infor

Infor predicts the future of manufacturing

Machine-to-machine connectivity, integrated analysis, mobile, social, cloud to fuel innovation in manufacturing

What does the future hold?

As the manufacturing environment continues to change at an astounding rate, ERP solutions must also evolve at an equally aggressive rate in order to meet the new demands and expectations. Keeping an eye on the future is, therefore, essential for the manufacturing executive who wants to make sure the company's IT infrastructure is up-to-date and aligned with future innovations. This is no time to be caught unaware of coming trends or surprised by the competition's use of new operational tactics to grab market share.

Infor® believes it is important to make sure customers don't miss these changes. Anticipating the needs of customers and predicting future trends for the manufacturing industry is essential. The R&D teams and product development engineers also take it a step further. Not only do they monitor and follow future trends—but they also strive to be the ground-breaking, creative vision behind establishing new directions and leading the pace of change. A major investment in design and product engineers over the past two years and a major 10X product release are helping Infor play a critical role in shaping the future of IT solutions for manufacturing.

We asked the Infor product and strategy teams to analyze the various vertical markets in manufacturing, anticipate the needs of those industries, and speculate on possible solutions. The resulting predictions are fascinating.

These predictions offer valuable insights on the potential of vertical industries and point to future growth opportunities for manufacturing companies. The following predictions were drafted by the people close to R&D and product development—and you—the people who rely on software solutions to get their work done. These predictions can help you envision pending market changes and understand how software innovations will impact your operational potential. These insights, too, can help you determine the steps you can take now to be well prepared and remain in the forefront of change. The future starts now.

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General Manufacturing

Mark Humphlett, Infor Industry and Strategy Director for Industrial Manufacturing
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By 2016, technologies such as 3D printing and social machines that were once considered "disruptive" or cutting edge will become fully adopted by at least 60% of best-in-breed manufacturers seeking competitive differentiators and ways to seize unfolding market opportunities. The total manufacturing process will be connected, smart, and aided by highly intuitive software solutions that predict outcomes, anticipate needs, and provide tools to make fact-based decisions with speed and accuracy. Rationale:

- 3D printing is beyond the early-adopter stage and has proven to hold practical applications for many vertical industries. The equipment is now available as a cost effective investment for companies of all sizes.

- Machine-to-machine technology or "the Internet of Things" (connecting equipment, people, and processes via the Internet) is becoming widely adopted as a means of anticipating equipment performance and rapidly responding to exceptions and escalations. Early successes are fueling additional development of smart sensors that can detect more conditions, variables, and performance characteristics, ranging from location and temperature to throughput and conditional anomalies.

- ERP solutions are already available that connect equipment and performance data to determine when a failure is imminent (*figure 1*), identify the component and retrieve information about performance history (*figure 2*), identify the failing part (*figure 3*), and suggest options and predict the impact of each option (*figure 4*).
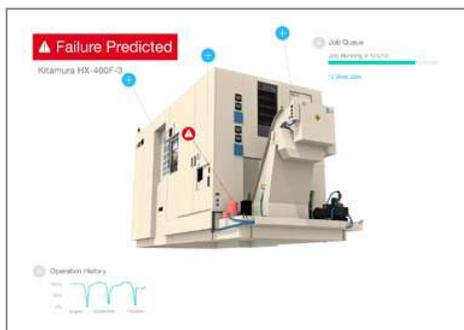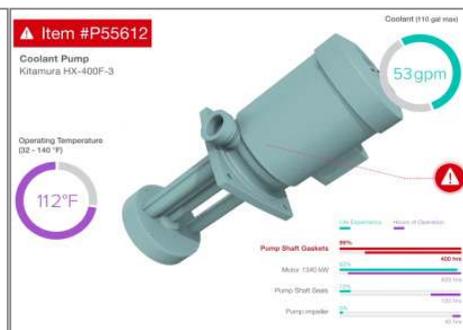

Figure 1

Figure 2

Figure 3

Figure 4

By 2015, 80% of best-in-breed manufacturers will be considering the "look and feel" of their ERP solution as one of the driving forces for upgrades and new ERP implementations. Rationale:

- Ease of use and a highly intuitive user interface will be expected by manufacturers and instrumental in creating a workplace environment where workers—from shop floor managers to C-level executives—can fully take advantage of the power of complete supply chain visibility and proactive data analysis to be agile and responsive to changing conditions.

- ERP users are increasingly demanding that their business systems have the same intuitive navigation, attractive screens, contextual data, flexibility, and ability to tailor views as their consumer-grade applications.

- As manufacturers face challenges in skill gaps and shortages of skilled workers due to the retiring workforce, recruiting and retaining a younger generation of worker is essential.

- Providing easy to use ERP tools increases a manufacturer's ability to meet the expectations of the next generation of manufacturing employees.

By 2014, manufacturers will be able to turn to highly intuitive ERP solutions to provide users with a reinvented ERP interface that focuses on the experience and actually provides a view that is meaningful, memorable, and pleasurable.
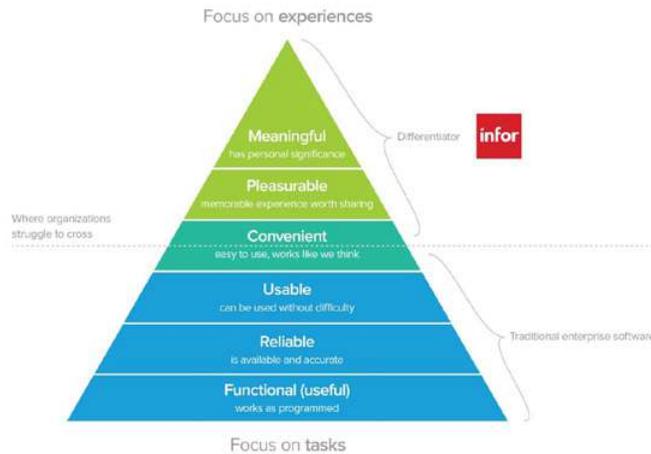
By 2017, cloud will become a business process rather than a deployment method. Rationale:

- Manufacturers will be able to use cloud solutions for freer collaboration, sharing of data, and the use of specialized applications as needed to meet process improvement requirements and connect the growing supply chain.

- Lines of software will become more blurred, giving manufacturers ultimate flexibility to use hybrid, two-tier systems and integrate multiple applications for a truly customized approach to solving business requirements.

By 2015, manufacturers will be demanding more dynamic, combined functionality from business intelligence tools in order to meet a greater need for full visibility into the complex issues that impact performance and that can predict and manage highly volatile buying patterns. Rationale:

- Separate business intelligence tools for analyzing financials and additional systems for CRM, SEOP, and CPM do not provide the fully integrated, dynamic approach that manufacturers need in order to respond with agility.

By 2015, the growing use of comprehensive, integrated tools to automate the CPQ (configure, price, quote) processes will help companies be more strategic and streamlined in their sales processes, helping them grow sales by up to 10%. Rationale:

- CPQ for sales teams extends the benefits of a tightly integrated configuration process, allowing companies to obtain more efficient quote-to-order sales volume, with examples of companies already handling 2x, 3x, 4x, 5x the sales volume without adding resources.

- As manufacturers turn to product specialization as a competitive differentiator, the ability to provide product quotes quickly and accurately will be increasingly important, requiring automated, guided selling solutions in order to keep pace with the increased volume and meet customer expectations for speed.

- As manufacturers face the challenges of a retiring sales force, this ability automate complex selling will be increasingly important.

High Tech & Electronics

Edward Talerico, Infor Industry and Strategy Director for High Tech & Electronics, Aerospace & Defense

By 2016, at least 80% of manufacturers and distributors in the high tech & electronics market will turn to social media and mobile devices as key tactics for integrating their supply chain and improving visibility. Rationale:

- High tech companies will adopt this technology faster than any other industry; it's in their DNA.

- High tech & electronics is a self-serving market that supports the sales and delivery of the products manufactured, adding to the need for integrated supply chain visibility and greater collaboration from multiple partners, vendors, and contractors.

By 2015, a growing number of high tech manufacturers, especially in APAC, will implement secondary ERP solutions to support individual facilities like an MRPII (manufacturing resource planning) implementation to feed financial information to the corporate ERP solution. Rationale:

- An increasing number of companies are recognizing the inefficiency of big, one-size-fits-all ERP implementations and are seeking alternative IT solutions that are right-sized for their current operational needs and vertical focus.

- Advances in ERP integration make it easier than ever to publish information from one ERP system to another ERP system, eliminating disparate system disconnects.

- This type of two-tier system often provides a cost effective method of complying with corporate mandates, while still meeting the specific requirements of a regional branch or specialized division, such as a service hub.

- Deploying a tiered system to meet specific functionality, such as MRPII, allows benefits to be realized much faster without waiting for agreement on a corporate process that is prone to frequent delays and ambiguous deliverables.

Aerospace & Defense

Edward Talerico, Infor Industry and Strategy Director for Aerospace & Defense,
High Tech & Electronics

By 2016, at least 70% of US DoD contractors will utilize some cloud-based services in order to reduce costs and comply with expectations of their customers' oversight organizations. Rationale:

- A&D contractors have been notoriously slow to adapt best practices. Increasing frustration from oversight agencies is leading to stricter guidelines and enforcement of cost cutting procedures.

- The increasing acceptance, security compliance and availability of cloud solutions will make cloud deployments a viable and cost effective method of meeting expectations for cost control.

- The customer is simply going to demand cost savings, due to budget cuts, and will not tolerate reductions in product delivery from suppliers.

- There are multiple cloud-based applications already available, such as apps for managing billing and earned-value management, which offer opportunities.

- Hybrid solutions, using cloud and on-premises ERP solutions, would allow would A&D contractors to return to some traditional mainframe-type principles with which they are accustomed and offer a historical comfort level.

By 2017, at least 40% of A&D contractors will take advantage of the availability of historical data in the cloud for business analytics that can be re-purposed and re-used for new contracts or extensions. Rationale:

- The customer is looking for a way to eliminate the proprietary nature of contract information as it exists today and create more cooperation among the remaining players in the industry.

- The information to support articles for use by aviation or defense need better predictive and historical data analysis and intelligence.

- This will allow the customer to define a common model of reporting and operating.

- There is no bigger example to use when referring to "big data" than that of the US DoD.

Food & Beverage

Mike Edgett, Infor Industry and Strategy Director for Food & Beverage

By 2015, food & beverage manufacturers will be using enhanced traceability solutions for intelligence and to speed recall processes and improve visibility across an increasingly complex supply chain. Rationale:

- Manufacturers will be expected to reduce their time to initiate recalls from two to three days to two to three hours to comply with industry regulations and retailer expectations.

- Tools now exist that allow F&B companies to interface to production lines and use mobility solutions to improve data-collection and speed information gathering. These tools are becoming more widely used by best-in-class performers.

- Increased complexity in supply chains will make tools to improve visibility and tracking essential. Traditional tracking processes will become increasingly inefficient and impractical, forcing manufacturers to enhance systems and improve their ability to speed communication with supply chain partners.

- Supply chain partners, also concerned about the risk and liability, will demand better traceability and reassurance of quality control and regulation compliance.

Product innovation will continue to be used by food manufacturers as a tactic to avoid the "commoditization trap." But, by 2015 they will significantly increase their investments in IT solutions to speed and enhance the innovation process. Rationale:

- More new products on the store shelves drive even more demands for an enhanced product life-cycle management process from "idea to invoice."

- Food manufacturers are starting to view innovation as a process requiring integrated business flows from ideation, to development, to manufacturing to delivery.

- Existing, monolithic ERPs systems used by many F & B companies lack the ability to easily integrate PLM and LIM process flows.

By 2015, a majority of food manufacturers will use some type of quality management and regulation compliance tools as a key part of their total IT solutions. Rationale:

- The increasing number of food safety issues will increase the demand from consumers to know where each and every product was sourced—from farm-to-fork.

- Regulatory changes are impacting labeling requirements, making management of constantly changing recipes and their corresponding labels overwhelming.

- Food manufacturers that can provide evidence and proof-points of sources will be able to share that information with retailers and consumers and, therefore, be in a favorable position—creating a new level of trust we never seen in the food industry before.

- The amount of information is challenging since consumers want to know about origin, allergens, organic, GMO and more, down to a detailed level. Managing this amount of detail requires IT solutions.

Equipment

Warren Smith, Infor Industry and Strategy Director for Equipment and Automotive

By 2016, the use of telematics and machine-to-machine connectivity will become increasingly important as manufacturers and dealers search for tools and tactics to increase revenue, improve profit margins, and enhance value-add services to build customer loyalty in a market with highly demanding customers and mission-critical equipment. Rationale:

- Telematics will be used in equipment rental in a "power by the hour" method, allowing equipment manufacturers/dealers to rent and charge by the work the equipment actually did—not just time.

- Telematics on equipment will also improve visibility to service needs and costs.

- Equipment will have operating "signatures" and profiles that will improve the ability to perform preventive maintenance and predict product failure, reducing unplanned downtime.

Customer configurations will play an increasingly important role for equipment manufacturers as well as specialty vehicle manufacturers, prompting the integration of more IT solutions to manage the process with speed and efficiency. Rationale:

- Custom configurations of motor vehicles will become more common—as will the ability to take personal communications appliances (like smarphones) into the vehicle, replacing the stock navigation solutions.

- Vehicle rental—like Zip cars—will become more common, creating added interest in the ability to custom configure controls, settings, and comfort features based on a user profile.

Automotive

Warren Smith, Infor Industry and Strategy Director for Automotive and Equipment

Managing complex product innovation will be increasingly critical to automotive manufacturers as the use of high tech and electronic components in automobile design will continue to expand, reaching up to 70% of the vehicle's cost by 2020. Rationale:

- As vehicle technology evolves, the percent of cost occupied by electronics has risen proportionally.

- The percentage was as low as 9% 35 years ago and is approximately 30% now.

- With the increased focus on smart vehicles and in-vehicle connectivity, this percentage will rise, reaching 60 to 70% by 2020.

- Tracking the lifecycle of complex components requires specialized solutions in order to manage the product lifecycle and speed at which innovations occur.

Over the next decade, there will be a dramatic shift in the need for greater usability in ERP solutions to match the emergence of a new breed of knowledge workers, replacing the stereotypical blue-collar manual workforce. Rationale:

- As the industry evolves, new strategies and tactics are required for automotive companies to operate with more efficiency, including added productivity from the workforce.

- The emphasis on a fully engaged workforce leveraging contextual data in day-to-day decisions will drive the need for ERP solutions with integrated self service analytics, collaborative tools, mobile solutions, and easy-to-access contextual data so more personnel can be fully engaged in making proactive, timely decisions, from anywhere, anytime.

An emphasis on design innovation and the need for integrated tools to assist with product introductions will become the foremost issues driving IT purchases in the automotive industry by 2015. Rationale:

- Tier 1 suppliers will continue to take on more responsibility for design from the OEM.

- The need for configuration on vehicles continues to grow and will create the need to have every vehicle be unique as it rolls off the assembly line.

- Autonomous vehicles will be common in the next 8 to 10 years in major cities.

- Configurable instrument clusters will allow a driver to order a vehicle to match their personal preferences.

- Consumers will be able to merge their personal mobile world with their vehicle, making it possible for their personal mobile device control many of the vehicle's comfort features.

- Managing this increased volume of specialization and on-demand customization from consumers will drive a need for software solutions that can track and manage complex configurations and on-demand orders.

Vehicle recalls and failures due to software and electronics in the vehicle will rise to an all time high—peaking by 2016. This will cause automotive manufacturers to suffer a setback in consumer confidence, until they make major investments in regulation compliance and quality control. Rationale:

- Complexities in the global supply chain, multiple vendors, frequent changes in components and versions, and an increase in customizations make system compatibilities increasingly difficult to manage.

- As more systems within a vehicle involve software and interface with the vehicle's computerized systems, the possibility for system failure and incompatibility increase, requiring a higher level of quality assurances checks to safeguard complete system reliability.

Technology deployments

Navin Kulkarni, Infor Industry and Solution Strategy Director for Technology

By 2015, business analytics will be increasingly integrated with social collaboration platforms to increase worker productivity and speed decision making. Rationale:

- As BI platforms become consumerized, the industry- and role-specific content will drive competitive differentiation.

- In-memory computing and cloud-based storage will provide the required flexibility for analytics applications to deliver stronger predictive and forecasting capabilities.

- As manufacturers strive to increase the productivity of the workforce and speed their response to customer demand, having decision-making tools that proactively alert them to exceptions and resolve issues before they reach profit-impacting stage will be increasingly important.

By 2015, cloud solutions will dramatically gain importance to manufacturers and will be used to solve multiple IT issues. Rationale:

- Organizations that have a large enterprise application footprint, including several mission critical applications, will increasingly turn to cloud solutions to ensure continuous access to data and the uninterrupted ability to manage complexity.

- A shortage of cloud IT talent will drive hosting and managed services.

- Legacy and shadow systems will increasingly be replaced by on-demand cloud-based applications.

Next steps

As these predictions demonstrate, an exciting period in manufacturing is right around the corner. Not only will the new technologies change the way manufacturers manage current processes, but they will provide opportunities for reinventing operational work flows. Then, greater productivity and efficiency will fuel even more innovation. As employees are freed from mundane processes, they can apply their time and effort to innovation, problem-solving, anticipating customer needs, and cementing relationships with partners, suppliers, and contactors along the supply chain, leading to more collaborative efforts and tighter long-term relationships. Strong relationships will be helpful in understanding and embracing the many unfolding paradigm shifts ahead.

To accomplish this, manufacturers need a software solution provider who is in tune with the pace of change and is helping to define the vision for ERP solutions of the future. As solutions become increasingly advanced, integrating numerous processes and business units, it is more important than ever to choose a solution provider who offers a wide range of solutions and knows that one size does not fit all.

Infor is that solution provider. When you work with Infor, you work with teams who understand the interconnectivity of various systems, from manufacturing to customer relationship management, human capital management, enterprise asset management, supply chain, and distribution.

Whoever you choose, it's imperative that you start embracing new technologies now. Delaying investment in solutions only delays profit gains. Fast changing market conditions mean you need to make decisions quickly. Now is the time to leap forward into the future.

To learn more about the issues, solutions, and ways that technology will impact your manufacturing operations, visit http://go.infor.com/future-of-manufacturing/

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