



Business Consulting Services

Realizing Business Value From Integrating Mill-Level Management through ERP

2005 PIMA Leadership Conference
Nashville, Tennessee

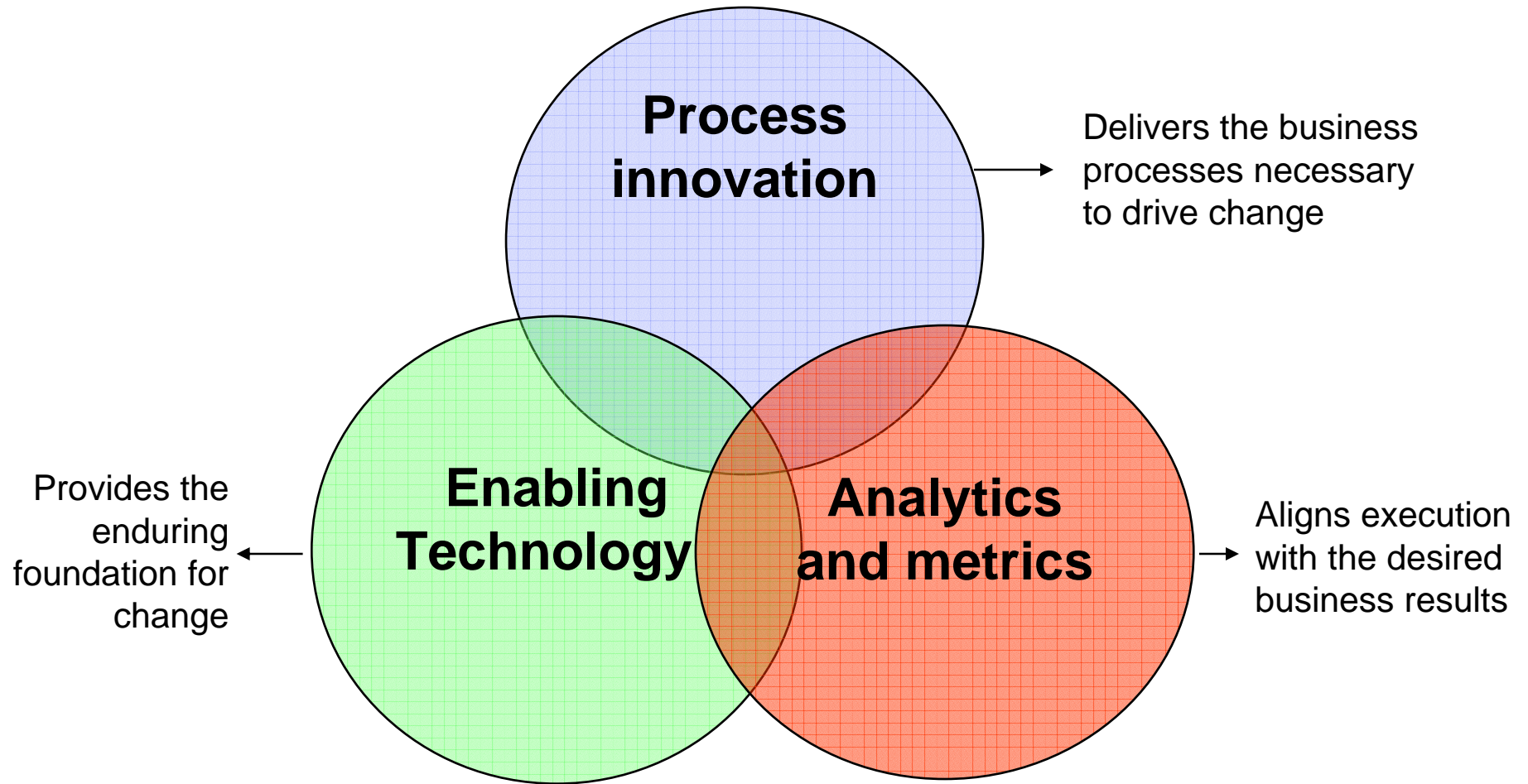
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The Pressure On Paper Industry Companies Is Intense!



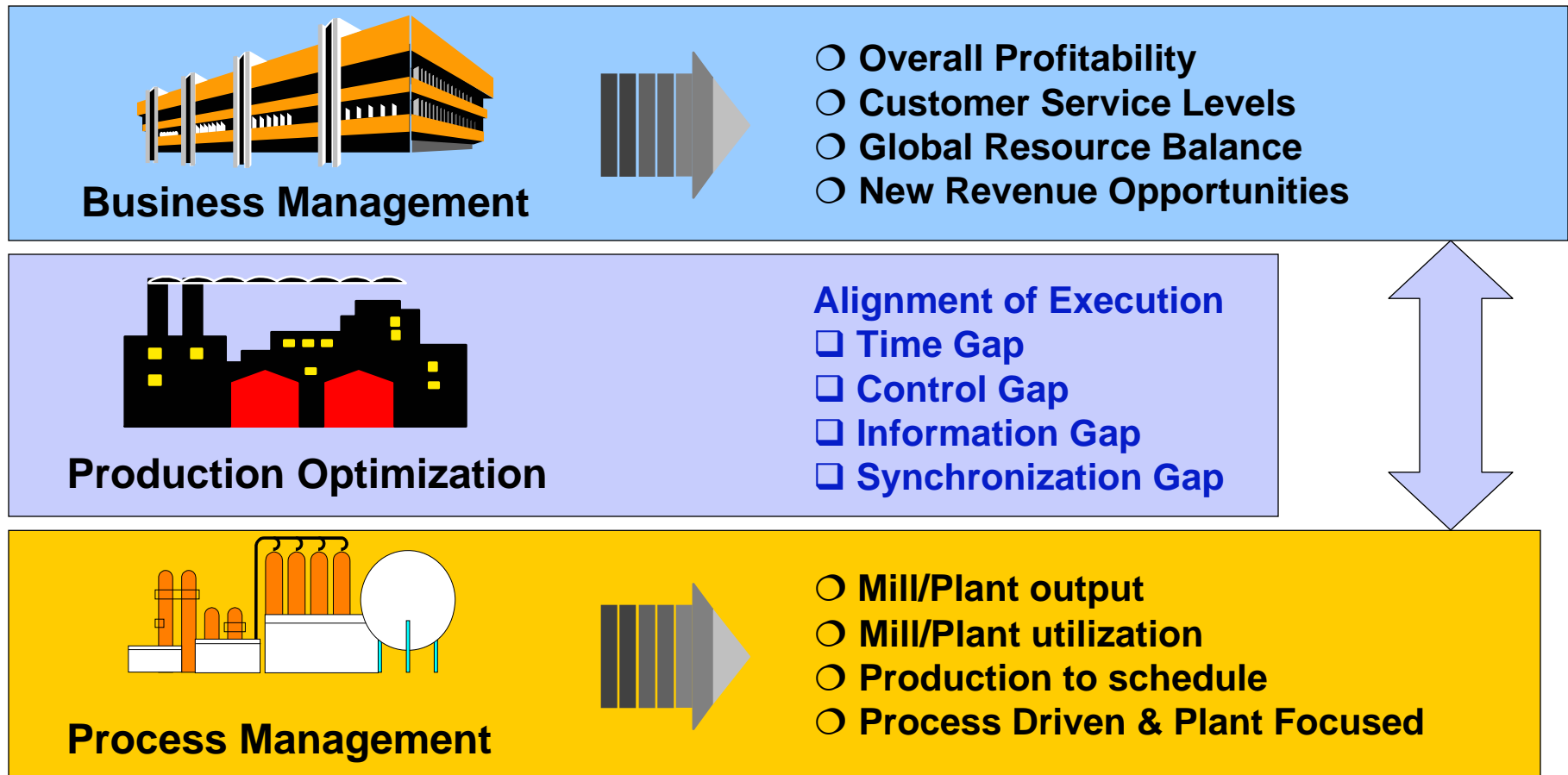
- Declining markets
- Need to realize synergies from consolidation
- Influence of AP countries as off-shore manufacturers and consumers of raw materials
- Need to address extended supply chain inefficiencies
- Pressure from strategic customers to lower unit costs, improve deliveries
- Need to reduce IT spend/deliver better business value from IT investments
- Focus on information integration to improve decision making

Unlocking new business value requires an alignment and integration of business processes, enabling technologies, appropriate analytics and focused KPIs that address company specific priorities and imperatives



While all are needed to drive and realize benefits, this discussion is focused on integration challenges

Integrating the mill/plant floor to the top floor must address two distinct “worlds”, with very different requirements and operating considerations



Technology providers have traditionally developed applications that are specific to their perspective/point of view

MES applications are often seen as a way to deliver the desired integration and achieve the required benefits

- **The MESA International definition for MES is:**

“Manufacturing Execution Systems (MES) deliver information that enable the optimization of production activities from order launch to finished goods. Using current and accurate data, MES guides, initiates, responds to, and reports on plant activities as they occur. The resulting rapid response to changing conditions, coupled with a focus on reducing non value-added activities, drives effective plant operations and processes. MES improves the return on operational assets as well as on-time delivery, inventory turns, gross margin, and cash flow performance. MES provides mission-critical information about production activities across the enterprise and supply chain via bi-directional communications.”

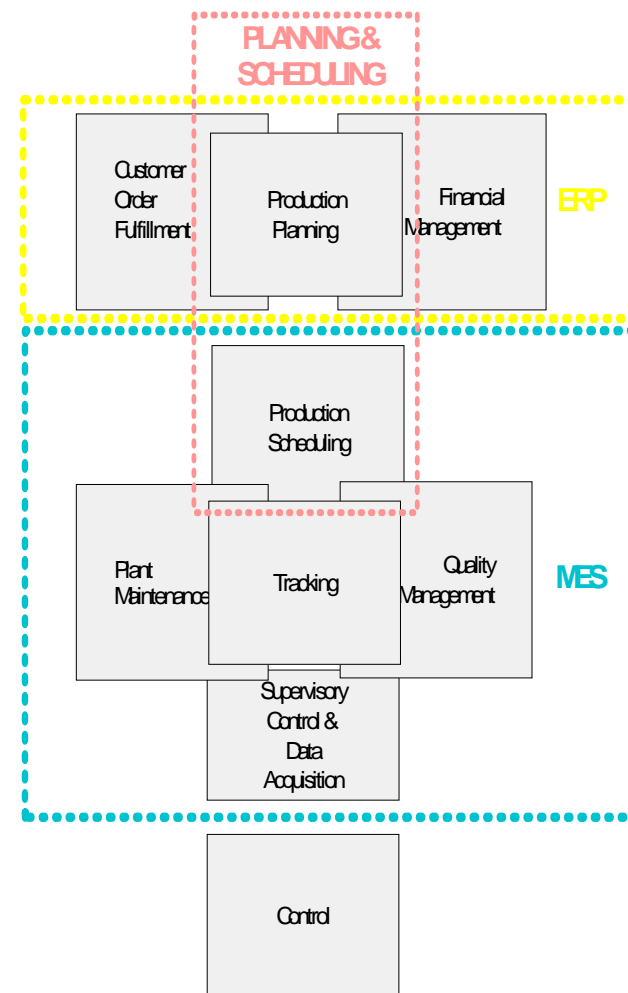
MESA, Manufacturing Execution Systems Association, White Paper Number 3, Controls Definition & MES to Controls Data Flow Possibilities

However, MES applications carry with them their own challenges related to integration

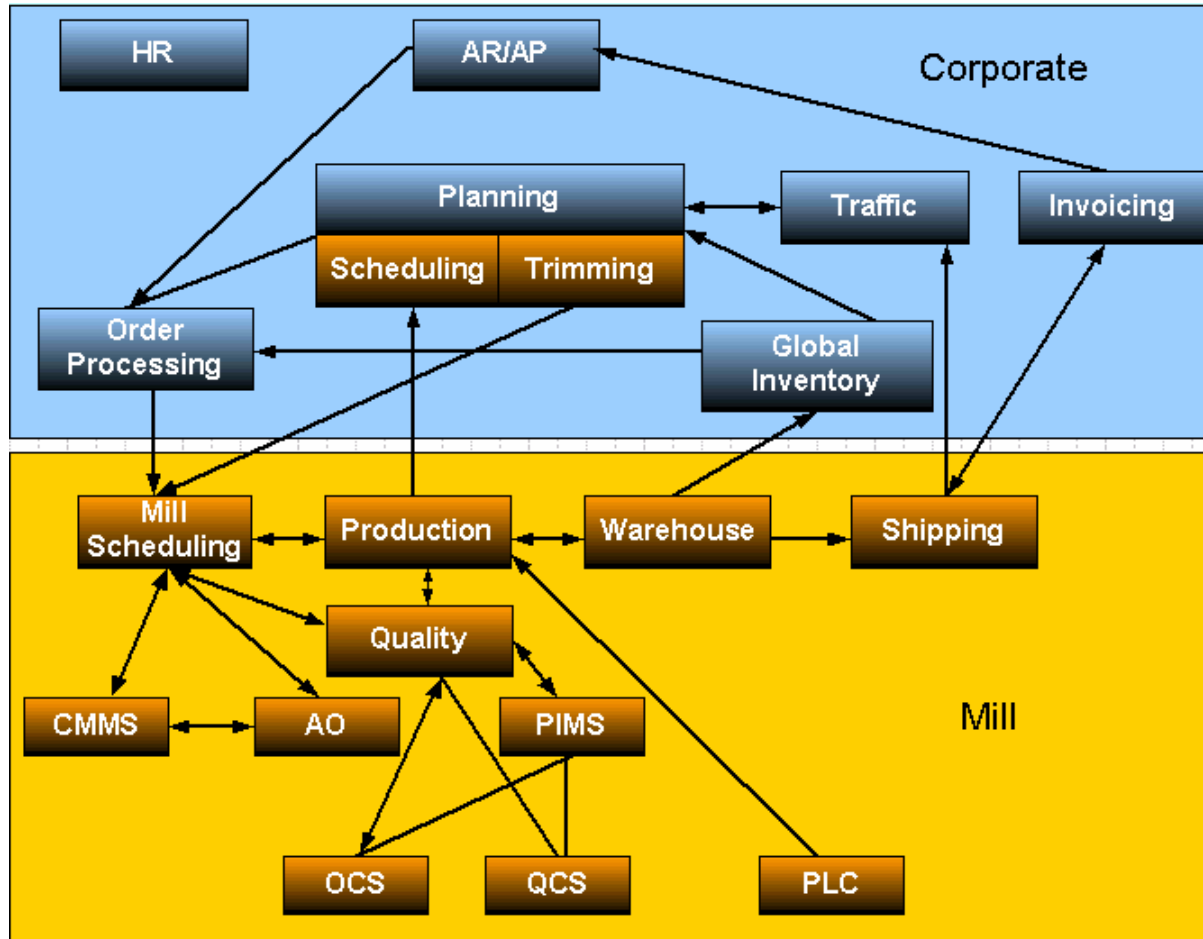
How applications address critical planning and scheduling capabilities helps frame the integration issue

An integrated manufacturing system model is based on "plan, execute, & control" processes and their use of information and tools at the enterprise and plant levels.

- "ERP" systems are focused on enterprise / commercial business functions, and seek to bring them into balance with production.
- "MES" provide a set of automated tools that reside in the mill, between the ERP systems and the plant floor.
- "Planning and Scheduling" provides visibility into production capacities and recommends optimal sequences and grouping for final production – and bridges both systems.



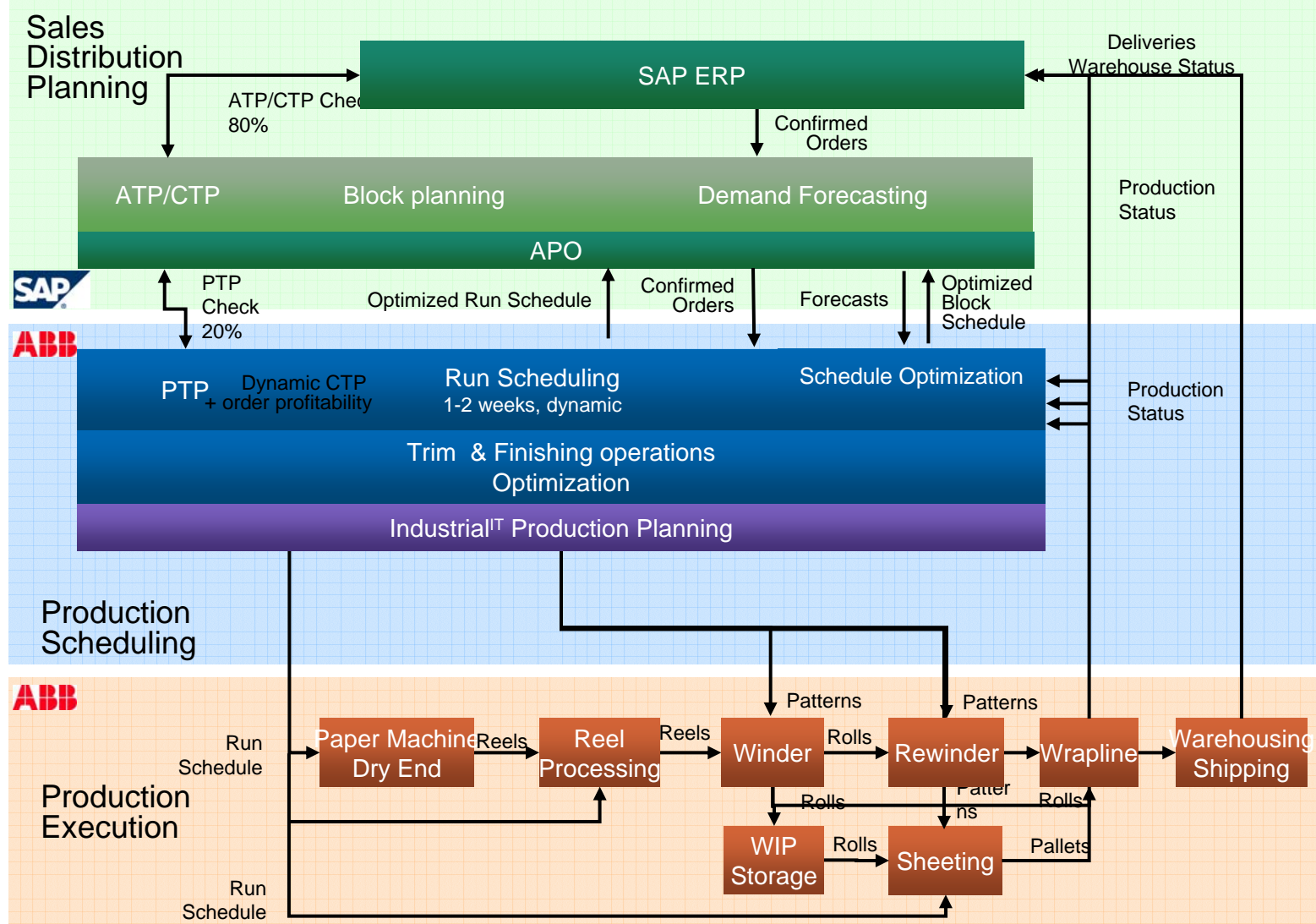
A typical application architecture highlights the need for an effective integration strategy



Critical questions:

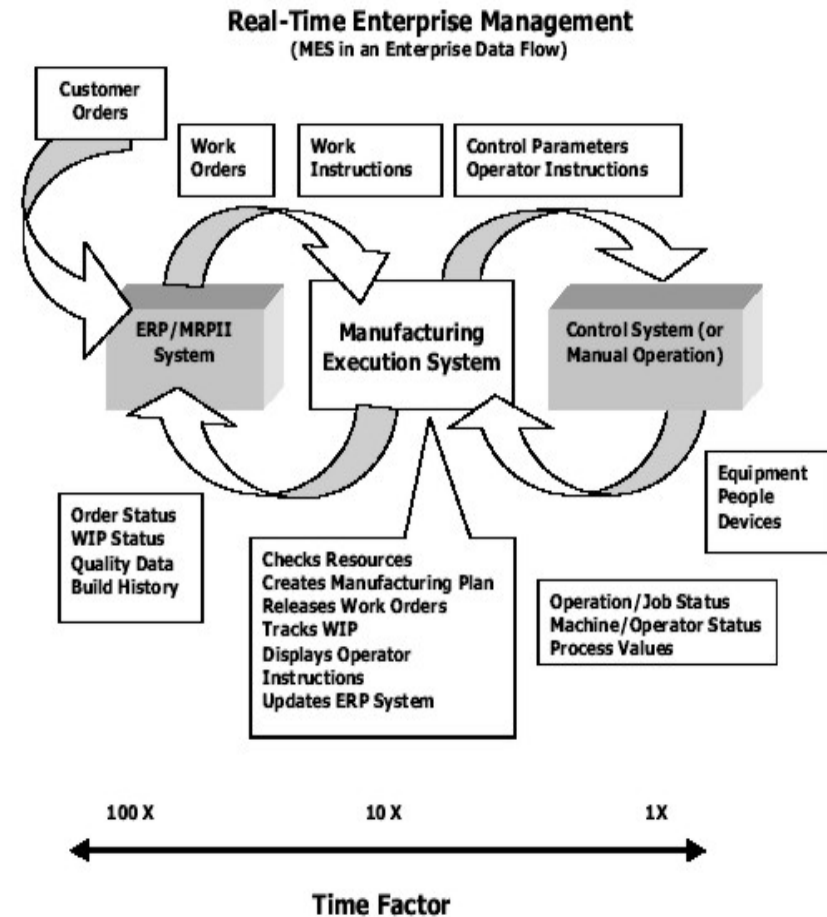
- Where will work be performed?
- Who owns the data critical to the work?
- Who owns the specific business processes supported by the applications?
- Is the organization looking at business processes from an end-to-end perspective?

Representative Schedule Optimizer/Block Scheduling Integration



A MES centric view of the application integration challenge focuses on the time factor dimension of the issue

- Compared to enterprise applications
 - MES gives real-time responses
 - MES interfaces directly with production
 - MES stores process data
- Compared to plant automation
 - MES has customer data
 - MES includes financial data
 - MES manages shipments and logistics
- While MES can effectively deal with critical information in an appropriate time dimension, the integration challenge still needs to be addressed by companies

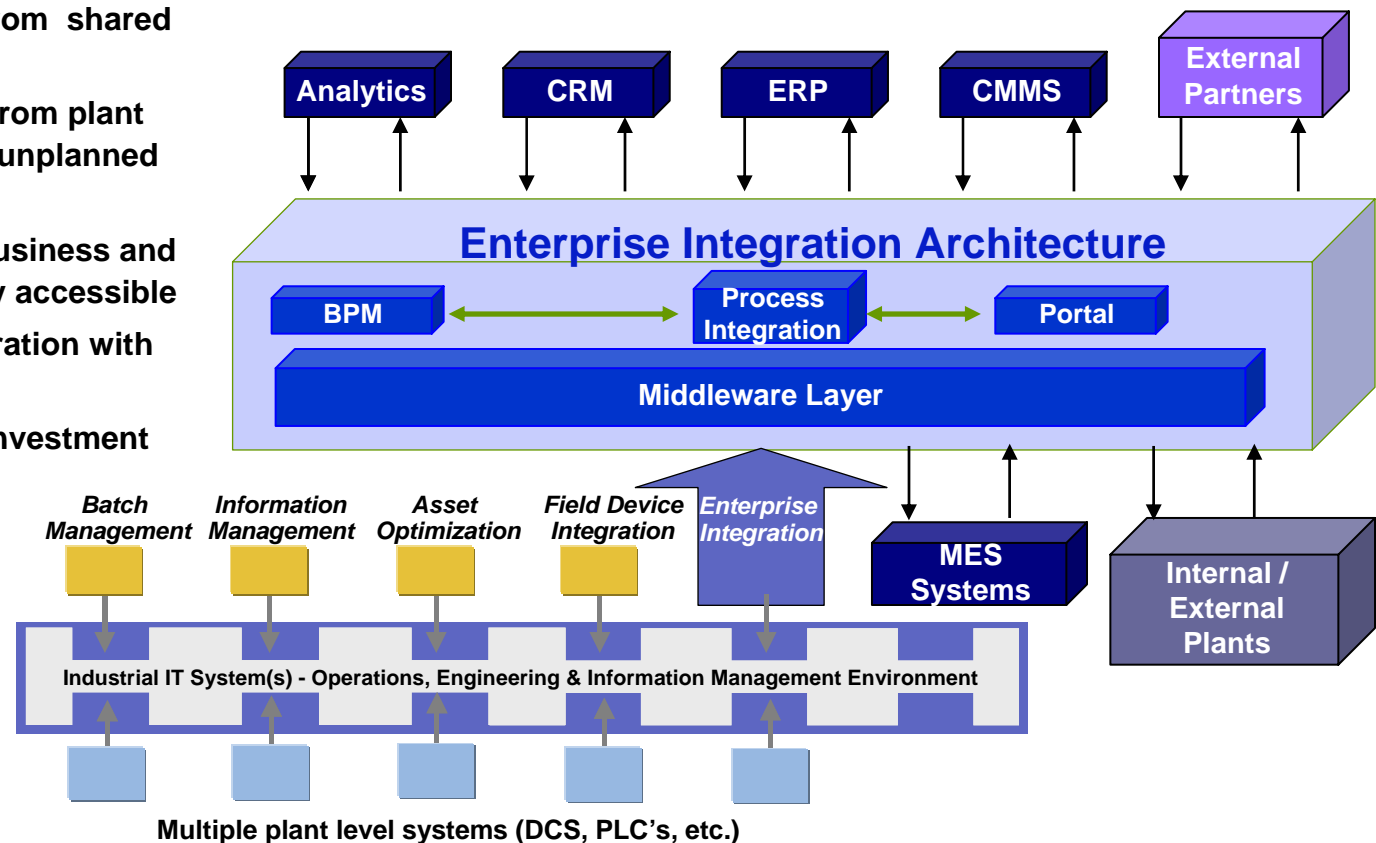


MESA, Manufacturing Execution Systems Association, 2000, White Paper Number 3, Controls Definition & MES to Controls Data Flow Possibilities

An effective Integration Architecture has its own set of key requisites in order to enable effective integration

Key Integration Architecture Capabilities

- Support automation of business processes across multiple business/operational applications
- Optimization of execution from shared event information
- Systematic data collection from plant systems that is focused on unplanned events
- Information that provides business and production insight is readily accessible
- Supports incremental integration with legacy applications
- Ability to leverage current investment while building for the future

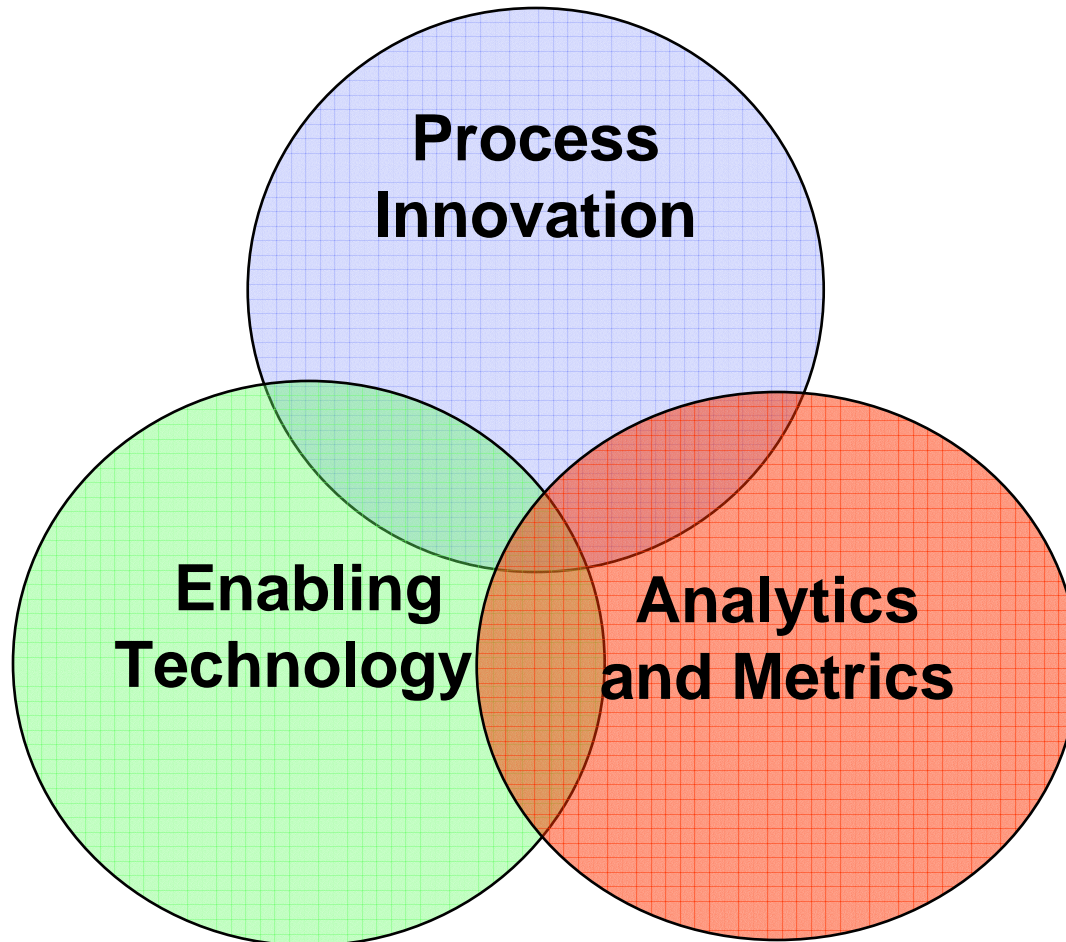


Experience suggests that, when implemented well, an integrated environment can deliver significant business benefits

- Industry averages show that for high-volume manufacturing, effective implementation can deliver the following typical results:
 - Reduce work in process by 20%
 - Reduce plant efficiency/downtime by 30%
 - Reduce manual data entry time by 75%
 - Reduce waste by 15%
- Coming from the other end, advanced planning and scheduling (APS) solutions also have significant benefits:
 - a 2%-5% increase in throughput
 - a 10%-25% reduction in WIP & FG inventory levels
 - a 10%-40% decrease in order lead time
 - a 10%-50% reduction in production lead time
 - a 10%-50% decrease in operating expenses
 - a 25%-50% reduction in the number of late orders.

** MESA International and IBM F&P Research*

But it is important to keep in mind that developing an integrated environment, while critical, is just one element that needs to be addressed



- **Business processes need to be aligned – potential for new roles and responsibilities**
- **Rule based analytics are key to supporting decisions driven by unplanned events – automatic versus evaluative decisions**
- **Performance metrics are key – aligned with new business priorities and responsibilities**

Summary

- Companies can achieve significant business benefits by developing and implementing an integrated environment that spans the shop floor to the top floor
- Integration technology is continuing to evolve – the challenge becomes how to develop an effective company strategy that can leverage this changing landscape while delivering benefits today
- Integration technology is here today – it is not the impediment to achieving the desired state
- For companies to realize business value they need to focus on processes, technology, analytics and metrics – “the stool has three legs, all critical”
- Develop a strategy that leverages your current investment – we are not talking about throwing everything out and starting over
- Start with a proof of concept, be prepared to expand and roll-out quickly

For more information - Key Contacts

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