Theory&Practice

Manufacturing Insights

Welcome to the November 27, 2006 issue of Theory and Practice. We publish every two weeks, examining recent events and offering opinions on key trends in manufacturing, wholesale, and retail processes. Please feel free to forward this newsletter to colleagues or others who might find it relevant.

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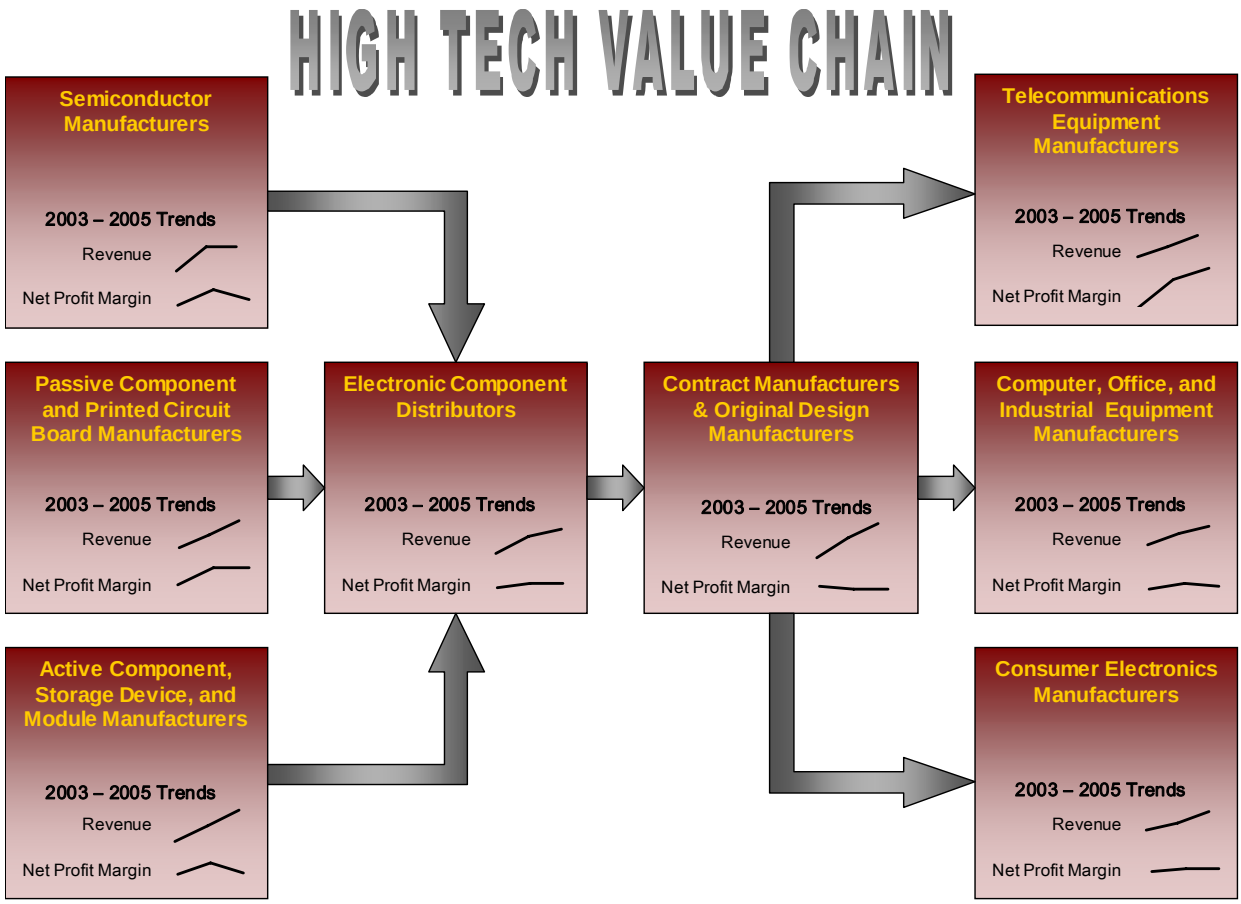
Capturing Profits in the High Tech Value Chain

Jay Holman

The High Tech value chain is a complex one, where suppliers in one product category may be competitors in another, and inventory can pile up for one component even as a slightly different component is on allocation. This complexity, combined with short product lifecycles and unpredictable demand, turns inventory into a "hot potato" that burns those left holding it when shifts in demand occur. As those unfortunate companies scramble to unload that excess inventory, their profit margins decline.

Figure 1 below shows a simplified version of the high tech value chain (while transactions may occur between any two segments of the value chain, only those transactions with segments that are directly downstream are shown). For each segment, two lines show how average revenues and net profit margins trended between 2003 and 2005. This data is based on the performance of 10 to 30 of the largest public manufacturers in each segment as tracked in Manufacturing Insights' Global Performance Index.



As far as revenue goes, a rising tide has lifted all boats, and each segment showed healthy revenue growth during the tech recovery of the past few years. Net profit margins, on the other hand, tell a different story. Interestingly, the only two segments to sustain an increase in net profit margins over the two-year period (Telecom equipment and Passives / PCB manufacturers) were also the only two segments that started out with negative net profit margins in 2003. So while it is good that they improved, they were really just getting back to where they belong. Only one segment showed a decline in average net profit margins over the period: Contract Manufacturers (CMs) and Original Design Manufacturers (ODMs). Fortunately, their average net profit margin stayed positive albeit small.

So, where will 2006 end up? There is certainly a large amount of inventory in the industry, and in the middle of the year a lot of it was in the possession of CMs and ODMs, although semiconductor manufacturers were not far behind. As much of this inventory is headed for consumers, the 2006 shopping season had better break some records. Otherwise, the happy situation in 2005, in which each segment had a positive average net profit margin, may not repeat in 2006.

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Wireless Networking Best Practices in European Transportation: Will Context-Aware Services Improve the Business Case?

Ivano Ortis

Transportation working environments are by nature highly mobile, having personnel on-board moving trains and buses, along tracks, highways, and across stations for operative, engineering, and maintenance purposes. Mobile personnel play a crucial role in enabling operational efficiencies and enhanced customer intimacy by providing timely transport services, accurate information and value-added services to passengers. The key to an effective mobile platform will be the ability to provide relevant and actionable information – what we refer to as context-aware applications- to personnel.

An increasing number of Western European transport organizations — among others, railways, airlines, and airports, Logistic Service Providers (LSPs), and postal providers — are implementing mobile workforce solutions. In recent interviews with Nederlandse Spoorwegen (Netherlands Railways) and Storstockholms Lokaltrafik (Stockholm Transport authority — SL), we assessed how transportation companies are taking advantage of context-aware mobile solutions to achieve both operative gains and customer service enhancements.

Manufacturing Insights finds that context-aware mobile services add up to the business case for wireless networks, by bringing wireless services beyond just location-based services. Location information is still crucial, but what is even more important is the user context (e.g. the actionable and combined use of location, profile, language, time, type of mobile device, network bandwidth availability information, etc.). This translates into a system that provides information services that are relevant to specific operative situations and transportation business environments.

Business Case Framework

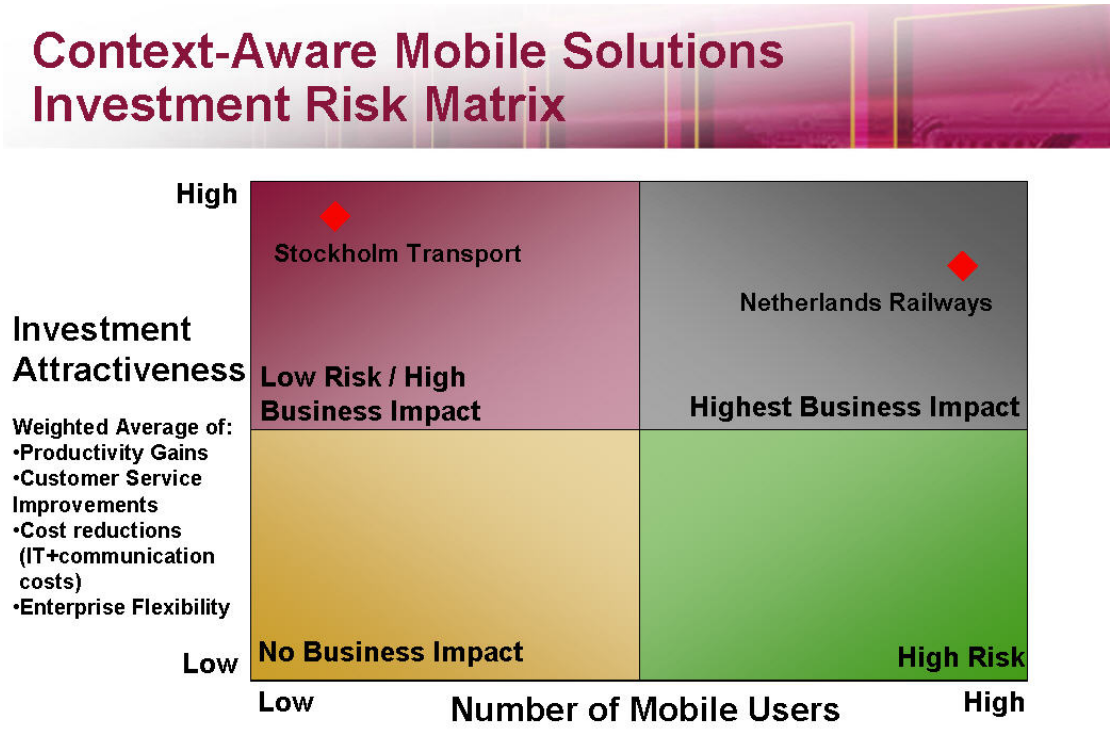
In Figure 1 we have mapped investment attractiveness for Netherlands Railways — NS and Stockholm Transport - SL, as a function of the number of mobile-enabled users. Investment attractiveness was measured as a weighted average of productivity improvements (weight of 40%), customer service improvements (30%), communications and IT cost reductions (20%), and gains in flexibility and

responsiveness to dynamic situations (10%). NS deployed more than 10,000 mobile devices, while SL equipped approximately 300 frontline workers with mobile devices. To review implementation details as well as business case calculations, please refer to the report titled "Wireless Networking Best Practices in European Transportation: Will Context-Aware Services Improve the Business Case? (October 2006, Doc #PT03N). In essence:

- NS and SL achieved the key investment objectives, while minimizing potential risks.
- Although in both cases the business impact of the mobile investments is high, the large-scale implementation made by NS returned the highest gains. The key factor to enable large-scale deployments is the ability to minimize investment risks, which is a direct consequence of multiple factors including deployment efficiencies, scalability, operative processes re-designs, investment performance tracking — both internally and with customers — mobile applications design, and front-to-back integration.

FIGURE 1

Context-Aware Mobile Solutions Investment Risk Matrix



Source: Wireless Networking Best Practices in European Transportation: Will Context-Aware Services Improve the Business Case? (October 2006, Doc # PT03N)

Source: IDC, October 2006

Manufacturing Insights recommends transportation and retail organizations to consider the following when implementing mobile infrastructures and applications:

Measure

- Context-enabled mobile services matter for the workforce. The ability to enable mobile workflow automation, where real-time relevant information is fed to the user, leads to considerable gains in mobile workforce productivity, asset tracking/asset management efficiencies, customer experience, maintenance management enhancements, security and safety.

- Business case economics are proven both for large volume and smaller scale deployments, as learned by analyzing the implementation made by Netherlands Railways and the Stockholm Transport Authority. Fast ROI (e.g. between 6 to 12 months), and medium to long-term strategic achievement are at the disposal of transportation companies that put reasonable effort in the initial system design phase.

- Companies must evaluate investment risks and potential gains, measuring the investment attractiveness of context-aware mobile solutions in their specific operational environment. Manufacturing Insights developed a business case framework to assist enterprises performing this step.

Manage

- Centralized mobile device management architectures with distributed proxy are enabling higher reliability, better performance, and stronger flexibility compared with purely centralized architectures. As an example, considering a context-aware implementation covering 10 locations and using 5 parameters, the number of possible context-information combinations goes as 10^5 or 100,000 combinations. As a result, distributed environments can perform better both in terms of reduced latency and higher service provision reliability.

- Flexibility is of the essence, in two ways:

    - Service-oriented flexibility, the vital capability of deploying new services on demand at the fastest speed. In this regard, self-healing capabilities and simple and clear user interfaces are key enablers of a fast deployment scenario.

    - Network-oriented flexibility, enabling dynamic allocation of the required bandwidth/QoS (quality of service) depending on the application or in the event of network congestion enabling automatic and dynamic scale-down of application requests. As a result, the implemented system will allow high reliability and availability to always respond in real-time to critical user requests, thus safeguarding the timely provision of needed information.

- Scalability to secure a longer investment lifetime, either to accommodate growing volumes of mobile personnel and/or to enable innovative services to the public, gradually expanding the application scenario from travelers to shoppers and citizens.

Mobilize

- To maximize ROI, enterprises must enable multiple services based upon a shared wireless network infrastructure. As an example, a common wireless network shall enable ticketing/payment

transactions, customer information applications and workforce management capabilities, either through kiosks inside stations/terminals or handheld devices while on-board. As a result, transport companies will be able to achieve faster returns on investments, while opening up business transformation opportunities.

- Marketing functions can benefit from value-added information to deliver context-specific promotion, innovative communication campaigns and new revenue generating services. The strategic result is the delivery of truly personalized services to customers from context-specific data related to travelers and shoppers behaviors.

The integration of IP-based systems and sensors-based detect and alert networks will expand the business case to encompass virtually all of the primary functions of transport operations, both in passenger transport and cargo/logistics. Therefore, fast and flexible deployment of new services and mobile applications is a fundamental requirement for transportation organizations to enable next generation Intelligent Transportation Systems. Manufacturing Insights recognizes a continuing focus across transport sub-segments on achieving higher operational efficiencies by enabling automated collaborative workflows that will essentially turn inflexible operative chains into responsive and adaptive service networks. A complete wireless infrastructure forms the basis for creating the context-aware applications that deliver real business benefit to transportation companies.

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Harvesting Value From Your HP Relationship.

Bob Parker

We have written quite a bit about how manufacturing companies can get the most out of the capabilities of their most strategic technology suppliers. Collectively referred to as the SHOMI (SAP, HP, Oracle, Microsoft, and IBM) group, these vendors bring a tremendous breadth in their product offerings and substantial depth in their understanding of specific industry challenges. A year ago we looked at HP as a provider in the manufacturing space that could be marginalized by their commodity portfolio of products and services or galvanized by their ability to bring their own experiences as a diverse product company to the needs of the industry.

We recently attended an event in Ireland that provided evidence that HP is moving down the path of becoming firmly established as a strategic supplier in manufacturing, energy, and consumer value chains. The presentations and customer case studies that were shared over the course of the event points to a three pronged strategy for assisting buyers in getting the most out of the broad set of HP offerings:

- **Drive down IT operating costs.** The HP model for adaptive infrastructure can assist companies in improving the utilization of their IT assets and lower their operating costs. HP can assist companies be better owner/operators of data centers themselves or HP can run them on their behalf.

- **Invest savings in new capabilities.** Lowering the allocation of IT budget that goes into delivering capabilities allows for investment in new capabilities. HP showed examples of how they are working with companies to take advantage of the information they have within in their companies to collaborate with their supply chain more effectively and to create mechanisms to speed decision making.

- **Bring HP expertise to the process.** With examples ranging from data center consolidation to supply chain efficiency to retail collaboration to warranty processing, HP showed how it is bringing its

own expertise to the engagement process with large customers in the manufacturing and retail industry. The demonstrable success of their own efforts brings a lot of credibility to the process.

HP can be a valuable partner for a manufacturing or retail firm. Consider involving them in your strategic planning – they understand how to optimize IT operations while also assisting you in engaging the business leadership. HP doesn't have the depth of others in terms of service, but they have the talent and expertise to be a key lead integrator. Also, like any other strategic vendor, they have a vested interest in how you spend your money so take advantage of the expertise they are willing to offer, but make sure you understand their motivation.

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Gerber Scientific Announces Fashion Lifecycle Management (FLM).

Pete Abell

Will a Product Data Management application geared to the fashion industry be enough to deliver the industry's objectives for the rapid planning and execution needed to capture the ever changing whims of the footwear and apparel consumer? Gerber Scientific's Apparel and Flexible Materials business segment, Gerber Technology, has announced the commercial launch of its Fashion Lifecycle Management (FLM) software suite. This product lifecycle management product provides visibility and control throughout the entire product development and lifecycle management process. Fashion Lifecycle Management uses WebPDM, Gerber's product data management application, along with a workflow engine and collaboration tools.

The product provides the collaborative framework for the fashion industry's increasingly geographically dispersed operations and suppliers. Users can identify and eliminate tasks that fail to add value, immediately see what part of the process needs attention, and streamline product lifecycles to reduce costs and increase speed to market. Zara's in Spain is well known for rapid (three weeks from drawing board to store shelf) product development and execution combined with low cost Asian-made staple clothing to deliver a well above average profitability per retail transaction. What does FLM do to allow others to emulate this type of success?

FLM integrates three essential layers: Design, Product Data Management and Information Collaboration. Each layer is an independent module. Customers can start with any component and add capabilities as needs grow. Those already using WebPDM can carry forward their existing data and processes into FLM.

The Design layer contains the software used for conceptual development, pattern development, grading, marking, and three-dimensional prototyping. The Product Data Management layer captures and catalogs the design layer information for use by all other departments. The Information Collaboration layer controls and manages information throughout the supply chain. It consists of workflow, sample tracking, partner licensing and integration tools that disseminate the necessary information to retailers, brand developers, suppliers and factories that need to interact with the data. Taken together, Gerber has a good approach to moving its product set from basic data management to full fashion lifecycle support. However, Manufacturing Insights believes that Gerber has to demonstrate an ability to capture sell through information (e.g. hot colors/styles or markdown performance) and use it as an input to new design before it can be considered truly full lifecycle.

Footwear and Apparel manufacturers hoping to emulate the responsiveness of Zara should understand that collaboration tools alone – there is also a healthy dose of culture change and communication technology – won't deliver the objective. However, supporting the information visibility and complex

workflows of the modern fashion industry requires a specific application. The FLM suite from Gerber provides an excellent foundation.

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Noteworthy

- SoftBrands, a supplier of application software to small to mid sized manufacturers, announced that APG Meridian, a Florida-based manufacturer of aluminum products, has chosen Fourth Shift Edition for SAP Business One as its ERP system. SoftBrands is a global partner of SAP America.

- UGS announced that Wanfeng Auto Holding Group (Wanfeng Auto) has selected UGS' Teamcenter Express software for its first collaborative product data management (cPDM) system. A leader in China's auto industry, Wanfeng Auto is the largest aluminum alloy wheel producer in Asia and one of the top 50 auto parts suppliers in China. UGS also announced an extension to its alliance with Microsoft to include SQL Server 2005.

- Open Text, a provider of enterprise content management (ECM) software, announced Livelink ECM 10, the next major release of its primary offering. The release is generally available and includes enhancements to repository management, integration, and provisioning.

- EDS announced it has reached an agreement to acquire Global Enterprise Management Solutions, LP. (GEMS). Based in Irving, Texas, GEMS is a provider of SAP enterprise management and customer relationship management services. Financial terms of the transaction were not disclosed. The transaction is expected to close by year-end.

- CoCreate Software, a provider of PLM software applications for high-tech electronics and machinery, announced the release of version 14.50 of its integrated data management product, CoCreate OneSpace Model Manager 2006. Enhancements are focused on improved bill of material (BOM) management.

- Emptoris, a provider of procurement software, announced the latest version of its spend management product. The new spend analysis offering includes a Spend Data Manager and a Spend Classifier, as well as enhancements to Emptoris' Spend Analyzer and new Spend and Contract Visibility offerings. Emptoris is also offering new Data Extraction consulting services designed to accelerate the delivery timeline for implementation.

- Data I/O, a leading provider of device programming products for the automotive industry, and ICOS Vision Systems Corporation NV, a supplier of inspection applications for the semiconductor industry, have collaborated on the integration of ICOS 3D inspection for semiconductor devices into Data I/O PS588 high-volume offline programming system. The new system combines programming and 3D inspection into one process, assuring that programmed devices delivered to the production line are properly programmed and free from defects.

- Cimmetry Systems, an Agile Software company, and Shoptech, a provider of shop management systems, announced a partnership that extends the companies long-standing relationship. Cimmetry and Shoptech deliver CAD data visualization and markup to shop floor workstations, enabling a digital method of accessing and communicating information throughout the manufacturing process. Users can view and annotate any supported document type, including 2D CAD drawings and Office documents.

- SAP announced that Roehlig & Co -- a provider of sea and airfreight shipping -- has selected the SAP for Logistics Service Providers product bundle to help serve its customer base more cost efficiently. The 1,500-employee, family-owned business aims to streamline and standardize transportation management processes and enhance transparency across its operations in 100 trading locations in 25 countries.

- Axeda Corporation, a provider of remote product service software, announced the release of Axeda DRM 4. The latest release features new capabilities that increase user productivity including improved search, better interface performance, and enhanced support for alerts.

- Brooks Software, recently the subject of an acquisition by Applied Materials , and a provider of applications for discrete manufacturing environments, announced PROMIS 5.8, an upgrade of its PROMIS MES that provides enhancements in the @PROMIS web GUI making it easier to increase productivity and enforce quality controls in the production of precision products. Existing customers using any of the three previous major version releases of PROMIS (5.5, 5.6, and 5.7) will be able to take advantage of all the new features with a single step upgrade.

- Oracle announced the availability of Oracle's PeopleSoft Enterprise Supply Chain Management 9.0 and PeopleSoft Enterprise Supplier Relationship Management 9.0. The latest release extends the value of PeopleSoft Applications with advancements to improve business processes, better manage supplier relationships and simplify compliance with government and industry regulations.

- TIBCO Software, a business integration and process management software company, announced that the latest generation of TIBCO Business Studio, version 1.1 is available for free.

- IBS America, a provider of compliance management applications, demonstrated new capabilities that simplify the transfer of data between automotive suppliers and customers. The presentation was given at the Automotive Industry Action Group's (AIAG) first Enterprise Interoperability Showcase in Novi, Michigan. This new capability was demonstrated using QSi System, IBS' client/server- based compliance management system. This software is also available as a hosted application for compliance management called QSi Now! at an annual per- user cost.

- Sterling Commerce announced an agreement to acquire Comergent, a developer of order and sales channel management software, for approximately $155 million in cash. The deal supports Sterling Commerce's Multi-Enterprise Collaboration strategy and will see the integration of Comergent's eBusiness Application Suite into the Sterling Commerce multi-channel order fulfillment software.

- Epicor|CRS, the Retail Solutions Division of Epicor Software, a provider of enterprise business software applications to the midmarket, announced CRS RetailStore Central - a product to manage geographically and typologically diverse store- system retail formats. Based on the Microsoft .NET Framework, RetailStore Central uses secure publish/subscriber-based technology to allow Retail IT chains with hundreds to thousands of locations to monitor and manage their store system configurations and business rules.

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Manufacturing Insights Latest Research

http://www.manufacturing-insights.com/MI/research/getlist.jsp

Bob Parker, Vice President of Research

Asset-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Brand-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Engineering-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Pete Abell, Program Director, RFID & Sensor Networks

Joe Barkai, Program Director, Product Life-cycle Management
Engineering-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Mechatronics Product Life-Cycle Management - Trends and Best Practices

Bob Ferrari, Program Director – Supply Chain Strategies
Strategic Sourcing — A More Important Capability for Manufacturers

Jay Holman, Research Program Manager
Asset-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Brand-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Engineering-Oriented Value Chains Industry Outlook and 2007 Budget Guide

Kimberly Knickle, Research Program Director

Ng Buck-Seng, Associate Director, Asia/Pacific
2005 Manufacturing and Enterprise Applications Landscape in Thailand

Mang-Teck Tan, Director, Asia/Pacific
Asia/Pacific (Excluding Japan) Manufacturing IT Spending 2006-2010 Forecast

Pierfrancesco Manenti, Research Director, Manufacturing Insights, IDC EMEA
Western Europe, Process Manufacturing, IT Spending Forecast, 2005–2010

Ivano Ortis, Research Manager, Europe
Western Europe, Retail/Wholesale Industry, Enterprise IT Solutions Adoption and Investment Plans: An IDC Survey

Western European Consumer Product Goods, 2005–2010 IT Spending Forecast

Western European Consumer Packaged Goods Industry Pulse: April to June 2006

In the News

- Manufacturing Insights Appoints Industry Veteran Kimberly Knickle to Research Program Director
- Manufacturing Insights Europe Says IT Vendors Must Go Vertical
- Retailers and Suppliers Collaborate to Crack RFID Code
- Manufacturing Insights' Survey Reveals Intellectual Property Protection as Top Risk for Companies Operating in China
- Asia/Pacific (Excluding Japan) Manufacturing IT Spending Will Reach US$22 Billion in 2010 at a CAGR of 7.7%, Says Manufacturing Insights

- Manufacturing Insights Calls for Auto Executives to Reevaluate Warranty Repair Process

Manufacturing Insights Upcoming Analyst Speaking Engagements

- Strategic Sourcing - A More Important Capability for Manufacturers
- Supply Chain Council Executive Retreat, January 23, 2006, Boca Raton, FL
- The Global RFID-ROI Summit 2007, January 29-30, London, UK

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