Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc.com

SPECIAL STUDY

How Zeiss Used SAP NetWeaver to Improve Time-to-Market

Bo Lykkegaard

IDC OPINION

Carl Zeiss Group is a global vendor of optical and opto-electronic products. The group is headquartered in Oberkochen, Germany, and currently has more than 14,000 employees worldwide. This case study focuses on the Ophthalmic Products Division, which manufactures and delivers eyeglass lenses to opticians around the world.

Due to the increasing importance of large optician chains for the Ophthalmic Products Division, the division implemented logistic strategies focusing sharply on the needs of individual chains. The IT department was asked to reduce the time to integrate new chains to the Zeiss systems by creating a more agile and flexible infrastructure.

The IT department replaced its point-to-point integration infrastructure with SAP® Exchange Infrastructure (SAP XI). Based on the successful implementation of five interfaces in SAP XI, IDC has calculated the expected return on investment over a five-year period:

- Return on investment (ROI): 362%
- Internal Rate of Return (IRR): 49%
- Payback period: 33 months
- Five-year Net Present Value (NPV), after tax: €191,000
- TCO averaged over five years: €365,000

These results were driven by several concrete business improvements:

- The average implementation cost of a new interface in SAP XI is 50% less than with a point-to-point interface, saving an average of €21,700 per interface.
- The average time to connect a new optician chain to Carl Zeiss is halved from two months before SAP XI to one month.
- The cost of change per interface is reduced by 50% thanks to SAP XI, which translates into a cost per interface change of €4,100. Carl Zeiss is significantly more responsive to requested changes from chains.

Sponsored by SAP

Filing Information: december 2003, IDC #330087
: Special Study

IN THIS STUDY

Introduction

Carl Zeiss Group is a global provider of optical and opto-electronic products and solutions with annual sales of €2.3 billion (financial year 2002). There are currently more then 14,000 employees in the group spread over 30 countries. The company's headquarters are located in Oberkochen, Germany, in Northeastern Baden-Wuerttemberg.

This case study examines how one division in the group, the Ophthalmic Products Division (OPD), utilizes the SAP Exchange Infrastructure (SAP XI), to achieve reduced time-to-market for new integration projects. Fast time-to-market is vital for OPD, since it depends on the online integration from customers (that is, opticians) to receive orders for its products (eyeglass lenses).

The Carl Zeiss Group, including OPD, implemented SAP® R/3® in 1998, and currently the SAP solution covers finance, production, supply chain, and product lifecycle management. In 2003, Carl Zeiss outsourced the operation of its IT system to Hewlett-Packard. The division retains its application development staff of 35 employees.

The following case study refers to the Ophthalmic Products Division as OPD.

The Challenge

In an increasingly concentrated market for eyeglass lenses, dominated by regional and national optician chains, building close ties with each individual chain has become paramount. Chains are demanding that key suppliers provide means for online ordering and supply chain visibility. Suppliers must also adapt to ongoing data format changes as required by the chain. The positioning of Zeiss as a flexible and adaptable supplier became a key priority for OPD management.

This goal required a change of the integration infrastructure at OPD. Until then, 40 different interfaces between applications and to chains had been developed using a wide variety of technologies, depending on the language of the application in question, including:

- Microsoft Visual Basic
- Perl
- C
- C++
- Fortran
- Java
- Oracle PL SQL
- SAP ABAP/4

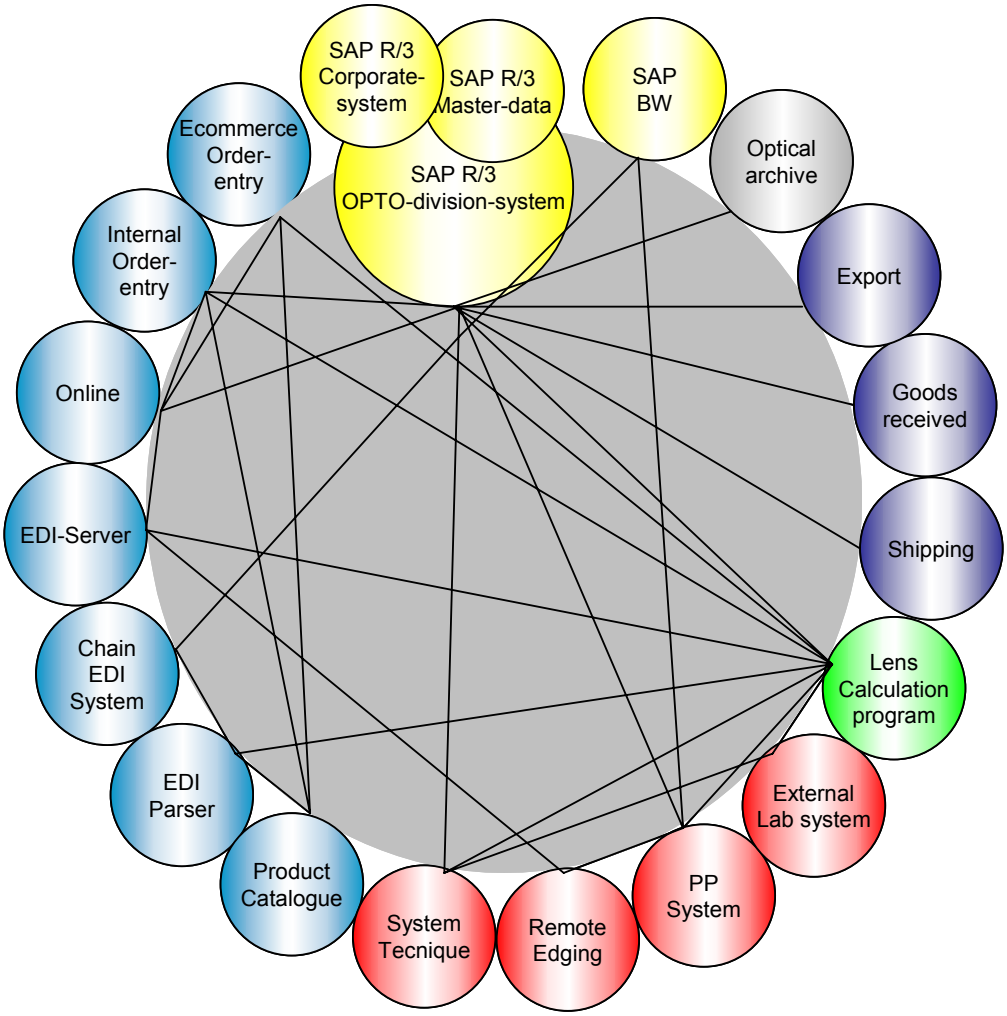
- Manual double entry

The number of protocols used (for example, X400, EDIFACT, HTTP, Remote Functional Call, FTP, IDOC, DCOM) only added to the complexity.

This complex and heterogeneous point-to-point integration is shown in Figure 1.

FIGURE 1

Point-to-point interfaces at OPD (schematic diagram)



Source: Carl Zeiss, 2003

This complex infrastructure made it time-consuming for OPD to integrate new chains and applications. Due to the many languages and protocols involved, the IT department did not have a common skill pool to which assign new integration tasks; it depended on the availability of one or two programmers with skills in the specific language or protocol required.

In case of a complex interface, the integration of a new optician chain would typically take two months, which meant a two-month delay of orders from that particular chain. Apart from the loss of revenues, the lengthy integration process also prevented Carl Zeiss from having a competitive edge as a flexible and strategic supplier to the optician chains.

The ongoing maintenance of interfaces was also difficult. In case of an interface disruption, the multitude of languages and protocols made it difficult to locate and diagnose the problem. If correction of the problem required a change of an interface, the author of the interface had to be located because of the very specific nature of each interface. The programmers maintaining interfaces would normally spend one to two workdays per week locating and correcting interface problems.

The Solution

The management of OPD commissioned the IT department to reduce the time-to-market to integrate new chains, and to make the general IT architecture more adaptable to change and easier to maintain. The IT department decided to implement an integration platform and standardize all interfaces on this platform. OPD evaluated two solutions, SAP Exchange Infrastructure (SAP XI) and IBM WebSphere Business Integration Message Broker, and the IT department chose SAP XI in a pilot project.

As Harald Rünz, manager of application development at OPD, explains: "SAP is the strategic application for Carl Zeiss, and most of the interfaces are going to and from SAP. By choosing SAP Exchange Infrastructure we can stay closely aligned to SAP, and we assumed that SAP is the vendor that knows SAP R/3 interfaces best.

"SAP NetWeaver will be the base technology when we do our next upgrade to SAP R/3 Enterprise;" Rünz adds. "SAP NetWeaver brings SAP and the Java language together. We have more Java than ABAP/4 programmers and we made a strategic commitment to Java several years ago." Carl Zeiss is also considering other SAP NetWeaver components such as SAP Enterprise Portal, SAP Business Intelligence, and SAP Master Data Management.

Implementation Process

The pilot project was initiated in May, 2003 and finished two months later. During this time, OPD installed SAP XI in a development/staging and a production environment, and implemented two interfaces in XI. A consultant from SAP assisted the IT department with the installation of SAP XI and the initial interface development.

The first interface was sending all price changes from SAP R/3 to the product catalogue application. The second interface was transmitting all material movements from the custom-developed production system to SAP R/3. A total implementation effort of 40 workdays was spent on the two interfaces, including design, coding, testing, and deployment. The interfaces were tested successfully in a full-scale staging environment, and entered normal production mode by the end of 2003.

The pilot project was considered a success, and OPD now bases its integration strategy on SAP XI. The project was not without challenges, however. The IT staff had to get used to a new way of thinking with all data going through a central hub instead of directly between applications. They had to learn the tools, interfaces and product functionality of SAP XI. Furthermore, the fact that the current version of SAP XI consists of several tools with different interfaces, and without single sign-on between them, also proved challenging.

Since the end of the pilot project, three more interfaces have been developed. One involves transmitting goods receipts from e-mailed files into SAP R/3 via IDOC. This was a complex interface that took 40 workdays to implement. The two other interfaces were sending changes in customer master data from SAP R/3 to the

optician Web application, and sending the status of each order from the custom-developed production system to SAP R/3. These interfaces were more standard and took seven and three workdays, respectively, to implement in SAP XI.

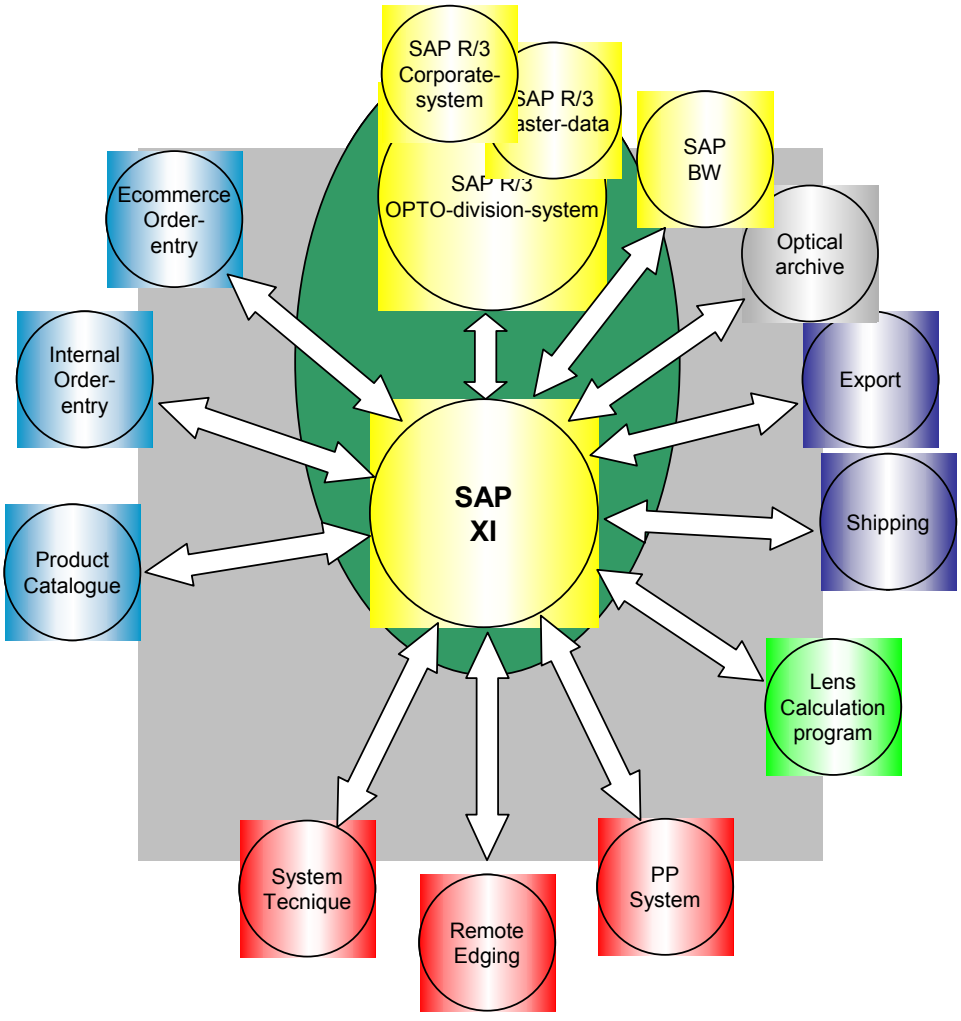
Target Infrastructure

OPD deployed SAP XI and the five finalized interfaces in December 2003. By year-end 2004, the IT department plans to retire four applications (Online, EDI server, Chain EDI server and EDI parser) and replace these with automated business flows in SAP XI. Such automatic business processes are supported in the upcoming version three of SAP XI.

The target infrastructure is illustrated in Figure 2.

FIGURE 2

Target "hub-and-spoke" integration at OPD (schematic diagram)



Source: Carl Zeiss, 2003

Benefits

A key goal for OPD was to establish one enterprise application integration platform for all communication between SAP and other applications, with the communication as close as possible to the SAP core application. The IT department wanted to centralize development on one platform with central monitoring and a central repository for business process information. The concrete benefits realized from the centralized integration model are described in detail below.

Faster Time-to-Market

Using SAP XI, OPD can integrate a new optician chain selling Zeiss lenses to the order entry systems in approximately one month instead of two months. This has a direct bottom-line impact, since the chain can start placing orders to Carl Zeiss months earlier and thereby generate thousands of additional orders. IDC estimated a net-profit (before taxes) impact to be between €100,000 and €200,000 per year due to the accelerated integration of new chains.

The faster time-to-market also yields significant intangible benefits for OPD. Being able to adapt its order systems to those of the chains and to implement changes rapidly strengthens the company's competitiveness. Being "easy to do business with" is a key selling point when competing for new optician chains in a consolidating and increasingly competitive market for eyeglass lenses.

Agile infrastructure

The cost of change per interface has dropped significantly with SAP XI. Even though the total number of interface changes will increase somewhat due to migration of point-to-point interfaces onto SAP XI, the total maintenance load will break even in year three and subsequently decrease. The cost of any incremental interface change has been reduced by 50% since the migration to SAP XI. The time needed to locate and correct interface errors has also been reduced, since SAP XI offers a single view of the complete data including source and target data formats.

Lower Integration Cost

According to Rünz and senior integration developer Oliver Förster, the average cost of implementing a new interface, including design, coding, test and deployment, has been cut in half. These savings have been realized because many implementation tasks are standardized and automated in SAP XI:

- Interfaces to SAP IDOCs (approximately 35% of all interfaces) are faster to develop, since the IDOC format is loaded automatically into SAP XI.
- Integration involving static data formats is faster, because the mapping from one format to the other is done visually with no coding involved.
- Database interaction is simplified because SAP XI displays the database model automatically for any JDBC-compliant database.
- Testing is simpler because the complete data flow is displayed in a single view in SAP XI, and because all test history and previous test data are archived automatically.

- Monitoring and administration of interfaces are consolidated on the general SAP R/3 process monitor, and use alert functions from this monitor. This simplifies the interface monitoring and administration significantly.

Future Plans

During 2004, OPD plans to implement 12 interfaces in SAP XI, including four new interfaces. Half of the 12 interfaces are considered simple and half are considered complex. After 2004, OPD expects to develop about 12 new interfaces per year.

Furthermore, the IT department plans to upgrade its current version of SAP XI to version three. This version supports automated business processes and EDIFACT. OPD considers leveraging this EDIFACT support by migrating its current EDI solution from Seeburger AG to SAP XI.

OPD plans to automate and streamline the complete order management process using SAP XI. The process involves interaction with a Java-based application, an Oracle database application, and SAP R/3. OPD seeks to implement advanced exception-handling in SAP XI to keep manual interaction to a minimum. (The potential benefits of such straight-through processes have not been quantified in this ROI analysis.)

Finally, OPD plans to extend interfaces to certain business partners and suppliers using SAP XI. For example, OPD plans to give other manufacturers of eyeglass lenses fee-based access to advanced design applications at OPD, via SAP XI. Another example is the planned direct integration between Carl Zeiss and a wholly owned supplier to enable a more visible supply chain.

Lessons Learned

For OPD, the transition to SAP XI has forced the IT department to regard interface development from a strategic perspective. Because the IT team is familiar with development tools from best-of-breed vendors, the productivity increase of the SAP XI tools was in some cases very limited. Although remedied in the upcoming versions of SAP XI, the fact that the present version of SAP XI currently consists of various tools with different user interfaces and even different user sign-on, lacks thorough examples and sample code, has limited support for dynamic file and mapping formats and substandard XML support, reduces the attractiveness of SAP XI as an integration tool.

However, considering the transition from point-to-point to SAP XI as a strategic move to ensure faster time-to-market and bring down costs per interface, SAP XI delivered the desired results and provides a path ahead for OPD.

- The main goals of reducing the time to integrate new chains and bringing down the cost per change of interface were achieved.

- The total cost of ownership of integration infrastructure, averaged over a five-year period, increased by 10% as a result of the SAP XI implementation. This increase is acceptable to OPD, since the goal of the implementation was to reduce time-to-market. The time-to-market benefits and the dramatic cost reduction in interface development and maintenance more than compensates OPD for the increase in total cost. This is illustrated by the return of investment of 362%.

- OPD can use its new infrastructure to increase its flexibility in dealing with new optician chains, and thereby increase its competitiveness in the market of consumer optics.

- The majority of the shortcomings of the SAP XI product mentioned above will be resolved in the upcoming version three of SAP XI or later releases. OPD is well informed of the product roadmap of SAP XI.

- The work to automate business processes in SAP XI will be ongoing during 2004 and has significant potential for OPD. Reducing phone-based order reception, manual order entry, and manual exception-handling yields significant bottom-line potential, considering the average of 40,000 eyeglass lens orders received by Carl Zeiss daily.