

## OMAC – A Major Force in Developing Machine and Manufacturing Automation Standards

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### Keywords

OMAC, ISA-88, Make2Pack, STEP-NC, ISA-95, Automation Federation

### Summary

OMAC (Open Modular Architecture Control) is becoming a major force for end users in the development of automation standards and guidelines for CNC and packaging machines as well as the entire manufacturing operation. Some of the major end user companies involved in OMAC activities participated in sessions at the eleventh annual ARC Orlando Forum, including General Motors, Goodyear, SABMiller, Kraft, Procter and Gamble,

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and Boeing, as well as PMMI (Packaging Machinery Manufacturers Institute) and leading machine builders and integrators. The ARC Forum OMAC sessions on 'Emerging Architectures and Standards' included speakers from BR&L Consulting, Procter and Gamble, Boeing, NIST, Step Tools,

Frito-Lay, Cargill, and Unilever. During the sessions, the speakers updated the attendees on most of the major standards activities, including a discussion of the goals and objectives of recently formed Automation Federation and its founding members OMAC, ISA, and World Batch Forum (WBF). During several other working group sessions and an OMAC sponsored manufacturing end user roundtable, attendees identified additional common manufacturing issues they would like OMAC to address.

### Analysis

OMAC has grown from its early days as primarily a discrete manufacturing end user group to a diverse group of discrete and hybrid manufacturing end users, OEMs, technology providers and integrators with an emphasis on packaging machinery, manufacturing infrastructure, and machine tools. OMAC has even begun to influence batch and continuous manufacturing



operations, as some of the session's speakers emphasized in their discussions of current and evolving manufacturing standards and practices, including ISA-88.5/Make2Pack, STEP CNC, ISA-95, and systems security, as well as ways to improve IT and Operations collaboration.

### **Integrated Manufacturing Systems and Accessible Data**

Dennis Brandl of BR&L Consulting, chairman of the ISA SP88 batch system control standard, as well as the IEC and ISO joint working group on enterprise/control integration, demonstrated in the context of history how integrating manufacturing systems is no longer just a luxury available to large corporations. Dennis discussed how several in-use and emerging standards, coupled with declining hardware costs and increasing network flexibility, are making integrated manufacturing systems the norm in a modern production environment.

### **Make2Pack ISA SP88 Part 5**

Dave Chappell, retired section head at Procter and Gamble and a charter member of the ISA SP-88 committee, discussed the background and reasons why ISA and OMAC commissioned the S88 Part 5 effort, referred to as Make2Pack. Dave discussed how a new a library of reusable automation components was being developed for use in all of manufacturing operations. Dave further explained what Make2Pack is, how it will be used, and

the benefits it will bring to technology providers, OEMs, and end users.

Over 60 percent of packaging lines are not networked

Over 67 percent of packaging lines have no reliability data

Only 7 percent of packaging lines are integrated to ERP systems

Only 20 percent of end users specify the OPW Guidelines

Most end users only use ladder logic programming

#### **OMAC Packaging Workgroup Automation Survey - April 2006**

### **Transforming Manufacturing Packaging System Performance**

Rick Van Dyke, Frito-Lay group manager of controls & MES systems, and OMAC Packaging Workgroup (OPW) executive chairman, discussed how world-class packaging systems require integrated control and information system functionality. Rick highlighted the business benefits of an integrated packaging system and how OPW was facilitating implementation of such

a system. Rick also highlighted the results of OPW's recent automation survey. For further information and complete results of OPW's recent automation survey, please visit the OMAC website at [www.omac.org/packaging](http://www.omac.org/packaging).

### **Manufacturing Operations and the Benefits of Standards**

Keith Unger, ISA-95 chairman and principal manufacturing IT consultant at Stone Technologies, explained the ISA-95 standard and its manufacturing operations management functional model. Keith presented the Arla Foods implementation of the standard and the benefits obtained. Keith further discussed the need to go away from custom integration to a single standard to not only drive out cost of implementation but also more importantly, reduce the costs of maintenance. Keith explained how costs must still be driven substantially lower to match the cost/benefit ratio of many manufacturing operations.

### **STEP-NC Progress Review**

David Odendahl of Boeing and Martin Hardwick, president of STEP Tools, provided an explanation of and an update on the progress of the STEP standards (STandard for the Exchange of Product Data). David and Martin explained that STEP is a standard way of transmitting process and geometry information to/from CNCs and CAM systems, allowing process portability between controls, machines, and organizations. STEP-NC AP-238 was approved for publication by ISO in June of 2005. Airbus and Boeing provided the first demonstration of machining in June of 2006. In September 2006, the final technical content was delivered for publication, and the formal publication by Geneva STEP-NC is expected in June 2007. STEP-NC will be the first standard to deliver product and process data to a CNC control.

### **Integrating CNC Data into the Enterprise**

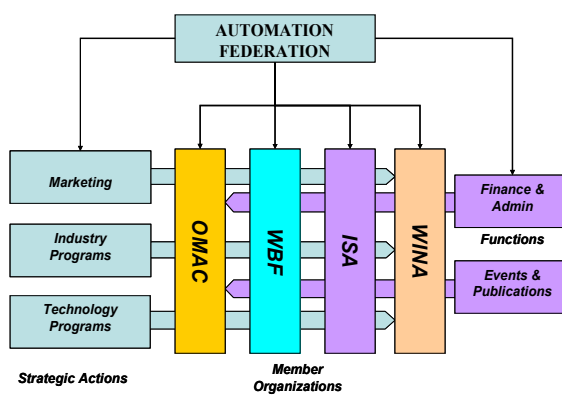
Sid Venkatesh of Boeing and John Michaloski of NIST discussed the current activities of the OMAC machine tool workgroup. The group is charged with maximizing the business value of discrete part machinery by providing automation guidelines, developing best practices, assisting in international standards development, and providing guidance to other OMAC workgroups. The workgroups focus has expanded beyond the operator, to include CNC-factory to enterprise integration using OPC connectivity. Providing 'shop floor to top floor' connectivity requires worldwide enterprise interoperability across design, manufacturing, distribution, and maintenance. Sid and John presented some of the exciting activities occurring in the pilot program undertaken with the production of Boeing aircraft.

## Implementing Secure and Supportable Networks

Erik Goode, chief architect for Cargill's plant controls group and chairman of the Microsoft manufacturing user's group, discussed how he has been able to help Cargill plant operations and IT reconcile their often-conflicting goals and tightly integrate manufacturing systems and business systems. The result of this integration is that Cargill can better operate cost efficient operations that are agile and can adapt quickly to changing market needs.

## Automation Federation Organizational Overview and Relevance

Andrew McDonald, Unilever Americas and OMAC user group chairman, discussed how three automation standards communities with complimentary



**The Automation Federation:  
World-Wide Recognized Authority on  
Manufacturing Automation**

visions, OMAC, ISA, and WBF, working on similar problems, recognized the need to form a new organization. Andrew explained how manufacturers need an organization like the Automation Federation that could coordinate the efforts of the individual member organizations and facilitate the sharing of skills, knowledge, and resources. The result is the alliance of organizations that together are a worldwide-recognized authority and source of knowledge regarding manufacturing.

## Recommendations

- Discrete and hybrid end users, OEMs, technology providers and integrators should join and actively participate in OMAC to ensure that they have an active role in the development of open, interoperable control and automation system technologies.
- Manufacturers should support the Automation Federation's objectives of facilitating the adoption of industry standards, guidelines, and services that will enhance the efficiency, cost-effectiveness, and safety of automation technologies and applications.

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