OEMs are challenged to differentiate themselves amidst global competition and rapidly evolving technology. In the meantime, end users need to be connected to the information resulting from integration, intelligence, performance and sustainability from their machines — at lower costs. These key trends are impacting machine and equipment builders and their users.

One place to examine these technologies is PACK EXPO Las Vegas 2013, the most comprehensive show in North America for OEMs and end users. Sponsored by PMMI (Packaging Machinery Manufacturers Institute), the event showcases packaging and processing technology from more than 1,600 exhibitors.

This year’s event includes the “Center for Trends & Technology (CTT)” sponsored by Rockwell Automation and its PartnerNetwork™ program, in the Central Hall, booth C-1358. This special area features exhibits and educational sessions from Rockwell Automation and many of its OEM Partners, Encompass™ Product Partners and Strategic Alliance Partners.

One of the major challenges is the ever-changing consumer demands that affect packaging design and drive package material reduction for cost, sustainability and marketing purposes. “This shift is primarily moving from rigid containers such as glass, metal and corrugate, to flexible containers such as pouches, bags and bundles,” says Tom Luft, director of sales for Nercon Engineering & Mfg., Inc., an OEM Partner in the Rockwell Automation PartnerNetwork program (www.rockwellautomation.com/go/p-nercon).

“Equipment needs to be flexible enough to handle a variety of product sizes, incorporate quick changeover with minimal resources, and modular enough to adapt to changing packaging styles that have a shorter life cycle...
OEMs and end users are challenged to improve efficiency at lower costs. A number of trends are driving these needs, and OEMs are using technology innovation to meet customer requirements.

By Theresa Houck, Executive Editor

in the marketplace,” Luft explains. To meet these needs, Nercon has shifted toward bolted construction instead of welded construction, and standardized on certain belt widths and lengths suitable for a variety of applications. The company will exhibit its solutions at PACK EXPO booth C-3100.

Convenience also is affecting how OEMs design their machines and equipment for end users, according to Kim Magon, marketing manager for Rockwell Automation OEM Partner Triangle Package Machinery (www.rockwellautomation.com/go/p-trianglepm). Triangle is exhibiting its baggers and other solutions at PACK EXPO booth C-1722.

“Consumers appreciate the convenience of smaller, individual packages that are portable and easy to open, while others favor re-closable features such as zippers so they can buy larger bags and save some for later,” Magon says.
Connecting Plant-Floor Systems with the Enterprise

To keep up with customer needs, OEMs are working toward implementing manufacturing convergence both at their own operations and for their customers. “Automation and IT are now converging to provide more transparent interfacing and coordinated solution capabilities,” says Andrew Pringle, North American OEM commercial manager at Rockwell Automation.

Several trends are driving the convergence. “Remote access allows users and OEMs to connect online instead of sending a technician by car or airplane to a remote location, decreasing costs and increasing uptime,” Pringle says.

In addition to increased demand for secure remote access, he says the increasing use of EtherNet/IP™ communication “is a move away from propriety technology to a common technology that allows use of many third-party devices. EtherNet/IP supports the movement toward a single network for motion, data, secure access, component and architecture solutions.”

Use of Industrial IP is increasing as a standard protocol for industrial networking infrastructures to harness the end-to-end connectivity of the IP software suite for every application. Rockwell Automation and its Strategic Alliance Partners Cisco (www.rockwellautomation.com/go/p-cisco) and Panduit have created a new resource at www.industrial-IP.org, an educational community where OEMs and users can exchange information to help deploy IP-based infrastructures.

In addition, Rockwell Automation and Cisco developed the Converged Plantwide Ethernet reference architecture (www.rockwellautomation.com/go/tjarch) to provide tested, validated network design guidance to help manufacturers achieve the benefits of converging industrial automation and business systems.

Wireless Remote Access and Mobility Leap Forward

For OEMs, remote access is quickly becoming a requirement to stay competitive.

“The pressure on OEMs from their customers to deliver more uptime and maximize productivity is the new normal,” says Neal Meldrum, senior product manager at Encompass Product Partner Spectrum Controls, Inc. (www.rockwellautomation.com/go/p-spectrumcontrols). Spectrum supplies I/O modules, human-machine interfaces (HMIs) and communications devices to support remote access. PACK EXPO attendees can see demonstrations of Spectrum Controls’s technologies in the CTT booth C-1358, including its new remote access solution, WebPort.

Meldrum says that soon, remote monitoring will be about machine-to-machine connection. “Industrial users require a remote access solution that’s better suited to their industrial requirements, not products adapted from consumer or commercial ‘one size fits all’ solutions developed to be deployed by the millions.”

Mike Berg, industrial automation solution marketing manager at Rockwell Automation Strategic Alliance Partner Panduit Corp., says end-user demands for remote support capabilities also is a function of user convenience, influenced by the retirement of skilled workers. “Remote support becomes important because someone in another city can troubleshoot the machine and cut travel and maintenance costs,” he says.

“OEMs are asking suppliers like Panduit for standards-compliant designs and validated, proven solutions. This is driven by the need to provide the end customer with optimal safety, performance and reliability, as well as scalability and repeatability of design,” Berg adds. Panduit provides network and electrical solutions, including its Unified Physical Infrastructure™ (UPI). The company will exhibit its solutions in the PACK EXPO CTT, booth C-1358.

ProSoft Technology’s Ken Roslan sees increasing use of wireless solutions, especially for functions such as I/O...
control. An Encompass Product Partner, ProSoft provides wireless solutions, migration solutions and protocol interfaces (www.rockwellautomation.com/go/p-prosoft). At PACK EXPO booth S-6109 and at the CTT booth C-1358, ProSoft will demonstrate these technologies, including its new Migration Gateway.

“We help OEMs when they need a wireless solution,” says Roslan, who is general manager, marketing for ProSoft.

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**PACK EXPO 2013 Exhibitors List of Rockwell Automation Partner Companies**

PACK EXPO 2013 in Las Vegas features a new show highlight, “Center for Trends & Technology (CTT): Improving Production through Innovation,” sponsored by Rockwell Automation and its PartnerNetwork™ program. Located in the Central Hall (Booth 1358), attendees can participate in educational sessions and dynamic displays that showcase trends such as network security, line integration, secure remote monitoring, cloud computing and manufacturing convergence. Visitors also can see where the solutions are in action across the show floor.

“We’re excited about this opportunity,” says Mike Wagner, business manager, Packaging at Rockwell Automation. “Visitors to CTT will find new ways to achieve their goals as they explore how the technologies on display can help them to shorten time to market, maximize technology investments, facilitate regulatory compliance and ultimately strengthen brand equity.”

Rockwell Automation and many member companies in its PartnerNetwork will be exhibiting in the CTT. Check out this Exhibitor’s List to plan ahead for your visit to PACK EXPO.

**Exhibitor’s List**

**Rockwell Automation OEM Partners**
- Aagard S-5726
- ADCO Manufacturing C-2340
- Ametek, Inc. 8187
- ARPAC C-1535
- Bradman Lake Inc. S-7365
- Cavanna Packaging USA Inc. S-6009
- Columbia Machine, Inc. C-718
- Delkor Systems, Inc. C-3939
- Douglas Machine Inc. C-1114
- Douglas Machines Corp. S-7618
- Focke & Co. C-3930
- Intelligated Systems C-2036
- Kliklok-Woodman C-1703
- Nercon Engineering & Mfg. Inc. C-3100
- NJM Packaging C-1714
- OPTIMA Machinery Corporation C-1403
- Osgood Industries, Inc. C-2044
- Pearson Packaging Systems C-2206
- R.A Jones & Co. - Davenport C-1731
- Rockwell Automation C-1358
- Schneider Packaging Equipment Co., Inc. C-2525
- Tetra Pak Inc. S-6511
- Triangle Package Machinery Co. C-1722
- vonGal Corp. S-6001
- Wulftec/M.J. Maillis Group C-3543

**Rockwell Automation Encompass and Strategic Alliance Partners**
- Autodesk, Inc. S-7368
- Cisco C-1358
- Codian Robotics S-6876
- Cognex Corporation C-4526
- DENSO Robotics S-5966
- Endress+Hauser C-1358
- Festo Corporation S-6002
- Jacobs Automation LLC. S-5770
- KUKA Robotics Corporation C-5133
- Mettler-Toledo C-941
- Microsoft C-1358
- Molex Inc S-5884
- MTS Sensors Division S-8024
- Numatics C-4933
- Panduit Corp. C-1358
- Parker Hannifin Corporation S-7722
- Pentair S-7150
- ProSoft Technology, Inc. S-6109
- Rice Lake Weighing Systems S-7704
- Ross Controls S-5506
- Rostec S-6944
- RSI Systems, LLC C-551
- Spectrum Controls C-1358
- STOBER Drives Inc. S-7833
- WEISS North America 7080
- WITTENSTEIN C-5346
- Yaskawa America, Inc. - Motoman Robotics Division C-4139

**Visit www.packexpo.com for the most up-to-date Exhibitors List.**
“For example, a lot of rotating machines, such as fillers, end up needing slip-ring technology to get connectivity to the internal parts of the rotating machine. However, slip-rings aren’t very reliable for a network connection, and they require a lot of maintenance as they wear over time. So often, OEMs will use a wireless solution instead of a slip-ring to do their I/O control, mounting our wireless radio inside the rotating machine and putting the programmable controller on the outside. It’s a major savings for the end user.”

Encompass Product Partner Motorola Solutions Inc. (www.rockwellautomation.com/go/p-motorola) also works with OEMs to integrate industrial wireless technology.

“The biggest trend we see is the fact that operators and technicians are just now getting mobilized, as opposed to being confined to a control room viewing the process-control dashboard on fixed-position screens,” says Brian Viscount, senior director, Vertical Markets for Motorola.

He says to remain competitive, OEMs must recognize the value of providing mobile extensions to the solutions they offer. He also notes that wireless tools, such as the company’s ET1 Enterprise Tablet, support asset management and performance monitoring via mobile HMI.

“Wireless coverage on the plant floor was considered a security risk and unreliable, but we now see that changing. We see growth in industrial-grade, reliable, secure wireless infrastructure that can support data, voice and video, which in turn will empower mobile workers to capture data, have access to information and make real-time decisions at the point of activity,” says Viscount.

The Cloud Changes Everything

Of course, we can’t discuss remote access and mobility without talking about “the cloud.” Essentially, cloud computing is the increasing movement of data onto the web, increasing the value to network computing and boosting efficiency and scalability. “It enables new capabilities for data aggregation and complex computing as well as new IT infrastructure, all of which together help generate new business models in the manufacturing environment,” says Enrique Andaluz, industry solution manager, Worldwide Discrete Manufacturing at Microsoft Corp. (www.rockwellautomation.com/go/microsoft).

“The most innovative companies are experimenting and adopting a wide spectrum of technology trends, such as natural user interfaces, mobility, the cloud, social media and big data, to build comprehensive solutions that resolve business problems,” he says.

He notes that OEMs who don’t establish a strategy that incorporates these

Secure remote monitoring is no longer ‘a nice to have.’ Small to medium-size OEMs will need to embrace these concepts to retain the edge they have in being nimble and able to react to their customer’s needs.” — Neal Meldrum, Spectrum Controls, Inc.

Big Data Boosts Energy Efficiency

Big data’s usefulness for data analysis and performance monitoring is especially useful for increasing energy efficiency. Rockwell Automation has been working with OEMs for years to embed tools and create toolkits to support energy management.

“We’re adding functionality that OEMs can embrace by using open protocol technology, which we call Integrated Energy,” explains Phil Kauffman, business manager of Industrial Energy Management at Rockwell Automation. Integrated Energy is designed to provide a common-command interface and network-visible data structure.

“For example, in the past when the end user wanted to know how much energy a machine is consuming, it required adding more products such as a power meter, which added costs,” he says.

“A series of our products, primarily in the drives area, are taking the information we’ve always had in our devices and providing it externally in a standardized format. An OEM or end user can look at how much energy the company is consuming and extract it to manufacturing intelligence software such as FactoryTalk VantagePoint.”

Because Integrated Energy is an open protocol, user reports can be customized for their needs. “The OEM’s customer wants energy information from the machine, so in what format does he want it provided — kW? Mw? Every 3 minutes? All that information is built into Integrated Energy, so the user can have it presented any way he or she wants,” he explains.

Kauffman cites an example of how Integrated Energy can make a difference. “We ran a test on five nonenergy-compliant machines — we looked at all the information, did the math, and then made a dashboard to show how much energy was consumed. That took 2 weeks. But doing the test with Integrated Energy, it only took 2 hours. So the OEM can deliver reports in a standardized format, reduce development costs, and expose energy consumption without having to submeter.”
four trends simultaneously could lose their competitive edge — and customers. “Also, smaller and nimble OEMs now have the opportunity to participate in more globally dispersed environments and the markets where the large OEMs typically have dominated, thanks to the presence of the cloud.”

An example of an OEM that has taken advantage of the cloud is oil and gas OEM M.G. Bryan Equipment Co., which pioneered a first-of-its-kind cloud computing asset-performance management system. Watch the video case study at http://goo.gl/wwR7T.

**Identifying Production Loss**

Another key technology OEMs are using is RAPID Line Integration. Most manufacturers look for ways to generate reports automatically that will indicate what production problems are causing the most downtime. RAPID is a simple, configurable line control solution with built-in line performance management — control and data tracking capabilities that provide overall equipment effectiveness (OEE) data.

“RAPID is important to us as an OEM because we can speed up our integration time when we’re implementing multiple machines into a manufacturing line because of standardized interfaces and configurable control. So the benefit to the user is that installation time is faster,” explains Daren Myren, controls engineer and Rockwell Automation Platform manager, Aagard Group (www.rockwellautomation.com/go/p-aagard).

Aagard is an OEM Partner in the Rockwell Automation PartnerNet program. In booth S-5726 at PACK EXPO, the company will be exhibiting its new Maksimal™ Top-Load Case Packer for pouches.

With the control and data tracking, each machine on a production line is recording faults and stops, downtime and uptime, etc. That data is reported to the RAPID controller that uses the data from all machines on the line and can create reports through Rockwell Automation FactoryTalk® Metrics and FactoryTalk VantagePoint software (http://bit.ly/4RdRov). “Data is recorded in a raw format, so you can analyze and create different equations to provide different types of efficiencies and calculations,” Myren adds.

Such raw-data collection for performance management is a function of big data. “Big data is going beyond just the standard control parameters of start, stop, forward or reverse. It means getting into diagnostic information from end devices, such as how many hours that device was running, the temperature at which it was running, or the current being drawn by the device versus just the speed at which it’s running,” says ProSoft’s Ken Roslan.

Big data and data tracking are just one benefit of RAPID Line Integration. RAPID lowers the total cost and time of deploying and optimizing manufacturing equipment while providing a platform that interfaces with production machines and operations management systems in a consistent manner, says Ryan Lepp, business development manager for systems and solutions at Rockwell Automation.

“One of its biggest advantages,” Lepp explains, “is that no matter what OEM a user has or how they’ve programmed their code, as long as they have basic functions like scrap count, equipment states, etc., the user can interface to RAPID. Once that interface is complete, the user has a common environment for the operators and the control system across various vendors and different styles of programming in numerous pieces of equipment.”

Another primary advantage is the ease of vertical integration. “In traditional packaging lines, users buy pieces of OEM equipment and integrate them together, then think about performance management and OEE after they have the line running. All
three steps happen at the same time with RAPID integration because of the standardization,” says Lepp.

Learn more about RAPID Line Integration by watching Lepp’s video at http://goo.gl/wQ8nk.

Robotics Intelligence Leaps Forward

Robotics also plays a key role in packaging operations. Because EtherNet/IP enables use of a single network for motion control, it’s a powerful conduit that lets OEMs more easily combine machine control, motion control, HMI and SCADA with robots, according to Gregory Brasic, general manager of Rockwell Automation Encompass Product Partner Codian Robotics North America (www.rockwellautomation.com/go/p-codian). Codian will exhibit its Logix-integrated, high-speed pick-and-place robotics for the packaging industry in booth S-6876.

“We consider EtherNet/IP to be a real asset to integration of these various control and monitoring systems, making our robot more successful because the entire automation system is more capable and easy to assemble and use,” he says.

Robotics applications are becoming more complex as OEMs see increased need for scaled offerings, integrated safety, integrated security, integrated energy and advanced diagnostic information.

The good news is that Brasic foresees integrated robot system abilities to increase relative to their cost. “We’ll also see further enhancements to the capabilities of the Kinematics model used in Rockwell Automation control systems, and to the cost/value proposition of the controls hardware by pushing those capabilities down into smaller and less expensive controls components,” he says. “In short, our customers will get more for their money and find integration with their machines easier to do.”

Traditionally, system designers had to implement control systems developed for a specific-sized architecture. The Rockwell Automation Integrated Architecture™ (www.rockwellautomation.com/go/tj10ia) allows OEMs and end users to use common automation components and tools to scale a solution for their robotics applications, regardless of size or complexity. This scalability can help users integrate robots more quickly, reduce machine footprint and improve access to real-time information.

So Much to See

All of these trends and technologies, and more, will be in action at PACK EXPO Las Vegas 2013. Take advantage of these demonstrations, and be sure to visit the CTT booth C-1358.

PACK EXPO Las Vegas 2013
www.packexpo.org

Center for Trends in Technology
www.rockwellautomation.com/go/packexpo

Rockwell Automation OEM Solutions
www.rockwellautomation.com/go/tjoem

>> Machine, Food Safety Stay in the Forefront

Employee injuries, liability risks, uptime, food recalls and regulatory compliance are just some of the factors that are keeping machine safety and food safety top-of-mind for OEMs and users. “More customers are requiring OEMs to design safety into their machines from the beginning instead of adding it after the machine has been designed and built,” says Patrick Barry, regional marketing lead, Safety, Rockwell Automation.

He says OEMs should collaborate with their end users about safety design. “OEMs are experts on designing and building their machines, but they’re not experts on using them. Their customers might be using the machine exactly as intended, or they may be doing things that the OEM never imagined.”

He adds that the industry is at a turning point in the world of safety logic “because the ability to enhance productivity with the safety system relies on more sophisticated safety logic, and for applications in which sophisticated logic is required, relays can’t always fulfill that need. OEMs that need sophisticated logic are deciding to use an integrated safety controller that uses the same base hardware and programming tools as their standard control system.”

Food safety also is a challenge for OEMs, especially in light of the Food Safety Modernization Act (FSMA) legislative action from the Food and Drug Administration (FDA) that will affect the data gathering and sharing activities (see “What the New Food Safety Law Means to You” at http://goo.gl/s1pS7).

“FSMA has forced equipment manufacturers to focus on sanitary designs of new equipment,” says Tom Luft of Nercor Engineering & Mfg. Inc. “Food safety/contamination, sanitation time, water and cleaning chemical usage are now all critical drivers in the customer’s decision-making process.”