

Part 1 Manufacturing Information Technology

Manufacturing companies competing in a global supply network require information management systems that integrate the supply chain demand information with factory floor fulfillment processes in order to meet flawless product delivery requirements. Such companies turn to their information technology and engineering experts to integrate their enterprise systems with their manufacturing systems to exchange the information required to manage the planning, sourcing, production and delivery processes. The ISA-95 standard for Enterprise and control system integration provides a best practice approach and standard object model for the integration of these systems. This standard also provides a framework for information technology (IT) and engineering professionals to work together to provide the manufacturing information solutions needed by their common client – manufacturing.

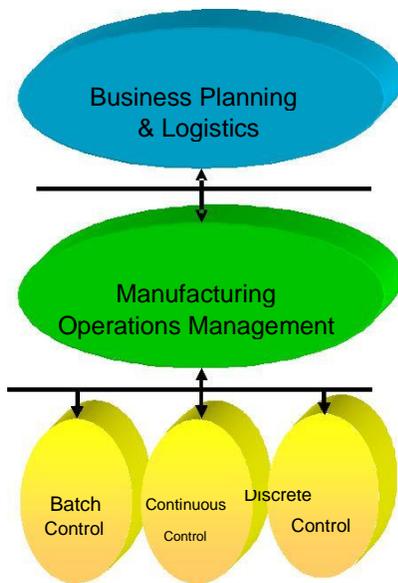


Figure 1 ISA-95 Functional Levels

Figure 1 provides a simplified view of the functional levels related to enterprise and control system integration. Historically the business planning & logistics (level 4) systems have been implemented using technology that IT professionals have responsibility for. The manufacturing process (level 2) systems for batch, continuous and discrete control have traditionally been the responsibility of engineering professionals. Although the systems in both levels are implemented using the same fundamental computer technologies there are very different requirements for each with domain expertise that is also quite different.

Business systems tend to be transactional in nature, processing large amount of information between many end users and other systems to support the business level processes related to supply chain management (SCM) and optimization. These systems focus primarily on the customer facing, resource planning, demand fulfillment and financial business processes of the enterprise.

Manufacturing control systems process large amounts of information directly related to the inputs and outputs of the manufacturing process. These control systems process information in the timeframe of the underlying process in order to manage and control the process.

The Middle Ground

Manufacturing operations management is the middle ground between the business systems and the manufacturing control systems where the two worlds of IT and Engineering come together. Systems within manufacturing operations management (level 3) have transactional and realtime information processing characteristics similar to business and automation level systems. Defining, developing, deploying and maintaining manufacturing operation management systems requires the skills and experience of both IT and engineering professionals.

Standard Definitions

The first 2 parts of the ISA-95 standard are focused on the interfaces between the business level and manufacturing level systems related to production. Object models are defined to support the four information exchange categories as specified by the standard at this initial interface boundary.

Integrated Manufacturing Application Processes

The four exchange interfaces are Product Definitions, Production Capability, Production Schedule and Production Performance. Product Definitions provide the information exchanged on how to make products. Production Capability provides the information exchanged on manufacturing capability and capacities. The Production Schedule provides the information exchanged on what products to make and the resources needed to make them. Production Performance provides the information exchanged on what was actually produced and what resources were used in production. With the object models defined by the standard now complete it is possible for ISA-95 based implementations to be developed. Business to Manufacturing Markup Language (B2MML) is an XML implementation of the first two parts of the ISA-95 standard and was developed by members of the World Batch Forum (WBF) (<http://www.wbf.org>). Early adopters of the B2MML implementation have reported significant reduction in the time and cost required to integrate their enterprise and manufacturing systems. Part 3 of the ISA-95 standard was approved in June of 2005 and defines the production, maintenance, quality and inventory operations management activity models within manufacturing as well as additional data flows to business level and manufacturing process level systems.

IMAP™ – Rapid Manufacturing Value Improvement

Stone has developed an IMAP™ Integrated Manufacturing Application Process consulting approach that is based on industry standards and best practices for the MES project lifecycle. This unique process is ideally suited for rapid identification and documentation of the critical business processes, user requirements, and business case justification needed to properly select and successfully implement MES solutions. Major benefits of using the IMAP™ project methodology for your project may include:

- Clearly defined project scope and MES integration interfaces
- Rapid execution of the requirement definition and business case phase
- Reuse of best practice user requirements common to your industry
- Precise technology selection based on specification clarity
- Assurance that all critical user and business requirements are delivered
- Rapid design, testing, and deployment base on a systematic reusable approach

Our goal is to develop deliverables that are robust, re-usable, and scalable to meet future project requirements. The IMAP™ approach allows Stone Technologies, Inc. to create standard methods of consulting and preliminary design that are efficient to develop, and easier to support, throughout the complete project lifecycle. To get started with your Integrated Manufacturing Application Process contact us today at any one of the following:



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