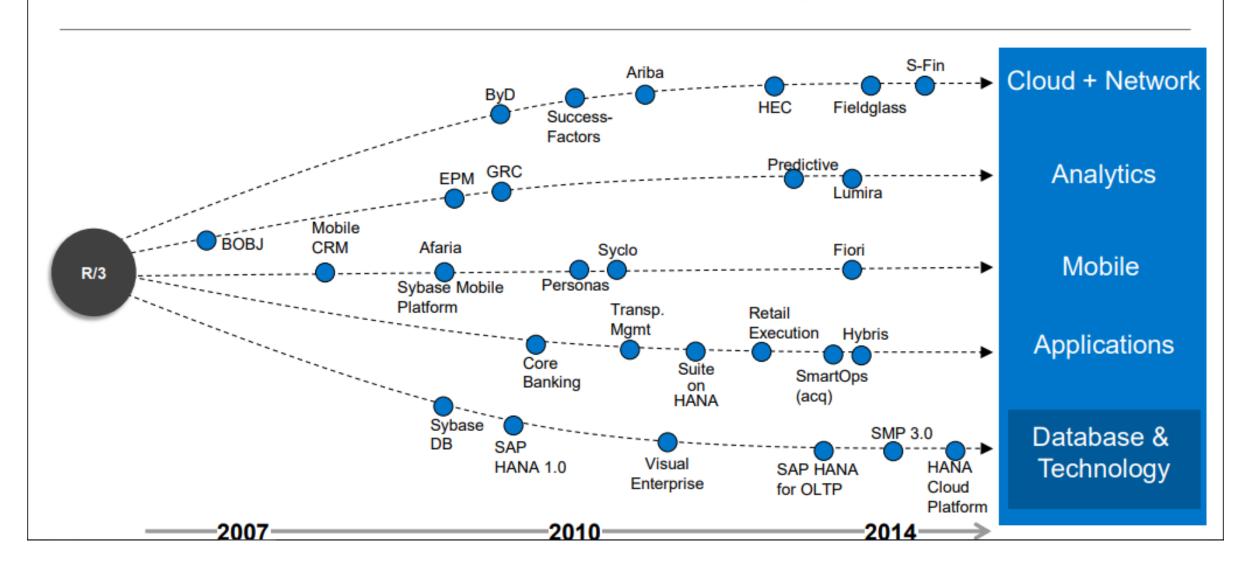


Metal & Mining Industries

- SAP Industry Setup
- Drivers & Trends
- SAP Footprint
- Co-Innovation & Communities
- Solutions
- Partner & Competition
- Recent Customer Cases & Activities
- Summary



SAP product portfolio evolution – powered by SAP HANA



Internet of Things and Industrie 4.0

SAP Connected Manufacturing runs Industrial IoT with Industrie 4.0 scenarios

Internal INDUSTRIAL scenario

External scenario

Industrie 4.0 focuses on all manufacturing industries and leverages value inside the four industrial walls and the production networks of the enterprise. Key topics are lot size of one, flexibility, traceability, production documentation and execution leveraging seamless integrated business processes connecting the top floor with shop floor.

Internet !

All industries

of Things

All things and devices

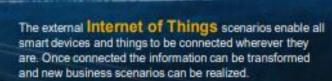


SMART Industrial DEVICES

Machine Layer

Industrie 4.0

- Manufacturing industries
- OT-IT Convergence
- Systems, things and devices in the Shop floor



SMART THINGS SMART DEVICES

Mobile



Unwire your business to deliver secure, real-time, business-critical information – anytime, anywhere, to anyone, on any mobile device.

Cloud



Capture the power of the cloud – while fully integrating with on-premise investments. Empower your employees, engage customers, and collaborate with partners across business networks.

Applications



Run your business smarter, faster, and simpler, with an integrated suite of applications powered by SAP HANA – delivering long-term predictability and nondisruptive innovation.

Analytics



Explore and exploit data, find answers in real time, and make confident decisions. Harness visually compelling, easy-to-use tools on the devices of your choice.

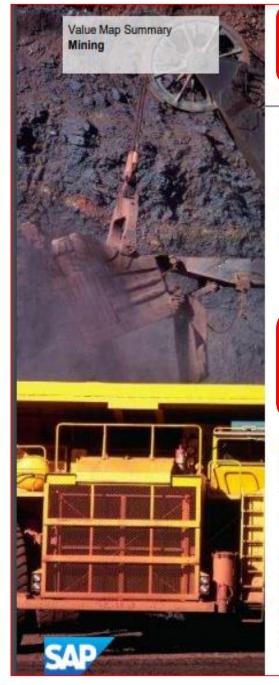
Database & Technology



Simplify your IT infrastructure dramatically and drive high-value innovation by exploiting across structured and unstructured data sources.



A real-time business platform, powered by SAP HANA



Enable the Connected Enterprise

How can SAP® solutions enable you to change the game?

Create the connected mining enterprise by integrating operational technology into SAP business processes to gain deep insights into operational and equipment data. Collaborate with vendors and contractors through procurement and workforce management solutions in the cloud. Reduce operational and financial risk through integrated solutions from SAP and manage all modes of transportation.

What do SAP solutions help customers do?

Optimized mine operations



Optimize mining and downstream processing operations through integration and business intelligence.

Operational risk and compliance management



Create safe and economic operations across the mining value chain.

Commodity supply chain management



Improve profitability through effective sales contract handling and supply chain management.

Key facts

62% Fewer outages

With reliability-based maintenance procedures and tools that increase asset availability*

71%

1 0/0 Fewer accidents

With integration of safety and environmental data with asset management*

What are the benefits?

SAP solutions help mining companies provide visibility into operations, manage commodities, and enable safe operations through:

- · Real-time visibility into mine operations
- Optimized utilization of assets
- · Improved commodity risk profiles
- Efficient transportation
- Efficient procurement processes through business networks
- Reduced operational risk

Why SAP?

Mining companies need to address the key challenges of commodity price volatility, operational productivity, and environment and safety. This requires a robust foundation of integrated IT and operations technology.

Customers

- ▶ PT Timah
- ▶ Boliden Group

- ▶ Visit us online
- ▶ Benchmark your performance
- ▶ SAP Solution Explorer



Optimized Operations

How can SAP® solutions enable you to change the game?

SAP software helps mining companies integrate operations to gain visibility across all operational sites. With support for business intelligence and visibility into equipment health, firms detect inefficiencies as they arise and can perform proactive maintenance to maximize equipment uptime and production. Workforce management software facilitates the management of internal and contractor workers.

What do SAP solutions help customers do?

Project and portfolio management



Leverage a comprehensive framework to align your asset portfolio hierarchy with corporate strategy.

Mine operations and downstream processing



Integrate the plan-to-production process, including plant-level operations and quality management.

Asset operations and maintenance



Integrate maintenance planning with execution, and visualize your equipment in 3D.

Asset network



Predict equipment outages for proactive maintenance, and manage your workforce with cloud solutions.

What are the benefits?

With SAP software, mining companies can align organizational strategy with their capital portfolio for more competitive business operations. Other benefits include:

- Fewer unplanned outages
- Higher utilization and product output
- Reduced spending
- Increased labor productivity

Why SAP?

SAP solutions integrate corporate business information and provide predictive and visualization features to maximize operational efficiency, equipment utilization, and production output for mining companies.

Key facts

+35%

Effectiveness

Of operating equipment when managed with best-in-class software*

-18%

Unplanned outages

When firms use a preventive-predictive maintenance approach*

Customers

▶ HBIS Tangshan Iron and Steel

- Visit us online
- Benchmark your performance
- CAR Calution Funlam



Commodity Supply Chain Management

How can SAP® solutions enable you to change the game?

SAP software supports integrated, demand-driven business by enabling mining companies to base production and sales plans on current financial data. Commodity management software facilitates contract management and execution of sales and purchases and provides risk management tools. Help for advanced shipment planning increases the efficiency of shipment processes, including full visibility of status and costs.

What do SAP solutions help customers do?

Demand-driven business planning



Integrate sales, inventory, and operations planning to enable collaborative decision making.

Commodity management



Manage commodity sales, procurement, and price risk while adhering to compliance rules.

Key facts

-65%

Sales quote errors

When orders are priced in real time using matrix-based rules*

Bulk and non-bulk transportation



Plan and execute bulk and nonbulk shipments with full visibility into status and costs. -14%

Expedition

Of shipments when planning is integrated with sales order software*

What are the benefits?

With SAP software, mining companies can manage sales and supply chains efficiently, meet customer commitments, and lower financial risk linked with commodity sales. Benefits are:

- · More accurate contract fulfillment and invoicing
- · Reduced financial risk
- · Efficient collaborative planning and execution of shipments
- Reduced transportation costs with more accurate costing

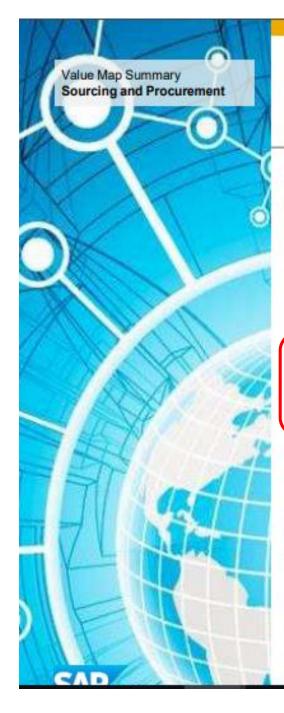
Customers

- ▶ Aurubis
- Nizi
- ➤ SMART Modular Technologies
- Cargill

Why SAP?

SAP offers a comprehensive portfolio of integrated solutions that increase process efficiency and enable demanddriven business planning, strategic sourcing, commodity management, and cost-effective management of procurement and transportation.

- ▶ Visit us online
- ► Benchmark your performance
- ▶ SAP Solution Explorer



Sourcing and Procurement

How can SAP® solutions enable you to change the game?

Sourcing and procurement software from SAP helps streamline the procurement processes of any organization, driving compliance and control while cutting costs and risks. The software offers a pleasurable and efficient shopping experience for your business users, with automated approval flows and integration with the world's largest business network.

What do SAP solutions help customers do?

Strategic sourcing and supplier management



Manage and collaborate with your suppliers effectively and meet aggressive savings targets.

Direct procurement



Mitigate risk by managing all your direct procurement activities in one place.

Key facts

70% Operating costs

With closed-loop sourcing and procurement software from SAP1

Self-service procurement



Enable simple Web ordering and automate approval flows.

Contingent workforce management



Manage your contingent labor efficiently and track spend on flexible workforce. +60%

Order compliance

With suppliers and terms working through the business network²

Services procurement

What are the benefits?



Achieve control and visibility over complex services spend categories.

Sourcing and procurement software from SAP can transform businesses through:

Smoother operations with improved spend insights and higher compliance

Better collaboration with suppliers and excellent sourcing and procurement processes

Travel management



Automate and simplify the travel planning, booking, and expense management process and cut costs.

Customers

- ▶ ABN-AMRO
- ▶ Clariant
- ▶ Caesars Entertainment
- ▶ GlaxoSmithKline
- Rio Tinto
- Sunrise Communications

Why SAP?

SAP solutions connect processes for a variety of industry value chains by integrating horizontal lines of business with industry-specific solutions on premise, in the cloud, and through mobile devices.

- Visit us online
- ▶ Benchmark your performance



Analytics Technology

How can SAP® solutions enable you to change the game?

Analytics solutions from SAP let you to extract real meaning from your data and use it to drive growth. They help you understand your business and drive better decisions, explore and present data to reveal new insights, and confidently anticipate what comes next. With analytics solutions from SAP, you can strategize, plan, and monitor your success, and better understand how to balance risks and opportunities.

What do SAP solutions help customers do?

Business intelligence



Enhance your organization's business

Predictive analytics



Identify opportunities and expose risks buried in vast amounts of data - all in real time.

Enterprise performance management



Execute better on your strategy.

Data discovery and visualization



Help business people of all skills to better understand data and use it to engage their audience.

Governance, risk, and compliance



Reap the rewards of effective risk and compliance management - with less effort and expense.

Key facts

Through investment in analytics1

28% Reduction

In customer churn rate2

Customers

- ▶ AAA
- ► City of Boston
- Sharp Electronics
- ▶ Daimler Trucks
- ▶ SA Health

Learn more

- Visit us online
- ▶ Benchmark your performance
- ► SAP Solution Explorer

What are the benefits?

With analytics solutions from SAP, companies are able to create business value by:

- · Increased quality of information from their data
- Optimized performance and reduced risk

Why SAP?

SAP solutions connect processes for a variety of industry value chains by integrating horizontal lines of business with industry-specific solutions on premise, in the cloud, and through mobile devices.

Business Priority Summary Platform and Technology





With mobile solutions from SAP, organizations can virtualize, accelerate, and transform business with a comprehensive platform-based offering. They can build, deploy, and manage industry-specific mobile apps and analytics for the entire enterprise. They can also readily deploy and support apps to multiple devices.

What do SAP solutions help customers do?

Enterprise mobility management



Safeguard corporate data at the device, app, and content levels.

Application development platform



Quickly build and deploy mobile apps with an industry-leading mobile app development platform.

Key facts

+24%

Operating margins

Where enterprise mobility is embedded in all business processes*

Messaging services



Engage consumers through mobile technology to drive sales, loyalty, awareness, and revenue.

Mobile apps



Liberate data, accelerate business processes, speed decision making, and engage with consumers. +40%

Employee productivity

Where mobile access is provided to employees across all levels*

What are the benefits?

SAP solutions enable companies to combine SAP business process expertise with leadership in mobile, Big Data, and cloud to gain competitive advantage through:

- · Optimized safeguards for corporate data
- Real-time customer engagement through mobile devices
- · Increased loyalty and awareness
- Maximized revenue and productivity
- Optimized application design and deployment processes

Why SAP?

SAP is an enterprise mobility leader that provides end-to-end mobile solutions that align with cloud, mobile, Big Data, and social networks.

Customers

- Hallmark
- Société de Transport de Montreal

- Visit us online
- ▶ Benchmark your performance
- SAP Solution Explorer

Value Map 2015 for the Metal Industry (Mill Products)

Differentiate in Commodity Markets

Interactive Version: Solution Explorer Plant and Asset Operations Excellence Profit-Driven Supply Chain Sustainable Customer Relationships Profit-Driven Business Planning Production Execution and Visibility Strategic Marketing Supply, Production, and Order to Cash Including Asset Operations and Maintenance Order Response Management Configurable Products Real-Time Network and Asset Network Cross-Channel Commerce Manufacturing Insights Efficient Logistics and Order Fulfillment Environment, Health, and Safety Differentiating Service Commodity Management Quality Management and Compliance Human Workforce Planning Core Human Time and Attendance Talent Management Resources and Payroll and Analytics Resources Management Enterprise Risk Accounting and Financial Treasury and Financial Collaborative Finance Financial Planning and Compliance Finance Risk Management and Analysis Close Operations Management Strategic Sourcing and Procurement Direct Procurement Self-Service Procurement Services Procurement Travel Management Excellence Supplier Management Analytics Mobile In-Memory Technology Platform Enterprise Technology Technology Technology Technology

Oracle Customers in the Metals & Mining Industries

Towards a Sustainable Industry





Oracle Solutions for the Metals & Mining Industries

Maysteel Provides One-Stop Information Access, Gains Competitive Edge

Customer Profile



MAYSTEEL LLC Menomonee Falls, WI, USA www.maysteel.com

Industry: Industrial Manufacturing

Oracle Products & Services:

- Discoverer
- J2EE
- Oracle9i Database
- Oracle9i Developer

"Oracle9iAS Portal enables our employees and customers to have control over their information. Also, given the strength of Oracle's vision, we are confident that its portal solution will keep improving and continue to provide the capabilities that give us a competitive advantage." -- Mary Fonder, Chief Information Officer and Vice President of Information Technology, Maysteel LLC

Maysteel Builds Competitive Edge

Since 1936, Maysteel LLC has been manufacturing precision enclosures for the data, telecommunications, and electric utility markets throughout the United States and Europe. Maysteel custom builds most of its products to meet the design specifications provided by its customers; and suggests alternative designs incorporating enhancements conceived by the company.

To boost productivity and improve decision making, Maysteel wanted to provide employees and selected customers with more timely information. Unfortunately, the company's legacy systems lacked the power to do the job. Maysteel's solution: build an enterprise portal that allows users to access relevant information any time, from anywhere, via a Web browser. Based on Oracle technology and called MAGIC for Maysteel Advanced Guided Information Community, the portal provides users with a consistent, central source of information and gives



Driving Digital Transformation with Industry 4.0 and Integrated Business Planning

Powering Clients to a Future Shaped by Growth

FROST & SULLIVAN



The manufacturing industry is undergoing unprecedented transformation driven by technologies that help manufacturers to digitize their factories.

Manufacturing

leadership Council

Board of Governors

I. Virtual Think Tank 1: How Digital Transformation Is Driving Change for Manufacturers

"The manufacturing industry is undergoing unprecedented transformation driven by technologies that help manufacturers to digitize their factories. The fourth industrial revolution can drive financial and operational impact while improving productivity and customer satisfaction."

- Dr. Jay Lee, Member, Manufacturing leadership Council Board of Governors

The thought leaders discussed a number of different aspects and dimensions of digital transformation, including the technologies and strategies they are currently using, their primary business goals, data-driven decision-making, change management and creating a collaborative culture, and the potential challenges ahead. Oracle highlighted the importance of value creation, rather than just cost savings, and also shared new ideas on a formal digital transformation strategy, including what every company should aim for as part of their digital transformation journey.

Driving Digital Transformation with Industry 4.0 and Integrated Business Planning

Digital Transformation Maturity Model

Majority of focus is on digitization today, with very little focus on digital transformation

O1 Stage 1: Data Digitization of...

- Assets, processes and measurements
- Critical operational applications
- Data integration and collaboration
- Operational metrics

Leads to outcomes such as...

Enhanced operational efficiency, asset performance optimization and OT/IT convergence.

02 Stage 2: Business Digitization of...

- Business, work and operational processes.
 Data analytics using Al/ML
- New revenue through business models
- Value creation and delivery
- Industry best-practices and domain knowledge

Leads to outcomes such as...

Innovation, continuous value creation, development of new business models and revenues.

O3 Stage 3: Digital Transformation of...

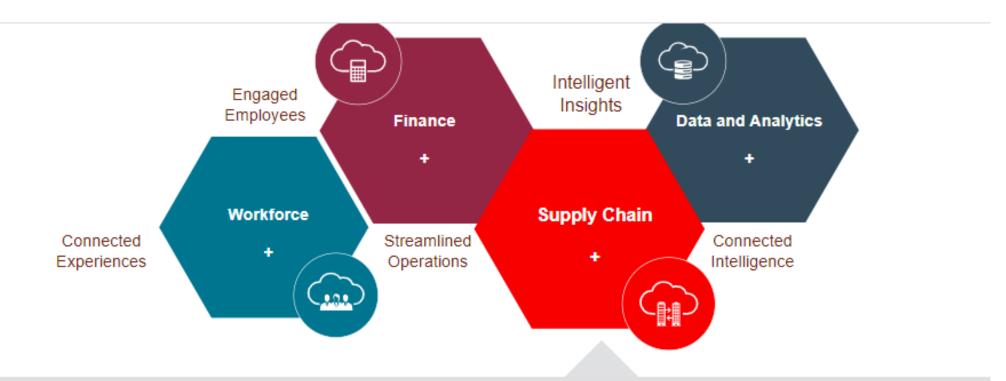
- Enterprise operations/ business
- Skills, competencies and culture
- Customer interaction and responses
- Solution delivery mediums Products and services

Leads to outcomes such as...

Transformed operations, enterprise optimization, service-led monetization models, etc.

Source: Frost & Sullivan

"We Accelerate Growth"



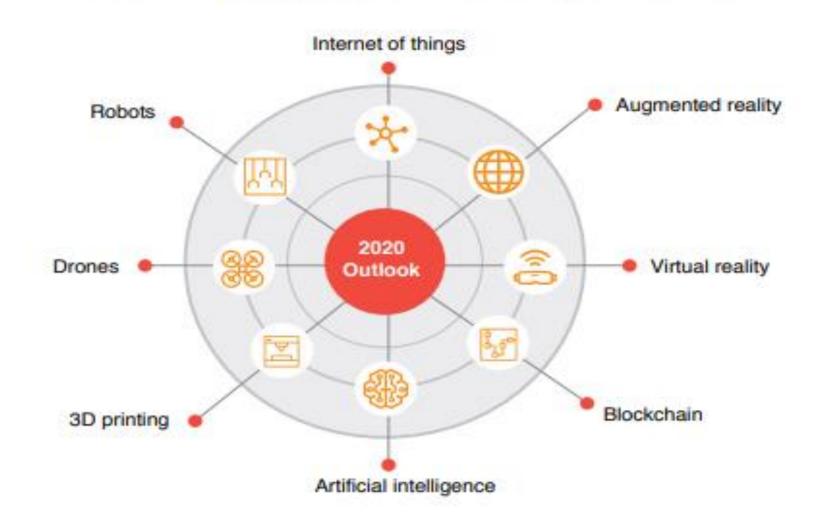
SCM Cloud

With capabilities that include product innovation, strategic material sourcing, outsourced manufacturing, integrated logistics, omni-channel, fulfillment, integrated demand, supply planning, and IOT Applications for connected Machines, Oracle SCM Cloud is the most comprehensive SCM suite to meet requirements.



Applications of emerging technologies in the steel industry

The eight emerging technologies, collectively and commonly referred to as Industry 4.0, are depicted below:



Source: PwC analysis

Oracle Supply Chain Planning Cloud

A Complete Solution







Oracle Supply Chain Planning Cloud Integration



Oracle SCM Cloud

United



Oracle E-Business Suite

Pre-Integrated



Other ERP Solutions

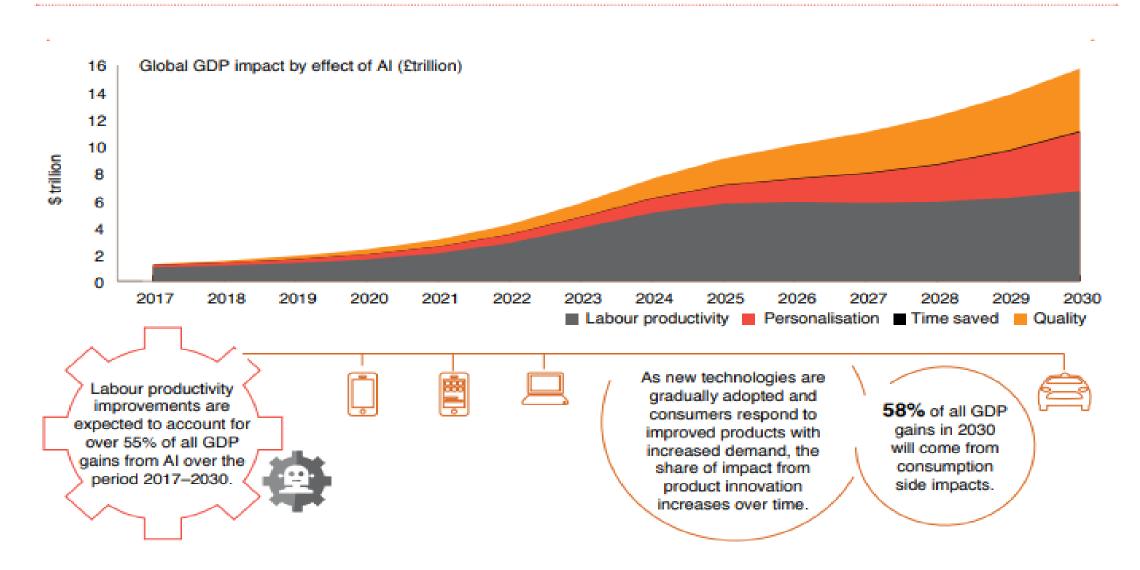
Open

File and Web Services Interfaces



As per a study by PwC, the following are the value gains from artificial intelligence:

Where will the value gains come from with Al?



Source: PwC Analysis



LA TRANSFORMACIÓN DIGITAL DE LA INDUSTRIA

innobasque



Ana Santiago

MANUFACTURING
INTELLIGENCE





Fábrica 4.0



Holistico, no solo comprar una unaquina



Modelo de Marcofactoring Intelligence

VISUAL en tiempo

Señales de activación de decuauda (DA) (QSE)



· Pronósticos de fallos instalaciones



· Conectividad

-Galas a

-Muñequeras O

- Nauo



Menu ≡





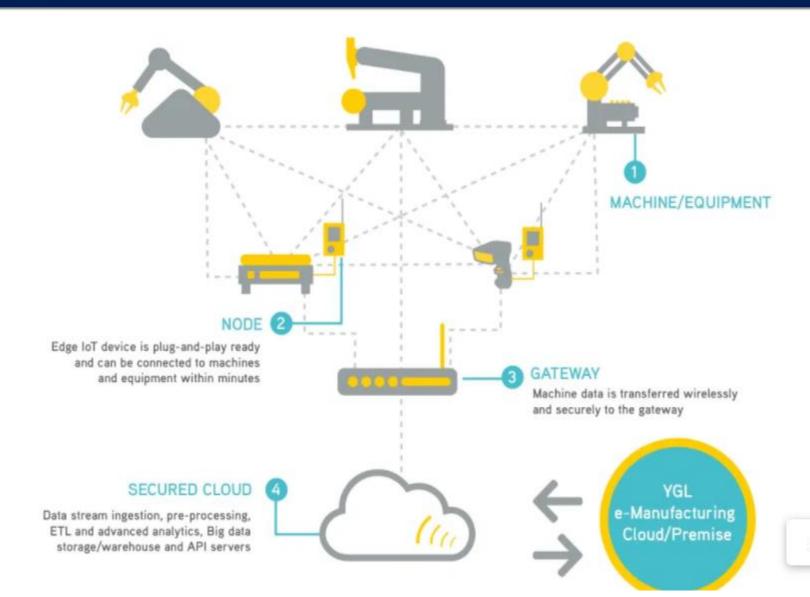
Message us

Can I help you?



Menu ≡

YgIW@RLD



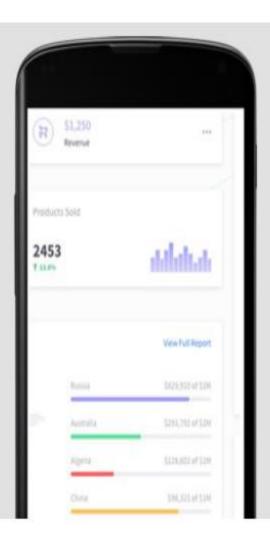


Message us

Can I help you?



Menu ∃



Mobility

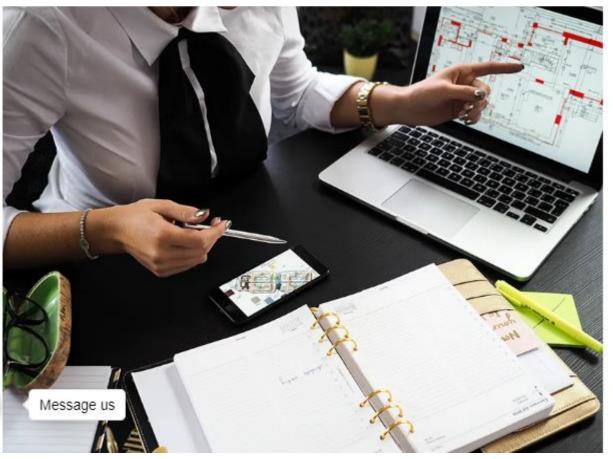
Digitise manufacturing processes and integrate business systems using a cost effective, high-quality, and resource-efficient methodology based on Industry 4.0 technology. You can improve operational visibility with near real-time information that increases reliability and product traceability using solutions based on the Internet of Things

Request Now



Menu ≡

SHOP FLOOR CONTROL



Data Collection is an easy-to-use, online system that allows labour and inventory transactions to be entered at the time that work is being done on the shop floor.

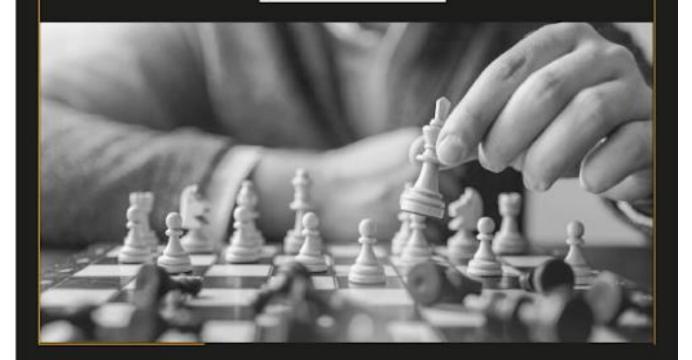
- Data Collection uses touch-screen, mouse, light-pen, bar code or keyboard interface to update labor information from the shop floor.
- Incorporate employee pictures, part drawings or even video instructions on how to perform the operation.
- Online, dynamic work queue window provides employees with a prioritized work schedule and routes information directly to the shop floor.

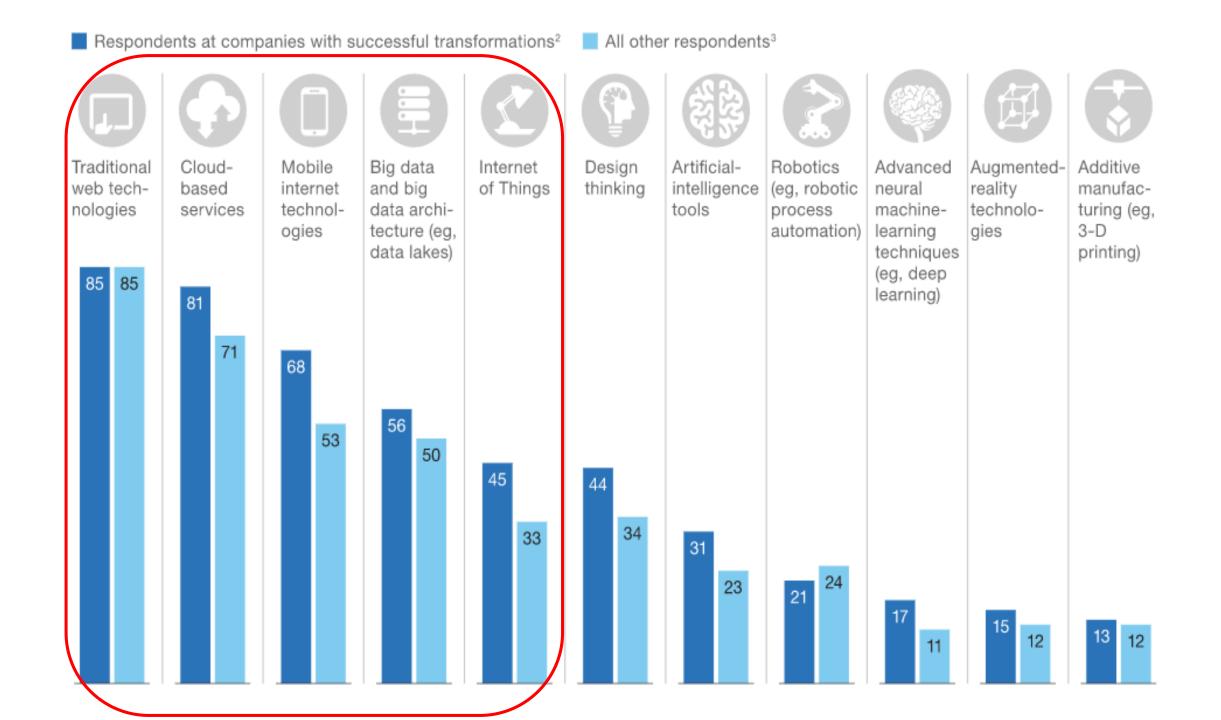
Request Now

Can I help you?

THE DIGITAL TRANSFORMATION ROADMAP: STRATEGIC INNOVATION OPPORTUNITIES

EXECUTIVE DEVELOPMENT PROGRAM

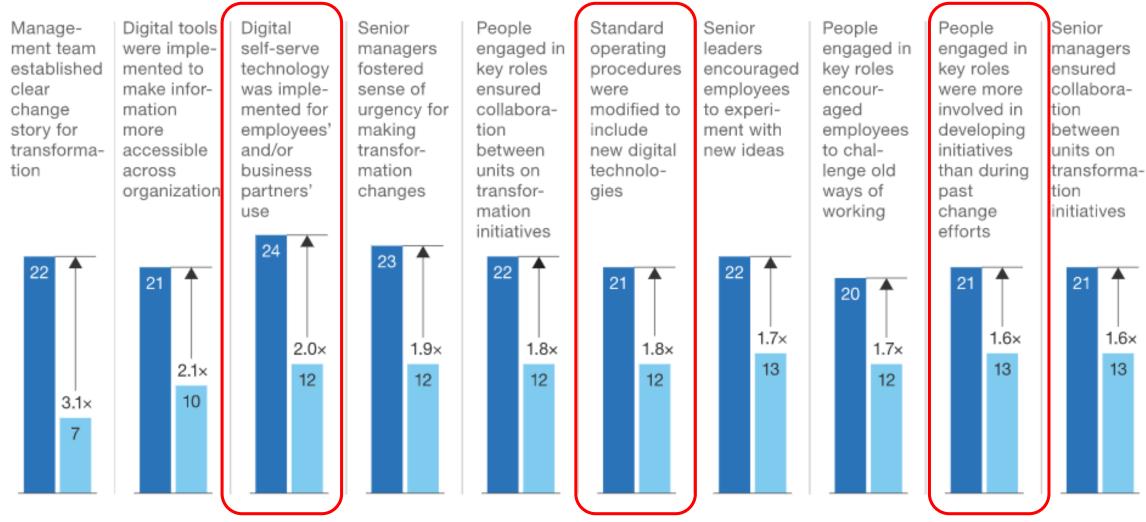




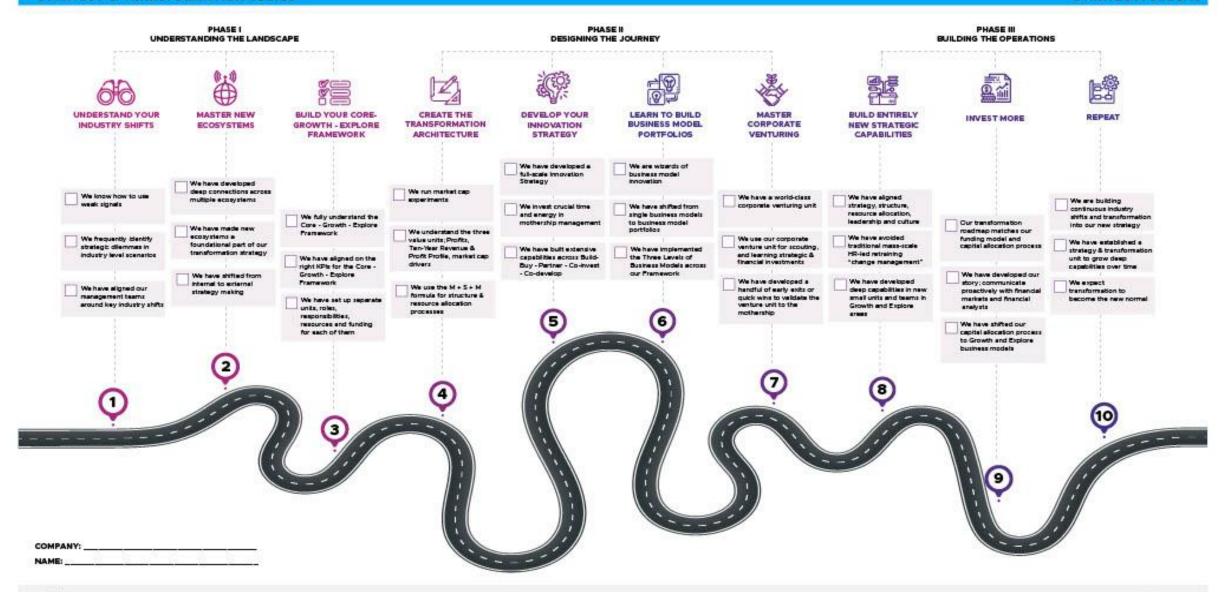
successful digital transformations.

Success rate of digital transformations,1 by key factors,2 % of respondents

Statement describes transformation³ Statement does not describe transformation⁴



^{&#}x27;Respondents who report success say their organizations' transformations were very or completely successful at both improving performance and







STRATEGY & TRANSFORMATION SERIES

PHASE I UNDERSTANDING THE LANDSCAPE

PHA DESIGNING T





MASTER NEW ECOSYSTEMS





TRANSFORMATION
ARCHITECTURE



DEVELOP YOUR INNOVATION STRATEGY

We have developed a full-scale innovation

Strategy

- We run market cap
 - We invest crucial time and energy in mothership management
 - We have built extensive capabilities across Build-Buy - Partner - Co-invest - Co-develop
- We understand the three value units; Profits, Ten-Year Revenue & Profit Profile, market cap

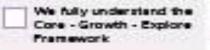
experiments

drivers

We use the M + S + M formula for structure & resource allocation processes

- We know how to use weak signals
- We frequently identity strategic dilemmas in industry level scenarios
- We have aligned our management teams around key industry shifts

- We have developed deep connections across multiple ecosystems
- We have made new ecosystems a foundational part of our transformation strategy
- We have shifted from internal to external strategy making



- We have aligned on the right KPIs for the Core -Growth - Explore Framework
- We have set up separate units, roles, responsibilities, resources and funding for each of them



PHASE II DESIGNING THE JOURNEY



PHASE III 3E 11 **BUILDING THE OPERATIONS** HE JOURNEY LEARN TO BUILD MASTER BUILD ENTIRELY REPEAT INVEST MORE BUSINESS MODEL CORPORATE NEW STRATEGIC PORTFOLIOS CAPABILITIES VENTURING We are wiperds of business model innovation We have a world-class We have aligned We are building corporate venturing unit strategy, structure, We have shifted from continuous industry single business models resource affocation. shifts and transformation leadership and culture to business model Our transformation into our new strategy portfolios roadmap matches our We have evoided We use our corporate funding model and We have established a traditional mass-scale capital allocation process venture unit for acouting. We have implemented strategy & transformation HR-led retraining and learning strategic & the Three Levels of unit to grow deep financial investments "change management" Business Models across capabilities over time our Framework We have developed our We have developed a We have developed story; communicate We expect deep capabilities in new handful of early exits or proactively with financial transformation to guick wins to validate the amail units and beams in markets and financial become the new normal venture unit to the Growth and Explore enelysts mothership -We have shifted our capital allocation process to Growth and Explore business models

6 Months Business Digital Transformation Roadmap







Customer

M

Strategy



Technology



Operations



Culture, People Organization

Customer Engagement

Customer Experience

Customer Insights & Behavior

Customer Trust & Perception **Brand Management**

Ecosystem Management

Finance & Investment

Market & Customer

Portfolio, Ideation and Innovation

Stakeholder Management

Strategic Management

Applications

Connected Things

Data & Analytics

Delivery Governance

Network

Security

Technology Architecture

Agile Change Management

Automated Resource Management

Integrated Service Management

Real-time Insights & Analytics

Smart and Adaptive Process Management

Standards & Governance Automation Culture

Leadership & Governance

Organizational Design & Talent Management

Workforce Enablement

DIGITAL DIRECTIVE: SCORECARD



STRATEGY

DATA

ORGANIZATIONAL ALIGNMENT

CUSTOMER EXPERIENCE



+26%





Digital Vitality Dashboard

Use a scorecard or dashboard to measure the success of digital transformation.

Digital Vitality Score

















