



# Best in Class in Mining

## Superior performance from pit to ship

*Innovate | Perform | Grow*

Alex Lima

Managing Director

Canada and Latin America Manufacturing & Resources

June 2010

# From the pit to the ship

## The supply chain for mining

### ■ Explore



### ■ Mine



### ■ Ship



### ■ Develop



### ■ Monitor



### ■ Analyse



# Just-in-time mining

Microsoft and our partners offer comprehensive solutions to help address the most pressing issues facing your company today

- Improve time to market
- Rapidly establish a mining base
- Manage safety and environmental compliance
- Improve visibility across the supply chain
- Deploy secure, cost-effective, reliable solutions



# Disruptive Technologies in Mining

Performance of Hardware,  
Unlimited Storage,  
Natural User Interface

Cloud Computing

Smart Devices &  
Networks

*Pervasive*

- 3D Modeling
- Simulation
- Analysis

Digitization of the  
Economy

Social  
Networking

Digital  
Marketing

- Device Mesh networks
- Access skills any time, any place, any device

- Multi-enterprise value chains & trading hubs
- Mash ups and composite applications

- Rich collaboration across design and operational networks
- One to One consumer connection

# The IT platform for mining

## The vision

A streamlined, responsive mining supply chain.

## The application layer

This comprises Microsoft and third-party solutions that mining companies need to establish operations, accelerate the supply chain and deliver predicted grade quality.

## The platform layer

Microsoft's end-to-end infrastructure helps provide a secure, scalable and easy to manage foundation on which mining companies can overlay the applications they need.



# From the pit to the ship | Explore

Rapidly coordinate and analyse survey information and quickly obtain permits and compliance

“The EPM Solution has improved our performance substantially. We can set clear, realistic timelines, deliver on customer needs and manage our projects properly.”

*Abri De Witt, Manager,  
Kumba Way, Kumba Resources*

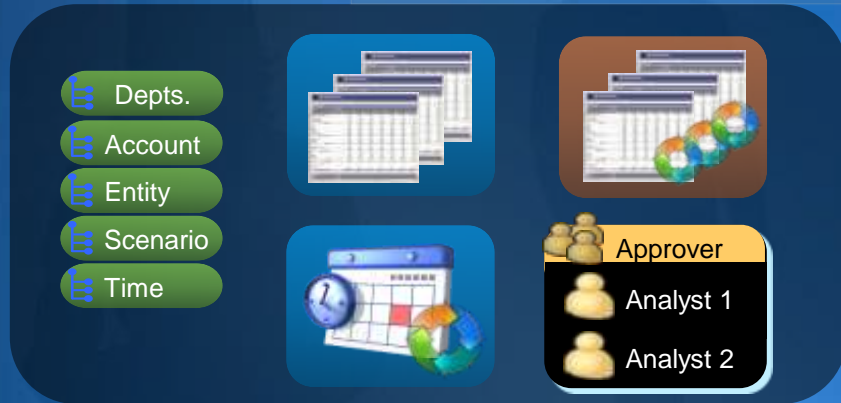




# Corporate Performance

*Increased flexibility with synchronization*

## CORPORATE



## BUSINESS UNITS AND DEPARTMENTS



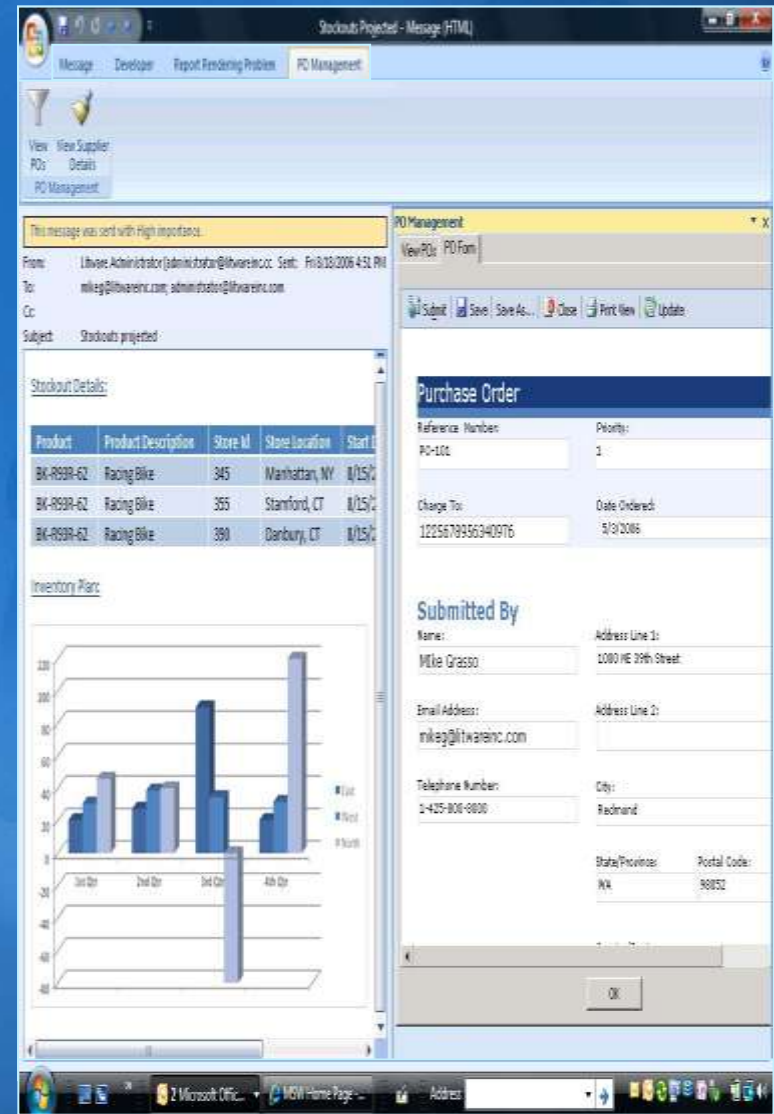
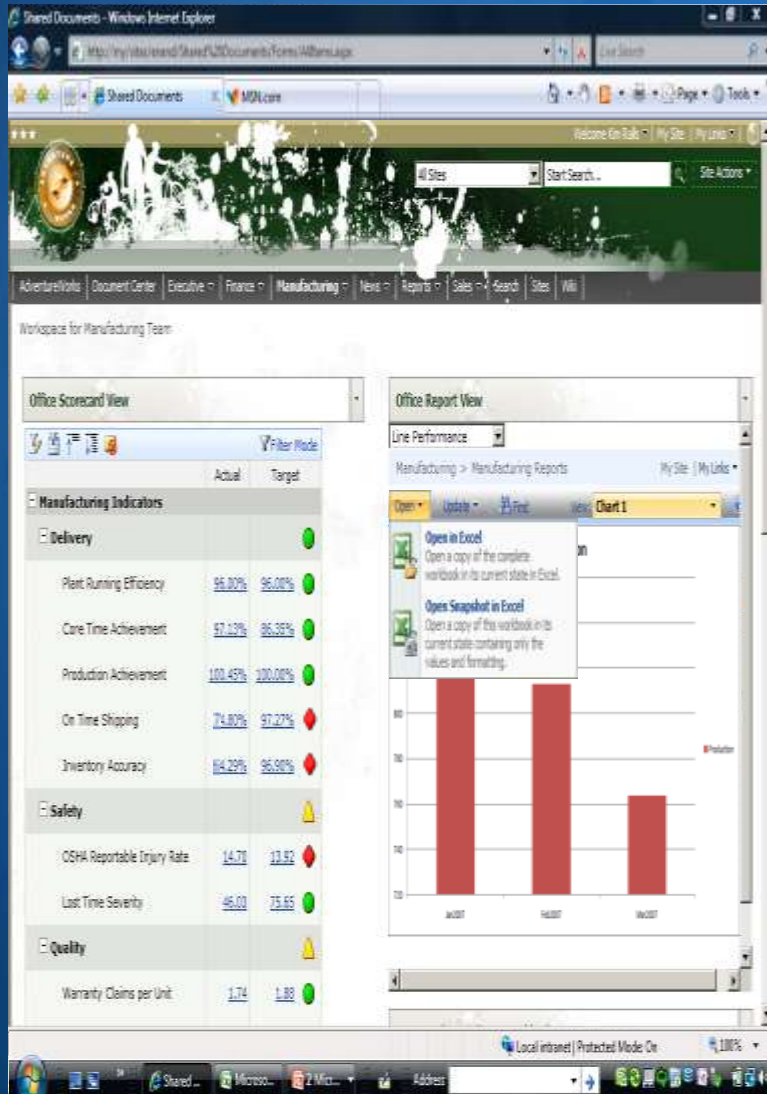
## Business Challenges

- Real-time information by role across value chain/divisions/roles
- Early warning/alerts and visibility to trends
- Cross-functional alignment – up, down, and across the business

## Required Capabilities

- Synchronized plans, metrics and scorecards across all business functions and roles
- Divisional/product view of your business
- Personalized processes to manage performance

# Role and Exception-Based Analytics





# Business Processes and Workflow

One form of knowledge: how things get done

The screenshot displays the CORBERO OIL & GAS software interface. It features a navigation menu with options like Home, Documents and Lists, Site Settings, Home Shift, Plant Manager, US Operations, and Tools. The main content area is divided into several sections: a 3D rendering of a plant floor with a 'Pump 2 Shut Down' alert, a table of 'ISA Plant Operators' with columns for Safety, Over Heating, Spurns, K Quality, Production, Raw Material Usage, Electricity Consumption, Water Consumption, Down time, and Product delivery; a 'Quick Links' section with buttons for 'New Safety Incident Report', 'New Maintenance Request', and 'New Production Data'; a 'Safety Incident Reports' table with columns for Incident Title, Priority, Status, Owner, Operating Point, and Service Request Processing; and a 'Production Performance' graph for 'Iso-Butane' showing a line graph with a red trend line. A workflow diagram is overlaid on the bottom right of the screenshot, consisting of a green oval, a yellow hexagon, a blue square, a light blue square, and an orange square, connected by arrows.

Powerful  
Workflows



Notifications and Alerts

**SAFETY INCIDENT REPORT**

Incident Date: 6/7/2007  
Incident Title: Safety issue with Feed Pump 2  
Reported By: Shift Foreman  
Operating Point: Feed Pump 2  
Priority: 1  
Incident Type: Over Heating

Feed Pump 2 is shut down to resolve a safety issue. Continue to investigate. Production is impacted.

Status: Active (Not Assigned)  
Assigned to:

Easy Form Templates

# From the pit to the ship | Develop

## Rapidly establish mining operations and provision staff

“We knew intuitively that voice-conferencing combined with highly secure online content-sharing would strike a chord with people in our business.”

*Dr Ian Hoyle, Principal Architect  
Technology, Enterprise IT Strategy  
Group, BHP Billiton*





# Flexible Collaboration & Execution

Shared Documents - Windows Internet Explorer

http://its/itsd/itsd/Shared%20Documents/Farms/Wilbms.asp

Shared Documents x MDN.com

Material Cost	\$11,744	\$11,625	
In House Cost	\$9,194	\$9,431	
Gross Capital Investment	\$2,213	\$2,421	
Overtime - Assembly	460	520	
<b>Environmental</b>			
Electrical Consumption (Total)	2,527.49	2,586.00	
Natural Gas Consumption (Total)	12.12	12.2	
VOC (Total)	1,675.95	1,681.26	
Land Fill Waste (Total)	15.75	15.84	

update to inspection process

Material changeover	Dennis Weaver	Resolved	(2)	5/2/2007
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Forms

Type	Name	Modified
Form	Daily Status Report	5/1/2007 2:35 PM
Form	Maintenance Request Form	5/1/2007 2:35 PM
Form	Overtime Hours Data Entry Form	5/1/2007 2:24 PM
Form	Part Reorder Form	5/1/2007 2:35 PM
Form	Worker Injury Report Form	5/1/2007 2:35 PM

Plant Operations

Type	Name	Modified	Modified By
Form	AdventureWorks ValueStream_001	5/3/2007 10:32 PM	Kim Ralls
Form	Control Cost Manual	4/24/2007 2:08 PM	Kim Ralls
Form	Factory Floor Assembly Process	4/24/2007 2:08 PM	Kim Ralls
Form	Manufacturing Process Overview	4/24/2007 2:08 PM	Kim Ralls
Form	Mountain Bike Component Cost Summary	4/24/2007 2:08 PM	Kim Ralls
Form	Part Reorder Form	4/24/2007 2:08 PM	Kim Ralls
Form	Product Design Manual	4/24/2007 2:08 PM	Kim Ralls
Form	Road Bike Component Cost Summary	4/24/2007 2:08 PM	Kim Ralls
Form	Supply Chain - China	5/16/2007 13:01 AM	Kim Ralls
Form	Touring Bike Component Cost Summary	4/24/2007 2:08 PM	Kim Ralls
Form	XPM Bicycle CS_MAR_03222007	4/24/2007 2:08 PM	Kim Ralls

Contacts

Last Name	First Name	Status	Job Title
Andersen	Mary Kay		Production Coordinator
Peris	Keith		Shift Supervisor
Kalyal	Sandeep		Shift Supervisor
Masters	Steve		Manufacturing Engineer
Way	Lorraine		Quality Control Analyst
Peoples	John		Shift Supervisor
Talman	Tracy		Production Coordinator
Wang	Qiang		Supply Chain Manager
Yakovsky	David		Plant Floor Manager
Zaprich	Karin		Quality Control Analyst

Microsoft - Assessment Plans.xlsx - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer

Clipboard Font Alignment Number Conditional Formatting Styles Cell Styles Format Cells Sort & Filter Find & Select Editing

Security Alert Due to your security settings, data...

Start New Workflow

Workflows available for this document:

Description: Routes a document for approval. Approvers can approve or reject the document, reassign the approval task, or request changes to the document.

Name: Collect Feedback  
Document Library: Assessment Plans on Sales

Description: Routes a document for review. Reviewers can provide feedback, which is compiled and sent to the document owner when the workflow has completed.

Name: Collect Signatures  
Document Library: Assessment Plans on Sales

Description: Gathers signatures needed to complete an Office document.

Name: Initiate Forecast Workflow  
Document Library: Assessment Plans on Sales

Description: Supplier collaboration workflows.

	D	E		J	K	L	M
8							
9							
10							
11							
12							
13							
14	Road Bikes						
15		BK-R93R-E2	Star				
16							
17							
18		BK-R93R-E2	Wat				
19							
20							
21		BK-R93R-44	Star				
22							
23							
24		BK-R93R-44	Wat				
25							
26							
27		BK-R93R-48	Star				
28							
29							
30		BK-R93R-48	Waterbury				
31							
32			number of units	50	50	50	50
33		BK-R93R-E2	Starford				
34			sales	\$125,000.00	\$125,000.00	\$125,000.00	\$125,000.00
35			number of units	75	75	75	75
			sales	\$150,000.00	\$150,000.00	\$150,000.00	\$150,000.00

Standing Plan Assessment Plan Forecast Sales Aggregates pivot

Ready

Office 2007 Conn... 3 Medias Expl... Internet Informa... BrowseEnableFor... 2 Internet Explorer Microsoft Excel... 4:45 PM



# From the pit to the ship | Mine

Operate and maintain complex machinery and monitor production to help ensure continuous operation

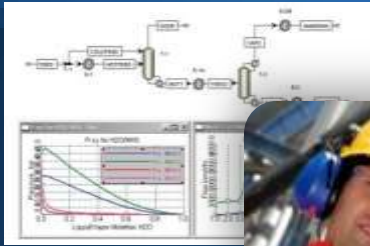
“With the list of tasks on the Microsoft® Office SharePoint® site, all team members can easily see their responsibilities and deadlines.”

*Jamie Duce, Senior Financial Accountant, Roche Mining*



# People

*User's view of the world is role-based*



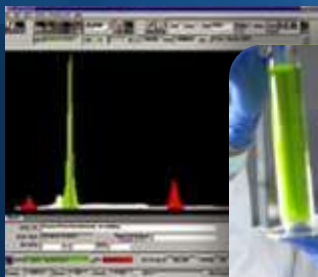
Process Engineer



Production Manager



Control Engineer



Lab / Quality



VP, Operations



Maintenance



# Physical Assets

*Optimal planning, fast reaction, eliminating waste*



**Virtualization**



**RFID**



**Management & Tracking**



# From the pit to the ship | Monitor

Reduce the time that ore remains on stockpiles with real-time grade control systems

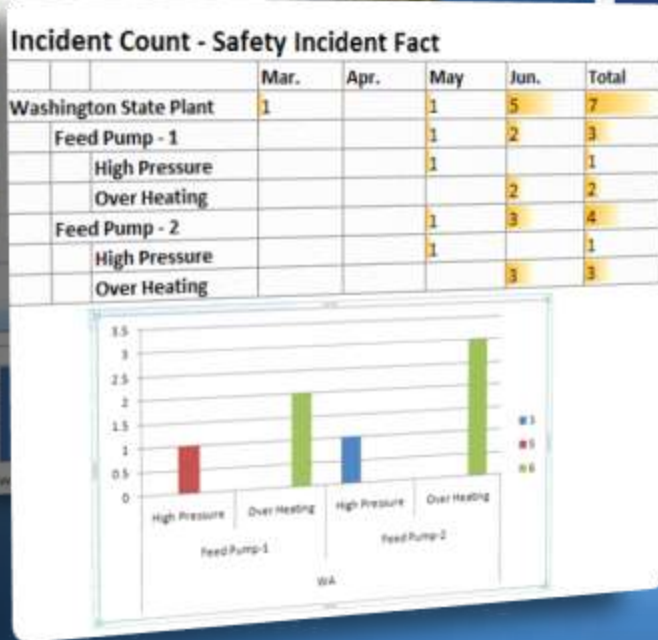
“The mobile solution helps ensure that we get [drilling and blasting] right the first time, which has slashed our costs and created a positive effect on all our mining operations.”

*Bertrand Odinet, Chief Information Officer, PT Freeport Indonesia*

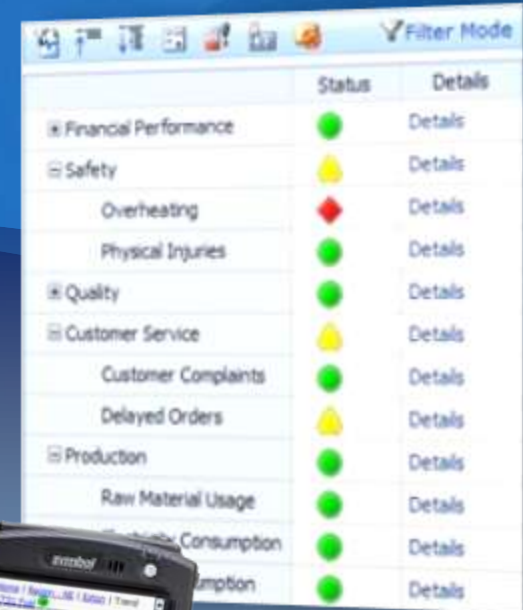


# Information and Events

*Knowledge, understanding, insight...*



**Powerful Analysis  
and Reporting**



**KPI Drill-  
through**



**Information  
Everywhere**

# From the pit to the ship | Ship

Monitor and manage transport systems to help ensure continuous movement of ore and minerals

“We are saving at least \$4 per transaction with this new (Microsoft-based) system.”

*Greg Miller,  
Manager MIS, BP Canada*





# Actionable Supply Chain Visibility

Contoso Supplier Visualization

Tools: Find, Permissions, map, serial, hybrid

Product In Transit, Supplier Stability, Perfect Order %

Supplier Selection

- Product
  - 4-Door Sedan
  - Coupe
  - Full-size SUV
  - Hybrid SUV
  - Minivan
  - Mid-size SUV
  - Light Truck
  - Heavy Truck
  - 2-Door Sedan
  - Sport X
  - Sport Z
- Filter
  - Contoso - Canada
  - Contoso - Torrance, CA
  - Contoso - Timonoville, SC
  - Contoso - Marysville, OH

Details: 100% Selected Details

Contoso of East Liberty

Value	Bench
Production Index	91 94
Supply Release Cost	98 90
Inventory Turns	91 90
Sale Work Index	98 95
Overtime Variance	79 90

3D bar chart showing values for Qtr 4 Prod 1 and Qtr 4 Prod 2.

Supplier Code	Supplier Name	City, State
2043	SPX Cortech Metal Forge	Ridgewood, SC
2044	Standard Register	Greenville, SC
1036256	Standard-Thomson Corporation	Waltham, MA
2045	Sankeeviz International	Spartanburg, SC
17	Stanley Electric U.S. Co. Inc.	London, OH
2046	Stulen	Fountain Inn, SC
18536782	Superior Industries Intl Inc.	Rogers, AR
2047	TBWA	Greer, SC
2274	The Gates Rubber Co.	Denver, CO

matching selected criteria 38 of 5

Buyer's Workbench

Buyer's Workbench: Partner Connectivity

My Workspace

Exception Summary

Exception	Severity		
	High	Medium	Low
Forecast Commit Mismatch	11	6	12
Forecast Variance	3	2	7
PO Quantity Mismatch	22	1	3
Open PO Past Due Date	26	2	0
Late Shipment	0	2	0
Min Inventory Violation	3	2	2
Max Inventory Violation	0	2	4
Invoice Amount Mismatch	0	2	2

Alerts Inbox

Events	Count
Forecast Release Alert	22
Forecast Variance Alert	17
Supplier change Request Alert	102
User Change Request Alert	105
Invoice Error Alert	487
Shipment Error alert	126

Process Index

PO	Count
New	30
Awaiting Approval	45
Released	35
Pending Supplier Acknowledgment	15
Open	65

My Information

Procurement Policy updates: 10/23/2007

New suppliers add: 10/22/2007

My Suppliers

Performance Details

Delivery Performance | Quality Performance | Quantity Accuracy | Lead Time Reduction

No. of suppliers within threshold: 10

% of suppliers within threshold: 80%

Poor performers (bottom 5 suppliers) On a scale of 10

Bar chart showing performance for Syn Tech, Info Tech, Morgan, Invention, and U-Tech Tech.

# From the pit to the ship | Analyse

View executive dashboards and scorecards to analyse events and make continual improvements

“Not only will [Microsoft] Dynamics™ AX enable us to have a consolidated, enterprise-wide view of our business, from which to make vital business decisions; it will ensure we have one set of processes across all mines.”

*Greg Lake, Chief Information Officer,  
Elk Valley Coal*



# Microsoft Supply Chain Solution Partners (sample)

**UNISYS**

**Infosys**<sup>®</sup>  
POWERED BY INTELLECT  
DRIVEN BY VALUES

**avanade**<sup>®</sup>  
/systems.solutions.success/froa Accenture & Microsoft

**accenture**  
High performance. Delivered.

**LogicTools**

GXS

**Capgemini**  
CONSULTING. TECHNOLOGY. OUTSOURCING

**SAP**<sup>®</sup>

**hp**<sup>®</sup>

**PRIM**

**invent**

**i2**

**optiant.** **cactus**

**LOGILITY**

**JDA**<sup>®</sup>

**TATA**

**PANORAMA**  
BUSINESS INTELLIGENCE SOFTWARE

**RedPrairie**<sup>®</sup>

**MANHATTAN ASSOCIATES**<sup>™</sup>

**HighJump**  
SOFTWARE

**COVAST**

Raising the bar on supply chain execution.



# Microsoft's Mining Partner Ecosystem



# Conclusions

- More resilient to market fluctuations
- People and processes: Microsoft and partner solutions
- Integration from pit to ship: extended supply chain
- Collaboration and communication
- Cost reduction: analytics to identify opportunities

The background of the slide is a solid blue color. In the background, there are faint, semi-transparent silhouettes of four people standing. From left to right: a woman with long hair, a man, a woman, and a man with his hands on his hips.

# ***Microsoft***<sup>®</sup>

***Your potential. Our passion.***<sup>™</sup>

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