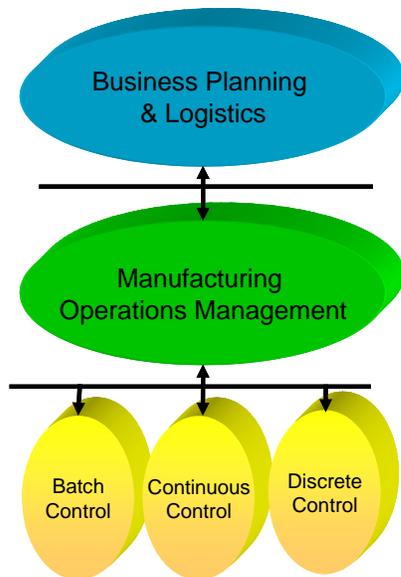


Part 2 MES Defined

Manufacturing companies need visibility to accurate workflow information in order to optimize management control over the resources needed to deliver against sales demand. The concept of Manufacturing Execution Systems (MES) was established by AMR Research in 1992 as the execution layer of manufacturing applications which exists between the Enterprise and control system to provide this visibility and control functionality. MES was later defined by MESA international in 1997 as follows; “Manufacturing Execution Systems (MES) deliver information that enables the optimization of production activities from order launch to finished goods”. Today this definition is still a good practical definition of what MES is however, more detail is needed in order to define and implement industry specific MES solutions.

The ISA 95 standard separates the enterprise application functionality into three identifiable layers as shown in Figure 1. The top layer is referred to as Business Planning and Logistics which handles the supplier and customer facing applications and the internal business level functions related to resource planning, product life cycle management, financials, inventory management and logistics.



The bottom layer of functionality applies to the specific process control activities related to batch, continuous and discrete control. This is the layer of control that is responsible for the physical control of the machinery and manual processes used for manufacturing.

Manufacturing operation management is the middle ground between the two other functional layers and is the modern equivalent of MES. In June 2005 the American National Standards Institute approved the ISA SP95 committee Part 3 work as an ANSI/ISA standard. This standard provides a clear picture of the various functional activities and high level information flows found within manufacturing operations management in enough detail to define and implement MES solutions.

Figure 1 ISA-95 Functional Levels

MES Exposed

MES or manufacturing operations management as defined by the ANSI/ISA standard includes for major categories of manufacturing activities; production operation management, maintenance operations management, quality operations management and inventory operations management. In addition, the standard defines other activities that are used to support all of the major activities categories such as management of security configuration, information, documentation and regulatory compliance.

