



# INTEGRATED MINING SOLUTION

VISIBILITY & OPTIMIZATION FROM MINE  
BY - PRADIP RAY

A photograph of a two-lane asphalt road stretching into the distance under a thick, grey fog. The road has a white dashed line on the left and a yellow dashed line on the right. In the far distance, a pair of bright headlights is visible, suggesting an approaching vehicle. Bare trees line the horizon. A white rectangular box with a thin black border is centered over the road, containing the title text in blue, serif, all-caps font.

**VISIBILITY OF PRODUCTION AT  
THE CORPORATE OFFICE**

## PRODUCTIVITY IMPROVEMENT DRIVES THE SUCCESS OF MINING BUSINESS

### Success Factors

- Productivity
- Safety
- Environment
- Reliability

### Enterprise Applications and data visualization

- Enterprise production planning
- Resource cost calculation
- Incident management
- Production Optimization
- Equipment Maintenance planning and scheduling
- Calibration scheduling
- Maintenance quality improvement

Direct information feed from the production equipment optimizes the functionality of the enterprise applications

### Operations

- Standardization of Process
- Standardization of the equipment utilization
- Standardization of resource utilization at every shift
- Standardization of equipment maintenance and calibration

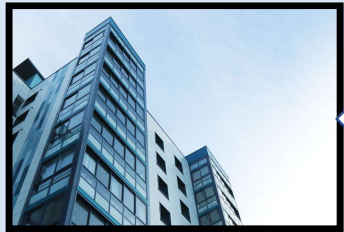
### Automation

- Equipment efficiency tracking
- Equipment utilization & position tracking
- Feeding detailed production information to the planning module
- Planning schedule feed to the automated systems

### Manufacturing Solution

- Integrated the production environment
- Real time production data collection for OEE.
- Real time equipment status monitoring and identify necessary action
- Integrate the Production environment with enterprise environment

## INTEGRATED MINING FIELD WITH THE ENTERPRISE APPLICATION



Corporate Office



- Production Yield
- Maintenance Confirmation
- Downtime
- Equipment rescheduling

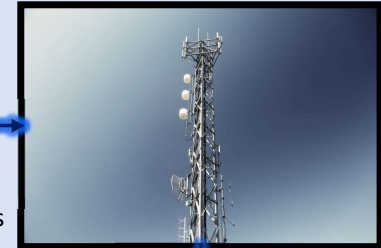
- Production Planning / Order
- Maintenance notification
- Calibration Order
- Maintenance Order



Manufacturing Solution

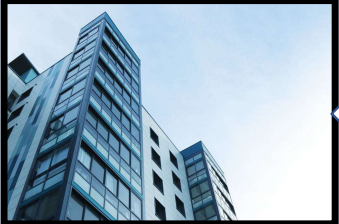
- Equipment position and status
- Equipment production rate
- Repair notification
- Fuel consumption
- Breakdown
- Periodic maintenance request

Communication



Mining field

# RECOMMENDED TECHNOLOGY



Corporate Office



- Production Yield
- Maintenance Confirmation
- Downtime
- Equipment rescheduling

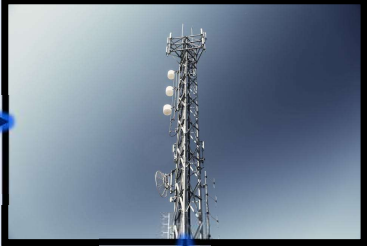
- Production Planning / Order
- Maintenance notification
- Calibration Order
- Maintenance Order
- Quality notification



Manufacturing Solution

- Equipment position and status
- Equipment production rate
- Repair notification
- Fuel consumption
- Breakdown
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Communication

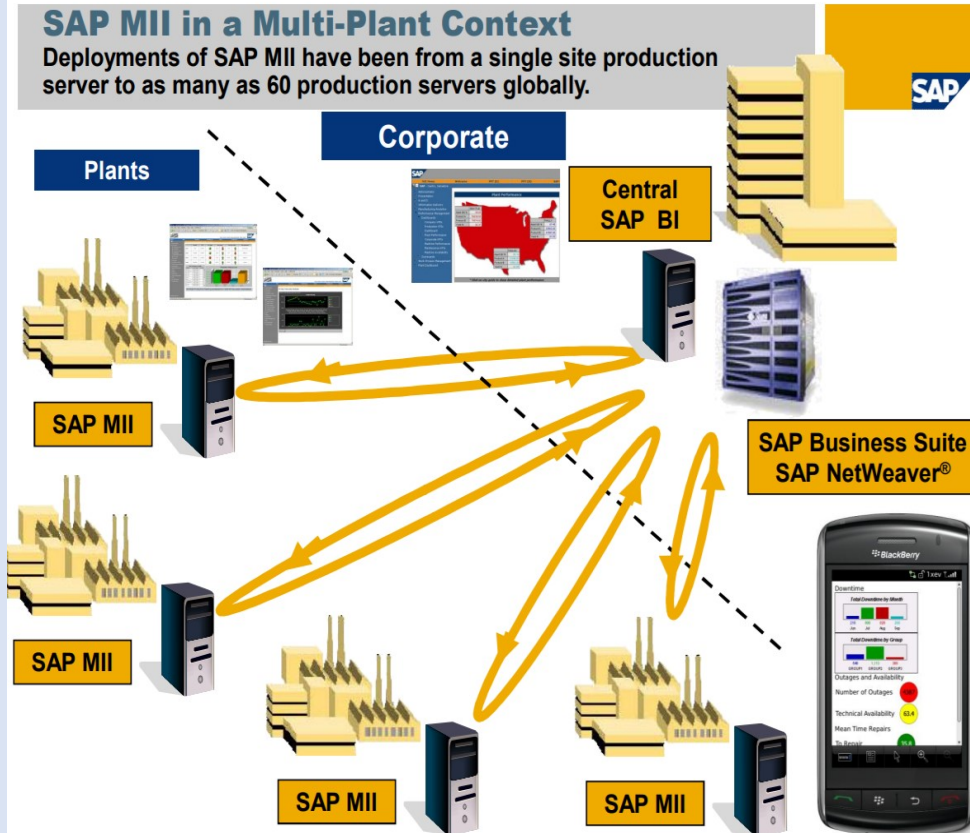


Mining field

# SAP MII

## SAP MII in a Multi-Plant Context

Deployments of SAP MII have been from a single site production server to as many as 60 production servers globally.



## SAP MII: Manufacturing Integration & Intelligence

### Delivering High Value Manufacturing Applications

#### Positioning

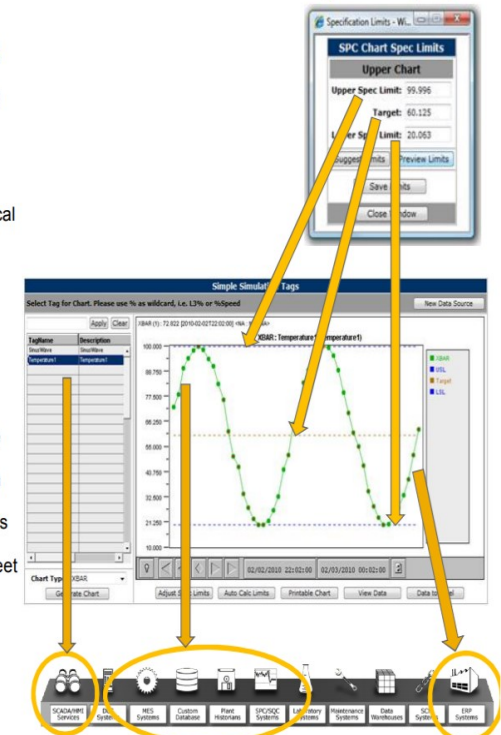
- Delivers manufacturing applications for performance management, continuous improvement, user interface and manufacturing analytics
- Integrates existing plant floor applications to the enterprise
- Extends and simplifies SAP Business Processes to shop floor workers in context to their role
- Composite Application Development Environment for Manufacturing based on SOA Principles
- Enabling Global Planning, Inter-Networked Integration, Local Execution

#### Highlights

- Data – connectors to the shop floor
- Business Logic Services – advanced data integration and composition layer
- Visualization – role based content creation
- Manufacturing Analytics – SPC/SQC
- Service Based Architecture meets SAP ESA strategy
- Integrates with SAP Business Suite as well as Competitive ERP Solutions
- Applications are developed very quickly – time to benefit in weeks
- Includes pre-built templates for integrating to SAP Business Suite
- Partners, SAP, and Customers to deliver composites to meet customer needs and specific vertical integrated scenarios

#### Prerequisite

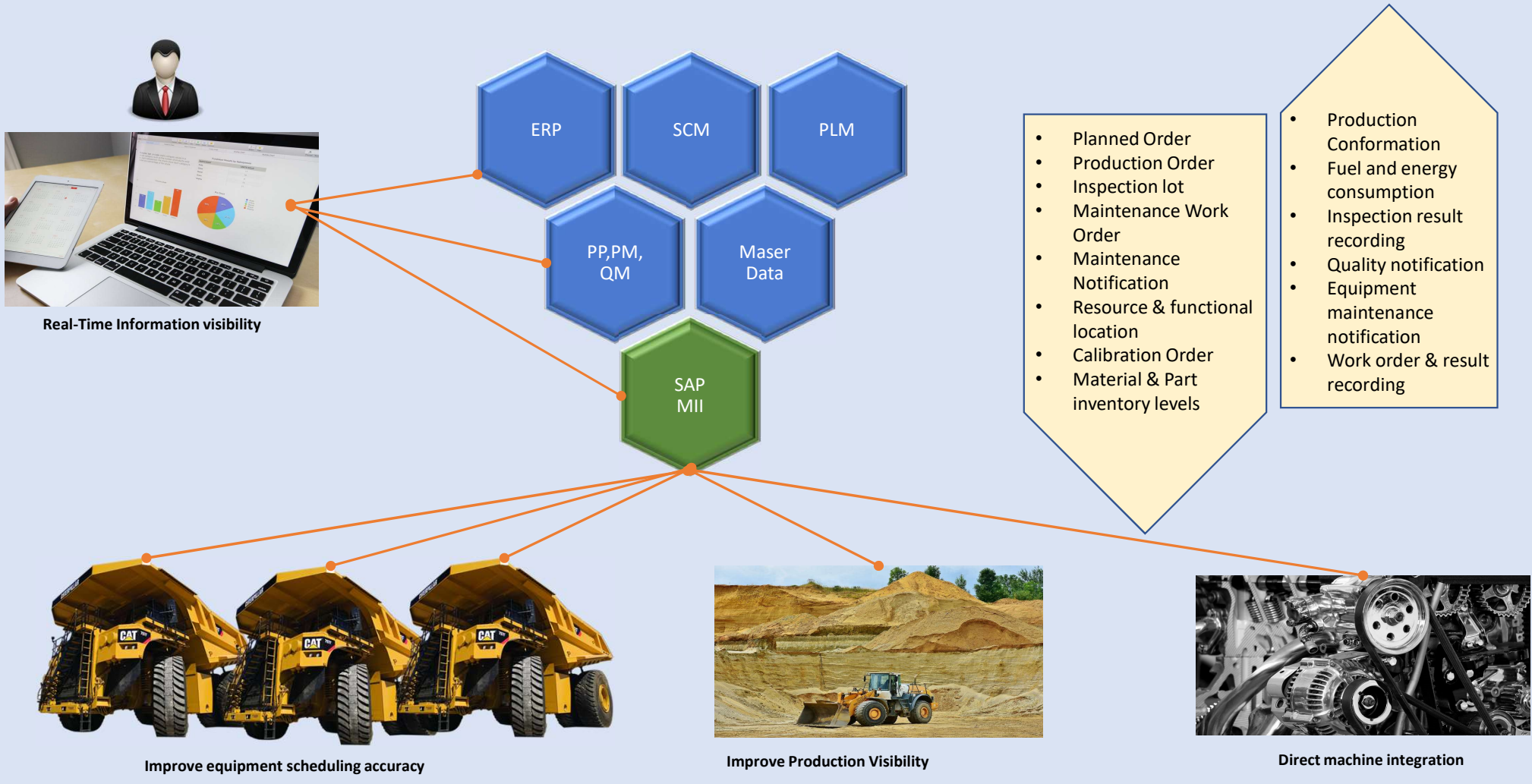
- Runs on SAP NW Composition Environment (Java v1.5)





**A TIGHTLY INTEGRATED  
SOLUTION**

# INTEGRATED SOLUTION





**IMPROVEMENT OF PRODUCTIVITY  
BY IMPROVING VISIBILITY**



## BENEFITS & IMPROVEMENTS

### Smart Manufacturing

- Industrial connectivity devices and services
- Integrated advance robotics
- Analytics
- Eliminate workplace inefficiencies and hazards
- Influence businesses by adopting intelligent networks of manufacturing

### Industry 4.0

- Wireless connected environment
- Last generation sensors, distributed along the supply chain
- Advance manufacturing process
- Collaborative virtual factory
- Advance Human-Machine interface
- Machine to Machine communication

Integrated equipment increases utilization and operating cost calculation

Mining field data visualization at the corporate office involves corporate employees to contribute towards the production optimization

Real-time data analysis from the production helps to take real time decision to improve productivity

Direct equipment integration improves the data accuracy. Accurate data improves the OEE calculation to take the proper corrective action



Equipment real-time status visibility to the planner increase the utilization of the equipment to get a faster ROI

Information visibility on any device, at any place & from mining field to ERP helps to plan the loading sequence optimized.

SAP

MII

Mining Field

### The Old Way

- No real-time information to the corporate office
- Prioritization and optimization of work plan and loading sequence at runtime is not possible due to lack of real-time information
- Operation cost calculation depends on manual data entry

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More than 12 years of experience in IT specializing in SAP, Manufacturing Execution (MES) and Shop-floor integration.

Has a successful and proven track record of developing and managing top class teams who are best in the business, developing solution assets, defining solution architectures, conducting blueprinting workshops, Planning, Design, Development, Integration, and Implementation, creating technical designs, delivering comprehensive technical training sessions and leading various implementation projects globally.

- Pradip Ray is a Shop-floor operation, automation and integration specialist with deep experience in Production Planning (SAP PP-PI), Quality Management (SAP QM), Integration tool (SAP MII), MES, SAP ME, LIMS and Level-2 automation.
- SAP Functional Consultant with expertise in Process based Industry for SAP Production Planning (PP-PI), Quality Management (QM), Specification, Recipe Management, Plant Maintenance and Manufacturing Integration & Intelligence (MII 12.2, 14.3 & 15). Integration of SAP with Non-SAP systems, Logistics Execution Control, Integration of Sales, Purchase with Production, Quality Control, Storage, Transportation & Delivery, Batch Management with Class Characteristics mapping. Expertise in Integration setup between SAP & Non-SAP through ALE-IDOC, RFC, Process Integration (PI middleware), BRF plus table usage & maintenance.
- Experienced in PLC, SCADA, Plant Historian OPC Integration along with its connectivity to SAP PCo (Plant Connectivity) and SAP MII tools.

Specialties: SAP-MII, UI5, SAP PP PI, QM, PM,SNC, WebDynpro ABAP, PP-SFC, SAP-ME

**Worked for industry sectors**

- Mining
- FMCG
- Metal
- Engineering products
- Medical devices
- Agribusiness
- Automobile
- Beauty Product
- Beverage
- Plastic molding

**Worked With Companies**

- Ispat Industries Limited
- IBM
- SAP Labs
- Deloitte
- Accenture

**Implementation highlights**

- Provided global integrated mining solution for one of the biggest mining client and did cost reduction by migrate the solution on cloud
- Provided global solution for a consumer goods client for 100+ plants across the globe.
- Provided global solution for a medical device manufacturing client ad implemented in 3 plants in different continents.
- Enabled integrated manufacturing solution for 76 plants with a single go-live.
- Provided fully integrated solution to a plastic molding plant in 10 weeks from blue print to go-live.

More details: [LinkedIn](#)