

Evolution to a Common Vendor Agnostic Manufacturing Control and IT Platform

By John Blanchard

Overview

Manufacturing and its supply chain have become the keys to improved margins and growth; and process control and information systems have become keys to improving manufacturing efficiency and effectiveness. This has resulted in increasingly complex automation and IT infrastructures which are costly and difficult to maintain or enhance their functionality to meet the changing demands of the market. At the same time

Those responsible for evaluating and selecting new automation generally do not understand the benefits of this new approach to a common vendor agnostic process control an IT platform that is lowering migration costs and redefining the traditional "ISA Level "model.

manufacturing operations are being asked to "do more with less" - less people, less available capital, more production with the same equipment. Those responsible for evaluating and selecting new automation must recognize that a new lean generation of hardware vendor agnostic dock-to-dock process control and production management systems is emerging. In this new generation of automation, many traditional production management (MES) functions are being performed in the controller rather than the server. Those responsible for evaluating

and selecting new automation generally do not understand the benefits of this new approach that is lowering migration costs, cost of ownership, and redefining the traditional "ISA Levels "model.

Complex Process Control and IT Infrastructures

CPG manufacturers face ever increasing competitive and regulatory pressures that continue to have tremendous impact on margins and shareholder value. They recognize the importance of automation technology and have been putting new automation and IT solutions in place to lower raw material and finished goods inventory costs; improve manufacturing response to constant and increasing demand changes; better adjust to the fluctuating price and availability of raw materials, energy and other utilities; and meet business and regulatory demands for increased product quality and safety due diligence. This has resulted in increasingly



complex automation and IT infrastructures which are costly and difficult to maintain and enhance its functionality to meet the changing demands of the market.

Manufacturing – Key to Improving Margin and Growth

As traditional growth drivers of sales and marketing have slowed and product life cycles have decreased, manufacturing and its supply chain have become the keys to improved margins and growth. Demand driven manufacturing continues to shorten product runs and increase the number of product changeovers. Retailers, consumers, and investors are expecting companies to be more socially and environmentally responsible and demanding more sustainable manufacturing operations. Manufacturers, retailers, and the Dow Jones have sustainability metrics and indexes. Fur-

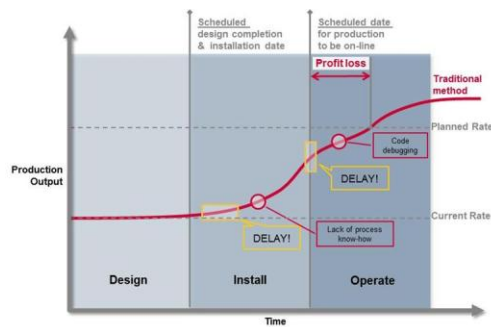
The risk of disrupting manufacturing operations – many of which run 24/7 - continues to have greater and greater financial implications, requiring an increase in control and information technology system reliability.

ther, the risk of disrupting manufacturing operations – many of which run 24/7 - continues to have greater and greater financial implications, requiring an increase in control and information technology system reliability along with new approaches to enable the introduction of technology into plants with minimal impact on business continuity. New Internet, mobility, and social media technologies are changing the way business is conducted and

impacting how manufacturing operates. Technology is advancing quickly and often oblivious to manufacturer's needs, hence it is delivered without sufficient functionality to meet new manufacturing operational needs. ARC believes that much of the current installed control and IT applications and databases of vital information are poorly integrated and lack sufficient functionality to meet expanding business and regulatory requirements. Their complexity and lack of holistic information presents a barrier to implementing continuous improvement at the operational level. This also limits the ability to provide operators a graphical replay of historic data, a powerful tool to enable more effective continuous improvement and troubleshooting.

“Do More with Less” Requires More Supplier Support

At the same time everyone is being asked to “do more with less” – less people, less available capital, more production with the same equipment. The shortage of skilled workers continues to worsen. There are smaller and



**Traditional Project
Deployment Delays**

fewer central engineering staffs. As a result, manufacturers increasingly depend on system integrators, automation suppliers, and OEMs for implementation and application support, with often the OEM being the only one that truly understands the manufacturing process. With limited available capital and a large installed base of automation, manufacturers can no longer afford wholesale replacement of their installed base. Long automation deployment time and implementation costs and risks associated with traditional methods of defining, implementing, and deploying an automation project are no longer acceptable.

A Better Approach to Control System Evaluation

Manufacturers must find new methods to evaluate, select, and deploy technology that will lower costs, speed time-to-profitability, and assure that the technology solution enables continuous improvement and adaptable to changing business needs. A more holistic approach that evaluates the solution in light of the entire automation and IT infrastructure is needed. How industry-specific is the solution? How deep is the domain expertise of the

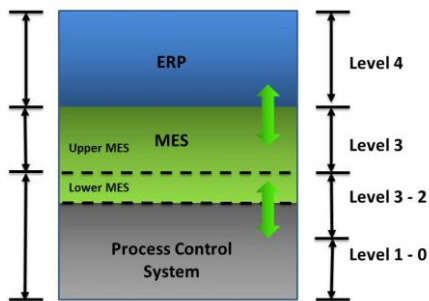
The system, not just the system integrator, must understand the specific manufacturing process to help ensure sustainable competitive advantage.

technology supplier? Does the solution offer less complexity and higher reliability? The system, not just the system integrator, must understand the process to help ensure sustainable competitive advantage. Is the system vendor agnostic so that there is minimum impact on the current and future installed base of automation and IT technology? How well does the system em-

power plant floor personnel and operators to improve the efficiency and effectiveness of the manufacturing operation? Does the solution include work flow best practices specific to the operation? Does the supplier have references regarding average solution deployment time? These and other supplier selection criteria are often difficult to evaluate by limited technical resources in the constantly changing technology environment. In reality, there are a very limited number of companies that can meet these criteria on a global scale.

Next Generation of Process Control and Information Systems

However, ARC is seeing a new generation of hardware vendor agnostic dock-to-dock process control and production management systems emerg-



MES Functions Can Reside in ISA Levels 2 and 3

ing that lowers total cost of ownership – including migration costs, increases reliability, shortens deployment and time-to-profitability, reduces integration and maintenance costs, and includes “embedded” continuous improvement technology and procedures. Suppliers of these systems have industry domain expertise that helps them produce more industry-specific solutions and services to quickly improve production performance and empower plant floor personnel and operators with greater responsibility to further improve the efficiency and effectiveness of manufacturing operation. Many tradi-

tional production management (MES) functions are now being performed in the controller rather than the server. This breaks from traditional solutions where basic process unit control resides in the controller (ISA Level 2); and production management functionality resides in the server or most likely multiple servers (ISA Level 3). This new approach improves the integration between ISA Levels 2, 3, and 4 and flattens ISA levels 2, and 3, thereby reducing the solution to a single plant floor control and information system – continuing the theme of “Doing more with less” – running on a

“An industry specific hardware vendor agnostic process control and IT system allows users to keep their current installed base and helps us reduce engineering costs and provide a system that substantially improves production operations.”

*Mr. Udo Funk
Senior Sales Engineer
GEA Brewery Systems*

single server, with a single configuration environment and a single plant model within a single database. Plant iT and brewmaxx by ProLeiT are examples of this new generation of more industry specific and integrated hardware vendor agnostic control and information systems. Manufacturers are no longer burdened with two separate systems to maintain. This also reduces the complexity of communications between devices and their applications, increases the speed of performance needed for such things as executing CIP recipes, reduces integration cost and complexity, and increases system reliability. Some functions now residing in the process

controller include trending, batch execution, recipe and energy management, and routing.

Conclusion

Those responsible for evaluating and selecting new automation are used to thinking and categorizing products and solutions in terms of ISA levels. ARC believes that such traditional “ISA Level” thinking is preventing manufacturers from properly evaluating and selecting the automation solution that can best meet their business and operational requirements.

ARC research and surveys also shows that manufacturing companies are asking their suppliers to provide more hardware vendor agnostic solutions and products that can easily be integrated into their current automation infrastructure.

This paper was written by ARC Advisory Group on behalf of ProLeiT AG. The opinions and observations stated are those of ARC Advisory Group. For further information or to provide feedback on this paper, please contact the author at jblanchard@arcweb.com. ARC Briefs are published and copyrighted by ARC Advisory Group. The information is proprietary to ARC and no part of it may be reproduced without prior permission from ARC Advisory Group.