October 2010

Managing Automation®

Technology Strategies for Progressive Manufacturers

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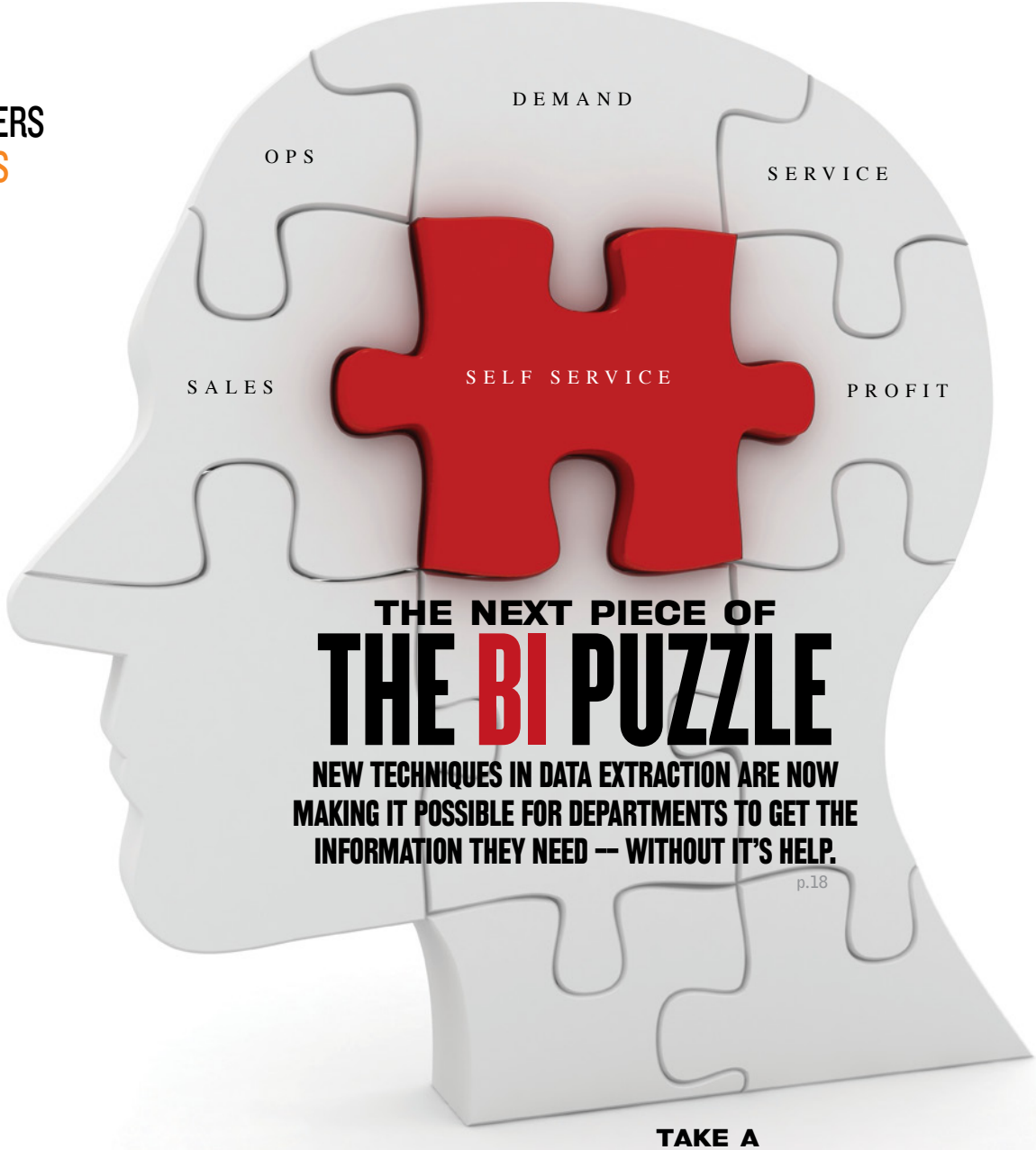

THE NEXT PIECE OF THE BI PUZZLE

NEW TECHNIQUES IN DATA EXTRACTION ARE NOW MAKING IT POSSIBLE FOR DEPARTMENTS TO GET THE INFORMATION THEY NEED — WITHOUT IT'S HELP.
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- THE LATEST TRENDS AMONG ANALYTICS SOFTWARE VENDORS
- AN INTERESTED OBSERVER'S GUIDE TO THE MARKET
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NEW THIS MONTH

WEBCASTS

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Business Analytics for Mid-size Manufacturing and Supply Chain Companies
How mid-size manufacturing and supply chain companies can up their game with affordable, easy-to-use business analytics
managingautomation.com/ibmcognos

[On Demand]

Innovation in Manufacturing — The Collaboration Imperative
How a collaboration strategy can create better products and services for customers and faster time-to-market for manufacturers
managingautomation.com/cisco5

[On Demand]

Real-Time Mobility — Cost-Effective Solutions for Distribution
Today's mobile solutions keep workers on the move. See how they can improve your operations.
managingautomation.com/zebra6

CASESTUDIES

Volvo Turns to Apriso for Global Flexibility
When Volvo Construction wanted global manufacturing agility, it turned to Apriso for flexibility and consistency.
Managingautomation.com/apriso23

Error-Proofing Operations
Dive into this case study for an overview of a real-time inline metrology system that was used to error-proof operations.
Managingautomation.com/asone2

Creating Sustainable Competitive Advantage — A Product Case Study
Parker Hannifin is using Sopheon's PLM solutions to increase its product portfolio by 500%.
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WHITEPAPERS

Achieving World-Class Manufacturing with ERP & MOM
Learn how a dual-platform approach leveraging ERP and MOM can help address the 8 common issues manufacturers face today.
Managingautomation.com/apriso18

Improve Business Performance and Customer Loyalty in 5 Steps
Discover 5 steps you can take to improve business performance and customer loyalty.
Managingautomation.com/infor28

SaaS: What Is It? How Can It Help You?
What is software as a service (SaaS)? A "SaaS Primer" provides the answers.
Managingautomation.com/plex33

Enabling the Confident Enterprise with Business Analytics
Business analytics can help you gain real insight into your data and enhance business performance.
Managingautomation.com/sas3

New from the MA EDITORIAL TEAM

Read the latest from *MA*'s editors on the Channel blogs.

BLOG ENTERPRISE APPLICATIONS

Public Attitudes about Manufacturing: It's Complicated
A new survey shows confidence in the capabilities of U.S. manufacturers, but pessimism about the future of U.S. manufacturing.
www.managingautomation.com/entappsblog5

BLOG CUSTOMER MANAGEMENT

Boeing and the Patient Customer
Whether you're selling an ERP system or an energy drink, your customers have a certain tolerance level when it comes to product promises, and it's up to you to know what that level is.
www.managingautomation.com/customerblog5

ma WEBCASTS [ONLINE]

www.managingautomation.com/webcasts

IBM

Title: **From Insight to Action: Business Analytics for Midsize Manufacturing and Supply-Chain Companies**

Date: **September 30, 2010**

Time: **2:00 PM EST**

ON DEMAND

www.managingautomation.com/ibmcognos

Tackling Analytics for Midsize Manufacturers

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- Product demo

Midsize organizations need real-time information about operations and supply chain activities, the ability to better forecast demand, and the flexibility to respond to changing market conditions to thrive.

To help fulfill these requirements, midmarket companies need the same kinds of business analysis and intelligence tools in which larger companies are increasingly investing – but without the high costs, long implementation times and need for extensive IT support.

This Managing Automation Media webcast, sponsored by IBM, will provide timely and insightful information on how midmarket manufacturing and supply chain companies can improve their planning, budgeting and forecasting process; achieve greater supply chain visibility; and become more demand-driven and responsive in their markets.

As part of this discussion, IBM will provide a demonstration of its IBM Cognos Express business intelligence and planning product. IBM Cognos Express, introduced in September of 2009, offers the ability to create financial, operational and transactional reports; allows "what if" scenarios; and provides real-time, multi-dimensional analysis in planning, budgeting and forecasting.

Moderator: David R. Brousell, Managing Automation

Speakers:

- Paul A. Hoy, CPIM Industrial Sector Executive, Business Intelligence and Performance Management, IBM Software Group, IBM
- Don Richardson COO, Acumetrics

david r. brousell/EIC

TAKE 1

Doing It All

Dbrousell@thomaspublishing.com

Oracle, long rooted in the software business, now wants to take on IBM and HP for dominance of the IT market. But history and buyer behavior will be forces to reckon with.

Obscured in many of the reports on Oracle Corp.'s hiring of former HP Chairman and CEO Mark Hurd was a remark by Oracle co-President Safra Catz about her company's ambition.

"As Oracle continues to grow we need people experienced in operating a $100 billion business," Catz said.

That's quite a statement, and quite a target, for a company whose current revenue is only slightly more than one-quarter of that sum. But it says a lot about how Oracle looks at the IT market, what it considers to be competition, how it views its own possibilities, and how it is constructing its business model to reach that lofty financial goal.

As a result of its $7.4 billion acquisition of Sun Microsystems earlier this year, Oracle, which pioneered the relational database management systems market in the 1970s and later moved into software development tools and applications, is clearly no longer just a software company. In fact, Oracle CEO Larry Ellison, never one for nuance, even goes so far as to say there is no such thing today as a software or hardware market. "The business we're in is the systems business," he recently told financial analysts.

But is Ellison taking Oracle back to the future? Can he really assemble a vertically integrated company, from microprocessors to enterprise applications software, which can rule the IT market? Do businesses and other organizations really want to buy all or most of their IT products from one vendor? Moreover, can any one company really do it all, from brilliant innovation to flawless delivery?

Over the years, many companies in the IT space have tried the vertically integrated model, and just as many have either failed or been forced to refocus on a key competency. In the 1980s, Digital Equipment Corp. made everything from chips to complete systems, but it ended up being sold to Compaq Computer, a PC company, which itself was later acquired by HP. Even IBM, the quintessential systems company, eschewed certain business lines such as applications software and its own PC business and focused on services to grow. In recent years IBM has been re-asserting itself in applications through acquisitions, but the services side of Big Blue is still the largest business in its portfolio. HP, too, has placed a big bet on services with its acquisition of Electronic Data Systems.

Now Oracle, bolstered by the experience of Hurd and the acquisition of Sun, wants to take on HP and IBM for dominance of the IT market. Except that Ellison, convinced that well-engineered systems greatly reduce the requirement for integration services, doesn't believe that professional services will play a big role in Oracle's quest.

That view may contradict the IT reality that exists, particularly in larger companies saddled with years of disparate IT investments. In addition, it remains to be seen whether businesses and other organizations will forgo innovative best-of-breed investments for what may well be the temporary convenience of an end-to-end supplier. Moreover, the issue of risk continues to loom large across the IT buying landscape. Vendor lock-in, an issue in every era of computing, persists even in today's cloud-evolving market.

The other factor here, though, is Ellison himself. Many have bet against him over the years and just as many have lost those bets. If nothing else, Oracle's new journey as a systems company is going to be an interesting ride. ■

Photo: Peter Kolk

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For more of David R. Brousell's views, visit:

- Back to School www.managingautomation.com/takeone71
- The Age of Insecurity www.managingautomation.com/takeone70
- The "New" SAP www.managingautomation.com/takeone69

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news in perspective

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For the Record

APPOINTMENTS

Acsis, Inc. appointed Kelly Kuchinski director of product marketing.

Barcoding Inc. hired Joe Santini as director of professional services.

Rimini Street, Inc. named Nigel Pullan group vice president, EMEA and APAC.

Savi Technology named William Clark chief marketing officer and William Maggs chief technology officer.

Valogix, which offers inventory planning and optimization software, promoted Lee Dubber to director of worldwide customer enablement.

Price and revenue management software provider **Vistaar Technologies, Inc.** appointed David Glenn senior director of its optimization group.

CONTRACTS

ABB landed a $24 million order from Petrofac, an oil and gas facilities service provider.

KONE Corp., which makes escalators, elevators, and automatic doors, is using **Ariba, Inc.**'s Commerce Cloud to reduce costs.

The Hallstar Co. chose **As One Technologies, Inc.**'s Catalyst xM and Catalyst PDC manufacturing operations management software for its Chicago facility.

Continued on page 11

Uncertainties Over Taxes, Trade, and Regulation Raise Questions About Manufacturing's Recovery

BY JEFF MOAD

U.S. manufacturing may not be back. But it's certainly back in the spotlight.

As the economic recovery continues to sputter, manufacturing has emerged as something of a bright spot. While the country's gross domestic product increased at only a 1.6% annual rate in the second quarter of this year, for example, manufacturing industrial production rose at 7.9%. The relative strength of manufacturing helped push U.S. exports up 17% in the first seven months of 2010.

The manufacturing sector even managed a net increase in jobs through the first half of 2010, reversing a long, seemingly intractable trend, if only temporarily.

The upturn has inspired some politicians to focus more of their attention on manufacturing. Between highly public visits to plants in Ohio and elsewhere, President Obama recently proposed a $100 billion plan to make permanent the research and development tax credit for businesses. And he has set a goal of doubling U.S. exports over the next five years.

"Manufacturing has consistently outperformed the pace of growth in the general economy during this recovery," said Thomas Duesterberg, president and CEO of the Manufacturers Alliance/MAPI, a public policy and economics research organization, in an interview with *Managing Automation*.

Thomas Duesterberg

But just how real and significant is the recent surge in U.S. manufacturing activity, and what will it take to sustain it?

To be sure, some of the recent rise in U.S. manufacturing can be explained as a normal cyclical response to an economy at least trying to emerge from a recession, according to Duesterberg. In the depths of the recession in 2008 and 2009, many manufacturers slashed production, inventory, and spending to conserve capital. As the economy shows signs of life, some manufacturers have set to rebuilding depleted inventories and cautiously making capital investments, Duesterberg said.

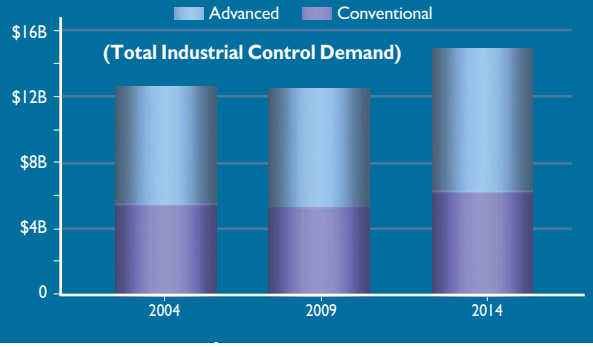
"Manufacturing was down so much that we are not back to where we were in late 2007 or early 2008," he said. "We won't be back to that

Industrial Controls to Grow 5.1% Annually Through 2014

BY THE NUMBERS

U.S. demand for industrial control products is expected to increase 5.1% per year to reach $15.5 billion in 2014. The drivers behind the gains will be an economic recovery, acceleration in non-residential fixed investment, and rising manufacturing activity, according to a report by The Freedonia Group, Inc. Demand for advanced industrial controls, which provide higher productivity and performance, will lead the way, rising 5.4% annually through 2014 to $8.8 billion. Conventional industrial control demand will advance 4.7% per year during the 2009-2014 period to hit $6.7 billion, Freedonia predicted. Demand in the durable goods market is expected to rise 4.9% per year to $9.4 billion in 2014. In 2008, Freedonia had expected industrial controls to climb to $15.4 billion by 2011, but that was before the recession took the wind out of the sails of this and other manufacturing technology market sectors.

U.S. Industrial Control Demand Forecast



The Freedonia Group, Inc.

level until 2012."

As that cycle plays itself out, MAPI predicts that growth in manufacturing output will moderate from 6% this year to about 5% next year, even though the balance sheets of many manufacturing companies are relatively strong.

"Whether we can sustain growth and increase exports will depend a lot on policy decisions in Washington," he said. "Right now there are so many unknowns that it's difficult to know if we can be hopeful about regaining market share."

One major unknown is tax rates. With Bush-era tax cuts scheduled to end soon, many manufacturers could be facing higher taxes on capital gains and dividends, not to mention higher income taxes. As a result, many are reluctant to make the kinds of capital investments needed to sustain manufacturing sector growth, Duesterberg said. And the Obama administration's proposal to make the R&D tax credit permanent comes with a proposal to cut tax loopholes, which could lead to higher costs for multinational manufacturers, he said.

Another source of uncertainty hanging over manufacturers is trade policy. Overall, Duesterberg contends, free trade agreements have led to more-balanced trade for countries that enter into them. Currently, however, the trend is toward free trade agreements among regional trading partners, particularly in Asia. Recently, for example, Japan announced a new trade deal with India that will scrap 94% of existing tariffs over a 10-year period.

Unfortunately, Duesterberg said, the U.S. has been shut out of many of these regional agreements.

"We aren't participating, and that could be a big disadvantage for U.S. manufacturing," he said. "We need to get more engaged."

Finally, government regulations are fueling a good deal of uncertainty. Most manufacturers are still trying to understand what financial impact they will feel from the recently passed healthcare reform legislation, Duesterberg said. At the same time, the Environmental Protection Agency is expected to impose new ozone emission standards that could lead to increased costs, particularly for manufacturers that generate nitrogen oxides and volatile organic compounds, he said.

"This could be extremely costly to manufacturers," he said. "It's quite clear that manufacturing states would be hit hardest if this were to go into effect."

The result of such uncertainties, according to Duesterberg, is that many manufacturers remain reluctant to make the kinds of investments that could feed an ongoing manufacturing revival.

"They don't know how their profits are going to be taxed or whether they're going to have to make major investments in new clean air equipment," he said. "As a result, manufacturers are still very cautious."

'AS ONE' GAINS CEO, LOOKS TO BECOME MORE APP-CENTRIC

As One Technologies, which offers manufacturing operations management via workflow automation and exception-handling tools, recently parted ways with its founder and CEO and tapped David Wicker to lead the company toward what the new chief terms "aggressive growth."

Wicker hails from the consulting world, having founded an IT systems integration company, Orion Consulting, which he grew to 200 employees and eventually sold in 2000. After a years-long hiatus during which he devoted his time and resources to charitable organizations, Wicker caught the corporate bug again and began a Twin Cities-area management consulting practice called Tekton Strategies that advised companies on how to find internal efficiencies and grow their businesses.

David Wicker

It was in that capacity that he crossed paths with Minnesota-based As One, which was founded in 1994 by Joel Nash, who also served as its chief executive. According to Wicker, Nash and the As One board "identified the need for the company to have an experience level of management that had been through the growth cycle and growth process before."

As One, Wicker said, has experienced "stops and starts" in recent years, some related to internal capabilities, others attributable to the economy and the market. Wicker was brought aboard to help "manage the challenges of fast, aggressive growth that comes all of a sudden when you make it on the radar

Scan Back in MA

MA OCTOBER 2009

With increasing customer demands and cap-and-trade regulations looming, manufacturers that put in place holistic, enterprise-wide sustainability programs would likely enjoy a competitive advantage. That meant establishing uniform metrics and systems for collecting and reporting comprehensive sustainability-related data. Unfortunately, many manufacturers hadn't yet taken that step and still relegated sustainability to narrow compliance-oriented initiatives conducted at the plant or department level.

MA OCTOBER 2005

Post-sales service was emerging as a competitive game, with big new revenue and cost-saving opportunities for astute manufacturers. Playing to win required companies to revamp their post-sales processes, including demand planning for service parts, logistics, service call management, and warranty claims management. Software vendors were seizing the opportunity, too, by integrating service management capabilities with their enterprise applications, such as CRM.

MA OCTOBER 2000

Momentum was finally building behind Ethernet as its advantages on the factory floor became better known and as powerful automation vendors put their might behind the protocol. The future looked promising, unless divisions over a standard at the application layer ended up stalling Ethernet's forward motion. Four organizations were promoting competing standards: Fieldbus Foundation, Open DeviceNet Vendor Association, Interface for Distributed Automation Group, and Profibus International.

MA OCTOBER 1995

With new operating systems, architectures, software, and hardware, users were able to collect data from a product or process once and use it in simultaneous applications in the plant. Manufacturers relying on automatic identification and automation data collection wanted to see relevant data in real time, and they wanted the data to be shared throughout the factory. Vendors were complying with new products to meet those demands.

and your products are successful," he said.

As part of that growth process, As One is busy adding "application provider" to its résumé. Often thought of as a platform provider — manufacturers use its Catalyst SDP platform to develop their own custom applications for manufacturing process management and intelligence — As One has lately rolled out some pre-built application tools, including xM, an exception-management tool, and PEC, a historian/process data collection tool, both of which were developed on the SDP platform. Next on the menu is an application called MI that will deliver off-the-shelf manufacturing intelligence capabilities. A cadre of customers will be using the beta version of MI in the fourth quarter of 2010, with general release expected in the first quarter of 2011, Wicker said.

In general, the new CEO's plan is for As One to find the "gaps in … manufacturing operations management systems and [plug] those with additional products." Jay Mellen, executive vice president of business development, told *MA* that when he joined the company two years ago, one of his goals was to move As One "up out of the platform level into application functionality [to] solve manufacturing problems." Waiting in the wings, he and Wicker said, are applications for manufacturing workflow automation, intelligence, and exception processing for customers in automotive, aerospace and defense, industrial manufacturing, semiconductors, and specialty chemicals. Recent customer wins include Hallstar, Honeywell, John Deere, and Seagate.

For now Wicker leaves aside the question of taking privately held As One public. For the foreseeable future, he said, he is focused on converting As One's existing opportunities and identifying possible areas of expansion, one of which might be the consumer packaged goods arena.

"It sounds like the manufacturing engine continues to move," he said of the economic outlook, a resurgence that he hopes will parallel As One's own. – *Chris Chiappinelli*

NEW SIEMENS PLM CHIEF TO PUSH THE 'BUYING EXPERIENCE'

Few automation executives can say they have an Oscar sitting on their bookshelf, but Charles "Chuck" Grindstaff, the newly appointed president of Siemens PLM Software, can.

Grindstaff joined Siemens in 2007 as part of the UGS acquisition and served as CTO and executive vice president of products prior to his promotion. Known in industry circles for his technical acumen, he earned a Scientific and Engineering Award from the Academy of Motion Picture Arts and Sciences for his groundbreaking work on digital signal processing systems in high-end movie applications. This month he replaces Siemens veteran Helmuth Ludwig, who will now lead the global communications team of Siemens Industry Automation, the company said.

Ludwig, who has been instrumental in helping unify Siemens' software sales, will take his global expertise to the Siemens

UPCOMING EVENTS

Consona Connect
Oct. 12-15, 2010
MGM Grand Hotel
Las Vegas, NV
www.consonaconnect.com

APICS International Conference & Expo
Oct. 18-20, 2010
Wynn Las Vegas
Las Vegas, NV
www.apics.org

Rockwell Automation Fair & Manufacturing Executive Council Meeting
Nov. 2-4, 2010
Orlando County Convention Center, Orlando
www.rockwellautomation.com

KronosWorks 2010
Nov. 7-10, 2010
MGM Grand
Las Vegas, NV
www.kronos.com/kronosworks

Pilgrim Fusion 8 Software User Conference
Nov. 7-10, 2010
Innisbrook Resort & Golf Club
Palm Harbor, FL
www.pilgrimsoftware.com

Dassault Systemes Customer Conference
Nov. 9-10, 2010
Renaissance Orlando Resort at SeaWorld
Orlando, FL
www.dscc2010.com

Industry Automation division to provide a range of strategic communications services, the company said. Tony Affuso remains chairman and CEO of Siemens PLM.

Shortly after Siemens acquired UGS, Ludwig was named president of the newly created PLM arm and tasked with integrating the UGS software business into Siemens Industry Automation's portfolio of products. And, more importantly, he was asked to blend and unify the two dramatically different corporate cultures. With that task complete, Ludwig steps aside as a new leader arrives to drive the company forward.

The fact that Siemens appointed Grindstaff, whose résumé dates back to Unigraphics Solutions (which in 2001 merged with Structural Dynamics Research Corp. to form a PLM business later known as UGS) indicates that the two organizations are now successfully operating as one.

"I think it is a strong statement that the leadership in place before the acquisition is being asked to take [the company] to the next level," Grindstaff said in an interview. "It is a good testament that the strategies we have put in place are valuable to Siemens and that they trust that we understand the organization."

Charles Grindstaff

Grindstaff has spent the last three years mapping out a product and acquisition strategy for Siemens PLM. "There won't be a big switch in product strategy" under his watch, Grindstaff said, noting that Teamcenter, the collaboration platform, remains core to the Siemens PLM business.

Notable priorities going forward are new sales programs aimed at making the buying experience easier for manufacturers and acquisitions that will plug technology gaps in the Siemens PLM portfolio. "Hopefully, under my leadership, we not only follow through on previous decisions, but accelerate them," Grindstaff said.

One area that he will continue to explore is the digital factory concept, in which product design and production are seamlessly integrated. He admits there is still a lot of work to be done in order to stitch together the two worlds. "We are making steady progress," he said, referring to a shared data model currently in development.

Grindstaff's ultimate goal is to remove complexity from the product offerings. "Ease of use is a big focus of ours going forward."

He also wants to ensure that Siemens PLM is easy to do business with. To that end, Siemens has been working on creating a single sales force that can sell anything from MES to PLM. "We didn't have anything like this in place two years ago," Grindstaff noted, explaining that customers had to work with separate representatives for each product category. – *Stephanie Neil*

RALLYING AROUND CONTINUOUS IMPROVEMENT

How can manufacturers cope with an environment of increasing global competition and regulatory pressure while also positioning themselves to take advantage of new opportunities in developing economies, where consumers are just beginning to flex their spending muscles?

They can redouble their efforts to drive operational efficiency in both product development and production, said manufacturers including Pfizer, Genentech, and Tata Technologies at the recent Frost & Sullivan Growth, Innovation, and Leadership Silicon Valley conference in San Jose, CA.

"In the 1990s, we saw manufacturing companies focusing on managing capital expenditures and emerging markets," said Sath Rao, Frost & Sullivan's vice president for industrial automation & process control. "Now we see the focus shifting to operational excellence and continuous innovation."

At pharmaceutical manufacturer Pfizer, for example, company leaders continuously consolidate its manufacturing network in search of better operational performance, said Rick Mitzner, Pfizer's senior director for engineering technology. Having emerged from an aggressive acquisition spree — highlighted most recently by its 2009 purchase of Wyeth — Pfizer is now moving production to its highest productivity plants, and shutting down low performers. At the same time, Mitzner said, the company is defining standard processes used by its most productive plants and rolling them out across its network by standardizing on technologies such as Emerson's Delta V DCS infrastructure.

At biotech manufacturer Genentech and car maker Tata, the push has been to bring continuous improvement and operational excellence to product development and

Quote of the MONTH

"Manufacturing has consistently outperformed the pace of the general economy [in] this recovery."

— Thomas Duesterberg, president and CEO, Manufacturers Alliance/MAPI.

For the Record

Continued from page 8

Hunter Amenities International selected **DEACOM**'s Integrated Accounting and ERP Software System to manage its business processes.

Novus Biologicals opted for the **Epicor** 9 next-generation ERP solution.

IBM won a contract to develop a manufacturing execution system for a Bhatinda refinery under development in Punjab, India.

FINANCIALS

Mitsubishi Electric filed delisting applications with the Osaka Securities Exchange, the Frankfurt Stock Exchange, and the Euronext Amsterdam due to low-volume trading.

Precyse Technologies, a provider of real-time location and RFID-based supply chain visibility products, closed a second round of financing totaling $11 million from a Georgia-based private investor group.

M&AS

Cimcorp, a Finish provider of material handling and picking solutions, acquired **RMT Robotics**, based in Canada.

Cisco Systems agreed to acquire **Extend-Media**, a privately held provider of content management systems.

LMS International purchased **Emmeskay**, which offers advanced simulation technology products for model-based systems engineering. Also, LMS sold **Noesis Solutions N.V.** and the **OPTIMUS** platform to **Cybernet Systems**.

PARTNERSHIPS

Ariba Inc. added **PunchOutCatalogs.com**, which provides supplier enablement software and services, to its Supplier Solution Provider program.

Pilgrim Software, Inc. signed partnership agreements with **Agaram Instruments Ltd.** and consultancy **VennTek Systems, Inc.**, both targeting the India market.

Rapid BI Consulting entered a pact to resell **QlikTech**'s QlikView Business Intelligence software.

SPS Commerce and **RollStream Inc.** entered a partnership aimed at accelerating trading partner onboarding and supply chain collaboration.

Professional services firm **Tallan, Inc.** entered an alliance with **Microsoft Business Systems Dynamics** to develop custom systems based on Microsoft Dynamics CRM.

engineering processes.

In a bid to get more new products into the pipeline sooner, Genentech has focused on cutting time out of its processes for putting newly developed molecules through clinical trials. By applying continuous improvement practices to its clinical trials process — in much the same way that it removed bottlenecks from its manufacturing plants — Genentech has been able to reduce the average time it devotes to clinical trials to 12 months from 18 months, said Jeff Cisneros, the company's pharmaceutical technology biologics operational excellence manager.

Meanwhile, Tata Technologies has taken a continuous innovation approach to designing and sourcing parts for the company's breakthrough Nano car. Tata Technologies, which provides engineering and IT services to Tata Motors and other units, was forced to radically rethink the designs of most of the Nano's parts in order to meet the company's $2,500 price target for the vehicle. Tata Technologies President and COO Warren Harris said Tata's "frugal engineering" approach extended to Tier 1 suppliers such as Bosch and Delphi, which also were required to rethink standard part designs to drive out cost.

"Our concept was to drive continuous innovation across the value chain," Harris said. "It was the only way we could redefine our market." – *J.M.*

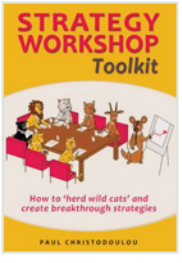
TAKING STRATEGY FROM CONCEPT TO COMPLETION

The old cliché, "Don't judge a book by its cover," certainly applies to Paul Christodoulou's *Strategy Workshop Toolkit* (Strajectory, 2010). The whimsically illustrated paperback, with the somewhat cloying subhead, "How to 'Herd Wild Cats' and Create Breakthrough Strategies," belies the more than 20 years' experience the author brings to the subject as a strategy leader working in international business in the United Kingdom, the United States, and Europe.

Today, as the book explains, strategy planning is more often a "middle-up" activity involving senior managers than the "top-down" activity of old, and the creation of workshop-based initiatives can be a challenge for managers new to the task. Christodoulou delivers a practical toolkit to assist such leaders in planning and executing successful strategy workshops, despite the somewhat distracting "wild cat" cartoon characters used to add levity to the subject matter.

The light-hearted, gimmicky wild cats notwithstanding, Christodoulou does a yeoman's job of describing the careful preparation and planning that goes into the creation of strategy workshops. He also details the high political stakes that can make or break these critical events.

Christodoulou, a senior industrial fellow at Cambridge University's Institute for Manufacturing and a member of *Manufacturing Executive*'s Board, demonstrates his experience, insight, and knowledge on almost every page. Overall, the book serves as a roadmap to take strategy from concept to completion.



His collaborative approach to strategy formulation is well reasoned and articulated, and he provides candid advice on how to execute the key strategies that lead to success. For example, in "Seven Workshop Essentials," the author explains how room layouts can have a radical impact on the success of a session. The author implores the reader to match the room layout to the different types of workshop activity. To make this easy for the reader, Christodoulou provides a chart displaying the ideal room configuration for various types of workshop sessions. In addition, Christodoulou's "Essentials" includes instructions for the creation of participation guidelines. The author ably describes how providing proper guidelines can set the right tone for a workshop.

The book is a welcome read for engineers and managers looking to develop strategies to improve their businesses. Christodoulou does an outstanding job of outlining the rules that should govern strategy workshops, from structuring teams correctly to choosing the right venues and materials.

Christodoulou's book lives up to its charter to help managers develop effective strategy workshops. – *Marty Weil*

PM100

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joshua greenbaum

NOTES

Closing the Training Gap (Part 2)

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Taking a page from online computer games, University of Wisconsin Professor David Shaffer designs a training method that proves to be not only fun, but also effective.

If you've ever worked as an apprentice to a genuine expert or been mentored on the job by a seasoned colleague, you'd probably agree that the learning experience was unparalleled. This is human nature at its most human: When people roll up their sleeves and start learning by doing, instead of merely studying a subject in the abstract, the effectiveness of the learning experience is so dramatically different that "book learning" starts to look like a massive waste of time.

The apprenticeship approach has one drawback, however: scale. It's nice to think that we should all learn by doing; it's another matter to make "doing" possible for all the needy learners in the world. It simply can't be done with raw human power alone.

And raw computing power doesn't fill the training gap either. Many vendors in the training market have sought to fill the gap by moving classroom training to the online world. And though e-learning solves the problem of reaching thousands of trainees at low cost, most computer-driven training falls far short of being hands-on, immersive, and apprentice-like in its approach or the results it delivers.

Meanwhile, in the academic world, a new approach to training has emerged, called epistemic gaming. Its main progenitor, David Shaffer of the University of Wisconsin, took a few pages from online computer games, such as World of Warcraft and The Sims, and applied them to the training gap.

Shaffer found that computer games, when designed for training purposes, can offer an apprenticeship-like experience that helps students understand complex topics — everything from geometry, to bioethics, to journalism — and score better on the standardized tests used to measure traditional academic performance.

What's more, the students had *fun* learning, to use a term that is anathema to both academia and the workplace. Yes, fun.

Business simulation games are common in business schools today, but the training game concept is only just beginning to see the light of day in the business world.

One company, Baton Simulations, markets a classroom-based training game for SAP customers. And IBM and Cisco have developed internal training games for their employees. Other companies have used games in areas such as recruiting and employee on-boarding.

In early 2011, a company I helped bring to fruition, Planet Enterprise, will begin delivering end-user training games that are based on epistemic gaming and similar concepts.

Most people see the training gap as an inevitable obstacle to efficiency and effectiveness. But it's not too early to look at that gap as a problem that can and will be solved by the kind of wholesale shift in approach that Shaffer and others have proven to be dramatically effective.

The first changes will have to be cultural; training has to be valued as a must-have, instead of a have-to-do. And permission to have fun must be granted, at least when it comes to training.

That last one may turn out to be the ultimate cultural barrier for training games. But once that barrier falls, training — and the training gap — will never be the same again. ■

Joshua Greenbaum is principal of Enterprise Applications Consulting, based in Berkeley, CA.

Photo: David Toerge

ma online managingautomation.com

For more of Joshua Greenbaum's views, visit:

- ❑ Closing the Training Gap (Part 1) www.managingautomation.com/notes74
- ❑ Clouds Get in the Way www.managingautomation.com/notes73
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julie fraser

METHODS

MES/MOM Guides Plant Activity

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After measuring plant performance, the next step in operations management is to take action. MES/MOM can help control and automate production operations.

To improve performance, you must measure it, but measuring alone does not necessarily lead to improvements. You must take action. Last month's Methods discussed tools to measure and understand performance in production plants. This column examines the application category focused on taking actions that improve plant outcomes: manufacturing execution systems (MES) or manufacturing operations management (MOM).

If the products described last month are the dashboard for production, MES/MOM applications are the controls — steering wheel, gas, brake, clutch, and global positioning system. Manufacturers use MES/MOM to control production operations across one or multiple plants. These applications help enforce procedures, deliver operator guidance to eliminate errors, enable operator-level decisions that account for the larger context, and automate track-and-trace and related recording tasks.

Many companies have implemented MES/MOM to gain compliance information or to fill information holes in their supply chain and product lifecycle management. However, the benefits are greater for those that use it to streamline plant operations and make activities more predictable. Automating what are often paper or spreadsheet order tracking and operator instructions can create a knowledge base from which companies can identify and recommend — and even enforce — best practices.

The MES/MOM category is vast, with too many options to list; the Logica MES Product Survey includes 58 products. Here are some subgroups and offerings within them:

Industry focused: The MES/MOM category has grown up largely to fulfill specific needs in particular industry segments. Providers to aerospace and defense include iBASEt, Intercim, Mestec, and SAP. In semiconductors and photovoltaics, Applied Materials, Camstar, Eyelit, and IBM are major players. In other discrete sectors, Camstar, Casco Development, Factivity, HighJump, IQMS, Lawson, Plex, SAP, Solarsoft, and SYSPRO offer solid and varied capabilities. For pharmaceutical, Emerson Process Management, GE Intelligent Platforms, Honeywell Process Solutions, Rockwell Automation, Siemens Elan Software, and Werum Software & Systems compete. In other process industries, ABB, AspenTech, and Yokogawa are strong.

Easy-to-deploy: CDC Software delivers information to operators with minimal automation required. Plant floor integrators Esys, Flexware Innovation, and Invistics offer software plus services. IQMS, Solarsoft, SYSPRO, and Tuppas are ERP providers with MES that goes well beyond a plant floor ERP module. These are extremely useful to operators without being complex or highly automated.

Adaptable: Apriso, GE Intelligent Platforms, GEFASOFT, Invensys Operations Management, Lighthouse Systems, MPDV Mikrolab, Oracle, Rockwell Automation, Schneider Electric, and Siemens have deep and broad MOM suites used in a wide variety of industries.

In this era of unprecedented change, the need to move beyond paper-based approaches is urgent. To ensure that the plant operates profitably, MES/MOM is taking hold in companies of various sizes and industry segments. It is helping "tribal knowledge" survive and grow to reflect today's new production realities. ■

Photo: Dirk Kikstra

Julie Fraser is president of Cambashi Inc., the U.S. arm of the industrial-focused analyst/consulting/market research firm based in the United Kingdom.

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For more of Julie Fraser's views, visit:

- ❑ Tools to Improve Plant Performance www.managingautomation.com/methods7
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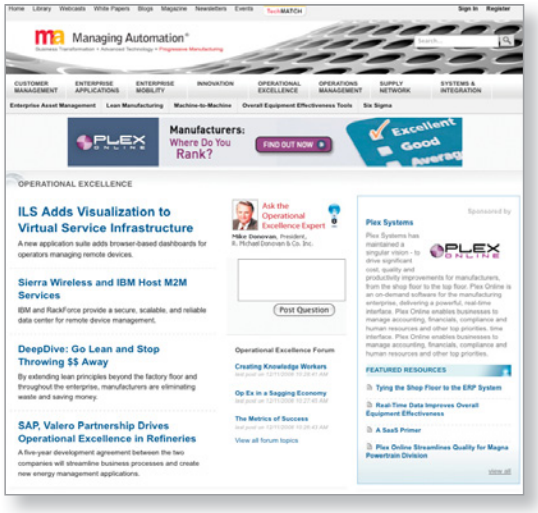

Customer Management:

Manufacturers who manage their customers well have intelligent and responsive sales and service teams. MA's Customer Channel will guide you on issues such as customer master data management, service and support, and warranty management, with a focus on CRM systems, salesforce automation, and sales intelligence and analytics.

Operational Excellence:

This new channel looks at business strategies such as lean manufacturing, enterprise asset management and six sigma, and provides readers deep insight on related techniques, including waste elimination, demand driven production, continuous improvement, and minimization of defects and variability in manufacturing processes.

Enterprise Applications:

This channel delivers insight on enterprise resources planning (ERP) software for tracking customer orders, customer relationship management (CRM) software that manages a company's sales force and its customers, and human resources management (HRM) software for payroll management, performance management, incentive management, workforce optimization and talent acquisition/recruitment.

Operations Management:

Gain actionable insight from the Operations Management Channel, which keeps you informed about manufacturing execution systems, automation technology, and methods to balance the principles of sustainability and profitability, including green manufacturing.

Enterprise Mobility:

The rise of global manufacturing and far-reaching operations has challenged manufacturers to oversee multiple locations simultaneously, and the Enterprise Mobility Channel provides insight on the wireless devices, wireless infrastructure, wireless applications and wireless services that are leading the way.

Supply Network:

The Supply Network Channel helps manufacturers deal with the vast discipline of supply chain management (SCM), which stretches from the procurement of raw materials from suppliers to the delivery of finished goods to customers via distribution and logistics channels.

Innovation:

Innovation is the new imperative for manufacturers, and the Innovation Channel covers such topics as tapping new markets and selling into existing ones through new product development and R&D, as well as new techniques such as crowdsourcing, collaboration across the value chain, digital manufacturing, and effective product lifecycle management (PLM).

Systems & Integration:

Manufacturers looking for information on business process integration can find it on the Systems & Integration Channel, which delivers intelligence on designing business processes that synchronize internal operations with those of global trading partners through systems integration and enterprise integration (EDI).

THE NEXT PIECE

BUSINESS INTELLIGENCE TECHNOLOGY CAN NOW DELIVER DEPARTMENTAL DATA
DECISION-MAKING. THIS NEW ERA OF BI IS ALLOWING INDIVIDUALS TO EXCEL IN

OF THE BI PUZZLE

DIRECTLY TO END USERS, ALLOWING THEM TO BYPASS IT FOR FASTER THEIR ROLES AND KEEP THEIR COMPANIES COMPETITIVE.

BY STEPHANIE NEIL

On a mid-August morning, as the lazy days of summer were winding down, John Babcock, vice president of finance at Satellite Industries, Inc., ran a report from the corporate ERP system that compared the company's current sales with its July tally. What he found was highly unusual.

"Revenue in August was higher than July, and that has only happened two times in the last 15 years," Babcock explains.

While this deviation from the normal financial pattern was a welcome surprise, it still required attention. "The last two times August sales were higher than July, we were on a tremendous growth curve, so that tells me I need to make some decisions about the business based on this information," he says.

Having this kind of clear snapshot of how the company is doing right now helps Satellite Industries, a manufacturer of sanitation equipment, make decisions about inventory, capital expenditures, and future investments. And the only reason Babcock had that on-the-spot view into revenue was because Satellite used the business intelligence tools built into its ERP software, courtesy of enterprise applications provider Sage Group.

"Business intelligence helps us to make better decisions about the direction the company is going," Babcock says. In fact, since tapping into the BI capabilities of Sage's X3 ERP software, he says, the changes within his organization "have actually been quite dramatic."

The company has graduated from depending on improvised tribal knowledge to get through the day to giving workers the ability to extract the real-time data that helps them make informed choices.

Babcock is not alone. In a recent *Managing Automation* survey, more than 94% of respondents said that BI is becoming more important to their organization. In addition, a majority said that BI helps them make better strategic decisions, faster operational decisions, and increases the company's overall agility. (See user poll, p. 26.)

New techniques in data extraction have been the game-changer, allowing BI tools to quickly surf through the oceans of information collected in back-end data warehouses and make connections based on context.

In the past, a department manager seeking an in-depth report of any sort would need to make a request to an IT department that may or may not have understood the business issue at hand and, therefore, may or may not have been able to access the right data related to sales, inventory, or manufacturing yield, for example. And reports could take days or even weeks to deliver, either because of the query's complexities or because layoffs had left many IT departments with skeleton staffs to juggle projects.

But manufacturers can no longer operate in an after-the-fact manner. Nor can they be expected to sift through 50 different reports to gather the information they need. Rather, manufacturing users want role-based, contextual information that identifies trends and facilitates predictive analysis. And, they want it delivered directly to their desktops or mobile devices.

Thanks to advances in online analytical processing (OLAP), in-memory computing, and search engine technology, as well as built-in analytics in ERP and CRM applications and "purpose built" applications with pre-defined key performance indicators (KPIs), conventional BI tools can now better maneuver the labyrinth of unrelated rows and columns in a relational database.

But the wilderness has not yet been fully tamed. A slew of vendors, including Algebraix, Endeca, IBM, InetSoft Technology, MicroStrategy, Oracle, QlikTech, Sage, SAP, Visual Mining, and others are working to address two core problems associated with today's BI technology: managing data complexity and shrinking the time needed to process a query.

"The technological trends are driven by these bigger trends taking place," says Siddharth Taparia, senior director of manufacturing industries solution marketing for SAP BusinessObjects. SAP is working aggressively on in-memory analytics, an emerging technology that stores information from a relational database in a computer's memory so that the user does not have to wait for the database to churn out results when conducting a BI query.

Similarly, QlikTech has patented in-memory technology that uses a technique called "associative search" that eliminates the reliance on pre-built data models. Instead, users working with a customized dashboard can enter a query and, because the technology consolidates disparate data sources, receive new BI analysis on the fly as he or she enters new questions.

Indeed, bringing together enterprise search engines and BI technology can be a powerful combination, especially when unstructured data is factored into the equation. To that end, Endeca's Information Access Platform — which will be renamed this month to better reflect the product's self-service capabilities — can access structured database information as well as unstructured data, such as Twitter feeds.

"A principle that distinguishes our product is the idea of 'no data left behind,' " says Paul Sonderegger, Endeca's chief strategist.

Endeca's MDEX technology is a cross between an analytical database and a search engine, decomposing

data to its essential elements and organizing it in indices that enable data to be searched in a random fashion. "Whatever information applies to the decision should be available whether it is structured or unstructured data, or whether it resides inside or outside of the company," Sonderegger says.

For its part, Algebraix markets a product called A2DB that, like Endeca's technology, operates alongside a data warehouse. But A2DB works a little differently. It stores data mathematically based on queries. Every time a query is made, the data is organized in sets and subsets like an algebraic equation, explains Algebraix Chairman and CEO Charles Silver. The data self-organizes and allows for real-time access and unlimited views without the need for a database administrator to set up rows and columns, he says.

Whatever the method of data extraction, these new capabilities from the vendor community are bypassing the IT department and putting power directly in the hands of end users.

"This concept of self-service is key," says Erik Kaas, Sage's director of product management for mid-market ERP. "Traditional ERP is about capturing data and getting a lot of data into the database. But the number-one request from our customers is about enabling them to get information out of the system, and making it easier for both managers and users."

"Whatever information applies to the decision should be available whether it is structured or unstructured data, or whether it resides inside or outside of the company."

— **Paul Sonderegger,** *Endeca chief strategist*

BI FOR THE LOB

For years, Rite-Hite Corp., a maker of industrial doors, loading-dock safety systems, and conveyor belts, relied on its IT department to pull information from 10 different homegrown BI reporting systems. Now, after adopting technology from MicroStrategy, a developer of BI applications that integrate reporting, analysis, and monitoring of data across the enterprise, Rite-Hite's director of planning analysis and reporting, Tony Stokman, generates his own reports, which can include analysis of a particular product's cost implications or an understanding of the company's ability to meet customer needs.

"Through various prompts, a report can be built on the fly," says Stokman, who runs the company's finance department. "I don't have to be an IT expert. I rely on the tools within MicroStrategy to build SQL statements that generate my queries and eventually my report."

Within many manufacturing companies there is pressure on line of business (LOB) managers to take a more prominent role in BI. *Managing Automation*'s business intelligence survey found that nearly 62% of respondents said their companies now place greater emphasis on having each department own and manage its own data.

In addition, more than half of those surveyed said that 10% to 50% of their employees regularly use BI tools. And, three quarters of respondents expect BI usage to increase in the next two years.

Stokman says BI usage in his business is on the rise because it has become a very powerful tool for end users. Demand for BI doubled over the last year, he says, in large part because he has shown users how to drill through data instantly to understand which sales people are slacking, which product lines are failing, or where expenses need to be curbed. "I can do all that in half a day," he says.

"The thing with information is, once you give people a little bit, they want a lot more," says Mark LaRow, senior vice president of products at MicroStrategy. "This demand is manifesting itself in a couple of directions, one of which is self service."

Five years ago, self service meant teaching end users how to do the technical heavy lifting of designing reports in order to break them of their reliance on IT. That usually meant simply providing those users a Web interface into the application. Only about 10% of the user population had the wherewithal and patience to learn how to design reports, LaRow estimates.

As a result, that design paradigm gave way to an exploration paradigm based on OLAP, which provided more people with a way to slice and dice and correlate data. "It is like surfing through a data warehouse in comparison to surfing through the Web," LaRow says of the upgrade.

OLAP has worked for end users, but it is limited to small data sets. MicroStrategy's technology offers a twist, applying relational online analytical processing (ROLAP) that can search through the entire database. MicroStrategy and Oracle, for example, both apply ROLAP techniques to enable "enterprise exploration."

The MicroStrategy software can even figure out where to find the appropriate information — whether it is stored in one database or several, LaRow says. He describes this capability as "the secret sauce" to delivering the data business users need, and acknowledges that the BI software market is moving toward decou-

pling the physical data structure from the information that needs to be manipulated.

"To a large extent, all of the major BI vendors have achieved a clean abstraction from the data structure and what the end users see," LaRow says.

Indeed, it is important to make sure that what the end users see is visually appealing, easy to understand, and delivers the right information to the right person. Visual Mining, maker of NetCharts Performance Dashboards, built its product with that in mind.

NetCharts Performance Dashboards is an interactive, Web-based dashboard that allows less technical end users to explore, analyze, and understand data on their own, and in ways relevant to their role, Visual Mining officials say.

The product is completely self serve, meaning users can create BI metrics by dragging and dropping items on a Web page. The company also offers NetCharts Server, which provides more granular control over the look and feel of the dashboard, requiring some coding from the IT department, the company says.

Rod Epps, IT director at Global Harvest Foods, uses both versions of the Visual Mining software. He gives end users at the bird food manufacturer access to the Performance Dashboard to test the metrics they want to see. Users then hand it back to Epps in IT to build the comprehensive version of the KPIs they've identified, a process that he says takes all the guesswork out of IT's task.

"A supervisor in charge of manufacturing may come up with a new way to measure performance, and he can try out that metric without having to spin up an IT project," says Kevin Scott, Visual Mining's vice president of engineering and client services. "You come up with an idea for a new metric, quickly build a dashboard, let people look to see if it sticks. If it does, great — you have a new way to measure your business. If not, you still learned something."

Global Harvest is using NetCharts to determine sales trends, manage inventory, and reduce costs across the board. On the production line, for example, the company knows how many bags it needs to produce in an eight-hour shift. If, halfway through production, the yield is below the needed allotment, Global may have to call customers to alert them to the shortfall. Down the road, Global Harvest wants to tie the PLCs governing production equipment directly into NetCharts in order to run a report against each production line. And, using the Web interface of the Performance Dashboard, Epps envisions a time when a customer can log in to the company's intranet to see the status of an order.

"We are looking at BI as a way of providing our customers with more service," Epps says.

And the new generation of BI software allows him to minimize IT's involvement, as end users become more savvy about using the BI tools, he says. "Transparency is the name of the game," Epps says. "Give people what they need as quick as you can."

"Business intelligence helps us to make better decisions about the direction the company is going."

— **John Babcock,** *Satellite Industries Inc.*

SELF-SERVE SUPERVISION

While Babcock, Stokman, and Epps all agree that self-service BI is the way to create a more agile company that empowers end users, and even produces a more competitive company, they also agree that a poorly managed implementation can cause more harm than benefit.

"When there is a lot of ad hoc BI in the hands of the users, the common ground really needs to be managed," Satellite Industries' Babcock says. To that end, the company has standardized nomenclatures so that everything is clearly spelled out around a "corporate definition."

"I remember sitting with our CEO, who asked, 'How many units did we sell in 2009?' I spouted out a number and the VP of sales spouted out a number, and they were dramatically different," Babcock says.

That's likely due to the way the two individuals filtered their BI reports. "We were both speaking about the same numbers, but we were not on common ground," he says.

To minimize miscommunication, Satellite Industries manages its self-service BI at the corporate level, enforcing rules on how information can be pulled, filtered, and presented before it is pushed out to end users.

Similarly, Titanium Metals Corp., which is using SAP BusinessObjects, has created a data governance committee that includes the executive team and 17 BI "power users." Together, they set guidelines around what the general user population will need. "It is not purely an [IT] problem or a business problem, so we have a joint effort to determine the best framework,"

DEEP DIVE BusinessIntelligence—*ReaderPoll*

Strategy

A CLEAR MAJORITY SAYS BUSINESS INTELLIGENCE IS A CORPORATE STRATEGY

Q: Is business intelligence becoming more strategically important to your organization?

- Yes: 94.4%
- No: 5.6%

Q: What's driving the increased importance?

- It helps us make better strategic decisions. 81.6%
- It helps us make faster operational decisions. 69.4%
- It increases the company's agility. 51%
- Executive management depends on the BI dashboard for up-to-the-minute data on how the company is doing overall. 40.8%
- Don't know 2%

Q: Who is primarily responsible for decisions about selecting, implementing, and managing BI in your company?

- Executive management team 60%
- IT 24%
- Line of business (LOB) managers 16%
- Average user 0%

Q: Who will be responsible for BI in the next two to three years?

- Executive management team 52%
- IT 26%
- Line of business (LOB) managers 22%
- Average user 0%

Business Drivers

LOB MANAGERS ARE REQUIRED TO OWN, MANAGE, AND ANALYZE THEIR DEPARTMENT DATA

Q: If LOB is taking a greater role in BI, why?

- There is a greater emphasis on having each department own and manage its data. 61.5%
- LOB is taking more budget responsibility for BI. 20.5%
- When IT manages the data, it takes too long to get the BI results needed. 17.9%
- Don't know 20.5%

Q: What's driving the increased importance?

- Analytics 57.1%
- Dashboards 40.5%
- KPIs 45.2%
- Data management 26.2%
- Decision support 42.9%
- Don't know 11.9%

Q: What percentage of your workers regularly uses BI tools?

- More than 10%, but less than 50% 52.3%
- Less than 10% 31.8%
- 50% to 75% 13.6%
- 100% 2.3%
- 75% to 99% 0%

Q: Do you expect usage to increase, decrease, or stay the same in the next year or two?

- Increase 75.6%
- Stay the same 20%
- Decrease 2.2%
- Don't know 2.2%

Technology

DESPITE THE LURE OF THE CLOUD, ON-PREMISE BI REMAINS THE PREFERRED METHOD OF DEPLOYMENT

Q: Is your company using cloud-based BI?

- No 84.4%
- Yes 15.6%

Q: Does the company plan to move to cloud-based BI?

- No 64.9%
- Yes 10.8%
- Don't know 24.3%

Q: Are you using third-party BI tools integrated with other applications or is BI embedded within the enterprise applications?

- Third-party tools 60.5%
- Embedded within the enterprise application 30.2%
- Don't know 9.3%

Q: Aside from BI in the enterprise, are you using manufacturing intelligence tools to monitor KPIs in production?

- No, not using MI in addition to BI to monitor production 32.6%
- Yes, using MI tools in addition to BI 30.2%
- The same BI tool used in the enterprise is also used to measure KPIs in manufacturing 23.3%
- Don't know 14%

Source: *Managing Automation* reader poll Note: Percentages may have been rounded and may not equal 100%.

says Boom Fernandez, Titanium Metals' manager of business information.

The committee's specifications are integrated into BusinessObjects in an easy-to-understand model that users can mine themselves, Fernandez says. Creating the specification, however, was no small feat. "It requires you to think heavily about how you present data back out to the end user group," he says.

Taking that into consideration, SAP, for its part, is trying to ease the efforts around architecting back-end structures by rolling out purpose-built applications. In September SAP announced a supply chain performance management application that includes 400 pre-defined metrics. These KPIs, based on the SCOR framework, allow customers to assemble dashboards that leverage their own data.

Similarly, IBM's Cognos Express product, which rolled out last year for mid-sized businesses, is a pre-configured BI tool that delivers reporting, analysis, dashboard, scorecard, planning, budgeting, and forecasting capabilities. The entire application is built for self-service, ad hoc reporting, tapping into multiple files, and providing multi-dimensional views of the company via a dashboard. And, like SAP's and QlikTech's apps, it, too, leverages an in-memory analytics engine that allows end users to create their own categories of information on the fly and perform real-time calculations on them. In addition, Cognos Express even allows what-if scenario modeling to take into account ever-changing market conditions, the company says.

In some respects, IBM Cognos' tack is similar to the way InetSoft Technology has approached the BI market. InetSoft offers a small-footprint application that is purpose-built for simplicity, according to the company. While InetSoft does not deliver pre-built dashboards, its Style Intelligence product provides a visualization-driven approach to reporting and analysis. Once the important metrics are identified, IT groups can configure the back end based on where that data is saved and then create easy-to-understand field names, such as "sales," or "production." From there, the end user has access to a Web-based application from which to drag and drop charts, date fields, or calendars.

"If you want to slice into the sales metrics by region, you just drag out a list of states," explains Mark Flaherty, InetSoft's vice president of marketing. "Within five minutes you have an interactive dashboard of sales by state over time."

THE SOCIAL SIDE OF BI

Of course, any company intent on slicing and dicing corporate data must acknowledge that a new data flow exists: the unstructured information coursing through social networks, blogs, wikis, and Twitter feeds, little of which can be easily integrated into the rows and columns of a database.

A new area of research, called social analytics, has IBM's chief scientist, Jeff Jonas, very busy. "Extracting sentiment, such as what people are saying about a product, is an emerging area," Jonas says. But it comes with a fresh set of challenges — imagine, for example, trying to gauge the sentiment in a microblog riddled with strange abbreviations. "This is an area I'm working on feverishly now to allow organizations to make more sense across data sets," he says, "and do it in real time so they can [act on] it while it is happening."

For its part, search specialist Endeca's technology already has the ability to pull together the unstructured data of social networks. "We can isolate key words in sentences, paragraphs, or documents and make them all searchable," explains David Caruso, Endeca's vice president of enterprise product marketing and management. "We also have the tools that allow us to understand the sentiment of the text. That is where you start going beyond the traditional reporting of BI systems as they exist today. We are looking for what the data really means."

The true meaning of the data is what companies such as Satellite Industries are searching for. The company is already exploring how to leverage Facebook and Web-based mobile applications. "We are looking at developing our own iPad application for customers to interact with us via a mobile device," Babcock says. "We are trying to find as many ways as we can to plug the outside world into our company.

"If you are using Facebook and see a significant event at a customer site, you can make an appropriately timed call or communication," he continues. "I see a lot of possibilities in the future with something like this. It is very complex, but extremely exciting." ■

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BUSINESS INTELLIGENCE
for Agility and Operational Efficiency

While there's no question that business intelligence (BI) tools are gaining importance in the enterprise, there is some confusion about what needs to be measured and who is responsible for the data. To get a better idea of how BI is evolving, *MA* Senior Editor Stephanie Neil e-mailed with R "RAY" WANG, a founding partner and analyst at the Altimeter Group.

Q: What is the current state of BI within manufacturing?

A: Most manufacturers remain stuck in the Dark Ages with business intelligence. Those great reports we all saw during the demos from ERP/MRP systems 25 years ago still haven't been built or, if they exist, are green-screened. BI in manufacturing mostly focuses on reporting. Yet, there's hope. We see leading organizations transforming their analytics and BI efforts to move from reactive to proactive sensing. New and traditional data types are being supported to include content, geo-spatial, hardware, location-based, machine data, metrics, mobile, RFID, streaming data, and social.

One emerging area is device-to-device communications. Take mobile, location-based information and device-to-device sensing, and now you have a data deluge filled with rich information on patterns, trends, and benchmarks that can be used to optimize the manufacturing process, predict demand, and avert any dangers or errors.

Q: What are the top three business drivers behind the need for more BI in manufacturing organizations?

A: Operational efficiency and regulatory compliance drive adoption. In operational efficiency, the drive to cut costs requires a good look at process data. What commoditized processes can be improved? Where can savings be had? From food safety tracing, to Part 11 compliance, to carbon and energy calculations, regulatory requirements and environmental sustainability have been major forces in transforming existing BI efforts into the next generation.

Q: What are the biggest barriers to BI adoption or deployment?

A: Inertia of existing systems and complacency in processes create the biggest barriers. Often, data quality and data governance issues emerge that span functional fiefdoms. Data quality arises because most information comes from multiple sources, and different fiefdoms within the same organization fight each other on the data flow. Reconciling the data is hard work and not often done or appreciated. Data governance emerges as companies try to agree on how master data is acquired, cleansed, enhanced, and distributed: who sees what, when, and why.

Q: Why is self-service BI becoming more important?

A: The pace of change requires more and more stakeholders in an organization to be informed and armed with actionable information. Suppliers need information on demand. Customers want order status. Partners need to know at what price to sell product and when. BI should be more than self-service. Data needs be streamed to users by their role and security levels because users need all the information they can get to take actions, serve customers better, and innovate.

Q: Are we moving toward embedded BI to create inherently "smart" applications?

A: There will always be a cost benefit and time-to-market factor. It's ideal to have embedded BI, but not all organizations can adopt that nor can all the vendors deliver that technology in a timely fashion. For the time being, we'll see a hybrid approach based on business requirements. This is why vendors such as Actuate, Birst, Information Builders, MicroStrategy, myDials, PivotLink, Proferi, and QlikTech will continue to expand their offerings to get to embedded over time as full platform-embedded BI vendors try to address all the use cases from a horizontal approach.

Q: What will BI solutions look like three years from now?

A: In the next three years, expect improved visualization and reporting paradigms that take advantage of rich Internet applications for interactive BI experiences. New visualization types include matrix charts, network diagrams, bubble charts, tree maps, word trees, tag clouds, etc. Deployment options will also change as BI appliances, BI in the cloud, mobile BI, and cloud and SaaS-based models take hold. Going forward, expect mobile-meets-location-based-services-meets-sensing-technology to be the hot topic as device-to-device communications take off. ■

A selection of resources to guide your business intelligence strategy

Dependence on business intelligence tools has increased since the economy's recent nose dive. To cope, organizations have looked to quickly organize and make sense of their customer, inventory, supply chain, and production data, all with an eye toward accelerating decision-making processes. Enter the next-generation of BI tools, which bypass the IT department, tap into unstructured data, and deliver information directly to end users. This page is your guide to recent reports and articles that explain the latest BI trends, as well as technology resources to help you start exploring your BI options.

For easier access to the Web links below, visit this page online at *www.managingautomation.com/BusinessIntelligence*

RESEARCH REPORTS & STUDIES

Rethink Your Next-Generation Business Intelligence Strategy

Altimeter Group's R "Ray" Wang writes about the changing business requirements and ongoing vendor consolidation that lead many organizations to rethink their business intelligence (BI) strategies. As BI continues to evolve from fragmented and historical reporting to pervasive, predictive, and real-time decision support, an organization's success increasingly depends on its ability to capitalize on new and traditional data types, visualization and reporting paradigms, approaches and styles, and deployment options.
http://tinyurl.com/26vxykg

Worldwide Business Analytics Software-as-a-Service Forecast, 2008-2013

The business analytics software-as-a service (SaaS) market will grow more than three times as fast as the total business analytics software market, with a compounded annual growth rate (CAGR) of 22.4% through 2013. This IDC study finds that the number of business-analytics SaaS users will grow rapidly from a small base. However, market revenue will remain low relative to on-premise software throughout the forecast period.
http://tinyurl.com/38mvcdl

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BI on a Limited Budget: Strategies for Doing More with Less

In July, TDWI released a report addressing how the economic downturn has accentuated the need for business intelligence as companies look to do more with less. In the short term, BI teams used tactical maneuvers designed to cut costs without sacrificing quality or output. Longer term, BI teams have enacted numerous strategic initiatives designed to improve operating efficiency and effectiveness, including implementing self-service BI tools.
http://tinyurl.com/35fugjm

Assessing Total Cost of Ownership for BI

With a plethora of business intelligence tools available, companies don't always know where to start when evaluating multiple solutions and assessing overall total cost of ownership (TCO). This report from Wise Analytics provides mid-market organizations with a framework for evaluating the TCO of BI solutions.
http://tinyurl.com/35wr2kl

TECHNOLOGY CORNER

Business intelligence applications come in many forms, depending on the type of data that needs to be scrubbed and analyzed. While many traditional BI solutions are add-ons that must be integrated with other applications, there is a trend toward embedding business intelligence into enterprise applications and other systems, from CRM, to ERP, to MES. Below you will find links to related areas of Managing Automation's *TechMATCH product matching tool. Log on to these pages and apply the filters in the left-hand column to narrow your search for BI software.*

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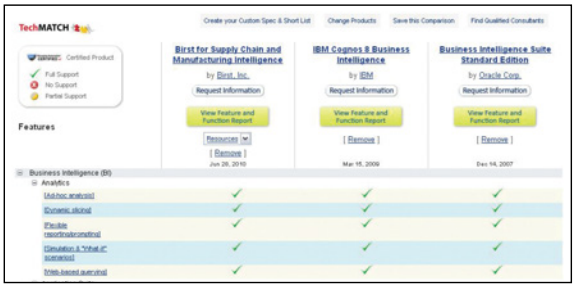

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Measuring Performance
When it comes to measuring production performance, manufacturers can choose from a number of applications, with varied scope and approaches. This article outlines some of the approaches manufacturers can use.
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Business Intelligence: Getting in Sync with Real-Time Data
The latest wrinkle in the business intelligence world: BI users are no longer exclusively Ph.D. holders holed up in the back office slicing and dicing data.
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Performance Management — Looking for Hidden Clues
Manufacturers forced to search for new ways to save money are going back to the basics. Increasingly, manufacturers are investing in relatively simple analytical tools used to build scorecards and dashboards that can help measure production, increase quality, and empower employees to accelerate enterprise and operational performance.
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Rapid growth, through mergers and acquisitions, provided a unique technology challenge for Sanimax, an innovative manufacturer that reclaims animal and meat by-products and renews them into useful high-demand products including agricultural and pet food ingredients, leather and biofuel.

Sanimax needed a single ERP system to handle its aggressive growth strategy and rapidly changing business processes. It considered systems from SAP, Oracle and Microsoft and, after an exhaustive evaluation cycle, selected Process Industries for Microsoft Dynamics AX.

QlikView

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Optimizing shop floor decisions with near-real-time Business Intelligence is too complex and expensive…or is it?

Considering all the challenges facing manufacturers, from getting better shop floor visibility to enabling cross-value chain collaboration, many often struggle to think about how business intelligence tools can create a more intelligent, demand-driven manufacturing environment.

8 COMPANIES

This year's crop of emerging tech vendors is leveraging cloud computing and mobile devices to deliver cutting-edge technology.

If the eight start-up technology providers highlighted on the 2011 Companies to Watch list are any indication, manufacturers will soon be turning to cloud computing and software running on mobile devices to manage their businesses.

The bulk of the Companies to Watch, selected by *Managing Automation*'s editorial team, eschew traditional computing platforms such as PCs and on-premise servers in favor of smart phones, smart pads, and software-as-a service (SaaS).

Take SweetWilliam S.L., a year-old company named after a Catalonian flower. Inspired by the wild popularity of Apple's iPhone and iPad devices, the company's founder decided to launch a full-blown SCADA application running on those smart mobile platforms. Not surprisingly, the focus is on ease of use.

Similarly, another Company to Watch, Rollstream, offers a SaaS-based collaboration service for supply chain partners. Think of it as Facebook for the supply chain, complete with supplier profiles and performance analytics.

All of these Companies to Watch were singled out for the potential of their products to solve real-world manufacturing problems.

So, does the plethora of Companies to Watch that are leveraging cloud computing and mobile devices mean that the traditional on-premise control and enterprise applications platforms on which manufacturers have come to rely are going away? Not really.

But it does mean that, in the very near future, manufacturers will have a lot more options when it comes to when and how they take advantage of new technologies. — *Jeff Moad*

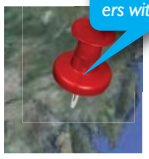
Photo: istockphoto/hjalmelda, Globe: Google Earth

TO WATCH


SweetWilliam
Radian6
CloudSwitch
SpaceClaim
RollStream
ReddWerks Corp.

CloudSwitch

Software company aims to help users of cloud computing port their existing applications to cloud service providers with as little hassle as possible.



As CEO of CAD provider SolidWorks in the early 2000s, John McEleney watched from the sidelines as the Internet grew into a platform for customer connection and e-commerce activity. With CAD software only peripherally affected by the rise of the Worldwide Web, McEleney felt left out.

"I committed to myself that when I saw the next major platform shift," he says today, "I was going to jump in with both feet and navigate the currents as it was happening."

It's no surprise, then, that when cloud computing began its rise to business IT prominence, McEleney wanted in. In early 2009, he assumed the role of CEO at CloudSwitch, a Boston-area start-up dedicated to simplifying the path to the cloud. CloudSwitch's technology helps IT users port applications from their data centers to a cloud service provider, such as Amazon or Terremark, with minimal hassle.

John McEleney
CEO

While cloud computing is often marketed in simplistic terms, moving applications to the cloud is no small task for an IT department, McEleney says. To pre-empt the complexity, users can install CloudSwitch software on a virtual machine in the data center and then drag and drop their applications to the cloud. "It looks and feels like it's just part of your data center," he says. "You're not modifying any of your processes, your tools, any of your applications. It's just an extension to your data center."

One early adopter of CloudSwitch, a large pharmaceutical company that prefers to keep its use of the technology under wraps for now, has tested the software's ability to simplify management of applications hosted in an internal data center and in the cloud. The company's IT service architect says early runs have shown promise. To establish a virtual private cloud on Amazon's Elastic Computer Cloud without CloudSwitch, for instance, he and his team would have had to put a DNS server in the cloud, plus a domain controller, anti-virus protection, and more. The CloudSwitch concept, he says, is "kind of the Holy Grail of cloud computing," letting him use the same set of tools and services to manage both internal and cloud-based applications.

The pharma company, so far, has restricted its use of CloudSwitch technology to testing, but may roll it out to production environments as it matures. Life sciences companies and financial firms have been early targets for CloudSwitch due to their heavy and intermittent computing demands, ideal for the quick-provisioning world of cloud computing.

"Obviously they're on our watch list," the IT architect says of CloudSwitch. "They're doing something that nobody else is doing, not, at least, that I've seen. So I hope they pull it off." — *Chris Chiappinelli*

Company: CloudSwitch

Year founded: 2008; product launch 2010

Product/category: Cloud computing management

Industry segments served: Pharmaceuticals, financials

Key problem solved: Allowing companies to quickly move applications to the cloud without time-consuming set-up work

Differentiation: Pioneering a technology that supports the cloud computing revolution

Top customers: Unnamed large pharmaceutical companies

Funding: Private, venture-backed (Matrix Partners, Atlas Venture, Commonwealth Capital Venture)

Panaya

Cloud computing-based service reduces the complexity and expense of enterprise application upgrades.

The genius of packaged enterprise applications is that they come pre-integrated, and they allow manufacturers to hand software development and maintenance responsibility — and expense — to an outside vendor.

The downside is that, because they're designed for a broad set of users, packaged enterprise applications often don't deliver all the industry-specific functionality customers require. That leads most customers to modify the apps. But those modifications can cause havoc when it comes time to upgrade to a new release of the packaged application. The modifications can fail to work or they can cause unexpected failures in the new release. Testing, changing, and retesting the modifications can erase much of the cost savings offered by packaged apps.

Panaya Inc.'s goal is to take much of the hassle and expense out of managing packaged enterprise application upgrades. Founded in 2006 by software entrepreneur Yossi Cohen, Panaya began actively marketing its cloud-based upgrade automation software to users of SAP's ERP applications two years ago. To date, the company has more than 300 customers, mainly in Europe and North America, that pay $25,000 to $125,000 for Panaya's service, says Amit Bendov, Panaya's chief marketing officer. Customers include well-known brands, such as Mercedes-Benz, Newell Rubbermaid, Steelcase, Shell, and Osram.The company is growing at a rate of 50% per quarter, Bendov says.

Company: Panaya Inc.

Year founded: 2006

Product/category: Cloud-based enterprise application upgrade automation

Industry segments served: 50% in manufacturing; also government, retail, and service companies

Key problem solved: Automates testing and remediation of problems with enterprise application upgrades

Differentiation: Panaya does up-front testing and remediation required for enterprise application upgrades.

Top customers: Mercedes-Benz, Nissan, Shell, Sony, Steelcase, Volvo

Funding: Private and venture capital investors, including Benchmark Capital and Battery Ventures

Panaya's cloud-based service automates the initial assessment and testing phase of an upgrade. Historically, this has been a largely manual process. It's also time-consuming and expensive because most enterprise applications have grown complex, touching many parts of the business. Today, initial testing and assessment can take two to three months. In all, an upgrade can easily take eight months or more, require dozens of people, and cost $600,000 to $800,000, Panaya officials say.

Amit Bendov
CMO

Panaya's software can do initial assessment and tests of modifications in as little as 20 minutes, performing a run-time simulation of code and checking every relevant dependency among all objects in the system. The system provides customers with code line-level reports on what will break and what needs to be fixed as part of an upgrade. The system also recommends automated fixes and generates test scenarios.

Panaya customer Mercedes-Benz used the cloud-based service in a recent upgrade from SAP ERP version 4.6c to ERP 6.0, and reported that 50% less testing, development, and planning time was required with Panaya than with previous upgrades.

Next year, Panaya will add support for SAP CRM and SRM apps and Oracle's E-Business Suite, Bendov says. – *Jeff Moad*

Radian6

SaaS-based service lets manufacturers listen to and learn and profit from conversations taking place on social media sites.

On increasingly popular social media sites, such as Twitter and Facebook, people like to share details about their lives — for example, how much they like the product or service they just bought. If a person has a large and active enough online following, his or her opinion can help or hurt a brand overnight.

What if you could easily listen in on this constant social media chatter and quickly learn from it and respond? You might be able to not only shape the online image of your brand, but also generate a rich trove of sales leads.

Marcel LeBrun
CEO

This is what Radian6 helps its customers do. The SaaS-based service includes a discovery engine — similar to a search engine — that finds content on social media sites, such as Facebook, Twitter, and blogs. The engine not only finds content that matches specific criteria, but it also measures the potential impact of social media posts based on their authors' reach. The platform includes embedded analytics and workflow, allowing pertinent messages or meta-data to be routed to people who can act on it.

When Radian6 Chief Technology Officer Chris Newton launched Radian6 in 2006, the company targeted public relations and marketing functions. "The thought was to focus on people who grew a company's brand," says Radian6 CEO Marcel LeBrun. But, as social media has increasingly impacted other parts of the enterprise, Radian6's focus and, not incidentally, its customer base have grown. The company now targets customer management and support, R&D, and sales functions — "all areas of the company that touch the customer," LeBrun says.

Radian6 now has 1,700 customers, one-third of them manufacturers, LeBrun says. The customer base has been growing by 250 customers per quarter for the past year. Radian6 has been profitable since early 2009.

One manufacturer that has steadily broadened its Radian6 use is Dell. The computer maker started two years ago using Radian6 to monitor and respond to customers with customer support questions, comments, and concerns. Dell monitors the number of online Dell detractors who have been turned into promoters.

Recently, Dell began using Radian6 to listen for and respond to sales leads that pop up on social media. Soon, says Maribel Sierra, Dell's listening and engagement senior manager, many more Dell functions will engage with and learn from social media conversations using Radian6. "We want to build a culture where everyone is listening," Sierra says. – *Jeff Moad*

Company: Radian6 Corp.

Year founded: 2006

Product/category: Social media monitoring

Industry segments served: Manufacturing, software, financial services, public relations, transportation, education

Key problem solved: Allows companies to monitor, measure, engage in, and respond to conversations about them or their markets taking place across the social Web

Differentiation: Allows customers to quickly discover social media conversations and respond to them; customers can integrate Radian6 with enterprise applications, such as CRM

Top customers: 3M, AMD, Bissell, Dell, GE, MolsonCoors, Pepsi

Funding: Raised $9.5 million in venture funding from Summerhill Venture Partners, Brightspark Ventures, and BDC Capital

ReddWerks

Company seeks to enable the real-time warehouse for companies exploiting multiple distribution channels.

Jean Belanger had never thought much about the warehouse management challenges faced by large manufacturers dealing with multiple distribution channels until one day, a few years ago, a friend invited him to tour a large Dell computer warehouse in Austin, TX. There, Belanger says, he saw an operation that was struggling to optimize the use of expensive material handling equipment and people as orders were received and demand fluctuated minute by minute.

"Traditional warehouse management systems are dedicated to keeping track of inventory and dollar accounting, but they don't provide real-time control," Belanger says. "I decided there was a need to look at the warehouse like you would a manufacturing plant, with a system that could provide real-time control and optimization."

So, although Belanger had spent the bulk of his career starting and running companies that created software development tools for gaming and other applications, he launched Reddwerks Corp. in 2003 to create what he calls a warehouse performance management (WPM) system. After spending several years in product development, the company launched Reddwerks WPM in 2007. Today, Reddwerks has 20 customers and 35 installations of its software in production. The company will have $15 million in revenue and be cash-flow-positive this year, and Belanger expects $25 million in revenue next year.

Reddwerks targets large, Fortune 500 manufacturing and distribution companies, such as Herbalife and Destination Maternity, that make and sell consumer products. As such manufacturers have begun to exploit multiple distribution channels, including business-to-consumer online channels, the task of optimizing warehouse operations has become increasingly complex, Belanger says.

Jean Belanger
Chairman & CEO

Reddwerks' WPM system acts essentially like a real-time control system for the warehouse. It takes in order information from a manufacturer's ERP or order management system and creates a plan for picking and packing orders that optimizes warehouse personnel and equipment, such as conveyors and carousels.

Destination Maternity, a maker and retailer of maternity clothing, including the A Pea in the Pod brand, uses Reddwerks' software and pick-to-light system in its warehouse that fulfills orders to more than 1,000 retail locations. The system has enabled the company to improve picking efficiency by 20%, says Carl Marcinkowski, senior vice president for distribution and transportation at Destination Maternity.

"Reddwerks has given the distribution operations team the confidence that they can service our business with the highest levels of accuracy and response time at the lowest possible cost," Marcinkowski says. – *Jeff Moad*

Company: ReddWerks Corp.

Year founded: 2003 (launched products in 2007)

Product/category: Warehouse performance management software

Industry segments served: Electronics, cosmetics, medical products manufacturing, distribution, retailing

Key problem solved: Provides real-time control and visibility into complex warehouse operations

Differentiation: Real-time control and visibility

Top customers: Destination Maternity, Herbalife, Williams Sonoma

Funding: $21 million from a combination of private investors

RollStream

Like Facebook for the supply chain, this application connects systems with people.

In the business-to-business supply chain management arena, manufacturers can choose from among many great tools for integrating trading partners' ERP and supply chain management systems. But, though current technology does a sufficient job of automating transaction flows, it does not necessarily facilitate effective communication among the people behind the partnerships.

Enter RollStream, a 5-year-old software-as-a-service vendor that focuses on facilitating relationships in the supply network. Dubbed an enterprise community management collaboration platform for B2B networks, RollStream's applications connect business systems with the people who actually do the work, says RollStream CEO Kristin Muhlner.

"It is like Facebook for the supply chain," Muhlner says. "We've adopted the free-form collaboration features that you see in personal social networks and have applied it in a B2B context."

Leveraging Web 2.0 technology, RollStream layers a social networking software layer on top of B2B hub technology from companies such as Seeburger and GXS.

Apparently, the "B2Me" concept RollStream is constructing is catching on. The company says its business grew 70% in 2009, with a current count of about 75 customers. Many customers are in the retail world. Founder and COO Nick Parnaby served as CMO at the World Wide Retail Exchange B2B e-marketplace prior to launching RollStream. But healthcare, high-tech, CPG, and aerospace and defense companies are adopting the concept, complementing their B2B portals.

RollStream's applications include Discovery, a way to gather information and onboard new suppliers; Information Management, a way to register and gather supplier information, including credentials, contracts, and capabilities; Compliance, for managing, controlling, and mitigating legal and operational risk associated with partners; and Performance, including supplier scorecard presentations and quality management capabilities.

Kristin Muhlner
CEO

The applications are designed to work synergistically, but are also available individually. "You can get started literally within hours and see an ROI within weeks," Muhlner says.

The ROI comes in many forms. According to an AMR Research report, a company spends about $1,000 per supplier per year on administrative overhead and management. "We cut that cost in half," Muhlner says.

In addition, the tools are cost-effective and easily understood.

"I do think that when dealing with potentially large numbers of remote and relatively unsophisticated suppliers, these tools allow you to interact in a way that is impossible to do with traditional IT tools," says Simon Ellis, practice director of supply chain strategies at IDC Manufacturing Insights, noting that Web 2.0 helps with issues such as risk management. "The advantage of using these social networking tools is that they are easy to access and people use them." – *Stephanie Neil*

Company: RollStream

Year founded: 2005

Product/category: Supply chain management

Industry segments served: Retail, healthcare, aerospace and defense, CPG, and high-tech markets

Key problem solved: Enables manufacturers operating in an increasingly complex, global environment to effectively communicate and collaborate with business partners

Differentiation: Using Web 2.0 technologies, RollStream has created an on-demand platform for enterprise community management.

Top customers: Covidien, Lockheed Martin, MedImmune

Funding: Private

SpaceClaim

Provider of 3D design software targets engineers and other stakeholders who aren't CAD-savvy.

SpaceClaim wants to do for 3D design software what *Avatar* did for 3D movies — create mass-appeal. Or, at least, bring 3D direct modeling capabilities to engineering and other manufacturing folks who aren't versed in the intricacies of CAD tools.

In late 2005, CAD veterans started the company with the idea of offering simple, yet powerful and inexpensive 3D modeling tools to non-CAD users who, nevertheless, have a stake in product design and engineering. SpaceClaim's stated goal on its website is to "expand the use of 3D in concept and bid modeling, model preparation for CAE analysis, rapid prototyping, manufacturing, and industrial design."

The company's timing turned out to be right. Sales of its CAD-agnostic software took off in 2009, riding a collaborative innovation wave in manufacturing. SpaceClaim, which made Gartner's 2009 "Cool vendor" list, says its customer seats grew by more than 188% that year.

Product development has become very customer-driven, and SpaceClaim plays to that trend. "How do you come up with an idea, and innovate and work with customers? Our product comes into the process early on, unlike CAD," says Chris Randles, president and CEO of SpaceClaim. "We're solving problems within a modern context."

Chris Randles
President & CEO

With the software, "People get more certainty into their early designs," Randles says. The analysis, simulation, costing, and real-time editing capabilities reduce time, resources, and risk, he says, and enable team-driven designs. "In some ways, we're like lean for CAD," Randles adds.

Steven Tartaglia, general manager at Southern Star Engineering Group, can attest to those claims. Southern Star, which acts as an engineering liaison between manufacturers and outsourced production suppliers around the world, has been a SpaceClaim customer since 2008. Southern Star needs to be able to read any customer's CAD language and exchange files with suppliers' various CAD systems.

"SpaceClaim is an enabling tool," Tartaglia says. "Any idiot can use it. It's all graphics-driven. It's in complete opposition to how software usually works." A change in the graphic automatically changes the root software in real time, and Southern Star can communicate changes back to customers quickly. "On a per-action basis, it always saves us hours, sometimes days, of lost time," Tartaglia says.

Looking ahead, Randles says the company is expanding its sales and channels of distribution, signing VARs and expanding overseas, in Europe, Japan, and the United Kingdom.

– *Emily-Sue Sloane*

Company: SpaceClaim

Year founded: 2005

Product/category: SpaceClaim Engineer and SpaceClaim Style/Engineering software for mechanical design using 3D solid modeling

Industry segments served: Primarily discrete manufacturing, including automotive, aerospace, medical devices

Key problem solved: To help engineers and other stakeholders without CAD expertise innovate and collaborate on design

Differentiation: Tools are powerful, easy to use, not based on parametric modeling, CAD system-agnostic; aimed at non-CAD users

Top customers: Emhart Glass, Flow International Corp., General Dynamics, GulfStream, Medtronic, Rolls-Royce, Whirlpool

Funding: Private: Borealis Ventures, Kodiak Venture Partners, Needham Capital Partners, and North Bridge Venture Partners; closed $5M round in April 2010

SweetWilliam

Industrial automation meets the iPhone with this upstart's ScadaMobile app.

John Lluch-Zorrilla, an industrial engineer and Apple aficionado, had an idea: Why not use the ever-popular iPhone to remotely monitor process control systems? "These two worlds have been traditionally separate from each other," he says. "I thought that developing products that would integrate them could be an opportunity."

As a result, in 2009, after many years of developing industrial applications and implementing plant automation systems for chemical companies, Lluch-Zorrilla started his own company and designed his dream application.

John Lluch-Zorrilla
Founder

The company, SweetWilliam S.L., is named after a flower common in the region of Catalonia, Spain, where Lluch-Zorrilla lives. The product name is self-explanatory: ScadaMobile leverages Apple iPhone and iPad platforms to remotely supervise any process controlled by a PLC.

Currently, ScadaMobile works with Omron PLCs and Rockwell Automation's Allen-Bradley Ethernet/IP Logix controllers. But the application is designed to make it easy to add any industrial protocol. The application provides an interface for accessing and monitoring the PLCs' variables (tags) and memory. Designed for ease of use and lightweight deployment, it lets plant engineers and PLC software developers supervise their industrial processes in real time, at any time, anywhere.

ScadaMobile differs from other remote industrial management applications in that it does not rely on a Web server and Web browser. Instead, the cloud-based application uses low-level communications protocols that allow instant connection and quick response times.

Berend Kral, owner of The Wired Boat Co., which makes control instrumentation systems for commercial boats, has put the technolohgy to work. Kral stumbled upon SweetWilliam while browsing the Apple iStore for an application that could help him see what was happening on the boats without physically being there. He then began discussions with Lluch-Zorrilla to develop a customized application for The Wired Boat.

Now, Kral sells the i-Boat Monitoring application, a vessel control application based on the SweetWilliam technology. Not only has ScadaMobile changed the way Kral works, but it is also providing him with a new revenue stream — he sells an entry-level i-Boat application for $2,500.

ScadaMobile is available to any manufacturer for download, but it is catching the attention of OEMs that, like The Wired Boat, are designing customized applications based on the technology. — *Stephanie Neil*

Company: SweetWilliam S.L.

Year founded: 2009

Product/category: ScadaMobile; remote management of process control and PLC-based systems

Industry segments served: Any manufacturer with distributed operations and a mobile workforce

Key problem solved: Scada iPhone app helps process engineers, system operators, and maintenance people deal with remote facilities.

Differentiation: Brings Apple technology to the automation industry. Rather than relying on Web server/browser technologies, ScadaMobile uses low-level communications protocols resulting in a fast and responsible application displayed on the intuitive iPhone/iPad interface.

Top customers: ProSoft Technology, Rapid Electric Vehicles Inc., Samuel Jackson Inc., Sarla Technologies, The Wired Boat Co.

Funding: Private

Vivido Labs

Company seeks to address the exploding need of mobile device users to access enterprise applications.

Like many start-ups crowned Companies to Watch by *Managing Automation*, Vivido Labs is, first and foremost, a product of its time, a venture launched in the rarified air of the perfect technology storm. Vivido was born in mid-2009 out of two business needs: the desire to more efficiently connect remote or traveling workers to enterprise applications, and executives' eagerness to have more non-technical employees using the system of record.

Greg Tomb heard these requests from SAP customers in his last position running the company's North American operations. Simultaneously, he watched mobile phones grow ever smarter, as BlackBerrys were joined by iPhones and moved like an invading army into the pockets and briefcases of knowledge workers and executives. Meanwhile, service providers were investing billions to upgrade wireless networks to 3G and 4G speeds.

As software developers churned out quirky and/or mindless consumer-oriented smart-phone apps, Tomb thought, "Nobody's attacking the enterprise space yet, and I know over the next five years it's going to get huge, so I'm going to jump into it immediately." So he did, by founding Vivido Labs in mid-2009 and developing the Mowego platform, on which he and his team built lightweight applications with which smart-phone owners can perform business processes that synch with the enterprise system of record.

"The one thing we do really special is we don't require our customers to take data, replicate it, and store it somewhere else, or store it down at the device in order to do this," Tomb says. "Everything we do is real-time and in the back-end system."

Greg Tomb
CEO & President

Walt Thinfen, CIO of scanner maker Visioneer, bought into the vision. He has rolled out the Mowego Mobile Intelligence and Inventory Inquiry applications to 100 smart-phone users. Now, when a Visioneer salesperson meets with a prospective buyer, there's no time wasted powering up a laptop and waiting for applications to start. The data is a thumb-click away. "It's synonymous to e-mail," Thinfen says. "You've got that actionable piece of information at your fingertips, [so] you can immediately make joint decisions with your buyer right there and then. And you can even plug in the order from the handheld."

Vivido's initial focus has been on SAP ERP systems, but the company is extending its purview to include Oracle, Microsoft, and other ERP providers. It has built more than 40 apps for business processes as diverse as inventory lookup and employee leave requests. Customers can also build their own apps using Vivido's Enterprise SDK.

At Visioneer, the salespeople have embraced the Mowego applications with gusto. "People just didn't know there were such products available," Thinfen says. "But as soon as they realize they can get this kind of information, they want everything right there at their fingertips." — *Chris Chiappinelli*

Company: Vivido Labs

Year founded: 2009

Product/category: "Micro" mobile business applications

Industry segments served: A&D, automotive, chemicals, consumer products, high tech, industrial machinery, life sciences/pharma, oil and gas

Key problem solved: Keeping remote workers connected to the enterprise via smart-phone-based applications for tasks such as field asset service management, inventory management, and purchase order approval

Differentiation: Real-time remote connections to ERP systems without heavy middleware

Top customers: Kraton Polymers, Visioneer, Whirlpool

Funding: A significant investment by an unnamed software company as well as private funding

[FEATURE]

VIDEO GAINING PRESENCE

New collaboration tools, such as videoconferencing technologies, can cut travel costs and enhance customer management, collaborative innovation, and sustainability. But are the tools cost-effective?

BY MARTY WEIL

AS YOUTUBE'S POPULARITY ATTESTS, PEOPLE LIKE VIDEO. MANUFACTURing executives are no different, particularly when they discover the real business value associated with using state-of-the-art video technology to host virtual meetings and enhance collaboration.

Companies in the United States and the United Kingdom will save nearly $19 billion between now and 2020 by deploying a form of videoconferencing known as telepresence, according to a recent study conducted by Verdantix, a London-based firm that specializes in analyzing sustainable business practices. Verdantix also noted that U.S.- and U.K.-based businesses with more than $1 billion in annual revenue could cut their combined carbon dioxide emissions by nearly 5.5 million metric tons, the amount of greenhouse gas emitted by 1 million passenger vehicles, over that same 10-year span by using telepresence in lieu of face-to-face meetings.

But, while telepresence offers significant potential benefits, it also carries a high price tag and may present bandwidth challenges to existing corporate networks. Manufacturers looking at the technology should consider both issues before buying into telepresence.

Telepresence, as the name implies, involves the use of sophisticated video technology to create a virtual in-person meeting experience. In 2005, HP launched a telepresence system in collaboration with DreamWorks, the Hollywood studio known for producing popular animated films such as the Shrek series.

"DreamWorks had animators around the world that needed a good way to collaborate on projects," recalls Jon Arnold, a principal with J Arnold & Associates, an independent telecommunications analyst firm. "These animators needed to share high-resolution, life-size video images in real time. So DreamWorks partnered with HP to create this technology. Then HP began to see its potential as an enterprise communications tool."

Cisco TelePresence users are able to incorporate video created on numerous platforms, such as Webcams or handheld video cameras, into their meetings.

Following that experience, HP developed the Halo videoconferencing platform, which delivers what the company refers to as an "immersive" virtual meeting experience. Other vendors, including Cisco Systems, have followed suit. Today, the field also includes such companies as Polycom, Vidyo, and Logitech.

"It's called an immersive experience, which means life-size and life-like," Arnold says. "It gives the impression that the people you're looking at on a video screen are sitting across from you in the same room."

Manufacturers, too, see plenty of potential in telepresence systems. At Baxter Healthcare, for example, high-quality communication and effective collaboration are vital to the company's mission. With manufacturing plants, R&D facilities, partners, and clinical experts located throughout the world, Baxter's globally dispersed teams must be able to share their vision and ideas clearly and solve problems efficiently. Cisco TelePresence rooms are deployed at Baxter's main campus sites, allowing users involved in R&D, manufacturing, and marketing to help Baxter develop new products and perfect existing ones.

Using Cisco TelePresence, Baxter's R&D organization conducts working sessions involving developers and project managers in Austria and California, for example, taking advantage of virtual, face-to-face interaction to quickly troubleshoot defects, perfect designs, and make decisions efficiently. Being able to share life-sized images of the components while team members discuss design issues in real time has helped Baxter Healthcare teams to more easily gain a complete understanding of the issues and rapidly resolve problems, company officials say.

SOLVING BANDWIDTH ISSUES

HP, Cisco, and other telepresence vendors, such as Polycom, can all deliver an immersive videoconferencing experience. But there are differences among the offerings that users should consider before purchasing.

For instance, transmitting any type of video requires enough bandwidth to put a strain on corporate networks, and the high-resolution images required for immersive videoconferencing are even more demanding in that regard. Cisco and HP deal with this issue differently.

Photo: istockphoto.com/YanC, Cisco Systems

HP, for example, has created the Halo Video Exchange Network (HVEN), a dedicated, high-speed network, to support its videoconferencing platform.

"This network circumnavigates the globe and is dedicated solely to Halo customers and Halo traffic," says Darren Podrabsky, worldwide marketing manager for HP's Halo product line. "It doesn't touch any corporate network. That allows us to give customers a consistent experience anywhere in the world. The ability to consistently deliver a fully immersive experience across great distances sets us apart."

The HVEN also allows HP to offer the Halo platform as a managed service. "When customers buy Halo studios, they get a connection to the HVEN with all the bandwidth and transport they will ever need," Podrabsky explains. "They get concierge service with a warranty that covers anything that might break on the system, in addition to remote system management and incident resolution. Our network operations center can dial into the Halo system to make sure everything is working properly before a customer starts a meeting."

HP developed the Halo videoconferencing platform, which delivers what the company refers to as an "immersive" virtual meeting experience.

Cisco offers a variation of a managed service in the form of Public Cisco Telepresence Suites. These videoconferencing rooms, which can be rented by the hour, are located in major business centers around the world, such as Boston, London, Toronto, Sydney, and Bangalore and Hyderabad in India. Tata Communications manages stand-alone Public Cisco Telepresence Suites while AT&T manages another group housed in Marriott hotels. These partners continue to roll out systems every month. At present, approximately 20 rooms are available for rent by the hour and open for booking.

Companies that are not near a Public Cisco TelePresence Suite — or that simply want their own videoconferencing facility — can purchase the setup from Cisco and place it on their own corporate network.

"In most cases, a company's first TelePresence deployment is to support intra-company conferences, and they want to use their own networks," says Randy Harrell, director of product marketing for the Cisco TelePresence business unit. "Many of our customers also have built their networks on Cisco infrastructure, and we can easily optimize that infrastructure to carry real-time video rather than building a separate private network."

UPGRADE COSTS VS. MAINTENANCE FEES

Arnold says Cisco, as the world's leading supplier of IT networking gear, certainly can optimize an existing corporate network to handle TelePresence traffic, but "it probably will require a significant and potentially expensive network upgrade."

Bandwidth requirements depend upon the resolution (720p or 1080p) being used. Generally, 2 to 3 megabits per second of bandwidth per screen is used. Cisco says it is important to note that this bandwidth does not need to be dedicated bandwidth. The company specializes in managing dynamic, real-time applications, such as voice and video, which rely heavily on the quality and intelligence of the network. When Cisco TelePresence calls are not active, this bandwidth can be devoted to other enterprise applications, the company says. When Cisco TelePresence calls are made, quality of service and bandwidth reservation capabilities in the network allocate the bandwidth needed, Cisco officials say.

Today, with Cisco TelePresence Extended Reach capabilities, users can get a Cisco TelePresence experience at 720p resolution using lower bandwidths or alternate access connections. Cisco TelePresence Extended Reach provides 30 fps and low latency performance — critical to providing an immersive experience — with minimal impact on picture quality. This means Cisco TelePresence can run over wide-area connections as low as 1.544 to 2.048 Mbps (T1/E1) speeds at 720p picture resolution, Cisco says.

On the other hand, Arnold adds, "HP built a private network to ensure Halo users get a great experience. But that network is expensive to run and it doesn't have a very large user base. So, Halo users have to pay a hefty monthly fee to support the network."

HP's pricing model is complex. And it can be expensive. At the low end, HP has begun offering packages

> "It gives the impression that the people you're looking at on a video screen are sitting across from you in the same room."
>
> —JON ARNOLD
> *Principal, J Arnold & Associates*

Photo Courtesy: HP

that contain the basic elements of a Halo Webcast and can transmit video to personal computers. Prices for that service start at under $10,000.

But prices are much higher for the full telepresence experience. Purchasing a full-blown, completely immersive telepresence system requires building the equivalent of a television studio in each location where a meeting will be held. The price of a basic Halo meeting room is $249,000; the purpose-built room or Collaboration Studio lists at $349,000. The monthly services are $18,000 for the two largest options (Studio and Meeting Room) and $12,000 per month for the Collaboration Center, which has one screen and two or four seats.

In the case of Halo, "the immersive studio is a fully built-out studio with four walls and a door," Podrabsky says.

Cisco requires customers seeking the fully immersive experience to buy identical furniture and lighting for each location, in addition to building the studios.

The cost of these systems can easily run into the hundreds of thousands of dollars, a price tag that Arnold and other industry analysts believe has slowed telepresence adoption and caused the vendors to make changes to their offerings, adding less expensive options.

While HP won't share the exact number of systems that it has sold to date, it does say that Halo systems are operating in 48 countries. The company reports that the typical deployment has risen from two in the early days to 10 or more today.

"The previous generation of telepresence systems were very much luxury items that had to be carefully doled out to the right people," Arnold says. "They were built strictly to host boardroom-type meetings, and they weren't built to integrate with anything. The current generation is moving to open platforms, and they're being built with integration in mind."

In general, the new generation of systems embraces Internet protocols, which means they can easily connect with lower-cost components from multiple vendors. Most of these newer systems are built by smaller vendors, but the bigger players are taking steps to avail themselves of the new, less expensive technology.

In June, HP signed an agreement that allows it to add technology from Vidyo, a supplier of desktop and room-based videoconferencing solutions, to the Halo product line. With this technology in place, HP now offers four different Halo solutions, including lower-cost options:

❏ The Immersive Studio, the original Halo solution that requires building a complete new room

❏ The Collaboration Meeting Room, a studio that can be built in an existing conference room; customers can purchase special walls and lighting to give this room an immersive feeling

❏ The Collaboration Center — a single-screen solution designed for conferences attended by single individuals or small groups of up to four people; a two-seat setup is $125,000, while a four-seat center is $135,000

❏ Halo Webcasting, which allows for streaming content from any Halo location to personal computers; prices range from $6,569 to $8,539

In April, Cisco went a step further, acquiring next-generation technology by buying Tandberg, a company that had developed both high-end telepresence solutions and desktop videoconferencing products, along with technology for integrating the different types of systems.

Baxter Healthcare's globally dispersed teams must be able to share their vision and ideas clearly and solve problems efficiently.

THE VALUE OF NEW TECHNOLOGY

The Tandberg acquisition gives Cisco the ability to incorporate video created on numerous platforms, such as webcams or handheld video cameras, into telepresence meetings. It also allows Cisco TelePresence users to hold meetings with people who use other vendors' telepresence solutions.

Bringing desktop and handheld video systems into the mix — as well as deploying technology to make solutions from different vendors interoperable — ultimately will lower costs and boost the value of telepresence for all users, and particularly for manufacturers, HP's Podrabsky says.

"Consider a manufacturer operating from two different locations. One is an engineering center and the other is a production facility," he says. "Something goes wrong with the tooling in the factory and the technicians don't know quite how to fix it. They can take the part off the line and walk into a Halo studio, show the part to the engineers at the other location, and troubleshoot the problem. In the past, someone would have to travel to fix this problem. There's a huge ROI there. And the future is allowing the technician to initiate the Halo conference directly from the line, using desktop or hand-held equipment. The agreement with Vidyo puts us on a path to offer that solution." ■

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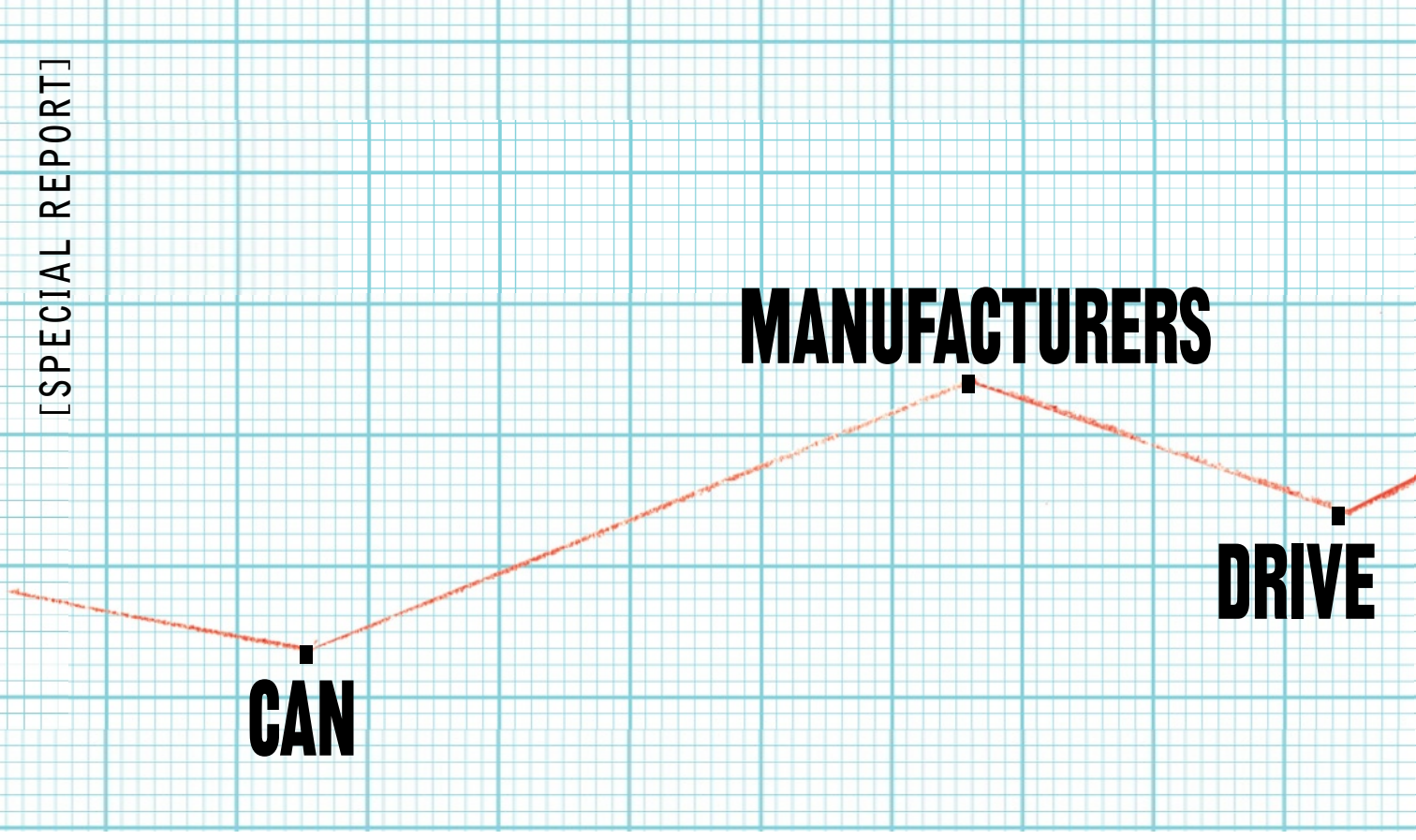

Line-of-business manufacturing managers are still struggling to get their CEOs to undestand the bottom-line impact of their operations.

The dimensions of this struggle have emerged through extensive interviews with manufacturing executives and CEOs around the world, recently detailed by growth consulting and research company Frost & Sullivan in its "Vision of the Future of Manufacturing and Production" (Visi-MAP) study. Despite driving unprecedented productivity gains by working harder, smarter, and managing with less, leaders of manufacturing, supply chain, automation, and IT organizations are still having trouble getting their CEOs to realize the impact their efforts have had on financial performance.

And yet, the study clearly shows a renewed interest among C-level executives in developing a vision of the future of manufacturing and production. There is also an increasing realization that the industry needs a better set of tools to address the challenges that businesses will continue to face in an age of continuous disruption.

To meet those challenges, manufacturing executives will need to exhibit agility and flexibility within what Frost & Sullivan calls the 3-C framework: competition, collaboration, and compliance.

THE ENVIRONMENTAL FACTORS

Competition has compelled companies to focus attention on managing resource efficiency costs within the context of environmental sustainability. Manufacturers the world over have begun to better manage the bottom-line impact of water, energy, minerals, human capital, and overall sustainability. Meanwhile, changing demographics and growth in emerging markets have inspired new geopolitical alliances focused on securing resources. These developments are influencing the selection of manufacturing locations, which are now driven at least in part by energy cost advantages, labor cost arbitrage opportunities, and proximity to feedstock and end-markets.

Manufacturers continue to define operational efficiency in different ways, but, fundamentally, the focus is on asset effectiveness and process efficiency. And yet, the realization that business responsiveness demands organizational agility has triggered questions about whether a focus on best practices is too single-minded. Manufacturers have shown a growing realization that perhaps doing the same thing in a slightly better way, even in the best possible way, may no longer be enough for them to remain competitive in the global environment.

These evolving manufacturing imperatives and the complexity of an interdependent world have also underscored the role of collaboration, both within the four walls of the plant and within the external ecosystem. Seamless integration is essential for collaboration, and the fundamental end goals remain flexibility, agility, and scalability. These goals cannot be reached without visibility into operational parameters, constraints, and the results of corrective action. The search for that kind of visibility has driven the adoption of mobile HMIs, embedded systems,

THE CEO'S GROWTH AGENDA?

A new study by growth consultant and researcher Frost & Sullivan shows how manufacturing execs can better convey the value of their operations.

BY SATH RAO

intelligent devices, and wireless technologies. Another driver has been the availability of technologies — from telepresence video conferencing, to enterprise intelligence, to real-time optimization — that can enable an organization to overcome geographical boundaries and organizational silos and use adaptive learning.

Meanwhile, the cost of poor quality can be debilitating to an organization. In trying to cope with the complexities of manufacturing ecosystems, which are compounded by business flux, regulations, and transnational consequences, organizations will continue to enlist people, technology, and processes to mitigate risk.

AN EMERGING CUSTOMER-CENTRIC MODEL

Business survival depends on the successful management of business flux. In recognition of this, manufacturing and production operations have progressed from plant-centricity in the 1990s to business-centricity in the 2000s. In the coming decade, we will likely see an era of customer-centricity, an evolution that will call for flexibility and agility.

Manufacturing executives the world over agree that flexibility, agility, and scalability will define success in the "new normal" economy, with its sudden shifts and starts. Of course, best practices and operational excellence will always be good for steady incremental gains and management of predictable demand and business patterns. However, with business flux forcing manufacturing, production, automation, and IT executives to expect the unexpected, the need for intelligence and visibility has become ever more pronounced.

To achieve flexibility, agility, and scalability, manufacturers will turn to intelligent devices, wireless products, and an enabling automation and IT platform. A concurrent trend toward cloud computing, virtualization, and enterprise manufacturing intelligence must be tempered by attention to security and compliance risk mitigation.

As the traditional ways of doing business change, CEOs seeking profitable growth will need to share the limelight with the humble manufacturing, automation, and IT executives on their team, because one wrong step can drive a global brand to extinction.

While we have already seen the emergence of chief sustainability and productivity officers, in the next decade we will also welcome chief manufacturing officers and chief process officers to the executive ranks. These new members of the CEO's growth team will help illuminate manufacturing's role in corporate growth. Rather than translating the CEO's vision to manufacturing and process strategies, they will help develop manufacturing and production strategies that drive both top-line and bottom-line growth. ■

Rao is VP, industrial automation and process control, at growth consulting & research company Frost & Sullivan.

Graphic: Luke Derivan

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Managing Automation's Product Scan is a roundup of some of the latest tools available to help you run your manufacturing business, from the factory floor to the enterprise and beyond. Our format better facilitates a connection to the TechMATCH product directories at ManagingAutomation.com, where you will find a wealth of information on the vendors relevant to your business, as well as product and contact information that can jump-start your technology selection process and help you assemble your short list. You'll notice a link to ManagingAutomation.com associated with each of the product descriptions in this section — follow that connection for actionable information on the company and its products.

For a more interactive tool to help you through your technology selection process, *MA*'s TechMATCH online product comparison technology is the free tool you need. TechMATCH lets you compare a wealth of products side-by-side and assists you on the path from technology vision to decision. For a sample product comparison, see the sidebar on p. 41. To use the free tool, simply visit ManagingAutomation.com and use the homepage selections to begin your discovery process. For a look at the products most often viewed on TechMATCH, the sidebar on p. 42 details recent activity by *MA* visitors.

RMT ROBOTICS
AUTOMATED GUIDED VEHICLE

RMT Robotics has enhanced its intelligent AGV platform — ADAM (Autonomous Delivery and Manipulation) — for lean manufacturing. The software and hardware enhancements to ADAM were developed to cater to the needs of the electronics, automotive, plastics, aerospace, solar, and other industries that feature similar, non-linear production logistics. The newest generation of ADAM features a laser range-finding system for vehicle location and obstacle avoidance. It also includes an on-vehicle keypad interface and wireless call buttons and an on-board PC for mapping, navigation, and drive control. ADAM has a compact, durable chassis with customizable top plate and a user-friendly, PC-based interface for easy operation by plant personnel, according to the company.

www.managingautomation.com/RMTrobotics

OMRON SCIENTIFIC TECHNOLOGIES INC.
PROGRAMMABLE SAFETY CONTROLLER

Omron Scientific Technologies has announced a line of software-based, stand-alone programmable safety controllers. Omron's G9SP programmable safety controllers can be quickly programmed to satisfy the safety control needs of small and mid-sized machines for a number of applications, especially where customer-driven machine set-up changes demand equally flexible safety solutions, the company said. Three base models with a range of I/O options are available to satisfy various application requirements, and four types of expansion I/O units are available for hard-wired diagnosis or standard signals. These controllers can also seamlessly connect to an Omron PLC and communicate using the FINS protocol for a complete Omron control solution platform.

www.managingautomation.com/Omron

NEXT VIEW SOFTWARE
iPAD SUPPORT

Next View Software is offering Apple iPad support for its supply chain productivity solutions, including labor management and workforce productivity (LMS) and warehouse management (WMS). The iPad support leverages Next View's Web-based solution and technology. The iPad provides a means to implement, support, and work with the company's partners and customers. By extending the company's WMS and LMS functionality to the warehouse floor with iPad technology, users of Next View's WMS and LMS can improve overall usability of the software.

www.managingautomation.com/nextview

SOLAHD
UNINTERRUPTIBLE POWER SYSTEM

SolaHD has introduced the new S4KC Uninterruptible Power System (UPS), which incorporates a number of online, double conversion features in a compact package. The UPS system is purpose-engineered for industrial applications, such as industrial computers, automation systems, robotics, and process controls. It is available in 120/208/240V or 230V models with 6000VA to 10000VA of capacity. The S4KC UPS delivers continuous power to connected equipment with no break or transferring to battery. Its rated output power factor of

0.8-0.9 is a better match with switch mode power supplies, which allows for more efficient utilization of the UPS. The S4KC Series can be mounted directly into a standard 19" rack, taking only 4U (7.0") of rack space for the 6kVA and only 6U (10.5") for the 10kVA; or, it can be floor mounted for stand-alone applications.

www.managingautomation.com/SolaHD

ARISTA CORP.

INDUSTRIAL PC

Arista Corp. has released its newest 42" large-screen, multi-session PC. The ARP-2242BP is designed for diverse applications that require an all-in-one wide-screen system as well as high definition. The ARP-2242BP is a full-featured, large-screen, wall mount PC for various single- or multi-session operations. This VESA mount PC is an IP50 dust-free rated system with a rugged design, wide viewing angle, and a full HD 1,920 x 1,080 resolution. The ARP-2242BP PC is offered with a Core 2 Duo Mobile CPU, up to 4 GB of RAM, 1x 2.5" HDD, dual gigabit Ethernet ports, four RS-232 ports, 1x RS-232/422/485 port, six USB 2.0 ports, and one parallel port. The 42" display is offered with optional infrared touch screen technology.

www.managingautomation.com/Arista

PHOENIX CONTACT

WIRELESS GATEWAY

Phoenix Contact is marketing a rail-mount gateway, featuring an integrated 802.11b/g WLAN transceiver, for the company's existing WirelessHART network. The 45-mm-wide RAD-WHG/WLAN-XD connects up to 250 WirelessHART field

devices, converting HART data to Modbus TCP or HART UDP for integration into almost any host system. The integrated WLAN can serve as the backhaul connection, allowing the gateway to be installed in the field closer to the monitored devices. This allows for the creation of "clustered" network topology, effectively creating several smaller WirelessHART networks. WirelessHART uses the 802.11i (WPA2) standard with 128-bit AES encryption to protect the WLAN data. The WLAN transceiver can be disabled, and the host connection can be made via the wired Ethernet port.

www.managingautomation.com/Phoenix

ROCKWELL AUTOMATION

PROGRAMMABLE AUTOMATION CONTROLLERS

Rockwell Automation has made two additions to its Allen-Bradley ControlLogix family of controllers, both leveraging the single design environment and networking protocol within the company's Integrated Architecture system. The ControlLogix L73 and L75 programmable automation controllers provide advanced memory, speed, and processing capabilities for a wide range of control demands, from high-performance logic and motion to information-intensive process applications. For complex, high-performance motion applications, the ControlLogix L73 and L75 PACs interface with motion drives through EtherNet/IP and SERCOS network interfaces. The controllers are capable of supporting as many as 100 axes, further simplifying synchronization of complex motion applications.

www.managingautomation.com/Rockwell3

LXE

FIELD COMPUTER

LXE has unveiled its Marathon field computer. The Marathon field computer introduces a new form factor in mobile computing, with a larger screen size and greater computing power than a PDA, smaller size than a laptop, and multiple data capture and connectivity options. Taken together, the Marathon field computer provides usability for the mobile worker in field-force automation, route accounting, and public safety. The Marathon field computer weighs less than a kilogram and is powered by an Intel Atom processor that runs full Windows 7 or Windows XP operating systems. It combines multiple built-in data-entry options, including a 7" outdoor-visible touch screen, full QWERTY keyboard, an integrated fingerprint reader that doubles as a mouse, and a high-resolution color camera.

www.managingautomation.com/LXE

PRODUCT SCAN

SPARTA SYSTEMS
QUALITY MANAGEMENT SOFTWARE

Sparta Systems has announced the availability of TrackWise SelectStart, a packaged solution designed for small and medium-sized businesses seeking to rapidly deploy a quality management system. The software is designed for life sciences organizations that need a complete solution for managing complex quality and compliance processes. In a climate of stringent regulatory requirements and increasingly constrained budgets, small- and medium-sized businesses in the life sciences industry must meet quality and compliance demands with limited resources. TrackWise SelectStart offers a total solution for quality system workflows based on industry best practices, a comprehensive validation package, including full performance qualification, and a documented, industry-tested deployment plan to allow for a rapid, cost-effective implementation.
www.managingautomation.com/Sparta

MANAGEMENT DYNAMICS
TRADE PLANNING TOOL

Management Dynamics has released Trade Planner 3.0, a scenario-based planning tool that helps supply chain teams evaluate alternative sourcing and distribution strategies to optimize total landed cost while assessing the impact of trade regulations. The solution is designed to compare the costs of sourcing and distributing one or multiple products from multiple locations to identify the optimal decision. Trade Planner allows users to import product descriptions, classify products, and store classifications by country in a product repository. Trade Planner is fully integrated with Management Dynamics' Global Trade Content, supports classification by the harmonized schedules and export control numbers for more than 122 countries, and identifies all applicable barriers to importing and exporting.
www.managingautomation.com/MgmtDynamics

ZEBRA TECHNOLOGIES
RFID PRINTER/ENCODER

Zebra Technologies is marketing its first high-performance RFID printer/encoder designed to address the growing RFID market for high-volume, item-level tagging. The RXi4 streamlines business improvement and supply-chain management applications across retail, manufacturing, healthcare, and distribution channels. The Zebra's RXi4 overcomes one of the largest barriers to RFID adoption: media cost. The RXi4 reduces RFID media costs by up to 10%, the

company said. By combining a printer/encoder with Zebra's patent-pending adaptive encoding technology, the RXi4 can detect the RFID inlay position within the label and automatically configure the printer/encoder without requiring manual calibration for the inlay, which ensures tag accuracy.
www.managingautomation.com/Zebra

BALLUFF INC.
RFID SYSTEM

A new RFID system from Balluff Inc. has an IO-Link protocol that lets users connect a complex device, such as an RFID processor, to an industrial network via a gateway using standard discrete sensor wiring. The system simplifies network topology and PLC setup by using the IO-Link block, which treats the RFID data like standard I/O points. It also reduces costs by running

most popular business intelligence software

A look at the 10 business intelligence and manufacturing intelligence products most often accessed by site visitors using ManagingAutomation.com's TechMATCH comparison tool (April 2010 – September 2010)

1. **SAP Manufacturing Integration and Intelligence (SAP MII)** provides a direct connection between shop floor systems and business operations, with all data affecting manufacturing visible in near real time.
2. **Infor ERP VISUAL** provides discrete manufacturers intelligent support for their full business lifecycle, from planning and sourcing to making and delivering.
3. **Lean Enterprise for Microsoft Dynamics** combines traditional manufacturing and distribution functions with lean capabilities with the goal of delivering true performance improvement to manufacturers.
4. **SAP's BusinessObjects Edge Series** is designed for small to mid-size companies that want to optimize business performance, discover new opportunities, and get an edge on their competition.
5. **Process Industries for Microsoft Dynamics AX** is an ERP system designed for mid-size to large enterprises, with built-in intelligence to help process manufacturers better manage variables.
6. **OutlookSoft CPM** is a unified, predictive performance management offering that delivers real-time visibility into financial and operational strategic planning and other business processes.
7. Information Builders' **FOCUS** is a development platform for mission-critical, decision-support applications that uses reporting and analysis to deliver business insight.
8. The **QlikView Business Intelligence Software** product uses in-memory technology to deliver immediate business answers and enable users to easily explore data.
9. **IBM Cognos 8 Business Intelligence** offers a complete range of BI capabilities, including the ability to author, share, and use reports that draw on data across all enterprise sources.
10. **M3 Enterprise Management System** is designed for product-centric businesses that make, move, and maintain, and must work intelligently within resource constraints.

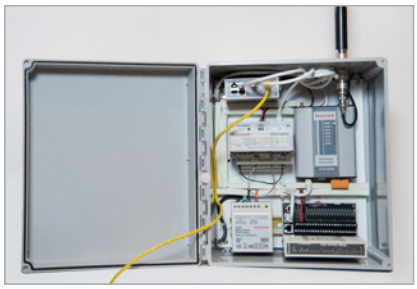
multiple RFID readers off one I/O block using standard, three-conductor sensor cables (typical savings of 12% per ID point). The IO-Link solution uses cost-equivalent IO-Link-based RFID heads and processors, but offers 100% data reliability that bar-code readers do not, according to Balluff.
www.managingautomation.com/Balluff

VAI
CRM SOFTWARE

VAI is offering its S2K Sales Force CRM software, designed to provide customers with an advanced, integrated, and mobile CRM solution that is accessible anywhere, anytime. This Web-based application is available as an add-on option for any module within the S2K enterprise software family. With S2K, VAI customers have access to enhanced, real-time sales data via the integrated S2K platform. The launch of S2K Sales Force is intended to strengthen the overall value of the S2K product line. With the mobile iPad interface, S2K users have improved reporting options, enhanced account management capabilities, and easier order creation.
www.managingautomation.com/VAI

HONEYWELL
AUTOMATION CONTROLLER

Honeywell has unveiled the RC500 Remote Terminal Unit (RTU), a modular and scalable controller that integrates with SCADA technology to give industrial manufacturers tighter control of remote operations. The RC500 is designed to withstand harsh environments and is appropriate for remote automation applications. It operates



using minimal electricity, making it suitable to run on solar power and to provide continuous monitoring of remote, fixed assets. RC500's open communication platform integrates seamlessly with Honeywell's Experion Process Knowledge System. When combined with Experion's SCADA products, the RC500 helps facilities manage complex remote automation and control applications, such as gas flow metering, data concentrator and communications integration, well-head control, pump and compressor control, block-valve automation, and gas stations.
www.managingautomation.com/Honeywell

MSC.SOFTWARE
SIMULATION SOFTWARE

With MSC.Software's latest simulation software release, SimXpert 2010, engineers can access the new features of the company's MD Nastran 2010 and MD Adams 2010, as well as perform advanced simulations in the areas of nonlinear analysis, bi-directional thermo-mechanical coupling, and expanded physics simulations, including co-simulation with CFD codes. Integrated with MSC's advanced multidiscipline solver technologies, SimXpert 2010 delivers several new functionalities and improvements in usability, MSC said, including CAD support, geometry cleanup, meshing, FEA, and Multibody Dynamics solver support. The latest offering also introduces a systems and controls workspace.
www.managingautomation.com/MSC

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Apriso and SAP: A Clear-As-Glass Solution for Saint-Gobain Sekurit

APRISO

Download: **managingautomation.com/apriso16**

Summary: Learn how Saint-Gobain Sekurit, one of the top three glass manufacturers in the world, deal with increasingly diverse operations and quality improvement programs across 44 of its European sites.

Error-proofing Operations – Real-time Inline Metrology System

AS ONE TECHNOLOGIES

Download: **managingautomation.com/asone3**

Summary: This case study is an overview a real-time inline metrology system used to error proof operations.

Industrial Ethernet; Next-generation Connectivity With Wireless

BELDEN INDUSTRIAL

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Summary: This whitepaper examines the rapid development and success of Industrial-strength Ethernet and the accelerating presence of its wireless component.

Is Your Enterprise Application on the Road to Nowhere?

IFS

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Summary: Which ERP products have a future and which will be phased out or orphaned?

Selecting an ERP Solution: A Guide

INFOR

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Summary: Discover a step-by-step process for selecting an ERP solution that is right for your organization.

Customer Close-up: Pointe Precision

IQS

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Summary: Pointe Precision wanted to understand where quality issues were originating so they could better manage business from an earlier point in the production cycle.

Trade Agreement Management Benchmark Report: Survey Results & Best Practice Research

MANAGEMENT DYNAMICS

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Summary: Learn how companies benefit from a trade agreement portfolio based on a survey of over 300 respondents across diverse industry verticals and sizes.

Nucleus Research NetSuite ROI Study

NETSUITE

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Summary: Nucleus Research found NetSuite's SaaS business application customers boosted sales, increased productivity, reduced cost and retired costly legacy systems.

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SaaS: What is it? How can it help you?

PLEX

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Summary: What is Software as a Service (SaaS)? "A SaaS Primer" gives the answers.

Stamper's Continuous Improvements Save $1.2MIL

PLEX

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Summary: Stamper's continuous improvement program achieves annual cost savings of $1.2 million.

Cure Product Development Ailments with PPM

POWERSTEERING SOFTWARE

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Summary: Roy Wildeman, Forrester Senior Analyst, and Susan Go, PowerSteering Consultant, discuss how PPM improves NPD governance.

Taking Energy Management to a Higher Level

ROCKWELL SOFTWARE

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Summary: Rockwell Software's innovative Economic Energy Optimization solution helps manufacturers strategically manage their energy demand and supply.

How Does Your Business Grow?

SAGE

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Summary: Seek out new opportunities to develop your revenue stream.

What Management Must Know About Forecasting

SAS

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Summary: This white paper shares best and worst practices organizations face with business forecasting.

An Introduction to Strategic Roadmapping

SOPHEON

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Summary: Learn what roadmapping is and how companies are using road maps to visualize their strategic plans.

Automating Incentive Compensation

VARICENT SOFTWARE

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Summary: Automating incentive compensation for increased productivity and immediate cost reduction.

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New from Managing Automation's Editorial Team

Public Attitudes about Manufacturing: It's Complicated

ENTERPRISE APPLICATIONS BLOG

Access: **managingautomation.com/entappsblog5**

Summary: New survey shows confidence in the capabilities of U.S. manufacturers, but pessimism about the future of U.S. manufacturing.

Boeing and the Patient Customer

CUSTOMER MANAGEMENT BLOG

Access: **managingautomation.com/customerblog5**

Summary: Whether you're selling an ERP system or an energy drink, your customers have a certain tolerance level when it comes to product promises, and it's up to you to know what that level is.

RFID Catches a Cold

SUPPLY CHAIN BLOG

Access: **managingautomation.com/scmblog1**

Summary: RFID technology has found a place inside the human body, which has given rise to the first person known to be infected with a computer virus.

Interfacing With Technology, Naturally

OPERATIONAL EXCELLENCE BLOG

Access: **managingautomation.com/opexblog1**

Summary: Gesture-based computing could be a boon to operational excellence in the future… And, get us talking again!

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robert malone

Overhauling Manufacturing's Image

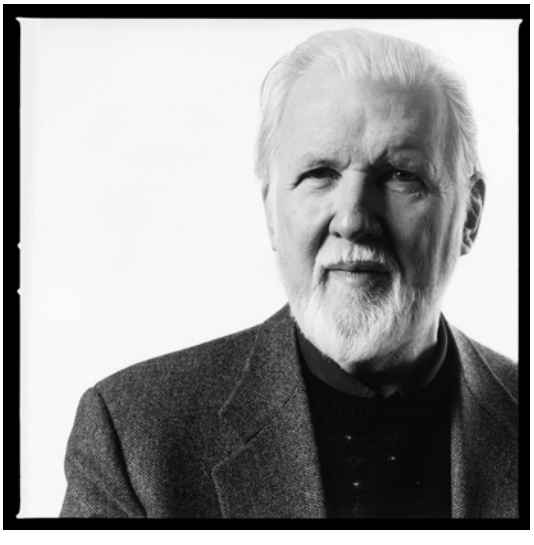
robomalone@aol.com

There is no such thing as simple manufacturing. Manufacturers' buildings are now loci for many levels of connecting networks and processes.

The public's image of manufacturing still conjures up an ugly building with spewing smokestacks. Just ask anyone.

People's attitude toward manufacturing turned positive for a time during World War II as U.S. manufacturing prowess emerged as a deciding factor in our winning the war. And the patriotic and positive image of Rosie the Riveter certainly didn't hurt. But, in recent years, the industry's reputation has not kept pace with the changes that have taken place.

There is no cookie-cutter mold for factories. They come in many sizes and types, from tiny operations in private apartments to Boeing's Everett, WA, factory, the world's largest building by volume, which sits on almost 100 acres. The factory has its own fire department and numerous coffee stands. Large aircraft require large assembly lines, or bays, and Everett appears to fill the bill.



The many types of factories and plants almost defy definition. Some are single-material plants, such as steel mills, while others have no material reference and instead house processes, such as packaging, or produce energy, or assemble small appliances.

Today, manufacturing is still factory-centered, but it is by no means factory-bound. Several developments and concepts have fundamentally changed the nature of manufacturing.

The first is the placement of manufacturing within the supply chain cycle. This chain, as we know, extends from suppliers, to customers, and back again, with the vital element of feedback and the subsequent opportunity to make corrections and additions to products and processes. Supply chains have grown from the supplier next door to global sourcing.

The second distinguishing feature of today's factory is electronic control and scheduling, a change that has progressed from simple electrical connections, to MRP, to precise quality control and split-second timing and recording. I am talking about a communication and control network that reaches across the globe and has made the supply chain and logistics come alive.

To these I would add PLM and CAD, which confirm designs, from inception to engineering for manufacture, and help to bring out new technology to meet the demands of an ever larger, more impatient, and critical customer base. These technological advances help to widen the product spectrum and interlink the design and manufacturing process with sales and marketing.

Today's factory is still bricks and mortar, but within that structure manufacturing comprises the three levels of manufacturing information, manufacturing communications, and manufacturing innovation, and all their interrelationships. So plants and factories come in more varieties than ever with far more complex management and in-depth quality control.

Clearly, there is a need for a giant promotional effort to redefine factories and manufacturing. At the present time, too many towns and cities, given a choice of new businesses to attract, would select a gambling casino, a sport's arena, or a theme park. But manufacturing is an essential ingredient in fighting a recession. It is incumbent upon us to renew and revitalize its image. ■

Robert Malone, based in New York, is principal of Robert Malone Associates and former editor-in-chief of *Managing Automation*.

Photo: Dirk Kikstra

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For more of Robert Malone's views, visit:

- ❑ The Innovation Imperative www.managingautomation.com/next73
- ❑ The U.S. Economy Is Adrift www.managingautomation.com/next72
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ERP can help manufacturers survive recession and prepare for recovery, IFS expert says

One of the purported benefits of Enterprise Resources Planning (ERP) software is the avoidance of supply and demand shocks.


Bill Leedale

Yet many manufacturers running ERP packages have been caught off guard by the ultimate demand shock … the global economic slowdown. According to IFS Senior Advisor Bill Leedale, the need to recognize deviations from plan and make constant adjustments in real time is causing a sea change in the way manufacturing enterprises are being operated – a change that must be mirrored in ERP technology.

"There is a convergence taking place between project management and operations management, and smart executives will be looking for technology that will allow them to manage their entire business as an ongoing project," Leedale said.

A project takes place in real time, just like 21st Century business. And in real time, deviations occur. The right ERP technology allows executives to identify these deviations and respond accordingly. According to Leedale, layoffs and plant closings can be avoided through the intelligent use of project-based ERP.

"The ability to treat the enterprise as a project is particularly applicable during periods of slow business, because without proper insights, businesses may make changes that they later regret …" Leedale said. "Meanwhile, project functionality within an enterprise application like enterprise resources planning (ERP) can help executives manage an economic downturn like a variance in a project by making amendments in real time to keep that project on budget and profitable …

"Lacking this information, too many executives take the easy way out, laying off employees rather than repurposing them onto more profitable projects … And many times, executives will over-react, cutting the work force by 20 percent to correspond with a 3 percent decrease in Gross Domestic Product."

Preparing for the recovery

The demand shock caused by the recession may be one project variance, but Leedale stresses that the economic recovery, which is right around the corner, will represent a supply shock – particularly for manufacturers that had over-reacted to the slowdown.

"Suddenly, the executive that was perhaps too hasty in laying off very good employees will have to rehire," Leedale said. "This exacerbates that demand shock as hiring and training takes time, and those new workers will only gradually become as efficient as those they replaced. In this instance as well, management by project can help plan the process of a return to full productivity and determining the cost of new employees going through that learning curve."

Get the whitepaper, How Manufacturers Can Use ERP to Weather Tough Times at **download.ifsworld.com**, or call **1 888 437 4968**.

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