CASE STUDY: ELECTRONIC BASF

Abstract

BASF is the world's leading chemical company headquartered in Ludwigshafen, Germany with production sites in 41 countries and customers in more than 170 countries worldwide. In response to growing pressures in its commodities business, BASF turned to modern e-Business solutions to contain costs. It has successfully implemented a customer focused global best-in-class supply chain integration initiative using Internet and extranet hub portals conforming to the leading industry eChem Standards™. Supply Chain Data on use of Elemica, WorldAccount and the strong focus on VMI (vendor managed inventory) are outlined.

Case characteristics

<table>
<thead>
<tr>
<th>Sector focus</th>
<th>Chemical and plastics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business focus</td>
<td>Large company</td>
</tr>
<tr>
<td>Geographical focus</td>
<td>Worldwide</td>
</tr>
</tbody>
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Case objectives

<table>
<thead>
<tr>
<th>Supply chain management</th>
<th>*****</th>
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</thead>
<tbody>
<tr>
<td>eChem Standards™</td>
<td>***</td>
</tr>
<tr>
<td>Vendor Managed Inventory</td>
<td>*****</td>
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</tbody>
</table>

*= some relevance for case; ***** = high relevance

Background and objectives

BASF is one of the world's leading chemical companies comprised of the parent company, BASF Aktiengesellschaft of Ludwigshafen, Germany, and 160 consolidated subsidiaries and affiliates. The company has customers in more than 170 countries and production sites in 41 countries. It reported sales of 33,361 million Euro in 2003. During this period, Europe accounted for 57.3% of sales, North America (which includes the United States, Mexico and Canada) for 21.5%, the combined Asia, Pacific Area, Africa region for 15.9%; and South America for the remaining 5.3%.

BASF operates in five separate business segments: Chemicals, Plastics, Performance Products, Agricultural Products & Nutrition and Oil & Gas. These are linked in the "BASF Verbund" structure. Verbund, which loosely translates as "integration",

1 This case study was researched and edited by the e-Business W@tch Standardization expert, Henry J. F. Ryan, Lios Geal Consultants, Ltd., Galway, Ireland (contact: henryryan@eircom.net).
encompasses far more than what is traditionally associated with backward or forward integration. The advantages of Verbund are applied throughout BASF. Production processes at Verbund sites use byproducts and heat from chemical reactions, that might otherwise have to be disposed of, as raw materials and energy for other processes. This positive integration concept is also being applied to other areas: from R&D, to purchasing, to customer connections, and of course to total supply chain integration.

As an evolution of BASF’s previous strategy to the evolving global chemical industry, four strategic guidelines, along with a new logo and a new slogan (“BASF: The Chemical Company”) were announced in December 2003. The new strategic guidelines committing to earning a premium on cost of capital, helping customers to be more successful, forming the best team in the industry, and ensuring sustainable development, now guide all BASF business units. Through this vision BASF aims to actively capitalize both on the structural and technological changes that will affect the global chemical industry, and economy as a whole, over the next decade. Not surprisingly therefore, growth of customer focused e-business and industry leadership therein is a central part of the "BASF 2015" strategic response.

**e-Business Activities and Chem e-Standards**

BASF has actively engaged in standards development and implementation for chemical e-business from the mid 1980s. Initially the focus was mainly on EDI and tailored one-to-one solutions. During 2000-2001, BASF, together with a small number of leading chemical companies and partners, were instrumental in developing the first version of Chem eStandards™. Since then, BASF and its partners have continued to significantly lead and encourage the adoption and use of Chem XML through a partnership process for standardization and simplification.

Also during the first half of 2001, BASF successfully handled initial transactions via Elemica (basic and specialty chemicals). Elemica as well as cc-chemplorer, an e-market for the procurement of technical goods and services, were co-founded by BASF in 2000.

The BASF approach to B2B e-connectivity is customer focused (see Exhibit C2-1). In addition to being a member of several web portals dedicated to the Chemical Industry, BASF conduct their e-business activities mainly via its own portal WorldAccount, an integrated global extranet platform for customers, and through the Elemica network.
Exhibit C2-1: eConnectivity: Customer segment focused

<table>
<thead>
<tr>
<th>Customer Segment</th>
<th>System Integration for Order Management</th>
<th>Personalized Information</th>
<th>Product Information Order Status eReporting</th>
<th>Order Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Account global/regional</td>
<td>Full Integration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle Segment</td>
<td>Light Connectivity</td>
<td></td>
<td></td>
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<tr>
<td>Small Direct Customers</td>
<td></td>
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</tbody>
</table>


In addition to being customer focused BASF eConnectivity is targeted at optimisation and integration of the total supply chain (see Exhibit C2-2).

Exhibit C2-2: eConnectivity: Total Supply Chain Optimisation

Total Supply Chain Optimization
Value Added Service
- Extend reach of our transaction systems, e.g. WorldAccount™, Elemica™
- Lower transaction costs
- Improved customer service
- Supply chain optimisation transcending company boundaries
- Tighter systems integration possibilities for direct system-to-system links


WorldAccount, the BASF Global extranet platform

From early 2000, BASF introduced and successfully operated a variety of customer portals in Europe and North America. The launch of its WorldAccount (www.worldaccount.basf.com) in 2001 provided customers with a globally integrated extranet platform for seller and buyer based on the latest XML technology.

By the end of 2001 WorldAccount had seamlessly integrated the existing regional BASF industry portals for different product categories, including plastics, under one single Internet address. WorldAccount functionalities include: order placement, order status, e-reporting, access to certificates of analysis and material safety data sheets, as well as a range of options for personal contact and customer support. The 24-hours-7-days-a-week service enables customers to make quick, transparent and cost-efficient purchasing decisions around the clock by providing detailed product information and uncomplicated ordering procedures.
After initial customer registration, all that is required for a variety of electronic trading opportunities with BASF is an ordinary PC with standard operating software, Internet connection and a browser. Strict confidentiality is assured through encryption and the use of firewalls.

The 11 languages already supported include German, English, Spanish, French and Italian. Additional languages to be supported include Portuguese, Chinese, Japanese, Thai and Korean.

**Elemica**

BASF’s ERP is linked to Elemica Holding Ltd., a neutral electronic marketplace acting as a transaction hub for the purchase and sale of basic, intermediate, specialty and fine chemicals. In addition to the full connectivity services of Elemica, BASF uses the Elemica Buyer Direct and the Elemica Seller Direct solution as a “lite” working channel to small and medium sized companies. BASF is widely recognised as a leader in this hub space. It was the first company to transact via Elemica in Europe, USA, South America and Asia and operates across the three NAFTA countries. Using the Elemica hosted solution it conducts both buy/sell relationships using VMI and SMI. In 2003 it was the top growing buyer on the network and ranked second overall in both buy-side and sell-side volumes. It is now expanding into new downstream industries in carpet, agricultural chemical industries and paper industry (cf. Exhibit C2-5 for the annual relative sales volumes in 2001-2003).

**Supply Chain Integration: Advanced VMI developments**

Vendor Managed Inventory (VMI) is the main instrument for building up an integrated supply chain network. BASF has just launched its VMI solution which makes full use of the Chem eStandards™ data structure and processes. Use of the proven Chem eStandards™ functions such as order create, order response etc., have enabled the rapid development and testing of this application (see Exhibit C2-3 for the landscape and various industry standard messages and tools incorporated).

![Exhibit C2-3: BASF Vendor Managed Inventory Landscape](image)

Source: W. Backhaus, BASF E-Commerce Consultant (CIDX European User Forum 04/2004)

**Results realised and lessons learned**

BASF’s sales through its global e-Business portal WorldAccount exceeded 2 billion Euro in 2003. In total, during 2003, 11.25% of BASF’s global sell-side sales volume amounting to 3.747 billion Euro was conducted electronically as compared to 4%
(1.308bn Euro) in 2001 and 7.2% (2.314bn Euro) in 2002 respectively. The traffic and sales volumes have steadily increased over each of the three years.

**Exhibit C2-4: e-Commerce Sell-side Order Volume**

![Graph showing e-Commerce Sell-side Order Volume]

Source: Lars Henze, BASF Director E-Commerce Global (CIDX European User Forum, April 2004)

**Exhibit C2-5: BASF e-business sizing**

<table>
<thead>
<tr>
<th>Description</th>
<th>Since eChem Standards</th>
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<tbody>
<tr>
<td></td>
<td>2001</td>
</tr>
<tr>
<td>Elemica + WorldAccount (€ billion)</td>
<td>1,308</td>
</tr>
<tr>
<td>Total BASF Group Sales (€ billion)</td>
<td>32.5</td>
</tr>
<tr>
<td>% E-Commerce share</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Source: BASF Annual Report 2003 and presentation by Henze at CIDX April 2004; shaded row inferred from this and data presented by Daniv at CIDX April 2004.

BASF expects that sales via these distribution channels will continue increasing in the future. Increasing data traffic volumes are one indicator. European data traffic for system to system supply chain messages (including logistics and other messages in addition to orders) averaged 220,000 messages per month during each of the first three months of 2004. If sustained, this indicates a 37.5% increase on the corresponding average of 160,000 messages per month during 2003. Extrapolating from these comparative traffic volumes together with the transaction data in Exhibit C2-5 (e-business sizing) indicates that significantly larger volume and sales increases using electronic business channels will likely be realized in 2004.

The channel strategy and expectations vary across segments. There are already Business Units of BASF that have exceeded an e-share of 50%.

Across all segments BASF sales and marketing departments work closely with customers to develop systems and solutions, as well as new products, that suit their requirements.

One of the key lesson is that the standardisation of electronic data exchange is a critical success factor in electronic business. That is the reason why BASF’s further emphasis is focused on CIDX activities and development of standards.

**Conclusions**

Evidence shows that BASF is successfully using electronic business to increase the efficiency of its procurement processes and make purchasing easier for its customers.
Portals as well as electronic marketplaces are playing a strategic role in this. The strategic vision of total supply chain integration is being realized through the BASF VMI developments. BASF’s leading roles in CIDX and its strong focus on total supply chain integration complement one another.

Sources and references

- Interviews with Peter Vogel, BASF Manager E-Readiness conducted by Henry J F Ryan, Lios Geal Consultants Ltd., in June 2004
- Desk research, annual reports and various documents issued by BASF and CIDX.

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