

# Cutting Edge Technologies

## The Business of Business in the 21<sup>st</sup> Century PAC-10 Conference, 2007

---

**To:** Dr. Lee Cerling, Director of Recruitment, PAC-10 Consulting

**From:** Tommy Trojan, Intern, PAC-10 Consulting

**Date:** Monday, February 12<sup>th</sup>, 2007

**Re:** Plug-and-play Solution at the Business Process Level

---

As far as you know, legacy application is the application that continues to be used because the company or users do not want to replace it. Legacy applications usually cause a lot of problems in the companies. The requirements for improving competitive advantages of the company contradict to problems created by legacy applications, which are too complicated for integration especially when the matter concerns end-to-end business process. Service-Oriented Architecture (SOA) can be examined as an appropriate and effective business solution. Service oriented solutions helped Owens & Minor, TransUnion, Pfizer and MasterBrand Cabinets building new business processes with a quick and cost-effective depletion.

It is difficult to imagine what could occur if DVD-system connection standards were different. In order to watch a film, a user had to use different cables to switch on sound system and television set. The process of preparation for watching the film would provoke a number of negative emotions.

Scenario similar to the proposed seems to be funny. However, in the past few decades the companies had to overcome similar difficulties, when the matter concerned business-processes support systems. The developers had to develop non-standard interfaces in order to integrate the solutions with monolithic corporate systems (the system, where processing, data and the user interface all reside on the same system). In order to get a proper solution and to integrate processes the companies had to create connecting-links with human intermediate participation. As a rule, adaptation of legacy applications to modified business conditions is impossible on account of obsolete (too old) equipment and/or high costs. At the same time, necessary data is 'hidden' in monolithic applications.

Service-Oriented Architecture (SOA) based on software components with standardized Web-service interfaces makes integration of software application simpler and enhances process management. Such approach can be used for program assembling and linking of processes

that can be modified without the necessity to change the code and are compatible with all software platforms. Janelle Hill, the analyst from Meta Group, proposes to transfer IT applications in Service-Oriented Architecture when the user needs more flexible business processes.

These issues and assumptions make practical application of Service-Oriented Architecture a vital issue in conditions of consistently changing business environment and an important task that should be discussed at the conference.

Some of my recommendations include the following: Service-Oriented Architecture can be examined as one of the most effective business solutions. However, in spite of its visible effectiveness and indubitable advantages, such as flexibility, speeding up, simplicity and reusability, the technology should be examined with caution due to lack of reliability and failure tests. Additionally, although SOA brings positive results for the companies with fully-automated processes, there is not enough data concerning its use in the processes where human factor plays a key role.

In this document I will cover the following issues:

- Effectiveness and responsiveness (2)
- Flexibility (4)
- Speeding-up of customer's orders execution (Sappi Fine Paper) (4)
- Reusability (5)
- Potential difficulties (5)
- Conclusion (5)
- Works Cited (7)

---

## **Effectiveness and Responsiveness**

By the end of 1990s term 'web-service' aroused a certain misunderstanding and was the subject for controversy. Many developers considered that the matter concerns rendering services via web. As a matter of fact, the term 'web-service' means distribution of the applied components based on web-technologies. The main idea of web-service is to provide the companies with opportunity to create new solutions using applications from different sources. It was intended that, as required, new components and services could be found in internet, for example, by using a special WSDL language for description, a special UDDI (Universal Description, Discovery and Integration) for search, and SOAP (Simple Object Protocol) for association and, finally, extensible XML for integration into all-in-one solution.

The pioneers of the market discovered another way to use web-services to solve two main issues. Firstly, quite easy and simple XML protocol changes web-services into a perfect instrument to create SOA in the companies, which modernize and upgrade their IT-environment. Secondly, web-services facilitate integration of applications and allow the companies creating new applications faster. Such approach facilitates automation and modernization of business processes.

Owens & Minor, one of the major retailers of medical and surgical instruments, was oriented at upgrade and modernization of the IT environment during their accomplishment of 4-year project of modification of their corporate information infrastructure into Service-Oriented

Architecture. According to David Guzman, the senior vice-president and IT manager of Owens & Minor, the project was originally initiated because legacy applications were difficult to change. At the same time, the company had to add new business services like SCM (Supply Chain Management) and local office personnel building (Manasco).

The company tried to find a solution. David Guzman and other managers were aware of the fact that copying non-standard functions of legacy applications requires much work. The managers preferred the upgrade solution proposed by Relativity Company. Their solution allowed analyzing the code of these applications, improving the basic business processes, and rebuilding software. The project was accomplished in 2004.

The managers of Owens & Minor discovered that implementation of the project helped the company to upgrade its IT technologies and to improve business processes. The managers conducted a search of the instrument, which was able to link such components. At the beginning of 2004 Owens & Minor fixed upon a solution proposed by Fuego.

From the very beginning the solution was used for two processes of a secondary importance and another process, which was so negligible that the developers were ready for any kind of change. The third process was the 'debit procedure', which function was to remove out-of-date products from the company's warehouses and, if possible, to return them to manufacturers on account of their future deliveries. Previous Supply Chain Management solution proposed by Manugistics created a report of warehouse supplies with assortment of the out-of-date products. The report was sent to all 42 warehouses belonging to the company, where the workers had to find the products manually. As their next step, the employees contacted headquarters to get instructions concerning the return policy and to find out which products should be returned back to the manufacturers. Further the workers contacted manufacturers to get approval for returning products, prepared special return orders in a specially developed warehouse management system, and notified accountants, who were responsible for account payable.

The analysis of legacy services allowed Owens & Minor creating completely new debit procedure for less than one month period. Nowadays, BPM system Fuego receives report of warehouse supplies, using the rules with already integrated information of return policy concerning all manufacturers, and generates the list for warehouse workers. The mechanism of management process automatically generates e-mails to manufacturers with inquiry for return, generates shipping orders, notifies the department of account payable and keeps track on credit information. The warehouse employees have only to find the necessary products and to organize the process of delivery.

Towards the end of the period (2004) the debit procedure was still in the closing stages of accomplishment. However, the new procedure allowed improving the management of 'expiry date' process, set a priority in product dislocation and helped to return the major part of out-of-date products. The company expected annual saving of \$650.000 (Austvold) due to improved control precision, productiveness and cash operations.

The solutions were effectively implemented and helped Owens & Minor quickly automate all target processes. Speed and effectiveness were the main advantages. Several years ago the similar project could take more than nine months, compared to 3-week project based on the new solutions.

## **Flexibility**

SOA flexibility also became a critically important factor for development of the main business processes in TransUnion Settlement Solutions. The company used SOA as a secondary process for the departments of credit limit check, extent, owner definitions, revelation of flood regions and other services related to credit operations. Customers receive a summary through special web nodes; however, information originally comes from applications developed by TransUnion.

From the very beginning TransUnion utilized a 'workflow' system to maintain control of requirements to collected data (TransUnion Case Study). However, 'workflow' system was based on mainstream and allowed no use of service-oriented structure of the underlying applications. The business processes were developed under a special centralized model. The problem was that this centralized model was not perfect and was not compatible with other applications.

Early 2004 the company adopted a new solution proposed by Savvion. Nowadays the solution is the backbone and database processing for all business information. It allows connecting new applications and services so quickly that the procedure can be called 'plug-and-play'. The processes are added easily and do not interfere the work of other applications.

At first TransUnion used both systems together in order to complete the assurance tests and to minimize risks before the old 'workflow' system will stop functioning. The managers assert that costs are repaid a hundredfold. The most important advantage of SOA architecture and BPM system is the ability to develop new products quickly. According to TransUnion managers, they were able to add approximately ten new products during a month compared to several months in the old workflow system.

## **Speeding-up of customer's orders execution (Sappi Fine Paper)**

When the company produces 1.3 million tons of enamel-paper per year, it feels necessity in a reliable system of management and order execution. Two years ago North American department of Sappi Fine Papers used a combination of locally developed applications and mainframe legacy software to handle the task of ever-growing demand for their production. Sappi's customers are paper retailers and distributors. In order to retain its competitive advantages, in 2002 the company improved customer service and guaranteed delivery the next date after processing the order. However, the old software was not perfect and the employees had to re-enter information manually because of conflicting data. Additionally, Sappi planned to replace mainframe legacy applications by newer SAP R/3 (Henschen).

Sappi decided to use web-services for integration and process management to build the process of order management and to reduce expenses for SAP R/3 implementation. The company created separate services to solve each of the tasks independently: from data conversion and error handling to order escalation. New process reduced the time spent for customer support by almost 40% and reduced the duration of the order processing by 30-45 minutes.

## **Reusability**

Reusability of web-services in business processes is an additional advantage of SOA in BPM initiatives. Several years ago Pfizer developed a project of upgrade of the corporate IT (Weiss). Along with Owens & Minor, Pfizer acknowledges SOA advantages for improving business process management. Pfizer implemented Teamwork solution developed by Lombardi. The main objective was to improve ineffective process of rewards and incentives.

Pfizer created a process map, defined stages of potential automation, created service responsible for routing, and organized integrations with a basic system of reward calculation and document storage. The company plans to utilize the same routing service in other processes like corporate procedures of educational and incentive grant approvals.

Reusability of application components is not a new word in the modern technology. However, previous experiments mostly failed due to improperly documented connection processes of reused components. As a result, the same part of program code was used in different places by the same application with insignificant changes. When the update was required, it was taking time to find all these code changes. Besides, such operation involved risks.

## **Potential difficulties**

It is erroneous to consider that development of a valuable SOA solution is a low-cost process that takes a few months. All the companies (Owens & Minor, TransUnion, Pfizer, Sappi Fine Paper and MasterBrand) successfully implemented SOA solutions within several months but SOA solutions were consistently reexamined and enhanced. Nevertheless, David Guzman claims that alternative solution could be even more expensive.

The companies should be ready to face difficulties heading toward development of new architecture. There are also cultural problems involved, as far as people working with the old applications are not interested in drastic changes. Sometimes the development and implementation of new solutions contradicts to old and well-known methods of appraisal and reward used in the organizations. Additionally, the employees have to learn how to work with the new applications.

At the same time, SOA is profitable not only in relation to BPM but also to data management processes, trade and portals. In order to assure recoupment of investments, the company should define the spheres where SOA's impact will be the most influential. For example, in case the company's strategy is based on maximum possible merchandising, the company should place high emphasis on applications used for development, design, market introduction and product marketing.

## **Conclusion**

Evidently, implementation of Service-Oriented Architecture (SOA) can and should be examined as an appropriate and effective business solution.

At the same time, the technology is too young and has few reports concerning reliability inspections and failure tests in applications of critical importance. In case the organization requires high level of serviceability, simplicity, accessibility, reliability and safety, they need

to complete thorough SOA testing and examinations before the company will start to apply SOA in the industry.

The second aspect concerns the company's infrastructure. Implementation of new SOA architecture raises a problem of cultural relationships between the company's employees. Not all users of legacy applications will adopt the implementation of a new technology. Finally, BPM solutions based on SOA will be of benefit only for companies utilizing fully-automatic processes. It is still not clear whether the use of SOA and BPM solutions for enhancing processes, where people play the important role will be effective.

# Works Cited

- Austvold, Eric. [Orchestrating Services in SOA: Success at Owens & Minor](#). 31 March 2005. 12 February 2007  
<<http://www.amrresearch.com/Content/View.asp?pmillid=18137> >.
- Henschen, Doug. [Services ease integration, speed order fulfillment and cut customer service costs](#). 1 February 2005. 12 February 2007  
<<http://www.intelligententerprise.com/showArticle.jhtml?articleID=16070>>.
- Manasco, Britton. [Speed wins at Owens and Minor](#). 11 February 2005. 12 February 2007 <<http://blogs.zdnet.com/service-oriented/?p=185>>.
- TransUnion Case Study. 12 February 2007  
<[www.optier.com/downloads/analysts/IDC%20-%20TransUnion's%20TrueCredit%20Case%20Study.pdf](http://www.optier.com/downloads/analysts/IDC%20-%20TransUnion's%20TrueCredit%20Case%20Study.pdf)>.
- Weiss, Todd. [Pfizer case study: Hiding complex apps behind user-friendly interfaces](#). 9 March 2004. 12 February 2007  
<<http://www.computerworld.com/developmenttopics/development/story/0,10801,90933,00.html> >.