

Surgency (formerly Benchmarking Partners)

A Collaborative Model To Integrate Delivery Chain Information

As healthcare reform prompted the consolidation of independent regional healthcare providers into integrated delivery networks, the incompatibility of countless healthcare information systems posed crippling difficulties for the continued delivery of quality, cost-effective care. The development of a standard framework to integrate the industry's disparate information systems became crucial to the rapidly evolving U.S. healthcare system. The Patient-Oriented Management System (POMS), an innovative patient-focused integration effort, brought together hundreds of healthcare professionals to develop an infrastructure that would allow the sophisticated, rapid exchange of data for real-time decision support across the healthcare delivery chain. Although the technological risk was high, Benchmarking Partners, with co-funding from the Advanced Technology Program (ATP), prototyped the POMS technology. As part of ATP's Focused Program, Information Infrastructure for Healthcare, the original healthcare-focused project encountered implementation obstacles, but a spin-off technology, Collaborative Planning, Forecasting, and Replenishment (CPFR®), met with significant commercial success and continues to improve the efficiency of supply chains in a wide variety of industries.

COMPOSITE PERFORMANCE SCORE

(based on a four star rating)

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Research and data for Status Report 94-04-0046 were collected during October - December 2001.

Improved Communication Promises Significant Cost Savings

Restructuring the U.S. healthcare system into integrated delivery networks, formed to improve the efficiency of the industry, presented the mammoth challenge of establishing interoperability among the many entities in the healthcare delivery chain. Effective operation requires rapid exchange of data among clinicians, financial providers, suppliers, pharmaceutical companies, and other components of the healthcare system. The existing framework, composed of disparate legacy systems, lacked the information infrastructure to support adequate communication within and across organizational components, prohibiting the real-time decision-making necessary to preserve quality of care while maintaining cost effectiveness.

The current system required that clinicians spend a great deal of time tracking down patient records or repeating tests because of incompatible diagnostic procedures across institutions. This inadequately managed information system presented a significant opportunity for cost savings. In its proposal to ATP's Focused Program for Healthcare Information Infrastructure, Benchmarking Partners estimated that the industry could save \$80 billion annually through better information management, an amount the company considered conservative, because it did not include the benefits of real-time decision support.⁽¹⁾ While the 1993 Working Group on Computer-Based Patient Records' report to the Secretary of Health and Human Services estimated that the task of developing an information infrastructure would take 15 years and would cost \$100 million, Benchmarking Partners anticipated a solution in 3 years at a fraction of the cost.

1. The company is referred to as Benchmarking Partners in this Status Report. After the ATP project concluded, the company changed its name to Surgency.

Benchmarking Partners identified integration at the information management level as the greatest challenge facing the healthcare industry. Though various groups attempted to construct laboratory, instrument, and medical record structure standards to coordinate their systems, no model existed that comprehensively addressed the integration problem. Benchmarking Partners recognized that an innovative framework capable of integrating an array of legacy systems was the keystone for improving the delivery of quality and cost-effective healthcare. The company applied to ATP for funding the development of the technology to achieve this framework and received a three-year award in 1994.

POMA Provides Framework for Data Exchange

In response to the healthcare industry's need for an information infrastructure, Benchmarking Partners devised the Patient-Oriented Management System (POMS), later renamed Patient-Oriented Management Architecture (POMA). POMA was to provide a standard framework for the exchange of data between disparate legacy systems by creating an interface to define the communication between applications, such as a clinical diagnostic tool and a cost management system.

The existing framework, composed of disparate legacy systems, lacked the information infrastructure to support adequate communication.

POMA aimed to break the boundaries between these disengaged information systems through its patient-focused reference model. This goal involved significant technical risk, because transforming important data into a widely accessible format required the integration of hundreds of deeply entrenched legacy systems.

The POMA framework approached the challenge by creating object-oriented interfaces that define communication between six enterprise systems: finance and administration, clinical care, services and plans, resource management, contracting and suppliers, and research and education. Ideally, the framework could support a system in which a healthcare professional could simply type in a patient's name to access information ranging from diagnostic tests previously performed at other facilities, to the availability of an

uncommon prescription drug at the local pharmacy. The system also provided protection of proprietary information and safeguards for patient privacy, allowing critical disclosures between appropriate parties while preserving confidentiality.

Project Focus Is Redirected to Retail Industry

Benchmarking Partners successfully developed the prototype software for the POMA model and formed a working group of more than 300 members that met regularly to plan strategies to implement the technology across the healthcare chain. However, the project met resistance from healthcare application vendors who hesitated to integrate with their competitors.

Transforming important data into a widely accessible format required the integration of hundreds of deeply entrenched legacy systems.

With permission from ATP, Benchmarking Partners shifted its focus from the healthcare delivery chain specifically to a universal component of any delivery chain: the relationship between manufacturers and retailers. Having observed the inefficient interaction between manufacturers of medical and surgical supplies and the supply departments in healthcare facilities, Benchmarking Partners estimated that the development of a stockless inventory system based on just-in-time delivery could reduce monthly stocking costs by tens of thousands of dollars per healthcare facility. Moreover, they recognized the opportunity for broad-based improvement of all delivery chains through the implementation of a generic model to enhance communication between supply and demand components.

While real-time communication across the supply chain would provide multiple benefits, it required the significant technical task of integrating valuable information into a standard, accessible, and useful format. Selecting the retail industry's delivery chain as their pilot focus, Benchmarking Partners directed its efforts toward developing an Internet-based collaborative model that would synchronize manufacturers' forecasting and replenishment planning processes with those of their retailers.

Spin-off CPFR® Technology Increases Supply Chain Efficiency

In late 1997, Benchmarking Partners began developing the Collaborative Planning, Forecasting, and Replenishment (CPFR®) technology. This spin-off technology originated through Benchmarking Partners' ATP-funded effort to improve efficiency by developing technology to support real-time collaboration across a delivery chain. CPFR® increases the efficiency of supply chains by allowing manufacturers and retailers to use the Internet for real-time synchronization of sales forecasts and business plans.

As part of its refocused project, Benchmarking Partners formed an alliance with SAP America, Manugistics, Wal-Mart, and Warner-Lambert to organize the Retail Working Group, the first retail business-to-business collaboration initiative. The Retail Working Group established a pilot project to explore the potential for retailers and manufacturers to collaborate on a supply and demand forecast, based on participation between Wal-Mart and Warner-Lambert. The pilot prototype worked by importing initial forecasts from each end of the supply chain and scanning them to detect any discrepancies in supply or demand figures that exceeded preset exception thresholds. If exceptions were found, the software generated a notification to the appropriate trading partners, who then proposed revisions until they reached a shared forecast.

Successful Pilots Elevate CPFR® Technology to Mainstream

The success of the Retail Working Group in quantifying and proving the business benefits of supply and demand forecast collaboration prompted the formation of the Voluntary Interindustry Commerce Standards (VICS) CPFR® committee. Benchmarking Partners published a protocol from its pilot on its web site and shared process models and other documented results with the committee. This diffusion of knowledge led to the VICS committee's involvement in another pilot effort undertaken by Wal-Mart, Lucent Technologies, Sara Lee Corporation, Ernst & Young, SAP America, and Sun Microsystems. Wal-Mart and Sara Lee, the collaborative participants in this initiative, reported a 14-percent reduction in store-level inventory with a 32-percent increase in sales during the pilot test.

Encouraged by this success, the VICS committee published a CPFR® manual to explain the process and its implementation and to assist companies in determining how CPFR® could impact their business.

With low barriers to participation and benefits of a quick return on investment demonstrated by Wal-Mart's leading initiative, other pilot projects followed. CPFR® technology rapidly became a mainstream business practice within the retail industry. The VICS CPFR® manual was made available for free online or for purchase in hard copy. To date, more than 110 major corporations have joined the VICS association as a starting point for implementing CPFR® practices to improve their supply chains.

CPFR® Technology Is Successfully Commercialized

In 1998, Matt Johnson, a partner of Benchmarking Partners during the ATP project and a key player in the company's involvement with CPFR®, joined with other industry leaders to launch Syncra Systems. Syncra successfully commercialized collaborative technology with its flagship product, Syncra Ct®, the first 100-percent-compliant, vendor-neutral solution to support VICS guidelines for CPFR® implementation. Today, Syncra is a premier provider of supply chain collaboration solutions with \$4.6 million in annual revenues and 35 employees. Syncra projects that in the next decade its collaborative technology and services will enable inventory reductions, service-level improvements, and sales increases that are expected to result in more than \$100 billion in economic gains worldwide.

Technology Provides Broad-Based Benefits

The implementation of collaborative practices offers a high return on investment by achieving cost-saving reductions of inventory at a relatively low start-up price. Because CPFR® guidelines are easily accessible, this technology has the potential to benefit the entire manufacturing and retail supply chain. Industry research suggests that \$1 trillion of goods are kept in inventory across the supply chain at any given time. Syncra estimates that 15 to 20 percent, or \$150 to \$200 billion, of held inventory could be eliminated through improved planning, forecasting, and replenishment

practices. With a 25-percent annual carrying cost, such a reduction of inventory could save the industry \$40 to \$50 billion in the United States alone.

This technology has the potential to benefit the entire manufacturing and retail supply chain.

By reducing demand uncertainty and increasing the operational effectiveness of both ends of the supply chain, collaborative practices benefit both retailers and manufacturers. The end result of collaboration is lower prices of retail goods to the ultimate benefit of the consumer.

Collaborative Practices Become a Trend Across Industries

Collaborative practices that emerged as a result of this ATP-funded project have become standard in the retail industry, providing significant savings to manufacturers and retailers alike. Furthermore, other industries have quickly adopted these strategies. Cutting-edge manufacturers have turned to their own suppliers to expand forecast collaboration capabilities to encompass the entire supply chain. For example, the high-tech industry has incorporated CPFR® business practices, as demonstrated by the consortium, RosettaNet. This consortium of information technology, electronic components, and semiconductor manufacturing companies works to align processes between supply chain partners on a global basis.

Diffusion of Collaboration Strategies Continues

In addition to the online accessibility of CPFR® guidelines available through VICS, Benchmarking Partners continues to offer consulting services and collaborative software to accelerate the implementation of collaborative strategies that emerged from its ATP project. Because of its expansion into the collaborative strategies market, Benchmarking Partners attracted venture capital from Cisco Systems, Inc., and the Internet Capital Group, who are now strategic partners of the company.

Ted Rybeck, chairman and founder of Benchmarking Partners, originally applied to ATP for funding the development of Internet-based collaborative models.

He continues as chairman of Surgency (the new company name, which reflects the expansion of its services) and currently teaches courses on value chain collaboration strategy at the Wharton School and the Massachusetts Institute of Technology.

Alliance with ATP Leads to Pioneering Efforts

The alliance with ATP permitted Benchmarking Partners to pioneer efforts to develop Internet-based collaborative strategies and to overcome the technical challenge of integrating valuable data from disparate forecast systems into a standard, accessible, and useful format.

The ATP award was influential in the company's ability to attract sponsorship from the leading applications provider, SAP America. This partnership led to the larger alliance between Benchmarking Partners, SAP America, Manugistics, Wal-Mart, and Warner-Lambert. Furthermore, it led to the creation of the Retail Working Group, which piloted the implementation of CPFR® technology, prompting the formation of the VICS CPFR® committee.

Conclusion

According to Benchmarking Partners, "The market success of collaborative forecasting and replenishment and the recent commercial investment in Benchmarking Partners demonstrates the effectiveness of programs like the Advanced Technology Program. By identifying and supporting innovation at the pre-commercial stage, ATP grants allow companies like Benchmarking Partners to take substantial risks and develop new market opportunities.

FUTURE DEVELOPMENTS

n-Tier Value Chain Collaboration
Collaborative Transportation Mgmt.
Streamline Business Processes
Globalization
Trade Exchange Scenario
Interoperability Guide
XML Messaging Model
ROI Calculator

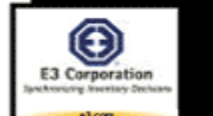
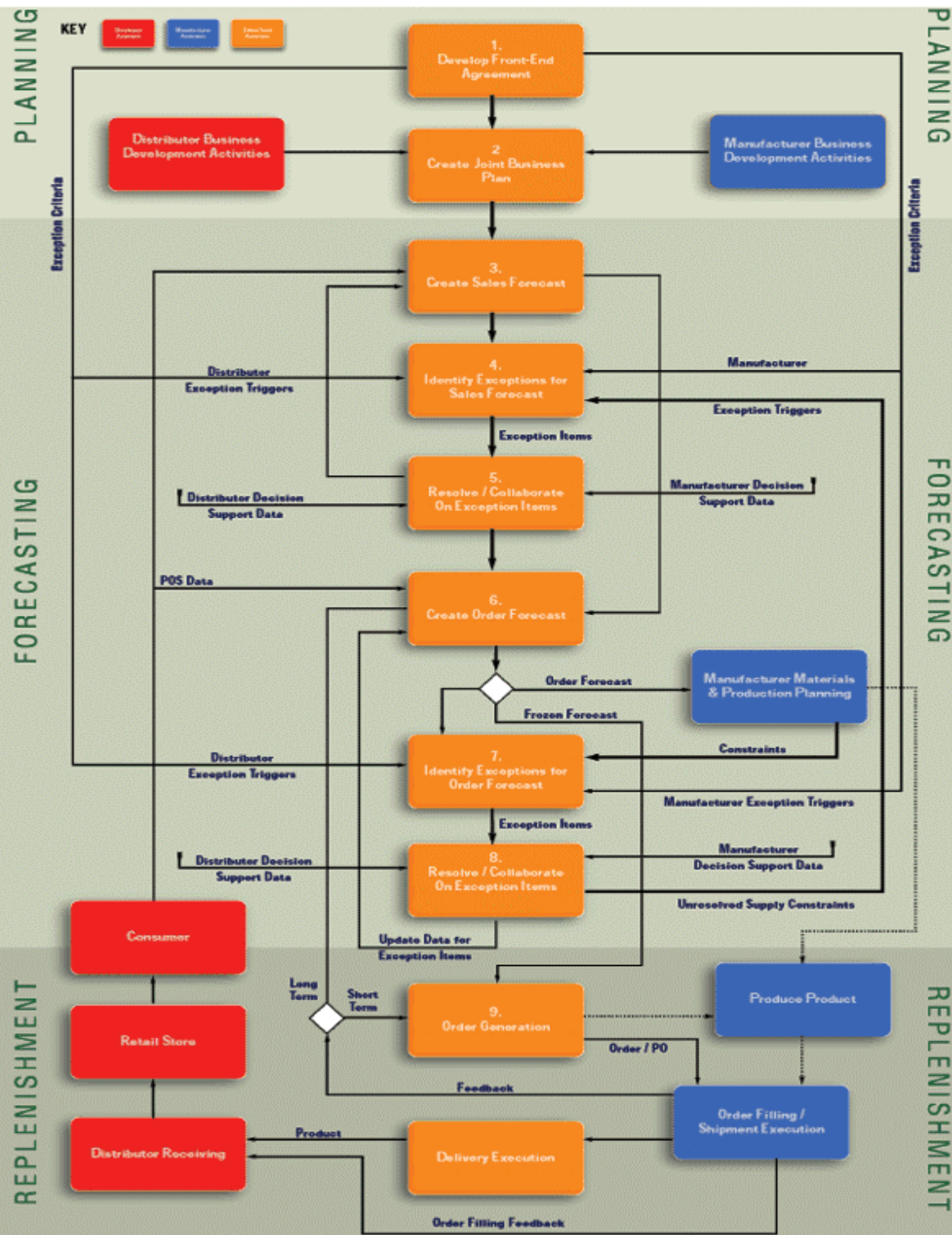


Figure 1. The VICs Global CPFR® guidelines.

PROJECT HIGHLIGHTS

Surgency (formerly Benchmarking Partners)

Project Title: A Collaborative Model to Integrate Delivery Chain Information (Patient-Oriented Management Systems: An Integration Infrastructure for Healthcare)

Project: To develop a reference model that defines the necessary communication of healthcare information for the purpose of integrating the healthcare industry's incompatible legacy information systems.

Duration: 12/15/1994-12/14/1997

ATP Number: 94-04-0046

Funding (in thousands):

ATP Final Cost	\$2,000	41%
Participant Final Cost	<u>\$2,872</u>	59%
Total	\$4,872	

Accomplishments: Although it was funded under the ATP's Information Infrastructure for Healthcare focused program to develop technologies to improve information services across the healthcare industry, this successful ATP project has had the greatest impact in manufacturing and retail operations. Benchmarking Partners' software product, CPFR®, is marketed through spin-off company Syncra. It is being used by dozens of large companies—from Sara Lee to Wal-Mart—to improve communications and to forecast accuracy across their supply chains. The product has generated tens of millions of dollars in sales revenue for Benchmarking Partners and its subsidiaries.

Early adopters of the software are experiencing the following measurable benefits:

- Increased sales by preventing products from being out-of-stock, especially during promotions
- Improved returns on assets due to higher sales volumes relative to inventory levels

Test results from actual use are promising. For example, an application in the food industry resulted in a 17-percent increase in sales and an 18-percent decrease in inventory, and an application in the women's clothing industry resulted in a 45-percent increase in sales and a 23-percent decrease in inventory.

Commercialization Status: Benchmarking Partners achieved commercialization via the collaborative forecasting and replenishment component of the original Patient-Oriented Management Architecture (POMA) initiative. Warner-Lambert purchased a pilot version of its collaborative technology, and Kmart, Gillette Corporation, and others paid for executive briefings, access to collaborative process models, and consulting services. Benchmarking Partners, which has since changed its name to Surgency to reflect the expansion of its services, continues to offer consulting and collaborative software to expand the commercialization of its CPFR® technology.

Additionally, former Benchmarking Partners spun off Syncra Systems following the company's work on the ATP project. Syncra has commercialized several collaborative technology products, including its flagship Syncra Ct® software, which is based on the ATP-funded technology.

Outlook: The Internet-based collaboration approach pioneered by Benchmarking Partners as a result of this ATP project has revolutionized the manufacturer/retail supply chain model, making collaborative planning, forecasting, and replenishment practices standard for the industry. With its proven capability to reduce inventory costs, improve customer service levels, and increase sales, the outlook for continued development of the CPFR® technology is excellent.

Composite Performance Score: * * *

Number of Employees: 25 employees at project start, 25 as of December 2001

Focused Program: Information Infrastructure for Healthcare, 1994

Company:

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