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E-Government Services

Research on “CONFIGURATORS”
e-Purchasing Application
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1.0 Overview

1.1 Introduction

Configurator software is a tool that allows a user to define a product that meets certain given criteria by combining a number of parts, features or functions. In the age of e-Commerce, the Configurator software is part of the web storefront which acts as a virtual salesperson. It allows customers to assemble, customize or select components based on preferences or requirements in order to purchase a final product of choice. A good example is buying a computer from a web site, where the customer gets to select the type of computer, and customizes it with different components of his choice, such as the size of the hard drive, or the type of monitor.

In the context of the federal government, this type of software could be integrated into the procurement process.

PWGSC currently has an e-Purchasing system. It is an e-commerce application that allows GoC staff to access a web-based application to purchase goods and services from various external suppliers. Currently, these supplies include:

- Office supplies
- Office furniture
- First-aid supplies
- Etc.

As part of a future release, e-Purchasing will support the purchase of "configurable goods". This refers to items where the consumer has to select from many options, put them together and come up with a final price.

Non-registered GoC staff can access and view catalogues by using the BROWSE feature at the e-Purchasing intranet site: <https://e-Purchasing.gc.ca>

This document will address specific aspects of the Configurator software industry. The purpose is to highlight the top vendors, identify strengths and weaknesses, costs, case studies, lessons learned, and potential evaluation approaches in selecting a configurator software solution.

The report was produced based on research material available from the vendors and third party research groups such as the Gartner Group and Forrester Research. Additional information was obtained through direct contact (e-mail, telephone) with product sales people.

2.0 Research Results

2.1 Who's using them?

The most obvious adopters of configurator software is probably the PC manufacturers such as Dell Computers.

In reality, configuration products today cover a broad spectrum by addressing the requirements for all types of industries. Interviews conducted by the Forrester Research group and information available from different case studies indicate the following industries have adopted online configurations solutions:

- Computing;
- Automotive;
- Telecom; and
- Others such as Electronics, Toys, Gardens, Plumbing, Medical and more.

2.2 Products

In July 2000, The Gartner group completed an evaluation of the most important Configurator product vendors, and presented the results on a “Magic Quadrant” (see figure 1). The four quadrants represents the Niche Player, the Visionaries, the Challengers and the Leader. This is based on vendor’s ability to execute and completeness of vision. The products were evaluated based on multiple criterias. These criterias are:

- Cross-vertical-industry experience
- Functionally complete with multiple configuration capabilities
- Proven tools to maintain configuration models
- At least twenty production references with different case studies
- Strong Distribution Channels and financial position
- Between 75 and 125 service providers or internal consultants
- Ability to generate multiple customized outputs
- GUI for salespeople or customers

Sales Configuration Magic Quadrant

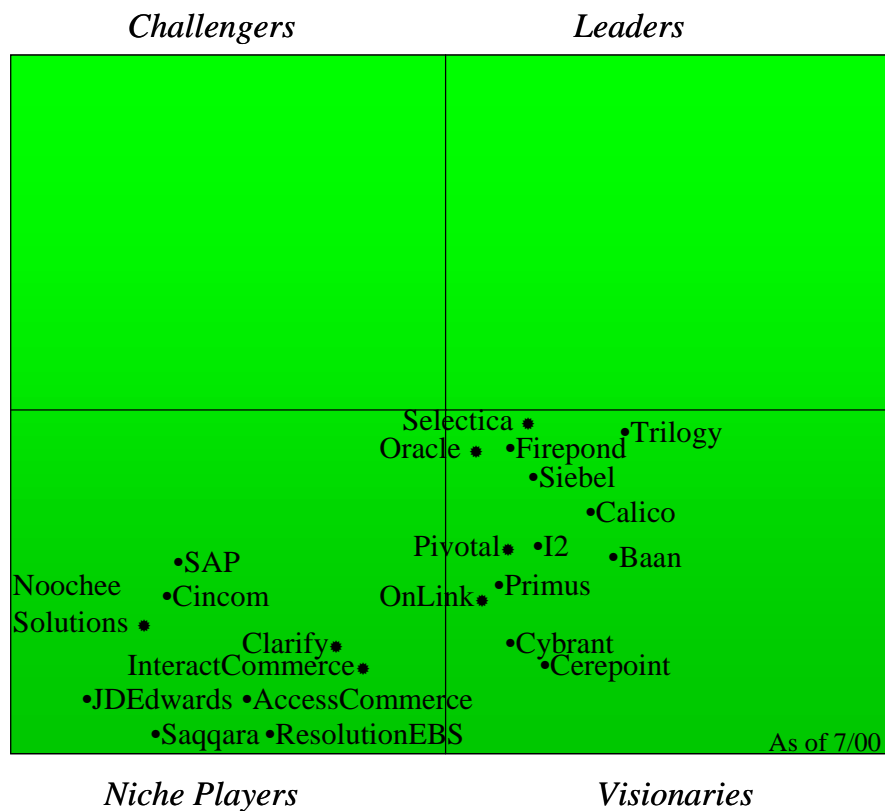


Figure 1 - Sales Configuration Magic Quadrant

Adapted from Gartner Group

2.3 Performance Benchmarks

Products will operate on various server platforms from Windows NT to RISC based processors. Although very little information exist on performance benchmarks, one vendor, Calico Commerce, produced a comprehensive report, and was later independently audited to ensure valid and accurate results.

The results demonstrated on a Windows NT Server (fully loaded)¹, operating both the web server and the configurator software, could generate a throughput of approximately 40 configurations per second. Performance is further increased when servers are clusters.

More details on the testing approach and results can be obtained from the report entitled “Calico Advisor Performance Benchmarking” dated August 22, 2000, located on the Calico Commerce web site (www.calico.com).

¹ Dell PowerEdge 6300, 450Mhz, 4Gb RAM, 44Gb disk, Intel Pro/1000 NIC, Windows NT4, IIS v4

2.4 Cost

Interviews conducted in late 1999 by Forrester Research with 40 early adopters of Configurator software, demonstrate the high cost when purchasing a product rather than developing their own solution. The study indicate that Configurator projects can average around \$1Million when products are purchased and implemented. Both approaches bear a high ongoing annual cost.

Table-1 Buy vs. Build a Configurator software solution

	Buy	Build
First year implementation	>\$1Million	\$439,000
Ongoing annual costs	High	High

Different pricing arrangements exist depending on the vendor. As part of this research, further information was requested from a shortlist of Configurator vendors. The information requested, was specific to the price per seat for one hundred users. The request for information was sent to the following vendors:

- Baan
- Calico
- i2 Technologies
- Siebel
- Trilogy

From the above list of vendors, only Siebel and Calico responded. Calico provided a ballpark cost of US\$300K for one hundred concurrent users.

Siebel provided detailed pricing arrangements that included price per seat, server components, Technical Account Manager (TAM), Customer Support and Maintenance. The TAM is the lead Siebel technical advisor and customer advocate within the Siebel organization. The TAM supports and assists customer project teams in project planning, end user requirement definition, data interfaces, enterprise technical architecture, education, design and configuration. The TAM also works with customers to determine what specific Expert Services are required for a successful implementation. Siebel indicated that a TAM package is mandatory for complex projects. Siebel's estimate for one hundred concurrent users is slightly more than US\$460K.

Based on available literature, it is safe to assume that similar pricing arrangements are available for most Configurator software products. The following table provides detail pricing arrangements of the Siebel Configurator software product for 100 concurrent users.

Table-2 Siebel Software for 100 concurrent users (\$US)

Line	Product	Qty	Unit Price	Discount	Net Price	Extended Price
1	TAM - Premium Package	1	\$105,000	0%	\$105,000	\$105,000
2	Siebel eBusiness Essentials	1	\$6,000	0%	\$6,000	\$6,000
3	Siebel 2000 (v6.0.1 English)	100	\$0	0%	\$0	\$0
4	Standard-15% Net-Customer Support and Maintenance	1	\$58,188	0%	\$58,188	\$58,188
5	Siebel Tools 2000 - enhanced	1	\$25,000	30%	\$17,500	\$17,500
6	Siebel eReports Server 2000	1	\$600	30%	\$420	\$420
7	Microsoft Windows NT 4.0	1		0%	\$0	
8	MS SQL 7.0 Database Server	1		0%	\$0	
9	Siebel .COM Server 2000	1	\$100,000	30%	\$70,000	\$70,000
10	Siebel eAdvisor and eConfigurator Bundle-named users	100	\$3,000	30%	\$2,100	\$210,000
	Total					\$467,108

2.5 Case studies

Most of the configurator vendors include case studies as part of their web site. The cases will range from simple implementations to more complex solutions. Attached in appendix-1, are sample case studies made available by different configurator vendors.

2.6 Strengths and Weaknesses

Configuration products that stand out will likely have features that facilitate integration with legacy applications, are easy to use, scalable and flexible, therefore reducing total cost of ownership and providing a good return on investment. The following is a short list of product strengths and weaknesses.

Strengths

- Rapid deployment (some case studies indicate implementation within weeks)
- Support for multiple delivery channels (internet, mobile)
- Out-of-the-box graphical user environment
- Intuitive modeling environment
- Model versioning and release control
- Graphical maintenance tools
- Architecture that allows information to be modified while the system is online
- Multilingual support (use of Unicode)
- Integration with legacy application through APIs, connectors and Enterprise Application Integration (EAI) framework
- XML support for integration with product vendors
- Scalability: from simple NT platform to clusters of servers including Unix
- Links into Client Relationship Management (CRM) systems

Weaknesses

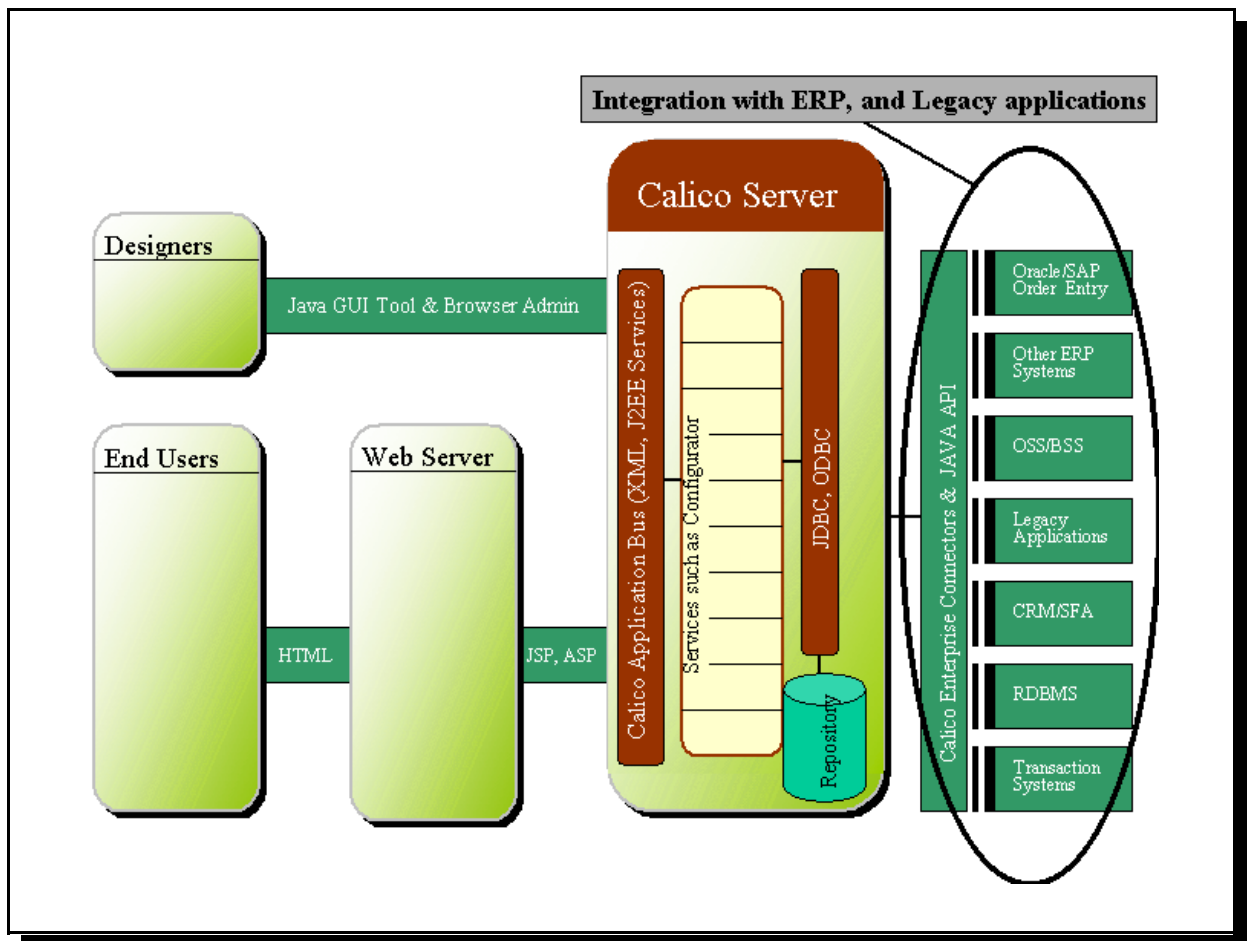
- Very Expensive. Research conducted by Forrester in August 1999 indicate that the average cost of a configuration project is estimated to be \$1 Million for the first year with high ongoing maintenance costs.

2.7 Integration Challenges and Solutions

Some products provide APIs such as JDBC and ODBC for importing and exporting product data which simplifies integration with existing databases. Also, configuration solutions can provide an interface to standards like XML, DCOM, J2EE, and Java.

Some vendors provide integration through a separate server module. For example, in figure-2, Calico Advisor Application Framework provides data integration between enterprise databases and brings the information to the configurator engine accordingly.

Figure-2 Calico Advisor Application Framework



Adapted from Calico Advisor Application Framework

2.8 Best practices

Very little information is available on the subject of best practices for Configurator software. Typical best practices would be to conduct pilots, and obtain appropriate technical training on the selected product.

For large projects, it would be best to hire the services of a product integrator. Companies like Siebel have established partnerships with integrators such as PriceWaterhouseCoopers to allow for a successful implementation.

Finally, since performance benchmarks are almost non-existent, it would be wise to ask the Configurator vendors to demonstrate their product capacity and capabilities, while using the methodology applied by Calico Commerce as a reference point.

2.9 Lessons Learned

Purchasing configurator software is more expensive than developing in-house, but information from the case studies would indicate that an in-house solution would eventually be difficult to maintain. As an example, Epson, a computer manufacturer, chose to replace its home-grown configurator application with a turnkey solution from Calico Commerce. Epson's product line grew faster and more complex. With shorter product life cycle, the in-house solution could no longer meet the needs.

Based on cost evaluation conducted by Forrester Research, and information from the case studies, it would be wise to estimate the cost of purchasing a software solution, as well as the cost of developing a configurator product in-house.

The Forrester Research group suggests two additional lessons that companies such as Calico have learned:

- E-Commerce solutions should be modular, where a clean break between applications do exist (i.e. Configurator and Catalog). This approach will free up development teams to make revisions as the market demands.
- Implement products that employ third-party application servers. Many companies specialize in developing e-Commerce servers. By leveraging the work of vendors like BEA and Persistence, which focus full-time on issues like Scalability and platform compliance, configurator vendors can concentrate on developing and delivering product features.

3.0 Recommendations

3.1 Best software

Many evaluations are available from research groups. The Gartner Group has the best overall evaluation, as it presents product vendors on the “Magic Quadrant” mentioned earlier. Many of these top vendors (leaders and visionaries) are also mentioned by other research groups such as Forrester Research, and CurrentAnalysis.

Of the products listed in the Magic Quadrant, The Gartner Group (October 2000) recommends the following products for enterprises with sell-side e-commerce requiring pricing and product configuration:

- Baan e-Configuration
- Calico Advisor
- i2 Technologies - TradeMatrix Sales Configurator
- Siebel e-Configurator
- Trilogy Software - MultiChannel Commerce Config

3.2 Best evaluation approach

A good approach for evaluating this type of product, is to assemble a cross-functional team that deal with sales and purchasing. This team could include people from:

- Field sales organization
- Call Centers (specific to selling/purchasing services)
- Electronic Commerce Team
- Supply Chain Managers
- Enterprise Resource Planning (ERP) implementation team

Research from the Gartner Group indicate that configurator options are increasing and that creating a shortlist will be difficult. It is suggested that users select proven solutions, covering all sales channels (i.e. Internet, mobile) with robust enterprise integration features for ERP and legacy systems (APIs, XML, etc.).

3.3 Best implementation approach

In order to be successful, it is recommended that a pilot implementation with a few small business processes be initiated to better understand and evaluate the features, capacity and capabilities of a given product. A cross-functional team from the technical and business groups should participate in defining and creating these processes.

4.0 Related Research

The following is the list of information sources including material from research groups, information from vendor product literature and conversation with product sales people.

- Forrester Research - Siebel Snags Onlink: Commerce Vendors Beware - August 2000
- Forrester Research - Calico Reinvents and Delivers - March 2000
- Forrester Research - Configuration In Your Future - August 1999
- Gartner Group - Abstracting Sales Configuration Models... - May 1999
- Gartner Group - Sales Configuration Magic Quadrant... - July 2000
- Gartner Group - Siebel 2000 Esales, Echannel and EConfigurator - August 2000
- Gartner Group - Product Review: FirePond's Sales Configuration System - September 2000
- Gartner Group - FAQ: Pivotal's Eselling Application - August 2000
- Gartner Group - Product Review: Calico's Sales Configuration Capabilities - October 2000
- Calico eSales - Configurator <http://www.calico.com>
- Calico - White Paper - February 2000 <http://www.calico.com>
- Calico Advisor - Performance Benchmarking - August 2000 <http://www.calico.com>
- Siebel Advisor - Datasheet <http://www.siebel.com>
- Siebel Configuration Solution - Datasheet <http://www.siebel.com>
- Siebel eConfigurator 2000 - Spotlight <http://www.siebel.com>
- i2 Technologies - White Paper - December 2000 <http://www.i2.com>
- Baan - iBaan White Paper <http://www.Baan.com>
- Trilogy - Guided Selling - <http://www.Trilogy.com>
- John Cousens, Siebel District Manager, Public Sector
- Shelby MacKay, Calico Commerce, Corporate Sales Associate

Appendix 1 - Case Studies

The following is a list of case studies and success stories available from different vendor web sites. These examples demonstrate the different implementations of Configurator solutions.

The case studies are:

- Siebel and Sony Electronics
- Calico and Epson
- Trilogy Software and ALLTEL
- Baan and Bang & Olufsen
- i2 Technologies and Acer Corporation

Siebel Solution

Siebel eConfigurator Behind Sony's Online Brand

Over the decades, Sony Electronics' products have helped make consumers' lives easier, more enjoyable and more productive. Sony is the innovator behind the transistor radio, the first videotape recorder, and the highly recognizable Walkman, Handycam and Playstation. Sony's reputation for quality, innovation and design have made them a leading global brand.

Online, Sony's goal is to maintain their brand through product offerings, as well as the purchase experience. Sony selected Siebel eConfigurator as the customization engine behind the online sale of the VAIO line of personal computers and accessories. (<http://www.sonystyle.com/vaio>)

Siebel eConfigurator guides Sony's customers in the selection of their optimal notebook or desktop, component-by-component. Instantaneous responses make it easy to explore options and make trade-offs, while built-in cross-sells and up-sells ensure a complete solution. Real time access to inventory and prices improve order accuracy and customer satisfaction. Integration into Sony's eCommerce platform (Oracle, Open Market's Transact, IBM's Websphere, and Day's Communique2) provides customers with a seamless experience.

Early results support the customization ease of Siebel eConfigurator. Within the first three days of launch, Sony took over 50 orders. In North America, Sony Electronics Inc. employs 25,000 people and generates over \$10.6 billion in sales, and nearly \$1.5 billion in exports.

Calico Solution

Epson selects Calico® Advisor™ to power Online Selling Site

San Jose, Calif. - April 24, 2001 - Calico Commerce, Inc. (Nasdaq: CLIC), a leading provider of interactive selling software that enables corporations to effectively sell over the Web and through existing channels, today announced that Epson Direct Corp., a business unit of Seiko Epson, has selected Calico® Advisor™ to power its BTO (Build To Order) online selling site.

Epson Direct manufactures and sells "Endeavor" and "EDiCube" desktop and laptop computers for both corporations and individuals through call centers and the Internet. Although Epson Direct had developed an in-house configuration system, the company realized that as their product lines grew more complex and their product life cycles shortened, an in-house system could no longer meet their needs. Epson Direct decided to replace their in-house commerce configurator with a proven application from Calico.

After evaluating other vendors, Epson Direct chose Calico Commerce Japan Inc. because of its proven success with other high technology leaders, and because Calico Advisor offered Epson Direct the flexibility, speed to market, reliability, and industry-leading performance it required to support the high-volume, complex BTO Selling System. Additionally, Calico is the only vendor shipping a configuration and recommendation application localized for the Japanese market.

Calico's Advisor™ will power Epson Direct's Internet quoting and ordering system and will provide customers with the ability to explore Epson's available products and options - while ensuring that the components of their order are correctly configured and available resulting in improved customer service and satisfaction.

"Global Leaders like Seiko Epson are driven to succeed in a market that demands that companies deliver complex new products to market in record time," said Alan Naumann, President and CEO of Calico Commerce. "We are very excited that Epson Direct has chosen Calico to power their BTO Selling Site. Epson's decision to work with Calico reaffirms our leadership in Internet Selling Solutions and reinforces Calico's continued commitment to global expansion."

Trilogy Software Solution

A leader in the communications and information services industries, ALLTEL encompasses more than 9 million communications customers, \$6.5 billion in annual revenues and 25,000 employees. ALLTEL is a customer-focused, information technology company providing wireline and wireless communications and information services.

In less than 90 days, the Trilogy MultiChannel solution was deployed to give ALLTEL customers online end-to-end purchasing capabilities. Customers may now browse, price, configure, and purchase from the ALLTEL product line via the internet. Customers are now able to conduct business with ALLTEL through call centers, retail outlets, or the web.

ALLTEL's selection of the Trilogy MultiChannel solution marks one of the first major e-business strategies the company has undertaken, moving ALLTEL into the world of e-business. E*Store's project manager Larkin Bryant notes, "We are very impressed with the solution's ability to bring us up to Internet speed, without changing the core characteristics of how we work. With Trilogy, we have found an e-commerce partner who delivers on its vision of how to help us transform our business. We view Trilogy as crucial for our future plans in e-commerce and more."

Baan Solution

BaanConfiguration Helps Bang & Olufsen Maintain a Competitive Advantage

Interview conducted with Jens Harder, Senior Manager, Bang & Olufsen International Service.

Customer Profile

Company: **Bang & Olufsen**

Line of business: **High end audio/visual equipment**

Type of manufacturing: **Make-to-order**

Number of users: **2500 retail sites worldwide**

Benefits of Using BaanConfiguration Software

- Streamlined operations
- Improved production accuracy
- Improved productivity
- Improved order cycle times
- Increased revenues
- Improved sales training
- Improved customer satisfaction

Project Highlights

- Implementation began in 1992 for the off line system and in 1998 for the online system.
- 2500 retail sites implemented using off line system; 15 retailers running pilot project using online system.

"It is a Bang & Olufsen policy that customers be handed the remote control. It's all part of the experience. BaanConfiguration is a key element in making the Bang & Olufsen experience work."

Jens Harder, Senior Manager, Bang & Olufsen International Service

Q: What circumstances led you to implement BaanConfiguration software?

A: Bang & Olufsen provides customers with integrated audio-visual components that operate as a single system using one remote control-a significant advantage over competitors that sell stand-alone products. The key to our success in the market is being able to provide the customer with a system designed to his or her exact specifications. Our customers can select from hundreds of high-quality, high-end products, in literally thousands of possible combinations.

In the past, our sales staff could configure a customized order using a paper-based system. As Bang & Olufsen's product line and configuration possibilities multiplied, the compatibility

requirements became virtually impossible to handle manually. Once we had the capability to integrate audio and video products, we needed to be able to guarantee that new products would be compatible with the old. Had we not standardized the ordering process using BaanConfiguration, we would still be selling stand-alone TVs and audio products.

Q: Has BaanConfiguration software helped improve operations in any way?

A: BaanConfiguration is essential to Bang & Olufsen's ongoing efforts to streamline operations. The company is currently moving away from distributing products through multi-brand dealers in favor of using dedicated Bang & Olufsen outlets. This retail strategy allows Bang & Olufsen to guarantee the high quality of our customers' retail experience and ensure customer satisfaction. The configuration tool makes this move to dedicated outlets possible. Most importantly, BaanConfiguration has allowed us to differentiate ourselves in a highly competitive market. Other manufacturers of high-quality, high-end products, but none can compare with the configuration possibilities and ease-of-use of our custom systems.

Q: What is the roll-out plan for the implementation?

A: BaanConfiguration is being integrated into Bang & Olufsen's network of over 2500 retailers worldwide, and 15 are now using the online system.

Q: Have you realized any tangible benefits as a result of using BaanConfiguration software?

A: The production accuracy we achieved with Baan's configuration solution has been a significant contributing factor in Bang & Olufsen's growth. In the United Kingdom, where the Baan Configuration system links 15 retailers directly to the factory via ISDN lines, Bang & Olufsen has achieved a considerable growth in revenue despite a soft retail market.

Q: How has Baan software improved the ordering process?

A: Our orders must include every aspect of an audio-visual system, from satellite receivers right down to the necessary stands, brackets, and cables. BaanConfiguration's constraint-based engine prompts our dealers to ask the right questions, so that orders sent to the factory are complete to the last detail. This enables quick turnaround on the order fulfillment side. In addition, the software also provides a valuable tool to enable every sales person to sell like the most experienced sales person on the floor. The number of education days required to train new sales people has been cut in half. This advantage has already enabled the company to decrease the number of dealers while increasing revenue and dealer loyalty.

Q: Has BaanConfiguration helped improve order cycle times?

A: The benefits of BaanConfiguration extend from the moment an order is entered into the system until it is delivered to the customer. Direct electronic transmission of orders to production facilities enables dealers to get immediate feedback on delivery dates. Today, delivery dates in Europe are within five days of the order date.

Q: How do you foresee adding on to your system capabilities in the future?

A: As the company looks toward the future, Baan's industry- leading configuration solution will become part of planned system enhancements that will allow customers and dealers to check on the status of orders in real time.

Through the power of BaanConfiguration, Bang & Olufsen continues its trademark buying experience while simplifying and increasing the accuracy of its back-end order processing and logistics.

"Without BaanConfiguration we would still be selling stand-alone TVs and audio products."

Jens Harder, Senior Manager, Bang & Olufsen International Service

i2 Technologies - TradeMatrix Solution

Acer America Corporation

Acer America Corporation is a division of an \$8.4 billion global computer manufacturer that designs, builds and markets PCs, notebooks, servers, Internet appliances, and networking solutions for business, government, education and home users.

Pain Points and Opportunities

Acer's website was only able to display products in their catalog. There was no way to customize products and customers were forced to telephone the company to find out current prices or specials. As a result, Acer was losing sales and ultimately losing revenues. They used a call center to place orders but their ordering process was inefficient. It took multiple interactions between the distributors and VARs before the order was placed. This led to long lead times before the order was processed. Acer wanted to implement a configure-to-order system that was tied to their new website, complete with a customer-facing store-front.

The TradeMatrix-powered Solution

Acer sells its products through a two-tier channel comprised of distributors and resellers. The TradeMatrix Sell Solution enables a complete two-tier channel application for Acer's distributors and resellers to browse catalogs, configure products and obtain prices. Distributors and resellers can custom-configure products, automatically check for supply, and automatically generate quotations which can be printed in RTF and HTML formats. There is also interaction with Acer's order entry system using APIs that are critical for passing real-time information on configurations and prices from the i2 solution to the Acer ERP system. Acer also opened a website for both resellers and end users that allows the easy purchase of accessories for systems that may not be state-of-the-art or which were already phased out. The site enables authorized resellers able to use their discounts to purchase accessories; however, it can also be used by consumers to purchase accessories directly from Acer for systems that may not be current.

Benefits

The configure-to-order system implemented at Acer increased the probability of an order and maximized the revenue of each sale through intelligent up-selling and cross-selling. i2's solution allowed Acer to phase out their call center and reduce lead times. Acer increased customer satisfaction by providing customers with the flexibility to order what they want as well as view order status. Acer streamlined purchase order approvals, since the part number identification can be retrieved and sent directly into the order entry system for validation. The solution provides users with the ability to find information on configurations and create configurations and quotations via a web-enabled client (HTML user interface). Automated price book generation for all fixed SKUs and for different sales groups. Bid Desk is used to generate quotations for orders placed over the phone and to give specific discounts for different customers.