Prepare for the Economic Recovery

Specialty chemicals manufacturers should take steps now

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Getting ready for an economic rebound — or making the best of the downturn — will require specialty chemical manufacturers to focus on three primary actions, if they hope to get or keep a competitive edge, counsels Jamie Bohan, senior segment marketing manager for chemicals and alternative fuels for Honeywell Process Solutions, Phoenix.

First, reduce costs while maintaining quality and compliance. This is important as commodity prices are expected to rise with the economic recovery and as global competition becomes fierce. Second, deliver products to meet commitments, but not so that you cause yourself or your clients to maintain large inventories. "It's lean manufacturing, but also lean supply chain," she notes. Third, and especially in the current market, be able to innovate quickly — for example, when a client wants a new specification such as a higher melting point ingredient", she advises. "That's agile manufacturing, being able to respond quickly and capture those opportunities. From sales and marketing, to research and development, to quality assurance, it's about first mover advantage to capture market share."

But drill deeper, Bohan says, and you'll see key focus areas that can lead to achieving these primary goals: operator efficiency; energy/feedstock management; regulatory and environmental compliance; and enabling technologies such as scalable platforms and application foundations.

OPTIMIZE OPERATOR EFFICIENCY

Many companies aim to reduce not only ingredients and suppliers but also workers. However, loss of veterans depletes intellectual capital, Bohan states. Yet, plant shutdowns and layoffs typically target employees with higher salaries and that typically means the ones with the most experience.

One approach companies may employ to manage this loss of intellectual capital is capturing knowledge before shutdowns or layoffs occur. "Then incorporate it into the control technologies. Also have in-place operator training systems, to make it easier for new employees," Bohan says.

Increasing operator efficiency is a way to get the most of the staff you have and increase productivity of your operation at the same time. There are many ways in which to improve operator efficiency and wireless use is one of them. For example, instrumentation, such as wireless tank gauges and pH monitors can replace the need for operators to collect data from remote locations multiple times a day, Bohan notes. Others tools include wireless tablets — laptop computers — and handheld devices, "so operators can have access to the control system from anywhere on the site." This enables fewer skilled operators to carry more responsibility, and still be tied into the controls and operations in real-time from anywhere in the plant.

Another key automation technology is controller based batch execution. This technology can be used to automate manual procedures and to automate batch processes. Honeywell's version is called Experion Batch Manager (EBM). Running batches or procedures in the controller can help manufacturers improve reliability because process controllers can be redundant on most systems. In Honeywell's case, EBM also enables drag-and-drop capability so end-users can configure batch sequences or procedures. "Once configured, the operator can automatically see the sequence at run time," Bohan explains. This helps to troubleshoot and keep the batch moving. Improved reliability will become increasingly important as manufacturers try to ramp up capacity as the economy begins to recover.

ECONOMIZE ENERGY, PROMOTE SUSTAINABILITY

Energy, given its cost and what occurs when certain types are used, demands unique consideration, especially in reducing the amount used. It's a sustainability issue, Bohan notes. The World Commission on Environment and Development suggests sustainable development occurs where operations "meet the needs of the present without compromising the ability of future generations to meet their own needs."

How big is this issue? "Most companies have an initiative. But many companies struggle to get these projects funded, even though you get cost reduction through wise energy use," Bohan observes. How companies accomplish energy reduction could be through process changes, monitoring energy use, optimization software, automating procedures for consistency, etc. She adds, "Companies do try to do cost/benefit analysis, but many are focused on short term revenue generating projects and not cost saving projects. Energy efficiency projects create op-

portunities to grow revenue by reinvesting savings into other projects."

"We do notice approaches to funding are different for different markets," Bohan explains. "If the investment is in a growth area — for example, specialty chemicals in the crop-protection area has double-digit growth — companies are more open to trying new technologies with either type of benefit." But for industrial sectors where growth is flat or worse? "They're really not that interested in investing at all right now," she observes. "Overwhelmingly, in these markets we're hearing customers say they need one year and even six month ROIs [return on investment], or it's a no-go!" Ultimately, manufacturers have to be able to prove that a sustainability project, or any project for that matter, adds more revenue to the bottom line without impacting the per unit product cost, or the project will not be approved. "That's where Honeywell can be of tremendous value to our customers in helping them to develop and prove the project ROI," Bohan notes. After all, growth markets require investment in order to be competitive.

MANAGE FEEDSTOCKS

Equally as important as energy management, feedstock management presents concerns and opportunities, Bohan suggests. Predictably, cost associated with feedstocks is a factor. But so is sustainability and reducing waste, she says.

"Companies want to use as little feedstock as possible, to keep costs under control, and they have to be agile enough to adapt to changing feedstocks as well." For some specialty chemical manufacturers, Bohan's examples include seeking ingredients that replace CFCs or volatile organic compounds or come from renewable sources. Equally important is automation solutions that ensure the right ingredient is added in the right amount to the right batch – without any waste.

Another feedstock-management challenge is logistics. "Specialty chemicals can have hundreds of ingredients. So a question arises: 'Can I use a substitute that I already have, rather than getting new supply or can I find a cheaper alternative?'" That's important, she believes, because of the need to reduce inventories and suppliers. In this economy it's important to have stable, reliable, suppliers that will last through the tough times and can handle increased demand as the economy recovers. "Material management software that is highly integrated into the automation system is critical to enable this lean approach to feedstock challenges," she notes.

ADVANCE ENVIRONMENTAL PROTECTION

In terms of cost reduction, companies should start first by identifying their biggest problem and then seeing where they can reduce costs. What's Honeywell's role? "It's helping them understand the biggest opportunities for savings," Bohan explains.

Certainly environmental compliance represents a potentially bottom-line-reducing concern. What's interesting, Bohan notes, is that some companies feel they are being forced to buy software to monitor and report environmental compliance, for example, emissions of air pollutants, 'but need to spend money elsewhere,' companies say," she notes.

Occupying inescapable prominence in corporate boardrooms is manmade global warming, and what is going to be done about it. There is also talk about capture and sequestration of carbon from process and combustion sources. "'What should we do now?' companies ask," says Bohan. But, given still-unsettled domestic and international agreements and regulations, she observes that what happens "is that people end up doing nothing and wait for legislation to push them." Is that the right approach?

What Honeywell tries to do is help companies understand that they can accomplish compliance "without huge investment - if they have the right underlying platform," Bohan notes. For example, a separate database or historian or some other software technology may not be needed. "You may be able to achieve compliance with small incremental investments, using existing automation systems that have the flexibility to adapt as the regulatory environment changes."

GROWTH THROUGH SCALABILITY

Plants generally need to increase efficiencies everywhere, not just with operators. Scalable platforms can provide this. "In specialty chemicals, small plants may be manual, especially in certain regions," Bohan observes. But when quality becomes more of a factor, their owners may want to move to automation; for example, starting with simple graphics and input/output (I/O) sequencing. The progression of those I/O could be from 30 to 300 to several thousand over time, she says.

But consider the one-step-at-a-time approach. "Start small and invest as it makes sense. There's no need to overspend initially, especially in this current economy," Bohan advises. The key value, she thinks, with such staged investment is platforms that enable companies to retain initial investments in databases, graphics and logic.

Nonetheless, some automation remains must-have versus nice-to-have. Must-haves include "anything safety related, anything heat-related," Bohan notes. End-users can also look at automated ingredient addition. "Though

PLANT SUCCESS STORY

Through a mix of automation systems, Honeywell Process Solutions helped a sister company, Honeywell Specialty Materials (HSM), increase productivity at its Baton Rouge, La., plant, the world's largest hydrofluoric acid producer. HSM uses automated control systems along with a comprehensive, integrated business approach to drive sustained and exceptional performance in safety, quality, delivery, cost and inventory. The system leverages our Six Sigma Plus foundation, particularly lean tools and philosophies," notes Mike Lawrence, technical leader at the plant. "This has been key in maintaining and improving our competitiveness."

To optimize plant control, another Honeywell Specialty Materials plant in Geismar, La. used HPS automation and control technologies: Experion Process Knowledge System (PKS) distributed control system, Uniformance/PHD process historian and Experion Batch Manager for procedural operations.

HSM realized several benefits from implementing this mix of technologies. The amount of time the plant operated at lower production rates decreased. Loads on operators went down, allowing them to deal with only the "important" trigger points in the process. Reactor catalyst efficiency increased because regeneration variability fell, giving longer and more stable catalyst life. And the sequence control module in Experion facilitated easier programming and offline testing before the system went online. "We took a complicated offline procedure that was running on a periodic basis and automated the entire process removing a lot of the guesswork and manual intervention that was previously required," states Jim Hull, plant manager.

lots of people do this manually, you can cut back on the time to do ingredient additions, improve quality and reduce waste through automation." Complex pieces of equipment are candidates for automation, too.

Another logical automation candidate is recordkeeping and quality management. "As the number of recipes becomes larger, it becomes harder to manage what you put in and what you get out," Bohan observes. This may be particularly true when going from simpler processes to more complex ones, "when it may be more difficult to understand what impacts quality."

Scalable platforms also offer the ability to assimilate new applications. "This goes to competitiveness and agility," Bohan stresses. And competitiveness evolves from going from manual to automated operations to the point where "you need to manufacture product, reliably, with the lowest cost — and you have to optimize your supply chain."

AUTOMATION AS THE ENABLER

A key factor for companies to have in place to emerge successfully from the economic downturn; addressing all the critical factors mentioned here — is automation. In order to increase productivity and operator efficiency, improve agility, increase sustainability, and reduce costs, automation technology can be a competitive imperative. As Bohan observes, "most companies have some level of automation. And the successful ones have an automation master plan." Many companies do planning — but what they fail to do is to talk with people in their company who are in R&D, supply chain, marketing and sales." These folks are keyed in to the company's future growth plans and can help the control and automation teams understand what's in the pipeline and to incorporate these goals into an automation and control strategy. "You certainly don't want the automation system to be on the critical path for a new growth initiative," she notes, "you want to stay ahead of that curve."

Defining automation needs upfront using an automation master plan can help companies to quickly enact solutions, Bohan says. In her experience, she's noticed top-tier performers have such plans in place. That suggests there's competitive advantage to having automated controls. "Automation is viewed as a competitive advantage by the market leaders," she declares.

For specialty chemical manufacturers, having automated plants may mean the difference between meeting quality targets or not; shipping orders on time; or just keeping up with the market, Bohan suggests. "For example, with specialty chemicals, how quickly can you integrate a new feedstock?" Without automation, keeping track of it manually, with the pace of today's business "is nearly impossible." Not every specialty chemical company will emerge from this economic downturn successfully — it's important to do everything you can now, to lay the groundwork for success as demand starts to ramp-up.

Understandably, cost restrictions concern many in specialty chemicals, Bohan emphasizes. That concern will drive end-users to "justify these automation solutions — for example, sensors and instrumentation, programmable logic controllers, human/machine interfaces, data historians, production scheduling, batch management, etc. — on a cost/benefit analysis." Then, when the market ramps up, producers have the enablers in place to increase throughput or capacity — and grow, she adds.

What's also important to remember is that in this market every end-user is unique — and has unique business challenges, Bohan stresses. Those must be identified in ways that lead to the right product solutions. "These challenges are on alot of people's minds." ✦

About Honeywell's Solutions for Specialty Chemical Producers

Honeywell is the only partner in the specialty chemical market that delivers a comprehensive solution including life safety, security, building solutions, process design and process automation from the front end engineering design to after market services. With this portfolio Honeywell improves business performance with solutions for specialty chemical manufacturers that leverage differentiated technology and best in class solution implementation delivered through our consistent, full-service, local presence around the globe. Benefits include reduced costs, improved reliability, and faster time to market enabled through:

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- Simplified, integrated automation architecture
- Flexible processing to support new product introduction
- Reduced variability of product/quality
- Increased throughput to meet expanding production demands
- Feedstock and energy management
- Integrated plant floor with supply chain for a more responsive enterprise
- Increased operator efficiency and productivity
- Lower cost of compliance for environmental and regulatory reporting
- Improved production reliability and safety
- Ongoing analysis and benchmarking of plant performance
- Low risk, faster projects

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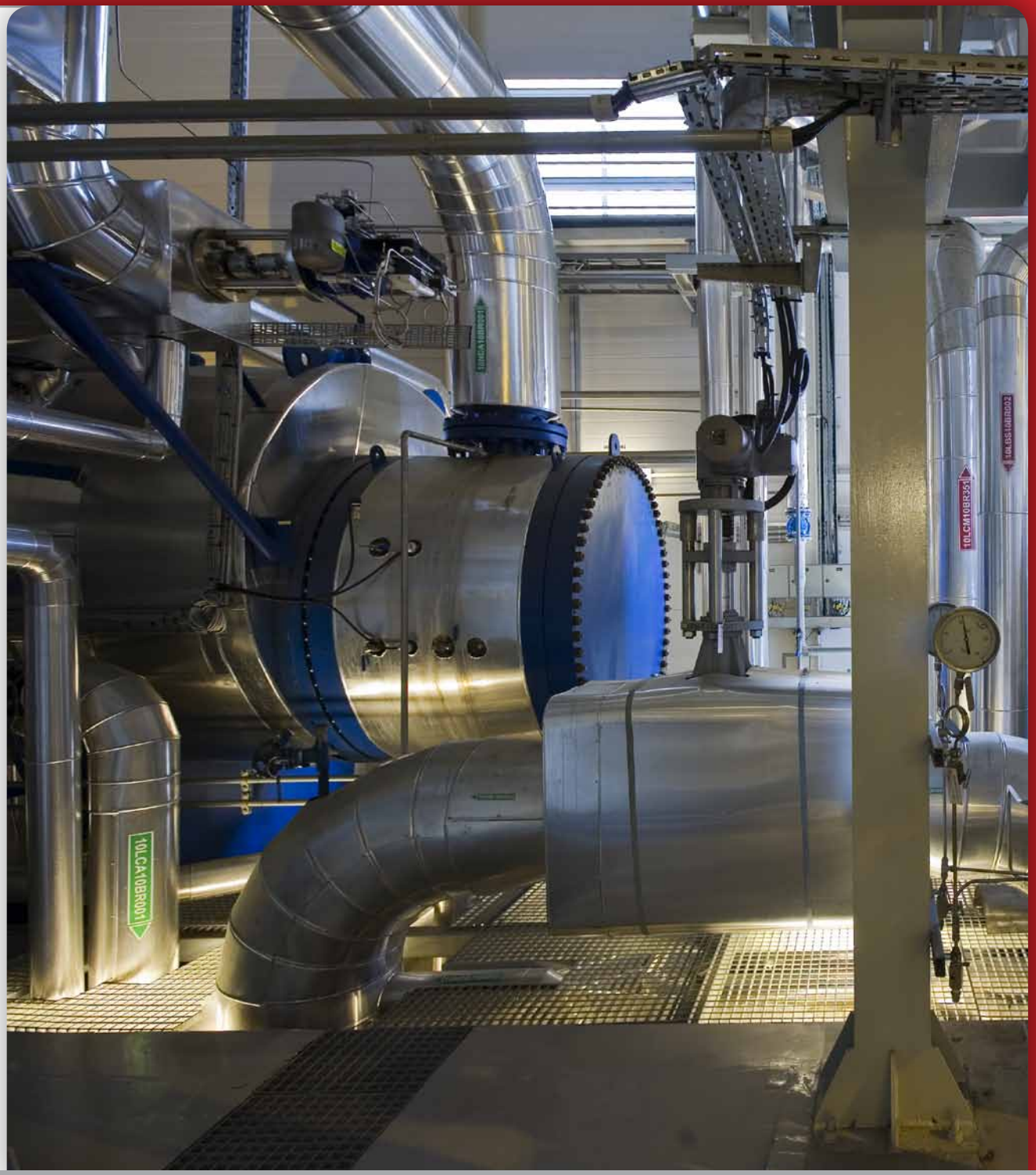

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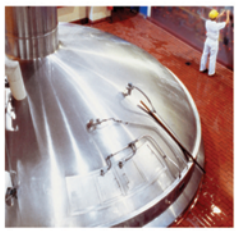

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