PUTTING ENTERPRISE SOA TO WORK
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EXECUTIVE SUMMARY

So much that is written about service-oriented architecture (SOA) suggests that getting started means revamping your IT infrastructure from top to bottom. While it is true that SOA makes new demands on IT departments, the SAP approach to it — enterprise SOA — reduces risks and costs and speeds your time to value.

Enterprise SOA lets you put services to work to solve business problems. The difference between this and other ways of adopting SOA can be summed up in one word: “productization.” With enterprise SOA, SAP delivers ready-to-deploy enterprise services as “products” rather than just providing a toolkit and then asking you to put the services together yourself or continuously pay consultants to do it for you.

In this short paper, we examine the implementation experience of three firms who have succeeded with enterprise SOA. These examples demonstrate SAP’s support for enterprise SOA and show how quickly you can get started on the path to creating innovative and flexible software solutions for your business.
QUICK STARTS WITH ENTERPRISE SOA

The easiest way to explain SAP’s approach to SOA is through examples. We have chosen three: GISA GmbH, an IT services firm; OSRAM Opto Semiconductors GmbH, a high-tech manufacturer of semiconductors; and DeLaval Services GmbH, a company that manufactures, sells, and services milking machines and other products for dairy farmers. These three companies saw the potential of SOA and of the enterprise services provided by SAP. They implemented successful projects based on enterprise SOA – projects that are making important contributions to their businesses faster and more effectively than would have been possible with a traditional approach to enterprise resource planning (ERP).

GISA: Invoice Processing Improvements

GISA, which offers professional services to the utility industry for example, is on a rapid growth trajectory. Improving the efficiency of day-to-day interaction with clients is a top priority for the firm as it works to reduce costs, increase capacity for new client relationships, and accelerate cash flow.

Using the newest release, the SAP® ERP 6.0 application, and enterprise services, GISA has changed the way it presents and processes invoices to its clients, replacing paper-based processes with a portal that allows clients to inspect invoices online and then pay them electronically using a variety of payment methods. These methods include direct debit and credit-card payments as well as direct transfer of funds. GISA uses enterprise services provided by SAP to support various methods of electronic bill presentment and payment (EBPP).

With the SAP approach, the enterprise services dedicated to the needs of a specific business scenario, such as EBPP, are collected in an enterprise services bundle. Enterprise services bundles are delivered through enhancement packages to SAP ERP and other applications. The enterprise services in the EBPP bundle enable these functions:

- Rapid creation of various features of the portal to enable inspection of all the documents related to the invoice
- Selection of payment methods
- Replacement of a paper-based process with a streamlined solution that uses electronic documents

Because GISA can now present invoices to customers through a portal in electronic form, it has been able to cut by 50% the average delay in getting paid for days of sales outstanding. Cash flow and customer satisfaction at the firm have also improved, while internal invoice-processing costs have dropped dramatically. For example, the new solution has eliminated the need to have someone manually match payments to specific invoices in situations where the amount of a payment covers several invoices.

The work to implement this project was divided among a team comprising an equal number of experts from SAP Consulting services and the IT services firm. This approach accelerated knowledge transfer, enabling the IT services developers to create custom enterprise services that enable GISA to handle invoice disputes completely through e-mail.
OSRAM Opto Semiconductors: Improved Order Processing

OSRAM Opto Semiconductors sells lighting products of all sorts, ranging from light bulbs for everyday and industrial use to LEDs for various forms of high-tech manufacturing. It upgraded to SAP ERP 6.0 and then immediately started the process of examining how it could put enterprise SOA to work by using enterprise services bundles.

Company decision makers focused on the enterprise services contained in the customer fact sheet bundle to improve customer service. This enterprise services bundle is helping the customer service staff provide information to customers quickly, better track and manage the order-to-cash process, and conduct an available-to-promise (ATP) check.

Before the introduction of the order-handling service-based portal, customer service representatives at OSRAM Opto Semiconductors had to look in many different places to answer customer inquiries. Now, using screens constructed on the basis of enterprise services along with some new custom-developed services, representatives can do the following:

• View all documents relevant to a customer and easily access all the information related to that customer on a single page—based on the current state of a customer order
• Provide real-time Web-based analytical and operational services to sales, service, and financial personnel
• Use a single point of access for order- and product-related services (for example, quotes, orders, invoices, deliveries, returns, credit and debit notes, and open issues)
• Perform an ATP check to confirm with customers that their orders can be filled promptly
• Take advantage of a much simpler user interface

These functions are available through a customer service “cockpit” that has improved the transparency of the firm’s order-to-cash process and increased the efficiency of its customer service staff. The cockpit simplifies key processes and consolidates information from many user interface screens onto a few targeted screens. The customer service project has led to the creation of enterprise services that are broadly applicable, enabling other departments at OSRAM Opto Semiconductors to do the following:

• Bundle multiple SAP ERP transactions into one Web-based solution with a targeted user interface
• Provide internal developers with one general-purpose service that can meet the needs of various business users
• Create simplified user interfaces to encourage customer self-service
• Increase collaboration and cooperation with suppliers through targeted user interfaces

Using enterprise services in this manner extends the value of standard software and enables companies to leverage existing investments rather than require they start from scratch to create a new services environment. As companies become more competent using enterprise services, they can extend them to enable integration of external data and applications or to include customer or supplier systems in the IT landscape.
DeLaval Services: Better Access to Customer Information

Not only does DeLaval Services – which operates in 100 countries – command more than half of the worldwide market for milking equipment, it works with a sister company to cover the entire value chain for the equipment, from cow to customer. Like OSRAM Opto Semiconductors, it has come to rely on the enterprise services bundled in the customer fact sheet. It is using these services to create new screens for presenting customer information – screens that meet the needs of its highly distributed organization.

Via the customer fact sheet enterprise services, DeLaval is integrating dealers and other business partners more tightly into its processes, entering new markets, and increasing the speed of its business processes. Through this process, it is preparing to change the model by which information is distributed in its ecosystem from push to pull. In the “pull” model, each role has its own information, alongside a consolidated single source of truth for information about each customer.

The specific benefits of the implementations currently underway at DeLaval include a variety of improvements to customer services:

- Creating a Web-based sales cockpit, a “single-point of access” for sales personnel that offers holistic and real-time information on customers
- Improving order management by bundling transactions and information from various sources into a single set of enterprise services
- Providing a platform of reusable services that can solve new challenges by consolidating customer and order information that is distributed in many legacy systems – enabling the reuse of enterprise services in different processes
- Combining and visualizing real-time information from various process steps in the supply chain on one user-friendly screen

The enterprise services used to create these improvements at DeLaval leverage existing investments and bring together information that is now distributed all across the supply chain. They put that information into a more usable form to improve customer satisfaction with the manufacturer.

Results and Benefits

At GISA, OSRAM Opto Semiconductors, and DeLaval Services, information was quickly brought together in a focused manner to meet an urgent need and to restructure and optimize steps in existing processes. The development effort required to build these solutions was dramatically reduced thanks to enterprise SOA, which brings mature and ready-to-use enterprise services to companies that want to extract business value from their IT quickly.
PRODUCTIZED SOA: THE SAP ADVANTAGE

To provide consumable enterprise services, SAP takes a unique approach: it turns the process of adopting SOA on its head by converting a development project to an upgrade. Companies who upgrade to SAP Business Suite applications can put enterprise services to work right away to solve business problems. SAP has created specific offerings that simplify the process of adopting enterprise SOA and make it as easy as possible.

Exploration
SAP Discovery System software for enterprise SOA provides a ready-to-use “sandbox” environment for experimentation. It comes with everything needed to quick-start the creation of prototype composite applications that accelerate skill building.

Complete documentation of enterprise services and enterprise services bundles is available in the Enterprise Services Workplace (ES Workplace) site, in Enterprise Services Wiki (ES Wiki), and on hosted test systems on the SAP Developer Network site: www.sdn.sap.com/irj/sdn/enterprisesoa.

Consulting
SAP provides consulting services from seasoned professionals and has helped train a multitude of consultants on-site at SAP partner and systems integrator locations. These consultants can help you jump-start projects and provide extra help to accelerate skill building.

Platform
SAP ERP 6.0 enables you to install enhancement packages that include ready-to-use enterprise services. Enterprise services grouped in a comprehensive portfolio of enterprise services bundles are now available. These bundles target business processes that SAP customers and partners have said are urgently in need of innovation and improvement.

An extensible Enterprise Services Repository (ES Repository) contains all the enterprise services SAP provides in a single place. The repository can be extended to include custom services or those provided by partners or other third-party software vendors.

Enterprise services from SAP are based on all relevant technical and industry standards and represent state-of-the-art business semantics. Various initiatives throughout the SAP software ecosystem ensure that SAP’s support for standards stays up-to-date and that the needs of specific industries are met.

The SAP NetWeaver® Composition Environment offering enables the use of visual modeling techniques to make development even easier while reducing total cost of ownership and support. This ease of development and visual representation of processes can bring nontechnical specialists, such as business process experts, into the development process more easily. Composite applications based on enterprise services can also be created using existing development methods and skills via the ABAP® programming language workbench and the SAP NetWeaver Developer Studio tool.

Governance
Many challenging aspects of SOA governance – such as making sure that services are well designed, consistent, of high quality, and fully described in a repository – are handled by SAP as part of the product design and development process. Because SAP takes responsibility for governance in this way, companies adopting enterprise SOA do not have to roll out their own solutions. In addition, built-in governance functions accelerate development and reduce the risk of getting governance wrong. The result is a governance model that starts from a semantically complete and well-organized set of services. Homegrown services and those from non-SAP applications can easily be added.

Communities and Ecosystem
A thriving hub of community support for both developers and business process experts can be found in the SAP developer network and business process expert communities. SAP has also created a focused and targeted partner community that is providing services and support for products that will become part of the business process platform for enterprise SOA.
Throughout the SAP ecosystem there are multiple initiatives — industry value networks, the Enterprise Services Community program, and SAP business and technical standards compliance programs — that support the creation of enterprise services to meet the needs of specific industries and comply with standards at every level. These initiatives open up the requirements gathering and design process to allow participation of SAP customers and partners.

**Moving Beyond the “Toolkit” Approach to SOA**

Most non-SAP methods for adopting SOA are based on the “toolkit” approach. But to achieve benefit from this approach, you must use new tools to design and create services and then create your information in the repository. You must then make sure the services you create are consistent and reusable. Once all that is done, you can put those services to work. In essence, you have to invent your flavor of governance. With the productized approach offered by SAP, you start with all of that work done and can immediately begin to solve business problems, as the customer examples demonstrate.

GISA, for example, already had an SOA strategy in place but company decision makers found that the productized approach of enterprise SOA solved many of the governance problems they were facing, with much less effort than they would expend inventing solutions from scratch. OSRAM Opto Semiconductors was able to create a solution in just four to five weeks of development time. And all three companies have plans to take the new solutions they have created and offer them directly to outside partners.

Enterprise SOA provides a complete productization of those aspects of governance that are most common across companies, including the most important aspects — design-time and run-time governance. Initially, most companies focus on design-time governance, shifting toward run-time governance as enterprise SOA solutions are deployed. These companies must still supplement the productized governance in various ways and decide how to adopt suitable enterprise services roles and structures and put them in place. But the risk of failure is dramatically reduced by starting with a fully productized set of enterprise services that have governance built in.
MAKING SOA HAPPEN: A STEP-BY-STEP APPROACH

The breadth of the SAP approach to SOA leaves many companies with a sense of relief—a hope that SOA is easier and less risky than they first imagined. But how exactly do they get started implementing it? Here is one common path that shows how all elements of enterprise SOA can be put together to work for you.

Establishing the Foundation

The road to enterprise SOA begins with business challenges. At some point in the life of many modern companies, flexibility and rapid innovation become a necessity. From an IT perspective, enterprise SOA provides a foundation that allows a company to build novel solutions that support experimentation and new business models faster and cheaper than any other approach now available.

The technical prerequisite for enterprise SOA is usually a plan to upgrade to SAP ERP 6.0, which is based on the SAP NetWeaver 7.0 platform and is the foundation on which all the enterprise services bundles are constructed. The implementation of all products related to the changeover, including SAP ERP, enterprise services, and SAP NetWeaver, enable customers to evolve their current IT landscape into a business process platform. To speed the evolution, companies can deploy ES Repository right away, before an upgrade is complete, so that solutions based on enterprise services can be designed immediately.

Upgrading ERP systems is easier today than it ever has been. While an upgrade is being planned and executed, you can get experience, begin planning, and actually create applications right away using SAP Discovery System, fully functional SAP ERP 6.0 software, and development tools that come preinstalled on one computer.

Getting Involved

During the planning stages and continuing through deployment and operations, both beginners and serious practitioners find that the ecosystem of initiatives SAP has designed to support enterprise SOA can accelerate progress. SAP developer network and business process expert communities provide ways to learn from the experience of others, connect with peers, and share knowledge. The industry value networks and the ES community allow SAP customers and partners to suggest new services and help design them. In addition, through a dedicated standards initiative, SAP is constantly looking for ways to improve support for all standards, including those related to enterprise SOA at both the technology and industry level. And SAP can help accelerate progress during the planning stages of enterprise SOA via service offerings designed to help create enterprise SOA road maps or evaluate how to improve architecture and infrastructure as part of a program of enterprise SOA.

Breaking the Ice

Once the right opportunity has been identified—and at GISA, OSRAM Opto Semiconductors, and DeLaval Services this happened in a matter of weeks—you can get to work implementing change, confident that the riskiest parts of an SOA program, such as governance, are taken care of. With traditional approaches to transformation, SOA is seen as investment that pays off eventually through reuse. With enterprise SOA, SAP has already created the enterprise services, and the payoff starts as soon as you put those services to work.
Whether you get started on your own or use SAP consultants to accelerate progress, the first stop for exploring and understanding how to apply enterprise SOA to your business should be the SAP Developer Network site, where you can find ES Wiki and ES Workplace. ES Wiki describes each of the enterprise services bundles and related business-use cases in great detail and shows how to put them to work. ES Workplace provides detailed technical information on each enterprise service. SAP Developer Network supports both cross-industry and industry-specific views. Just browsing through a few of the enterprise services bundles gives most people numerous ideas about how to put enterprise SOA to work to create a new solution that can address a dedicated use.

Once you have an idea for a composite application, development is just a matter of using the tools SAP has provided, such as SAP NetWeaver Developer Studio for Java applications or the ABAP workbench for ABAP-based applications. Enterprise services are used via the descriptions found in ES Repository. SAP NetWeaver Composition Environment, which is going into ramp-up in 2007, provides a visual, model-driven form of development. Nothing drives adoption faster than a successful example.

**Scaling Up**

After your organization has made a commitment to enterprise SOA, SAP Consulting provides services that can accelerate progress and learning through training and special offerings designed to speed adoption. Productization removes much of the risk from the adoption process, as many companies have already demonstrated. New solutions are easier to build and IT becomes a lever for action. The challenge then is to imagine what your business can become and how your company can best succeed in the marketplace. Increasingly, companies that succeed are those that learn how to harness enterprise SOA to help them move faster than their competitors. When you are ready to make a change, SAP is ready to help.