integration*

Mediating catalogs which integrate different suppliers catalogs of homogeneous product types thereby vastly expanding customers' search scope and allowing for automated comparisons of product attributes and costs.

Generally, catalog intermediaries establishing such a service are confronted with a competitive market constellation. In markets of low transparency and high information costs, besides a role as a market broker acting as a pure information broker might also be viable for this kind of business model. An early example of this model is PartNet which runs a part ordering system for the US Defense Logistics Agency integrating different suppliers' catalogs of over 12'000 mechanical parts [4].

The principal benefits available to suppliers participating in such a system are increased sales reach and reduced promotional costs. The impact on sales potential can be enormous since any time buyers request information in a given product category, they will be forwarded data on all the products that satisfy their query – including those they might otherwise have known nothing about.

On the buyers' side, the introduction of automated procedures for comparing products from various suppliers enables faster and more efficient decision making throughout the entire sourcing process. In addition to an immensely increased supply and variety of products, comparative shopping can be efficiently performed even on a global scale. Especially for resellers, the availability of such powerful product evaluation tools can enable them to reevaluate and adjust the product collection they carry much more frequently. This in turn can benefit suppliers by giving them a chance to reduce the time it takes them to establish new products in the distribution channels.

For suppliers, however, there is also considerable drawbacks in such a scenario as it will tend to create a more competitive and price-sensitive environment in which to market goods.

#### *Horizontal Integration*

Mediating catalogues which incorporate different suppliers' catalogs covering various kinds of product families.

The ability to create mediating catalogs that include descriptions of a range of products supplied by a variety of manufacturers is expected to be a boon primarily to three different types of buyers:

- Electronic Malls seeking to offer their customers a value-added service in the form of a consistent interface to the offerings of all vendors on their platform
- Resellers who specialize in providing "one-stop-shopping" convenience for people in tightly targeted market segments. They can replace their handcrafted catalogs encompassing products from a wide range of manufacturers with an MEPC that incorporates and dynamically updates entries from the relevant parts of the different product suppliers' catalogs. Thus, catalog maintenance effort can be greatly reduced.
- Purchasing agents responsible for facilitating the acquisition of products and supplies required throughout their organizations. Custom corporate procurement catalogs that until now had to be manually constructed can now be

automatically created and updated from a range of preferred suppliers' product catalogs, thus helping to streamline and coordinate purchasing efforts company-wide.

### *Cross Integration*

Mediating catalogs which integrate different suppliers catalogs covering various kinds of complementary product types.

Many times, the availability of appealing complementary items and services have as much to do with a product's success as the qualities of the product itself. Consider the example offered by the computer industry, where breadth of software support and availability of consulting services often prove to be the issues that matter most to corporate customers. There are many such examples where the core product can't really be evaluated in vacuum since, once deployed, it must be used in combination with other value-added or enabling products and services. In this context the use of mediating product catalogs can enable two types of businesses:

- *Integrated Vendor.* By implementing an MEPC the manufacturer or distributor of a core product can enrich his product catalog by integrating those portions of other vendors' catalogs featuring products that complement his core product. This means increased convenience and ease of shopping for buyers by not having to redirect them to other suppliers for complementary products and services. By keeping continuous contact with potential customers this can also prevent them from finding out that similar core products from other manufacturers also enjoy broad third-party support. Thus, an appearance of competitive advantage can be maintained.
- *Virtual Enterprise.* For example, by integrating hotel booking, ticket and flight reservation systems automatic creation of travel arrangements individually configured according to each customer's needs can be offered. Maintainers of such kinds of mediating product catalogs can enter the electronic market space as suppliers of combined product solutions without running any production facilities of their own. Their businesses are transformed into virtual enterprises that flexibly make use of other companies' goods and services.

With MEPCs based on this kind of business model, catalog intermediaries always take on the role of market brokers and tend to act within cooperative market constellations.

### **Conclusions**

The introduction of MEPCs into the value chain can bring about substantial benefits to market players at all levels of the value chain. On the customer side the introduction of intermediaries into the usage process of electronic product catalogs offers significant added value to end users. On the sides of vendors and catalog intermediaries new business opportunities are arising and new business models become viable.

The development of the MEPC is partially funded by the Swiss Commission for Technology and Innovation. In cooperation with a number of companies in the Swiss tourism industry a first commercial implementation of a virtual travel information and booking platform is currently under way in the research project EPICA [5]. The results of this project will give further insight as to what business models for MEPC intermediaries are viable and successful in the setting of the tourism industry.

### *Acknowledgements*

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### *References*

- [1] Lincke, D.-M.; Schmid, B.: "Architecture and Business Potential of Mediating Electronic Product Catalogs." In *Proceedings of the Association for Information Systems 1997 Americas Conference (AIS '97)*, Indianapolis, August 1997.
- [2] Lincke, D.-M.; Schmid, B.; Stanoevska-Slabeva, K.: "Mediating Electronic Product Catalogs." Paper presented at the Seventh Mini EURO Conference, Bruges, Belgium, March 1997.
- [3] Keller, A. M.: "Smart Catalogs and Virtual Catalogs." In Kalakota, R.; Whinston, A. (Eds.): *Readings in Electronic Commerce*, Addison-Wesley, 1997.
- [4] Brown, D. R.: "A Distributed Framework for Electronic Commerce." Department of Mechanical Engineering, University of Utah, 1997.
- [5] Lincke, D.-M.: "EPICA Project Description. Institute for Media and Communications Management." University of St. Gallen, August 1997, URL: [http://www.businessmedia.org/businessmedia/businessmedia.nsf/pages/epica\\_main.html](http://www.businessmedia.org/businessmedia/businessmedia.nsf/pages/epica_main.html).