

Maximizing the Value of Customer Information Across Your Manufacturing Enterprise

▶ White Paper



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EXECUTIVE SUMMARY

The challenges facing companies in the manufacturing sector are changing dramatically. Increasing globalization, new competitive pressures, renewed emphasis on cost effectiveness, and continued trends toward industry consolidation each increase the difficulty of effectively managing business processes and their supporting IT infrastructures. At the same time, customers are increasingly careful about their purchase decisions and demand greater responsiveness as well as more value for their dollar.

In this changing business environment, effectively orchestrating customer-facing staff, business processes, and systems can be an important source of competitive advantage. For example, account executives calling prospects make more sales when they have a unified view of the latest information from all the different systems that store customer-related data. Customer service staff can be far more responsive when they have real-time status information from order management systems, fulfillment systems, and billing systems combined into a single view. And automating manual processes between applications will significantly reduce operational costs and errors.

Unfortunately, most companies have not yet adequately addressed these challenges, despite making significant investments in new applications in recent years. Most companies are still struggling with how to fully leverage a collection of existing systems that don't share information with each other very well. And this problem will only get worse when business processes change and new systems are added later to meet evolving requirements.

Fortunately, Vitria has significant experience in solving these business process integration problems for companies in the manufacturing and logistics sectors. Our customers include such companies as Acer, Apple Computer, Aventis, BP, Cardinal Health, Dana Corporation, DMC Stratex Networks, e2open, Goodman Manufacturing, Goodyear Tire & Rubber Company, Trane Company, H.E. Butt Grocery Company, KLA-Tencor, Reynolds & Reynolds, Schneider Logistics, UMC, and Worldchain.

The Vitria Demand Fulfillment solution provides both short-term expediency and long-term flexibility. This solution, built on Vitria's BusinessWare integration server, incorporates best practices from real-world manufacturing customer implementations into pre-configured and problem-specific solutions. So integration projects can be completed much more easily, more quickly, and at substantially lower cost.

And best of all, the Vitria Demand Fulfillment solution provides a more flexible and strategic foundation for future integration challenges.

THE CHALLENGES OF ENTERPRISE INTEGRATION IN THE MANUFACTURING SECTOR

Manufacturers are challenged more than ever to focus on customer requirements to enhance competitive advantage, increase customer loyalty, and reduce overall operating costs. With the adoption of the Internet, new business models have emerged that require the integration of manufacturers' entire value chain, from internal to external business processes. Changing distribution channels and business reorganizations have left companies with significantly disconnected IT infrastructures spanning multiple legacy systems and multiple CRM and ERP systems.

Manufacturers are looking for a 360° view of customers, orders, and inventory across an extensive distributor network and for ways to integrate customer- and partner-facing processes across product orders, service offerings, and billing. They are looking for ways to increase supply chain efficiency and to quickly respond to exceptions.

Without integrated customer information available in real-time, it's difficult to serve customers. CSRs don't have a complete view of pricing, credit, contracts, orders, and inventory status. The management team operates with a lack of visibility into and control over disaggregated customer orders. Manual intervention is often required. And exception management is time consuming and error-prone.

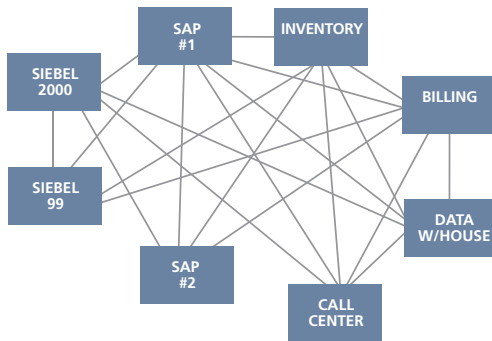
Manufacturers install ERP and CRM systems to help manage supply and demand. But these systems are often not integrated with each other and with other customer-related systems.

Integration of these systems is an obvious solution, but until now business integration has typically been a series of ad hoc, short-term fixes rather than a strategically planned framework usable for the long term. Ironically, this ad hoc approach perpetuates the very problems being addressed.

TRADITIONAL APPROACHES TO ENTERPRISE INTEGRATION

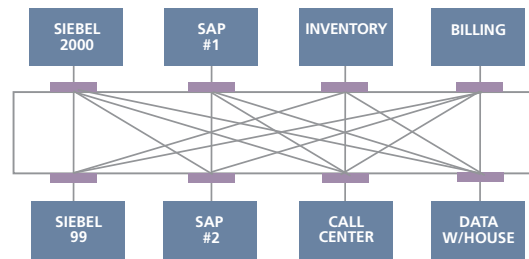
Although IT infrastructures have evolved dramatically in the past few years, only rarely have they been effectively optimized for best advantage. The typical landscape includes a number of different packaged, legacy, and custom applications accumulated over the years - often multiple instances of the same application with different revision levels, ad hoc customizations, overlapping data, and process logic.

This lack of planned integration has typically led to the familiar 'application spaghetti' picture illustrated below left along with its associated limitations:



'Application Spaghetti'

- x Pt-to-Pt Connectivity
- x Pt-to-Pt Transformation
- x Not Easily Scalable
- x Not Easily Extensible
- x Not Easily Changeable
- x Custom Process Mgt.



Traditional EAI

- ✓ Packaged Connectivity
- x Pt-to-Pt Transformation
- x Not Easily Scalable
- x Not Easily Extensible
- x Not Easily Changeable
- x Custom Process Mgt.

Traditional EAI is Only a Partial Solution

In an attempt to make progress, some manufacturing companies have implemented some kind of Enterprise Application Integration (EAI) initiative, whereby some systems are connected via dedicated 'connectors' into a common backbone instead of directly to each other. While this Traditional EAI approach reduces the number of separate connection points, in practice it quickly becomes apparent that the problem shifts from simple connectivity to a much more complex and costly problem.

For example, how do you ensure that all the participating systems in a business transaction understand each other? How do you ensure that all these systems are 'in synch' with each other at all times, including when exception conditions happen? And how do you avoid re-integration whenever anything changes, such as when applications are upgraded or customized?

These are higher-level and potentially very costly issues that are not typically addressed by the Traditional EAI approach, necessitating custom code to compensate. Looking at each of these a little more closely:

'Language Spaghetti'

Each separate interaction between the different systems, documents, and people requires clear transformation into the specific format and meaning required by both sender and recipient. This creates another 'spaghetti diagram' of multiple, point-to-point links inside the EAI box (in this case transformation maps) that must be carefully set up and maintained whenever anything changes, or when applications are added or subtracted. The potential cost savings from streamlined connectivity can be negated as this 'transformation overhead' increases as more applications are connected.

Managing the 'Unhappy Path'

Most EAI installations are designed to handle the 'happy path' or perfect-world case where everything goes smoothly. In reality, the majority of time and effort involved with business processes is spent handling errors and exceptions, and reconciling status between out-of-synch systems. What if a large order transaction did not complete or a last-minute change was not correctly propagated to all systems in time? It is easy to imagine the disruption that can occur when different systems have a different view of the world at the same time, for example, when the process involves a large order or requires third-party involvement.

Planning for Change

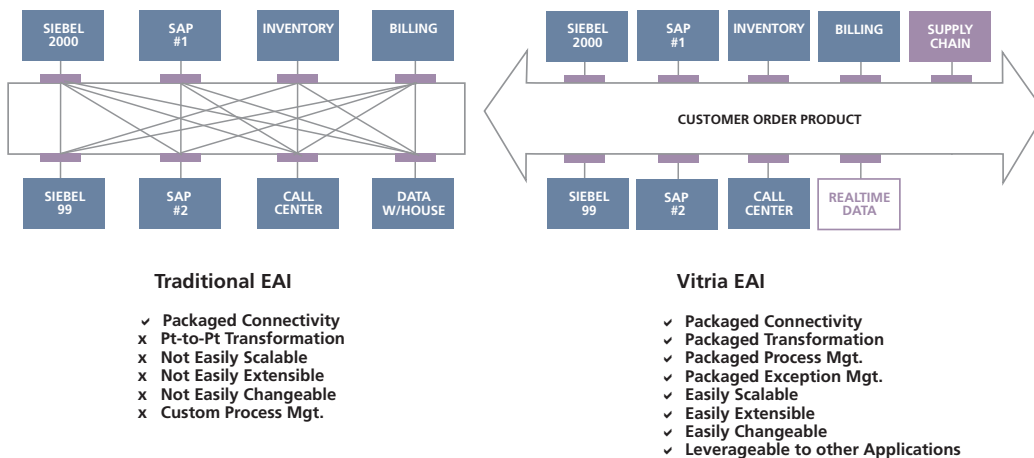
Even assuming that you can set up a traditional integration correctly with all the necessary systems, documents, partners, and processes, how likely is it that nothing will change in the foreseeable future? Every company inevitably makes adjustments and customizations to suit its needs, and these needs evolve over time. What if a new version of the CRM, Order Management, Demand Planning, or ERP package is rolled out across the company? Potentially every installation of a package upgrade could disrupt operations while all the customizations are applied to each interaction and the transformation maps adjusted, adding further to the time and risk of the upgrade.

Expediency vs Doing it 'Right'

Although many companies are aware that a carefully designed platform-based approach to EAI is the right strategic direction, the pressure to deliver short-term results with existing resources tends to dictate the use of more tactical 'band aid' fixes and custom integration projects. Also, the time, cost, and skills required to develop and maintain a strategic EAI platform in-house from scratch would be prohibitive for most companies. Ironically of course, the continued tactical approach simply compounds the very problems they are attempting to solve, making the need for a strategic platform that much greater.

VITRIA'S APPROACH TO ENTERPRISE INTEGRATION

Vitria's approach to enterprise integration addresses the previous limitations of EAI by providing a combination of pre-configured content designed to rapidly solve a particular integration problem and a world-class integration platform (BusinessWare) designed for scalability and flexibility. This 'best of both worlds' combination allows companies to achieve a rapid result from their initial integration project while laying the foundation for an enterprise infrastructure for future integration challenges.



The Vitria Approach Overcomes the Limitations & Pre-packages Much of the Content

The design embodies many person-years of expertise from real-world manufacturing customer implementations as well as industry-leading best practices and standards body recommendations. At the same time, the Vitria approach is highly flexible to individual requirements, and unlike previous generation ('black box') EAI solutions, does not mandate or prescribe a fixed implementation. This flexible design and pre-configured content require considerable expertise in the application domain as well as in integration technologies, and would be prohibitive for most companies to replicate and maintain.

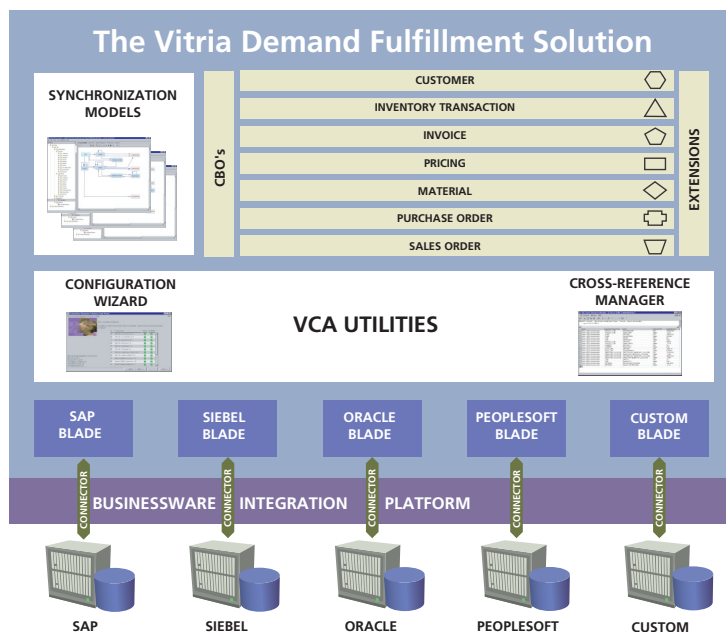
An example of Vitria's best practice design approach is the use of Common Business Objects (CBOs) that represent commonly used business abstractions such as "Customer", "Order", "Payment Method", etc., that establish a standard, application-independent description of critical information to be synchronized. This dramatically simplifies the management of data transformation between application formats, which would otherwise potentially require a geometrically larger number of unique maps to be written and maintained (resulting in spaghetti).

One of the most valuable aspects of the Vitria Demand Fulfillment solution's design is its ability to preserve the customizations and extensions made to the connected applications, despite subsequent changes to either the process or the application itself. As upgrades happen, your customizations are preserved. This was a major limitation of previous integration approaches, which has been addressed using leading-edge techniques for accommodating user customizations to ensure minimal re-work when upgrading.

A CLOSER LOOK AT THE VITRIA DEMAND FULFILLMENT SOLUTION

The Vitria Demand Fulfillment solution delivers Integrated Order Management, providing real-time visibility, automation, and pro-active exception management of end-to-end, cross-functional customer fulfillment processes. The Vitria Demand Fulfillment solution integrates underlying information systems and trading partners and supports analysis of order data and monitoring of key performance indicators (KPIs).

The Vitria Demand Fulfillment solution combines trading partner activity data into a real-time, integrated view of customer orders, inventory, and products across multiple touch points in the supply chain. Decision makers, armed with this integrated perspective, make better decisions faster, accelerating time-to-action in response to critical business events, customer demands, new opportunities, supply chain problems, and competitive threats.



The Vitria Demand Fulfillment Solution Architecture

The Vitria Demand Fulfillment solution's common architecture is built on a solid foundation of Vitria BusinessWare, allowing multiple applications to simultaneously interoperate with services and object definitions that are extensible, customizable, and upgradeable.

The Vitria Demand Fulfillment solution leverages BusinessWare, together with pre-configured content that is designed to meet 80% of your integration requirements out-of-the-box. This content may be customized or extended further to your exact requirements, with the assurance that those customizations will be preserved and leveraged across future integration projects. The Vitria solution incorporates a number of innovative components that have been designed specifically to work together collaboratively to create a solution of lasting value.

Benefits of the Vitria Demand Fulfillment Solution

The flexibility provided by the Vitria Demand Fulfillment solution provides measurable results from both a business perspective and an IT perspective:

Business Benefits

- Consolidated view and control of dis-aggregated orders.
- Improved on-time delivery.
- Improved customer satisfaction and retention.
- Real-time, global visibility of customer, order information, and inventory status.
- Real-time validation of pricing, credit, and contracts.
- Exceeding customer expectations for service levels.
- Ability to predict and react to customer life cycle trends.
- Increased revenues through targeted up-selling and cross-selling.
- Shorter order/change cycle times.
- Real time, in-line exception management.
- Rules-based prioritization of exceptions for resolution processing.
- Automated escalation procedures.
- Improved operational efficiency from the systematic management of exceptions.
- Ability to make better decisions faster.
- Condense time between awareness and action.

IT Benefits

- Ability to leverage current assets and applications.
- Establish seamless processes across the extended enterprise and extend them to partners, suppliers, and customers.
- Dramatic reduction in time, cost, and risk of achieving integration.
- Reduced costs of maintaining, customizing, or extending the integration infrastructure to include new applications or processes.
- Faster time-to-value in response to new or changing business initiatives.
- Flexibility when infrastructure changes.
- Streamlined collaboration with partners, suppliers, and customers.
- Electronic conversion of multiple order formats - fax, email, Web, flat file, EDI from multiple locations and multiple business units.
- Significant reduction in custom coding.
- Segregated systems converse across business silos, avoiding costly point-to-point programming.
- Synchronized states across systems.
- Synchronized data across systems.
- Real-time access to multiple non-real-time systems.
- Standard processes and integrated delivery channels - common processes and interfaces.

Application Blades

The Vitria Demand Fulfillment solution provides application blades, or application-specific transformation models, that translate between various applications' specific data formats and the common object format. Unlike previous approaches, the transformations included in the application blades are upgradeable, customizable, and extensible. Schema changes to common or application-specific definitions due to customization, vertical specialization, or upgrade will not invalidate these transformation maps.

Application blades are available for the most popular ERP and CRM systems such as Siebel, SAP, Oracle, and PeopleSoft. These are mapped to the most commonly required CBOs such as "Customer", "Purchase Order", "Invoice", "Material", and "Pricing." Going forward, Vitria will provide additional pre-built blades and CBOs, plus custom blades can be created using an Application Developer Kit (ADK).

ENTERPRISE INTEGRATION WITH THE VITRIA DEMAND FULFILLMENT SOLUTION: A MANUFACTURING SCENARIO

A Single Order Fulfillment Solution from Custom Engineering to Billing

Let's examine a real-world CRM integration situation that illustrates the typical challenges introduced by the lack of proper integration between systems.

One of Vitria's key customers is DMC Stratex Networks, Inc., a well-known manufacturer of specialized communications equipment. They sell large volumes of customized equipment in each sale and "engineer to order", so making changes to an order can be a very time-consuming process. Engineering change orders were also slowing down the order fulfillment process.

DMC Stratex Networks' fulfillment process involves information that goes back and forth between a wide variety of systems: Agile for production document management, Oracle for back-office applications, Siebel for product configuration and sales force automation, Clarify for CRM, and other back-end and legacy applications.

Because DMC Stratex Networks had so many disparate systems, with more inevitably on the way, they sought a standardized solution built on a scalable, flexible integration platform. Although integration was first on their list of priorities, they soon realized that business process automation was essential to improving their customer service processes.

Their processes involved a lot of manual intervention, which slowed processes down and created the potential for errors. Their customer relations program suffered as well because it was hard to respond when checking the status of a larger order or when something changed. If an engineering change happened while a big order was in process, it could slow up an order for weeks.

Some of DMC Stratex Networks' growth relied on acquisitions. They were still using CA-MANMAN at headquarters, but moving to Oracle Manufacturing. A New Zealand acquisition was using a legacy system, and another acquisition in the US had already deployed Oracle. They needed to maintain the links from all these legacy systems to the main Oracle database, while still working on the legacy system at their headquarters.

DMC Stratex Networks relied on Vitria's large collection of pre-packaged connectors and used Vitria's Connector Software Development Kit (SDK) to create custom connectors. This allowed them to

create an interface for the legacy system in New Zealand, interface to the existing Oracle implementation in the US, and implement Order Management and Financials in San Jose -- all while they were finalizing the conversion from CA-MANMAN to Oracle Manufacturing.

DMC Stratex Networks was able to roll out production of BusinessWare in just 4 months, 2 months earlier than they had originally planned.

Their order fulfillment process is visibly faster because they've eliminated manual processes. An order that took them 2 weeks to complete now takes 2 days.

The decreased cycle time has resulted in increased revenue because they can process more orders at a time and handle larger volumes of orders without increasing headcount. They recently had 4 record sales quarters in a row, which they say is due in part to BusinessWare. Being able to cut the process time of a \$10 million order from up to 2 weeks down to as little as 2 days makes a big difference to their bottom line.

DMC Stratex Networks is using BusinessWare to integrate Siebel with Oracle applications to provide a complete order fulfillment process. Once an order is taken and configured, it immediately goes into the Oracle ERP system for materials procurement, product build and, ultimately, shipment. Using BusinessWare interfaces, the CRM system provides visibility into order and shipment status. This ensures customers get the desired product in the requisite timeframe. And this gives the salespeople more visibility to do forecasts and handle customer inquiries, and results in more satisfied customers.

ENTERPRISE INTEGRATION ISSUES RESOLVED

The Vitria Demand Fulfillment solution is a comprehensive, out-of-the-box solution that speeds and simplifies the integration of enterprise applications. It has been specifically designed to address the real-world limitations of previous approaches to EAI while allowing maximum flexibility, scalability, and extensibility.

From a business standpoint, the Vitria Demand Fulfillment solution empowers your company to seize new business opportunities more vigorously than before, speeds time to value from months to weeks, and can reduce your cost of setup and maintenance by up to 80%. By providing real-time visibility into the business at all times, your staff can enjoy a single view of the customer, order status, inventory, location, or other key criteria across multiple systems, transforming your company's ability to compete and succeed. Improved customer service, greater leverage of existing assets, and lower operating costs are some of the strategic goals that the Vitria solution can help you achieve.

From an IT standpoint, the Vitria Demand Fulfillment solution provides significantly reduced cycle times and IT resources for implementing new projects, lower support and maintenance costs compared to custom integration code, pro-active exception handling, and the ability to upgrade or change the connected applications without disrupting the existing integration work.

Many companies aspire to tackle integration strategically but end up deploying tactically due to the limitations of existing approaches. Vitria's approach can elevate integration of customer-related information to a much more strategic level while still providing significant short-term value. By capturing the detailed interaction between your enterprise applications at both the process level and data level, you can effectively capture a blueprint for how your company does business.

This is a much more strategic way to view integration, as an asset that can be re-purposed or optimized for any future initiative or direction. The ability to customize and extend any part of your blueprint at will gives you enormous power over your destiny and ability to react to business conditions with minimal time, cost, and effort - surely a new level of business necessity for the 21st century.



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