Arvato Uses Analytics to Reduce Out-of-Stock Exposure

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Arvato Services has created a business intelligence (BI) system that links retailers and media companies to optimize their product distribution networks. Companies that follow Arvato's example can use analytics applications to combine data from multiple partners to benefit everyone in the supply chain.

Key Findings

- Working through a neutral third party can enable competitors to work together for mutual benefit.

- Phased deployments that address the easiest problem first, rather than the most important problem, establish the concept of the project and build return on investment.

- Creating a new role in the organization produces champions for the initiative.

Recommendations

- Evaluate which other organizations in your value chain have data that could be used to capture opportunities or reduce waste and inefficiency.

- Determine whether your organization is in a good position to play a role as a trusted, neutral third party to create and share insights up and down the value chain.

- Focus on improving, rather than buffering, communication between buyers and suppliers in the value chain.

WHAT YOU NEED TO KNOW

In conjunction with one of its key retailers, Arvato has developed a vendor-managed inventory (VMI) system to provide all members of the supply chain with a clear view of which products are selling well and which are struggling. Arvato succeeded because it focused on how data can change the dynamics of relationships among the partners in a supply chain. By viewing BI as a value-added service that complements the operational aspects of its business, Arvato established a stronger position in its value chain and added a new line of services.

CASE STUDY

Introduction

Stores need to manage complex supply chains to keep their shelves stocked and their goods moving. If consumers don't find what they want, then they'll look elsewhere, and the store will lose sales. This is a critical issue in the home entertainment sector, where new DVDs and CDs surge into the market with lots of marketing, and stores have to keep significant back catalogs in stock. At the same time, retailers don't want to overstock inventory of DVDs and CDs that are not in demand. As a major distributor in this sector, Arvato estimates that out-of-stock items can cost almost 10% of potential sales. This company has developed a system for supply chain management (SCM) that enables the retailers it supplies to decrease out-of-stock items by 90% and increase sales. Distributors in other sectors can improve their results if they follow Arvato's approach.

The Challenge

Arvato (see www.arvato-services.com/en/) is a subsidiary of the Germany-based media giant Bertelsmann. Arvato distributes products and services via a network of subsidiaries, initially for the media industry, but now also for the automotive, banking and insurance, telecommunications, IT and pharmaceutical markets. Arvato's services include all aspects of SCM — production, procurement, warehousing, order receipt and distribution — and a comprehensive range of financial services. Arvato's annual revenue exceeds €2 billion.

In 2002, Universum Film, a Bertelsmann company that offers DVDs and provides other home entertainment services, asked Arvato for help enabling Universum's clients to improve customer service and growth by better managing store inventories. This effort required:

- Analyzing sales and return quantities, top-selling lists, available stock and customer trends

- Analyzing sales performance data to respond rapidly to market changes

- Providing the right products in the right amount at the right time at the point of sale (POS)

- Optimizing sales from the limited space on store shelves

Universum and Arvato chose to build a custom VMI, because there were no off-the-shelf applications for entertainment products. By building a VMI, Arvato got the specific solution it needed, and the customization has enabled the Cognos BI platform to be extended into other areas by Arvato and Bertelsmann.

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Approach

Arvato has developed a retail inventory management system called r.i.m. This is a custom VMI tool that enables vendors to manage their own product stock levels. Stores transmit about 2.5 million data records per day to Arvato. These transmissions involve daily volumes of sales by stock-keeping unit (SKU) and inventory via electronic data interchange (EDI), which enable manufacturers to manage their own products in the stores.

For each product, vendors can maintain safety stocks, as well as maximum capacities. Based on historical sales and in accordance with the expected life cycles of the products, r.i.m. dynamically calculates the optimal inventory level for each store and product. When inventory levels fall below specifications, r.i.m. triggers a replenishment process based on current sales volumes. Products ship immediately, and r.i.m. replenishes out-of-stock items in stores within 48 hours.

In 2005, Arvato developed a system for enterprise-level reporting and analysis to manage retailers' back catalog business (subsequently, it expanded to the more dynamic new-release and campaign business). Arvato selected best-of-breed applications, as well as some based on established systems:

- A Sybase relational database records all POS data from the ERP systems used at connected retail outlets.

- Communications between outlets and the system occur via the EDI 96.A standard, which enables the interchange of business documents.

- A Seeburger Business Integration Server handles transactions.

- Cognos Data Manager (formerly DecisionStream) loads data from customers' ERP systems to the Sybase data warehouse.

To ensure that the production environment is available at all times with no restrictions on performance, the master data is separate from the data warehouse. Cognos generates multidimensional online analytical processing (OLAP) structures (data cubes) overnight. It then creates reports according to defined criteria. Graphs and diagrams provide rapid, concise analysis of extensive data volumes.

Users can analyze business requirements. Companies can quickly determine sales and returns, the best-selling products at each store and inventory trends. They can also access statistical and ad hoc reports online, and enter keywords and criteria to generate custom reports. The r.i.m. system identifies variations in volumes or requirements and escalates the information to someone who can take action. Reports that map inventory at different stores help users plan brand actions. Reports containing current sales figures and inventory levels for each assortment can be downloaded to Microsoft Excel, revised and then reloaded into r.i.m. as a new assortment.

A 25-member team handled the initial implementation, which had a budget of €180,000 for software and services. Twenty-five people (not all of them full-time) support the initiative, with an annual budget for software, services and personnel of €750,000, including costs for the BI and VMI team, license fees, and runtime costs. Arvato charges customers based on the scope of services provided. It charges a maintenance fee for daily support and development. Arvato sets a price per unit ordered, plus transaction fees for processing POS data. In addition, Arvato offers VMI consulting, analysts and customer services.

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Results

Adoption has exceeded expectations. Approximately 100 users at 15 retailers, with more than 6,000 outlets across Europe, use r.i.m. They include chains such as Karstadt, Media Markt/Saturn and Woolworth (in Germany). The r.i.m. system manages more than 125,000 SKUs and 38,000 products from such major suppliers as Microsoft, Paramount and Sony BMG. Arvato's clients have achieved:

- A 90% improvement in stock availability

- A 95% improvement in on-time delivery

- Almost a 20% increase in sales by avoiding out-of-stock challenges

- A 15% decrease in returns by reducing inventory levels

- Less stock retained in the warehouse through more-effective SCM

In addition, the system delivers some valuable insights:

- Timely response to market changes — The rapid availability of sales information enables manufacturers' product managers to react quickly to market changes and to replace products as required.

- Pricing and sales analysis — POS data enables retailers to see the price of a specific product in a particular store. This information is more efficient than checking scheduling lists.

Arvato has ambitious plans for r.i.m.:

- Continued international expansion and data warehouse optimization — The system now covers the Benelux countries, France, Germany, Italy and the U.K., and will continue to expand internationally. Optimization of the data warehouse will continue.

- Expansion into other markets — r.i.m. has recently succeeded in hardware markets (for Xbox and PC peripherals), and Arvato is looking to expand into other markets as well.

- Event-triggered alerts — CDs and DVDs have short (two- to three-day) lead times. Product managers and sales managers use the BI part of r.i.m. mainly on Saturday, Sunday and Monday — they look at POS data from Friday and Saturday to ensure that warehouses and stores have enough stock. If there isn't enough stock in the warehouse, they place a second production order. In the future, based on stock figures in the warehouse and sales in stores, r.i.m. should be able to generate a direct purchase order automatically.

Critical Success Factors

- The initiative benefited everyone involved, so adoption by partners was easy. Retailers and producers saw increased sales through reduced out-of-stock items; retailers had the appropriate product mix on their shelves, and producers reduced inventory levels and over-production of weak products.

- The creation of specific roles to manage the process created a dedicated team of advocates in client organizations. For example, VMI managers handle the use of the r.i.m. system and data analysis. VMI managers are responsible for replenishing all

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products in the outlet, and they usually reside between the product management and sales layers of the organization.

- Data quality is critical. An efficient product replenishment process needs real-time, accurate data about product inventories. If inventory data, sales transaction data and in-delivery information are inaccurate or are reported too slowly, suppliers and retail outlets risk empty shelves or overstocked inventories.

Lessons Learned

- Communications — Arvato acts an intermediary between its manufacturer customers (that is, home entertainment studios) and its retail clients. Arvato had to improve, rather than buffer, communication between these groups.

- Data quality — The accuracy and timing of the transmission of the POS data by the retailers was a major obstacle. At the beginning, the retailers sent the data several times, but not within the agreed-on timelines. Arvato subsequently added checks and balances into the program to avoid double or triple shipments and replenishment orders to the retailers.

Acronym Key and Glossary Terms

BI   business intelligence

EDI   electronic data interchange

OLAP   online analytical processing

POS   point of sale

SCM   supply chain management

SKU   stock-keeping unit

VMI   vendor-managed inventory

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