

Cool Vendors in Manufacturing Operations, 2012

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The 2012 crop of Cool Vendors in manufacturing operations illustrates the importance manufacturers place on product quality and safety, as well as safe and reliable production operations. The vendors apply innovative approaches to tackling these high-priority issues.

Key Findings

- Combining real-time data and risk assessment models is a paradigm shift in the world of safety management, opening the door to new levels of safety performance.
- Cloud-based product quality and compliance services provide a cost-effective and sustainable way to reduce the risks of supply chain disruption and/or noncompliance to proliferating regulations.
- Production excellence in process manufacturing requires operations intelligence (OI) — that is, a purpose-built analytical tool with the ability to consume data from diverse sources.
- Effective asset management is a balance between effectiveness and efficiency. Adding greater scientific rigor to the process requires new approaches and tools.

Recommendations

- Energy producers and manufacturing companies looking to improve their safety performance and better manage operational risk should consider real-time risk monitoring, such as what's provided by ACM Facility Safety.
- Companies looking to simplify and streamline their product compliance/safety activities should consider using a cloud-based product compliance hub, similar to what Actio provides.
- Process manufacturers — particularly, pharmaceutical and biotech companies — looking for better ways to analyze process data and improve production performance should consider purpose-built OI applications, such as the one from Aegis Analytical.

- Companies looking to improve their quality processes, especially in relation to managing supplier quality, should consider cloud-based services to monitor supplier processes and achieve multitier visibility into quality performance, not unlike what InfinityQS delivers.
- Companies looking to better quantify the costs of their asset management decisions and better estimate future maintenance costs should consider model-based approaches to comparing alternatives, such as what's provided by MaxGrip.

Analysis

This research does not constitute an exhaustive list of vendors in any given technology area, but rather is designed to highlight interesting, new and innovative vendors, products and services. Gartner disclaims all warranties, express or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

What You Need to Know

Manufacturers have been investing in technology to improve quality, safety and reliability for as long as there has been room to improve performance in these critical areas. Given the number of inquiries Gartner fields on these three areas, there is still a need — and an appetite — to make new investments. The majority of new technology investment still goes toward automating existing processes or updating systems. As this year's Cool Vendors in manufacturing operations prove, however, there is still an appetite for new and innovative approaches to solving persistent challenges in critical functional areas.

These vendors represent innovation in manufacturing operations software, but they are also part of a larger trend toward investing in Manufacturing 2.0 architectures and technologies — a trend that Gartner first identified several years ago, but it only started to accelerate last year. What this year's Cool Vendors share in common is the use of the cloud and/or analytics to improve interorganizational and intraorganizational collaboration and decision making. Whether it's providing new ways to represent data or share information, these vendors help their customers improve operational performance and/or reduce operational risk.

ACM Facility Safety

Calgary, Alberta, Canada (www.acm.ab.ca)

Analysis by Leif Eriksen

Why Cool: ACM's Machu Picchu (MP) product brings together risk assessment models with real-time data in a unique, visual way to help reduce the risk of major operational incidents that might result in injuries, loss of production and/or fatalities in manufacturing environments. MP is a real-time, risk-monitoring application that takes into account data from risk assessments, historical equipment maintenance data, observations and inspections, and process operating data and alarms.

Relying on process alarms and operator inspections to prevent unplanned safety incidents has well-known shortcomings. Most significantly, the traditional approach relies on the operator's experiential knowledge of the relationship between the information received, the risk being managed and the potential consequences. And even when the operator has significant experience, he or she may be forced to make decisions with incomplete data, lack of context or — often worse — a flood of real-time alarms. Indeed, in most plants today, operators have never had more data. What's missing is the context to make the right decision at the right time.

ACM's MP product represents a new and innovative approach to safety management in complex operating environments. Its value extends beyond the plant floor, and could be envisioned as a tool to create a collaborative, more error-proof safety environment, with increased visibility into potential risks across the organization.

Challenges: The cultural change required to adopt a product like MP may slow adoption. In addition, ACM is a small company competing in a safety market dominated by large, multinational companies. It has confronted this issue by forming a partnership with one to them — Invensys. MP's success may very well depend on Invensys' success in marketing and selling it.

Who Should Care: Owners of manufacturing and other production assets that, through their operation, expose personnel to significant occupational hazards should consider this product. MP can help reduce safety incidents and the risk of injuries to employees if deployed thoroughly and responsibly.

Actio

Portsmouth, New Hampshire (www.actio.net)

Analysis by Leif Eriksen

Why Cool: Actio's Material Disclosure is a software as a service (SaaS)/cloud-based product that helps manufacturers mitigate the risk of product recalls and delays that go to market as a result of a lack of compliance with strict mandates under Europe's Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation; the U.S. Environmental Protection Agency's (EPA's) Toxic Substances Control Act (TSCA); California's Proposition 65; and conflict mineral parameters from the U.S. Securities and Exchange Commission (SEC). It also helps decrease the risk of failure to comply with the more niche rules pertaining to operating in different jurisdictions. By streamlining the data collection process and offloading much of the legwork of collecting the data, Material Disclosure allows users to focus on what they do best, such as making and delivering innovative products to market.

Most companies face an increasingly complicated set of product compliance activities created by an ever-expanding set of regulations, a more dispersed and complex supply chain, and growing demands from customers. Reacting to the problem by tying together manual processes is a temporary solution at best, and a recipe for increasing supply chain risk at worst. Using a third-party hosted solution to facilitate the process solves two problems: It eliminates time-consuming,

non-value-added activity, and reduces the time to compliance. Suppliers gain as well by reducing the number of times they have to respond to the same or similar requests.

Ultimately, the benefits received by all parties using a product compliance supply chain hub extend beyond the near-term efficiency and time gains. By aggregating a critical mass of product compliance and content information, the service offers participants real-time access to a variety of information to support a broader view of product development and sustainability efforts.

Challenges: The true value of a SaaS/cloud-based service broker with a focus on improving compliance comes with increased utilization and a critical mass of data. It will take time and resources to build a critical mass of users and information to make the value truly compelling. Actio will face challenges from a range of different competitors, including other environmental, health and safety (EH&S) vendors; ERP vendors; and more general-purpose supply chain hubs.

Who Should Care: Any OEM, product owner or user of externally sourced materials that might be deemed a safety or environmental hazard based on designed usage should consider Actio's Material Disclosure. Suppliers of the materials should also care because of the opportunity to avoid many one-off responses for individual customers. Small suppliers, in particular, would benefit from a level playing field.

Aegis Analytical

Lafayette, Colorado (www.aegiscorp.com)

Analysis by Simon Jacobson

Why Cool: Aegis Analytical's Discoverant product is an OI platform that provides pharmaceutical and biotech manufacturers with the ability to aggregate, analyze and contextualize granular production data to gain process knowledge, thus improving process performance and reliability.

Unlike conventional statistical analysis tools that require staged data, Discoverant employs an underlying data model and device connectors to provide users with a central point of access to disparate sources of process and product data. The product features the ability to cache data for historical comparisons. It also gives users the ability to run ad hoc queries against extractions of data from historians and shop-floor devices, as well as through manual entry. This capability makes it ideal for real-time discovery. For life science companies, it helps enable a more efficient technology transfer and process scale-up.

Consider this example: A life science company struggled to conduct trend analyses because the data was locked in stacks of paper batch records, and hidden in multiple historians and repositories. It implemented Aegis Analytical's Discoverant product to collect, connect, and analyze process data in R&D and commercial manufacturing to monitor and manage process visibility, improvement, and control. This provided multiple roles, such as quality and process engineering functions, with self-service access to numerous real-time streams of development and manufacturing performance data. The company tracked current data on production processes against predetermined process models to identify when critical process parameters could fall out of tolerance. It also used this knowledge to adjust its operations accordingly to avoid compliance and

quality risks. The results were benefits in process development, technical transfer, process analytics and annual product review processes. The company also impacted the robustness and quality of its regulatory filings for new products (see "Merck Serono Discovers the Value of Process Improvement"; note: this document has been archived; some of its content may not reflect current conditions).

Challenges: Although automated data access, contextualization and visibility of current good manufacturing practice (cGMP)-specific data are attractive, the industry is just waking up to the need for the kind of statistically driven process parameter analysis solutions that companies like Aegis Analytical offer. Aegis Analytical must battle for mind share beyond process engineering and analysis roles, and communicate a clear value proposition to executive roles. This will help differentiate its targeted capabilities from other providers seeking to provide similar analytic capabilities as part of a broader platform that encompasses manufacturing execution aspects, too (for example, manufacturing execution systems).

Who Should Care: Business leaders in pharmaceutical, biotech, and chemical/specialty chemicals and production that are looking to drive operational excellence should find Aegis Analytical an attractive nucleus of a real-time, analytics-based architecture for identifying and understanding critical parameter performance.

InfinityQS

Chantilly, Virginia (www.infinityqs.com)

Analysis by Simon Jacobson

Why Cool: InfinityQS provides quality management system software to manufacturers across varying styles and segments. The vendor's software is used to gain real-time visibility into process capabilities and access to statistical process control (SPC) reports. Its flagship product, ProFicient, has traditionally been delivered as desktop software. It is now also delivered as a cloud-based offering, ProFicient on Demand.

Hosted by InfinityQS, ProFicient on Demand provides a single SPC quality hub to support multiple production sites. It handles shop-floor data collection and quality reporting, as well as full connectivity and integration with enterprise systems. By leveraging the cloud services of ProFicient on Demand to monitor supplier processes and achieve multitier visibility into quality performance, the traditional SPC paradigm is challenged.

A bicycle manufacturer is using ProFicient on Demand to monitor testing at seven key suppliers in China and ensure that tests are being completed to designed standards. This has enhanced collaboration between manufacturer and partner by providing a common dataset for supplier development and continuous improvement (for example, cycle time and scrap reduction). One food producer, which is in the middle of deploying ProFicient on Demand to over 20 sites, is expecting to have common process capabilities as the basis for consistent methods and procedures to support ISO 22000/HACCP processes. The company also anticipates better management of its weights and measures as benefits of a common system approach. This ultimately impacts yield and profitability.

Regardless of the deployment scenario, whether it's internal or external manufacturing, ProFicient on Demand provides information that can help manufacturers better understand actual process capabilities so that they can improve capabilities and reliability, as well as decrease variability.

Challenges: Beyond SaaS, public cloud and third-party services still have relatively low potential for manufacturing operations today. Although some aspects of cloud services are gaining traction, not all mission-critical facets of manufacturing will embrace cloud infrastructure and platform services. As ProFicient on Demand gains traction, and as companies move toward much more automated, real-time data capture, the system's ability to handle this level of transactional volume will be tested. Educating prospects on the potential business value, not just the IT benefits — speed, ease of use and pricing, for instance — and the total cost of ownership of a cloud-based quality management system, is critical.

Who Should Care: The globalization and expansion of manufacturing networks across multiple segments require that the globalization of quality systems expands beyond single-tier manufacturing sites to include suppliers, customers and partners. This enables brand protection, reduces risk and improves collaboration, all while driving decreases in the cost of poor quality.

MaxGrip

Rotterdam, The Netherlands (www.maxgrip.org)

Analysis by Leif Eriksen

Why Cool: MaxGrip's Optimizer+ product is a failure modes, effects and criticality analysis (FMECA)-based tool that helps companies with mission-critical production assets carry out simulations of their maintenance plans, and determine the impact of those plans on asset uptime, safety, number of failures and associated costs. The tool allows asset managers and maintenance planners to more rigorously and systematically project and plan their maintenance programs on a multiyear time horizon.

Managing production assets is a complex exercise with limited predictability. Many organizations still rely on rules of thumb, local experience and a healthy margin of safety when planning maintenance activities. These time-tested approaches have served their purpose in the past, but current supply chain pressures to sweat assets more thoroughly and, in some cases, reduce assets under management are pushing companies to raise the bar on their asset management practices. Reactive, preventative practices that are based on time, or even preventative practices that are based on usage, lead to unnecessary costs and/or leave organizations open to the risk of unplanned outages. But simply deploying more complex approaches, such as predictive and reliability-centered maintenance (RCM), across the board is not necessarily the right economic answer either. Optimizer+ combines failure analysis with simulation techniques to allow organizations to perform what-if analysis and project the costs of different strategies over many years.

Asset management is about balancing effectiveness and efficiency. Although it is entirely possible to be both effective and efficient, most companies trade one for the other. MaxGrip's Optimizer+ allows companies to see the costs and benefits of the trade-offs and make more informed

decisions. It adds some quantitative rigor to a process that is too often based on experiential knowledge and past experience.

Challenges: MaxGrip has a development partnership with IBM for Maximo and a reseller partnership with Infor for Infor Enterprise Asset Management (EAM). Although these partnerships are a reflection of the important role Optimizer+ plays in these asset management ecosystems, any negative developments regarding the partnerships would be detrimental to MaxGrip's ability to grow.

Who Should Care: Optimizer+ is suited for maintenance managers and others looking to better understand how different strategies and approaches to maintaining their assets will impact costs and asset availability. In particular, asset-intensive industries, such as oil and gas, chemicals, metals and mining, and utilities, would benefit from using Optimizer+.

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"The Manufacturing Performance Dilemma, Part 2: From Enterprise Manufacturing Intelligence to Operations Intelligence"

"Asset Management in DDVN, Part 2: Data Shows Performance Improvements Are Within Reach"

"Supply Chain Advisory: Manufacturing in the Cloud Overview"

"Hype Cycle for Manufacturing Product Life Cycle and Operations Management, 2011"

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