Advanced Manufacturing Summit
SAP Manufacturing Execution

Product Strategy and Roadmap

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1. SAP ME Roadmap
   1. SAP ME Core Application
   2. Integration to ECC via MII
   3. Integration to Machines via PCO
   4. Integration to Business Objects

2. SAP ME Strategy
   1. Core
   2. Community
SAP Manufacturing Execution Strategy
- Leverage current capabilities’, while building a bridge to the future

- **Manufacturing Integration and Intelligence (SAP MII)** - provides a direct connection between shop-floor systems and business operations. It ensures that all data that affects manufacturing is visible in real time - including information about orders, materials, equipment status, costs, and product quality.

- **Manufacturing Execution (SAP ME)** - is functionally rich to provide real-time data capture and global visibility across a manufacturing line, plant, or enterprise, to accurately track and manage work-in-progress (WIP) to ensure the right products are being made at the right time; optimize plant performance and profitability; improve quality and reduce variation and prevent escape of defective products.
SAP Manufacturing Execution (SAP ME)

SAP Manufacturing Execution
• Manages and controls manufacturing and shop floor operations
• Integrates business systems to the shop floor
• Complete component and item-level visibility for single and global operations

- Traceability
- Non-conformance Management
- Test and Repair
- Engineering Change Management
- Labor Tracking
- Production Transfer
- Return and Repair
- Production Metrics
- Machine Integration Layer
- ECC Integration
The Markets We Serve

Complex, Discrete Manufacturing

- Aerospace & Defense
- High Tech
- Automotive & Auto Electronics
- Medical Device
- Industrial Machinery & Components

- high volume/low mix make-to-stock repetitive manufacturing
- low volume/high mix build-to-order assembly manufacturing
Complex Assembly User Interface
(Rich POD)
Simple User Interface
(Standard POD)
The plant in your pocket
Mobile device example
Keyboard-less & Machine Integration
Flexible process flow allows for easy Drag-and-Drop linkage of operations into workflow steps. Business rules allow for alternate operations, embedded routes, standard process definition of rework and material review board (MRB). Route flow also supports dynamic routing based upon test results or business rules.
Poka-Yoke – Error Proofing – Quality Gating

- Prevent Escapes – Check for open Nonconformances
- Prevent work against jobs on hold – Value Add verification
- Verify correct operator with up-to-date certification
- Correct Material consumed at specific times

Material, Machine, Man, Method
No defects, No breakdowns, Correct operator, Defined Process
SAP ME Standard Dashboards and Reporting
SAP Manufacturing Execution (SAP ME)

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- Engineering Change Management
- Labor Tracking
- Production Transfer
- Return and Repair
- Production Metrics
- Machine Integration Layer
- ECC Integration
SAP Technology Standards

Application Structure
User Interface
Security
Archiving
Internationalization
Integration framework
Customization Approach
Performance
Diagnostics and Supportability
Documentation
## SAP ME – Future Functional Scope Items

<table>
<thead>
<tr>
<th>Scope Item</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich POD</td>
<td>6.0</td>
<td>Enhance web-based POD UI to incorporate Rich UI technologies that create a more desirable user experience for shop floor operators. Existing Java Swing POD technology will be replaced.</td>
</tr>
<tr>
<td>Shop Display</td>
<td>6.0</td>
<td>A new POD layout that provides complete visibility to the user for an order/lot/serialized part that is needed during the manufacturing process.</td>
</tr>
<tr>
<td>In-line Sampling</td>
<td>6.0</td>
<td>Refers to the ability to define Sample Plans and execute against those plans during the manufacturing process. Refers to sampling on Work In Process (WIP) and not on raw material or components. Explore an interface w/SAP QM for to retrieve sampling plan.</td>
</tr>
<tr>
<td>Earned Standards</td>
<td>6.0</td>
<td>The ability to award users with partial credit for setup and run time at an operation or for an order. Ability for multiple operators to work on an order at the same operation and claim individual earned standards. Ability to track partial completion of an operation where long processing times occur.</td>
</tr>
<tr>
<td>Nonconformance Extensibility</td>
<td>6.0</td>
<td>Refactoring current NC functionality to enhance its extensibility for future internal, partner, or customer development.</td>
</tr>
<tr>
<td>Message Board</td>
<td>6.0</td>
<td>The Message Board is an electronic bulletin board type communication tool used on the shop floor that allows shop floor workers to manually request support and for support personnel to respond to those support requests. (Interface to SAP-Mail to process messages back to SAP.)</td>
</tr>
<tr>
<td>Floor Stock Management</td>
<td>6.0</td>
<td>Maintaining floor stock w/locations at the operation level that have minimum thresholds that if reached would trigger a replenishment signal to the ERP. Send a completion signal to trigger the movement of manufactured material to an inventory location on the shop floor for immediate consumption. Create a pick list location that can centralize floor stock for subsequent consumption feeds to operation/work center locations. If floor stock reaches zero or below, allow the capability for the system to continue to assemble.</td>
</tr>
</tbody>
</table>
## SAP ME 6.0 – Functional Scope Items

<table>
<thead>
<tr>
<th>Scope Item</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device History Record Enhancement</td>
<td>6.0</td>
<td>A report displays all historical data for a manufactured production unit in single view. It provides information on all activities performed, as well as on the data collected for a manufactured production unit.</td>
</tr>
<tr>
<td>Data Value List</td>
<td>6.0</td>
<td>Refers to ability to predefined a list of values for the user for user defined data fields that are collected either in “define” mode or during manufacturing.</td>
</tr>
<tr>
<td>Visual Test &amp; Repair</td>
<td>6.0</td>
<td>Replacing the D2B Viewer in the PCA Dashboard w/Right Hemisphere Deep View (coordination w/PLM group). Enhance current functionality by creating a more generic solution to support the identification, nonconformance, and repair of components through graphics, pictures, and multiple CAD types.</td>
</tr>
<tr>
<td>Electronic Time Card (Labor)</td>
<td>6.0</td>
<td>Enhancing current labor functionality (e.g. Supervisor Time Edit) by allowing an operator/supervisor to view, enter, edit, and approve labor time against orders/operations on a daily/shift basis. Need to support both an integrated (w/current labor tracking system performing the time collection) and potential independent mode (completed post shift w/manual entry of time).</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6.0</td>
<td>Smaller enhancements such as XML messages, 2D Barcode, System Config Copy,…..etc.</td>
</tr>
<tr>
<td>Business Objects Integration</td>
<td>6.0</td>
<td>TBD</td>
</tr>
<tr>
<td>ERP Integration (MII)</td>
<td>6.0</td>
<td>Enhance SAPMEINT by adding several new inbound/outbound ERP interfaces, MII reports, and core changes as required. Integration enhancements being driven from the Floor Stock, Electronic Time Card, and Sampling scope items.</td>
</tr>
</tbody>
</table>

Continued
1. SAP ME Roadmap
   1. SAP ME Core Application
   2. Integration to ECC via MII
   3. Integration to Machines via PCO
   4. Integration to Business Objects

2. SAP ME Strategy
   1. Core
   2. Community
The integration between SAP and ME provides a seem-less pre-integrated Manufacturing Execution Solution. SAP ERP is the system of record for all Master Data, SAP ME is the system of record for all WIP data.

**From SAP ERP to SAP ME**
- Materials
- Material Classifications
- Routing
- BOMs
- Batch Record
- Inspection Characteristics
- Orders (Planned and Production)
- Inventory Issues w/Reservation
- Inventory Issues no Reservation
- Equipment Scheduled Downtime

**From SAP ME to SAP ERP**
- Operational Confirmation
- Order Confirmation (includes backflush)
- Order Scrap
- Equipment Un-Scheduled Downtime
- Equipment Usage Counts
- Inventory Return
- Inventory Scrap
- Inventory Remove Reservation
- Batch Confirmation
- Batch Characteristics
- Quality Notifications

**SAP MII**
- Field Mapping
- Data Transformations
- Guaranteed Delivery
- Visualization
SAP® ME and ERP Integration
Available in Future 6.0 Release

Enterprise Resource Planning
- Plant Maintenance
- Inventory and Warehouse Management
- Quality Management
- Master Data Authoring and Engineering Change Management
- Production Planning

Manufacturing Execution
- WIP (Lot and Serial #) Tracking and Genealogy
- Manufacturing Process Control
- Defect Tracking and Resolution
- Data Collection
- Labor Tracking

- Production Yield Confirmation
- Production Scrap Confirmations
- Planned Order Backflush
- Planned Order Scrap
- Component Consumption
- Parent Batch Number
- RMA Service Order Confirmation
- Quality Notifications
- Equipment Unscheduled Downtime
- Equipment Usage
- Inventory Return
- Inventory Scrap
- Inventory Unreserve
- DC Batch and Batch Characteristics
- UOM Support
- Order Labor Time
- Serial Number
- Inspection Lots Results
- Work Order Management
- Inventory Links and KANBAN Support
- Sample Results
- Goods Movement of Planned Order Components
- Rework Time Capture
- Order Status WIP Update
## SAP ME ERP Integration (MII)

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Outbound (SAP ERP &gt; ME)</th>
<th>Inbound (ME &gt; SAP ERP)</th>
<th>MII Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.0</strong></td>
<td>Released</td>
<td>• Production Order</td>
<td>• Production Yield</td>
<td>• WIP Reports</td>
</tr>
<tr>
<td>(MII 11.5, ME 4.3, NW 7.0)</td>
<td></td>
<td>• Create/Update</td>
<td>• Production Scrap</td>
<td>• Data Type Enrichment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Material – Create/Update</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• BOM – Create/Update</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Operation – Create/Update</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Routing – Create/Update</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.0</strong></td>
<td>ATS Q3/2008</td>
<td>• Planned Order Create/Update</td>
<td>• Planned Order Backflush</td>
<td>• Batch Traceability GUI</td>
</tr>
<tr>
<td>(MII 12.0, ME 5.1, NW 7.0)</td>
<td></td>
<td></td>
<td>• Planned Order Scrap</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Component Consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Parent Batch Number</td>
<td></td>
</tr>
<tr>
<td><strong>5.2</strong></td>
<td>RTC 19 June, 2009 followed by SP1 &amp; SP2</td>
<td>• Service Orders</td>
<td>• RMA Service Order Confirmation</td>
<td>• Where’s My Order</td>
</tr>
<tr>
<td>(MII 12.1, ME 5.2, NW 7.1)</td>
<td></td>
<td>• Material Classifications</td>
<td>• Quality Notifications</td>
<td>• OEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inventory Receipt w/ Batch</td>
<td>• Order Labor Time</td>
<td>• Production Line Monitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inventory Reservation</td>
<td>• Equipment Unplanned Downtime</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Equipment Status Change – Planned</td>
<td>• Equipment Usage</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• UOM Support</td>
<td>• Maintain Inventory</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• User with certification</td>
<td>• DC Batch and Batch Characteristics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Work center/resource</td>
<td>• UOM Support</td>
<td></td>
</tr>
<tr>
<td><strong>6.0</strong></td>
<td>RTC Planned Q4/2010</td>
<td>• Serial Number</td>
<td>• Serial Numbers</td>
<td>• TBD</td>
</tr>
<tr>
<td>(MII 12.2, ME 6.0, NW 7.1)</td>
<td></td>
<td>• Shop Floor Instructions</td>
<td>• Inspection Lots Results</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inspection Lots</td>
<td>• Work Order Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Work Order Management</td>
<td>• Inventory Links and KANBAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inventory Links and KANBAN</td>
<td>• Goods Movement of Planned Order Components</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Phantom BOM Support</td>
<td>• Support Multiple Batches per Order</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sample Plan Definition</td>
<td>• Sample results</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Project System Orders</td>
<td>• Rework Time Capture</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Where’s My Order, OEE, and Production Line Monitor are features that may be part of the integration. TBD indicates to be determined.
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   2. Community
Enable introduction of execution capabilities through “smarter” connectors

- Improved interoperability shop floor ↔ ERP system
- Increased responsiveness to drive performance
- Improved connectivity/interoperability with MES partners

Event-based and “listener” model Connectors

- The ability to monitor unsolicited events and take some action based on event detection
  - Events can be data changes, rule violations, etc. – any message with a business context
    (as opposed to a process control context)
- Built-in rules engine for event detection / notification
- Enable events to trigger business logic / transactional updates
- Message/command-based interaction with production systems
- Better exception management

Specifically, new event agents for:

- OPC-DA
- OPC-UA
- OPC-A&E
- Socket Agent (for enabling of QM scenarios)

Small (< 20 MB), lightweight installation that is up and running in minutes! (.NET required)
Our strategy is to provide a suite of tools that assist SAP consultants, system integration partners, and customers to integrate shop floor equipment with SAP ME to rapidly reduce cost through reusability and speed of deployment.

The Equipment Integration functionality supporting SAP ME will rely on a new integration tool (SAP ME Equipment Integration Layer (EIL)) developed and integrated with the new Plant Connectivity (PCo) tool. The primary design goals are centered around ease of Implementation and providing deeper functionality to support a broader range of equipment and systems integrations. Based on Web Services, the new tool set will align Equipment Integration with the technologies and strategies employed by the SAP ME integration team.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Extend the existing PCo functionality with new SAP ME Destination*</td>
<td>* Equipment Integration is a critical component to realizing the full value of the MES*</td>
</tr>
<tr>
<td>* Extend the PCo Agents (SAP ME MIL) to address the data source requirements of SAP ME*</td>
<td>* Well positioned to support environments w/heterogeneous shop floor equipment*</td>
</tr>
<tr>
<td>* Workflow-driven design model*</td>
<td>* Ease of use enables rapid implementation of equipment interfaces for quicker implementation and reduced cost*</td>
</tr>
<tr>
<td>* Technology based on latest .NET standards*</td>
<td>* Technology standardization opens up the field of available system integration partners*</td>
</tr>
<tr>
<td>* Web Services support*</td>
<td>* Leverages the progress and solutions of the PCo team including the .NET technology already in place*</td>
</tr>
<tr>
<td>* Standards-based technologies*</td>
<td>* Minimizes potential MES and PLM encroachment by Automation vendors such as Siemens w/in SAP accounts*</td>
</tr>
<tr>
<td>* Provides out-of-the-box standard workflows for file parsers, database interfaces, OPC (PLC) and other common integrations*</td>
<td></td>
</tr>
</tbody>
</table>
SAP ME Equipment Integration Landscape
Process Flow

- Event trapped and validated against trigger criteria.
- Custom Notification created and dispatched to Destination.

- ME processes the event message received from Plant connectivity.
- All SAP ME capabilities like dashboard, alerting or further process trigger can be enabled.
Agents communicate with Plant systems and subscribe to available Plant system events.

Agents generate Notification Messages based on incoming Plant system events and user-defined business context.

Destinations deliver Notification Messages to respective systems.
Solution Overview

Connectivity

Plant Connectivity

Real-time event notification + (PCo 2.1)
High-performance query and command execution

Plant Floor Equipment Layer

- SAP ME Destination
- File Listener Agent
- OPC Agent
- Additional Agents

Plant Floor Application Layer

Note: Bubble size bands estimate of relative sizes of solution priorities.
# SAP ME – Plant Connectivity (PCo) Roadmap

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Planned Functional Enhancements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ME 5.2</strong></td>
<td>RTC Planned</td>
<td></td>
</tr>
<tr>
<td><strong>PCo 2.0</strong></td>
<td>Q3/2009</td>
<td>• SAP ME Workflow Destination</td>
</tr>
<tr>
<td><strong>Extensions</strong></td>
<td></td>
<td>• Scripting Engine (C#) Workflow Activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• OPC Automated Data Collection based on PCo core functionality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• File Monitor Agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Timer Agent</td>
</tr>
<tr>
<td><strong>ME 5.2</strong></td>
<td>RTC Planned</td>
<td></td>
</tr>
<tr>
<td><strong>PCo 2.1</strong></td>
<td>Q1/2010</td>
<td>• Port PCo 2.0 Extensions to PCo 2.1</td>
</tr>
<tr>
<td><strong>Extensions</strong></td>
<td></td>
<td>• Cogiscan PFC Agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MYDATA Integration Agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Siemens SMT Integration Agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• File Monitor Agent Enhancements</td>
</tr>
<tr>
<td><strong>ME 6.0</strong></td>
<td>RTC Planned</td>
<td></td>
</tr>
<tr>
<td><strong>PCo 2.2</strong></td>
<td>Q4/2010</td>
<td>• Port PCo 2.1 Extensions to PCo 2.2</td>
</tr>
<tr>
<td><strong>Extensions</strong></td>
<td></td>
<td>• Bi-directional Socket Agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAP ME Workflow Destination Enhancements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAP ME Hook Point Extension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SECS/GEM Agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Serial Stream Agent</td>
</tr>
</tbody>
</table>

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**Glossary**
- **GEM**: Generic Equipment Model
- **ME**: Manufacturing Execution
- **OPC**: OLE for Process Control
- **PCo**: Plant Connectivity
- **PFC**: Product Flow Controller
- **RTC**: Release to Customers
- **SECS**: SEMI Equipment Communications Standard
- **SEMI**: Semiconductor
- **SMT**: Surface Mount Technology
## SAP ME-PCo Roadmap Details

<table>
<thead>
<tr>
<th>Release</th>
<th>Component</th>
<th>Enhancement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 5.2</td>
<td>PCo 2.0</td>
<td>SAP ME Workflow Destination</td>
<td>Provide a PCo destination for SAP ME 5.2. This will enable SAP ME to obtain data and information from PCo agents connected to shop floor equipment. It will include a flexible workflow process for generation of ME interface messages and for error handling.</td>
</tr>
<tr>
<td>ME 5.2</td>
<td>PCo 2.0</td>
<td>Scripting Engine (C#) Workflow Activity</td>
<td>Provide a scripting capability as a workflow activity for the SAP ME Workflow destination. This will provide additional flexibility in the logic and computational capabilities for the processing of information from PCo agents.</td>
</tr>
<tr>
<td>ME 5.2</td>
<td>PCo 2.0</td>
<td>OPC Automated Data Collection based on PCo core functionality</td>
<td>Provide automated data collection for SAP ME using PCo OPC agents. This will include support for OPC DA, OPC UA and OPC A&amp;E. However, with PCo 2.0, only one way (receive) communication from the OPC device is supported.</td>
</tr>
</tbody>
</table>
| ME 5.2  | PCo 2.0   | File Monitor Agent | Provide a PCo agent that enables the configuration of file scanners for parsing the information in a file and extracting the needed data. This will support traditional integrations such as ICT file parsing. Features will include:  
  - File Mask  
  - Folder to Monitor  
  - Frequency to Monitor  
  - Handling of file once processed (Delete, Move, Rename, Nothing)  
  - Authentication to remote shares on the domain |
| ME 5.2  | PCo 2.0   | Timer Agent | Provide a PCo timer agent to enable collecting information on a periodic basis. This will enable transactions such as polling an external source and monitoring a database table for specific rows. |
## SAP ME-PCo Roadmap Details

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>ME 5.2</td>
<td>PCo 2.1</td>
<td>Port PCo 2.0 Extensions to 2.1</td>
<td>Provide all of the SAP ME PCo 2.0 extensions in the PCo 2.1 environment.</td>
</tr>
<tr>
<td>ME 5.2</td>
<td>PCo 2.1</td>
<td>Cogiscan PFC Agent</td>
<td>Provide a PCO 2.1 agent to support the interface requirements of the Cogiscan Product Flow Controller. This will enable SAP ME to monitor and control product flow in the factory. This agent will replace the VMIL functionality currently in use at Harman Becker.</td>
</tr>
<tr>
<td>ME 5.2</td>
<td>PCo 2.1</td>
<td>MYDATA Integration Agent</td>
<td>Provide a PCO 2.1 agent to support the MYDATA pick and place machines integration as implemented in VMIL.</td>
</tr>
<tr>
<td>ME 5.2</td>
<td>PCo 2.1</td>
<td>Siemens SMT Integration Agent</td>
<td>Provide a PCO 2.1 agent to support bi-directional communication with Siemens SMT equipment. This will enable SAP ME to monitor and control many different models of Siemens SMT equipment.</td>
</tr>
<tr>
<td>ME 5.2</td>
<td>PCo 2.1</td>
<td>File Monitor Agent Enhancements</td>
<td>Enhance the SAP ME PCo file monitor agent to enable monitoring a single file whose content is changing over time.</td>
</tr>
</tbody>
</table>

VMIL  Visiprise Manufacturing Integration Layer
# SAP ME-PCo Roadmap Details

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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 6.0</td>
<td>PCo 2.2</td>
<td>Port PCo 2.1 Extensions to PCo 2.2</td>
<td>Provide all of the SAP ME PCo 2.1 extensions in the PCo 2.2 environment.</td>
</tr>
<tr>
<td>ME 6.0</td>
<td>PCo 2.2</td>
<td>Bi-Directional Socket Agent</td>
<td>Provide an SAP ME PCo agent that enables bi-directional communication via one (or more) socket connections to a source system. This will enable the SAP ME PCo agent to connect to a socket and send commands to the source system, as well as to receive data and commands from the source system.</td>
</tr>
<tr>
<td>ME 6.0</td>
<td>PCo 2.2</td>
<td>SAP ME Workflow Destination Enhancements</td>
<td>Provide the capability to configure all resources &amp; workflows within the SAP ME PCo destination. This will include the capability to serialize the landscape configuration to the PCo configuration data store within the SAP ME destination itself (for internal processing). Provide the capability to associate agent Instances to specific SAP ME resource + workflow definitions. That is, there will be one SAP ME PCo landscape definition; but it will be possible to associate PCO 2.2 agents to specific resource + workflow configuration definitions. Each landscape can have 1..n resource &amp; resource group definitions.</td>
</tr>
<tr>
<td>ME 6.0</td>
<td>PCo 2.2</td>
<td>SAP ME Hook Point Extension</td>
<td>Provide a mechanism for ME hook point activities to trigger factory floor events via a PCo 2.2 agent (e.g. Place a physical piece of equipment in a HOLD state).</td>
</tr>
<tr>
<td>ME 6.0</td>
<td>PCo 2.2</td>
<td>SECS/GEM Agent</td>
<td>Provide an SAP ME PCo 2.2 agent that supports the SECS/GEM standard for communicating with semiconductor manufacturing equipment. The specific standard will likely be SECS II which utilizes TCP/IP.</td>
</tr>
<tr>
<td>ME 6.0</td>
<td>PCo 2.2</td>
<td>Serial Stream Agent</td>
<td>Provide an SAP ME PCo 2.2 agent that provides the capability to receive data from a device via a serial port. This will include the capability to parse the incoming data stream to obtain the relevant information.</td>
</tr>
</tbody>
</table>
ME 5.2 PCo 2.0 Agents
  - File Monitor
  - OPC Automated Data Collection
  - Timer

ME 5.2 PCo 2.1 Agents
  - All above agents
  - Cogiscan PFC
  - My Data Integration
  - Siemens SMT

ME 6.0 PCo 2.2 Agents
  - All above agents
  - Bi-directional Socket
  - SECS/GEMS
  - Serial Stream
1. **SAP ME Roadmap**
   1. SAP ME Core Application
   2. Integration to ECC via MII
   3. Integration to Machines via PCO
   4. **Integration to Business Objects**

2. **SAP ME Strategy**
   1. Core
   2. Community
Production Monitoring: Business Objects Standard Reports

14 universes
- Developed in English with Chinese, German, French, and Japanese translations
- Most data from ME ODS, but some from ME WIP (synonyms used to combine data sources)

25 predefined reports
- Using no translation relevant information beyond that in the universes
- All data from ME

20 LOVs (list of values)
- For selecting ME objects such as Site, Item, SFC
- Satisfies ME object browse requirement

Time Granularity support
- At universe and report level
- Both system (hour, day, month) and custom (shift, quarter, year) granularities
SAP ME Reporting Infrastructure

WIP Database
- Configuration Data
- Production Data
- Transaction Data (Logging)

JSP Reports 50+
MII Visualization

ODS Database
- Audit Log (AL)
  - Configuration Changes
  - BOBJ 14 Universes 25 Reports

Operational Data Store (ODS)
- Historical Data (Detail)
- Historical Data (Summaries)

Archive (AR)
- Archived SFC Data

Global ODS
- BOBJ 14 Universes 25 Reports

Audit Log Reports

Copy
Extract
Summarize
Unarchive
Archive
Audit
Business Objects Web Intelligence allows users to
- Run, copy and edit predefined web intelligence reports, scheduled and on demand
- Perform ad-hoc queries and create new reports
- Modify and extend universes with Business Objects Universe Designer software
- Translate universes with Business Objects Translation Manager

<table>
<thead>
<tr>
<th>Universe</th>
<th>Predefined Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Detail</td>
<td>Production Detail</td>
</tr>
<tr>
<td>Shop Order Detail</td>
<td>Order Completion Distribution, Order Exception</td>
</tr>
<tr>
<td>Labor Summary by SFC</td>
<td>LCC Usage by Shop Order</td>
</tr>
<tr>
<td>Labor Summary by User</td>
<td>Employee Time Summary, User Attendance</td>
</tr>
<tr>
<td>Genealogy</td>
<td></td>
</tr>
<tr>
<td>Data Collection (WIP)</td>
<td></td>
</tr>
<tr>
<td>Data Collection (ODS)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Universe</th>
<th>Predefined Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC Summary</td>
<td>NC by Component, NC by Failure ID, NC by Item, NC by Item Group, NC by NC Code, NC by Reference Designator, NC by Vendor</td>
</tr>
<tr>
<td>DPMO Summary</td>
<td>DPMO by Category, DPMO by Time</td>
</tr>
<tr>
<td>Production Summary</td>
<td>Production by Item, Yield by Item, Yield by Operation</td>
</tr>
<tr>
<td>Production Cycle Time Summary</td>
<td>Operation Process Time, Operation Queue Time</td>
</tr>
<tr>
<td>Shop Order Production Summary</td>
<td>Order Lead Time by Operation</td>
</tr>
<tr>
<td>Resource Utilization Summary</td>
<td>Resource Usage, Resource Utilization</td>
</tr>
<tr>
<td>NC Detail</td>
<td>NC Log, NC Log Detail</td>
</tr>
</tbody>
</table>
Production Monitoring:
Viewing ME ODS Reports using WEBI
Production Monitoring: Access to Predefined Reports/ Prompt for Filter
Production Monitoring: INFOVIEW Access to Predefined Reports
Agenda

SAP ME Roadmap
- SAP ME Core Application
- Integration to ECC via MII
- Integration to Machines via PCO
- Integration to Business Objects

SAP ME Strategy
- Core
- Community
The “Perfect Plant” is the ultimate goal - to optimize effectiveness of your manufacturing assets and drive increased performance in concert with the Enterprise Plan & Objectives.

The Perfect Plant:

- **Leverage the investment** in your (existing) Enterprise Applications
- **Radically simplify** business processes delivered to the front-line operator
- Exploit and extend the **existing manufacturing infrastructure**
- **Integrate shop floor** information with the rest of the supply chain
- Provide **actionable intelligence** through role-based interaction
- Supports the Operational Excellence Programs & Teams in **Real-time**

**SAP MII**
- The Flexible Connector
- Delivers Role-based Content and Context
- Combination of Data Access, Business Logic, Quality and Visualization Services, as well as Alerting, Metrics, KPIs

**SAP Manufacturing Execution**
- Critical Execution / Enforcement Capability
- Pre-built SAP integration via MII
- Pre-built Business Objects integration
- Significant success within Discrete Mfg Industries
Upcoming Events

Working with Marketing to fill in
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