

**MINING IN THE FUTURE.  
LEARN FROM THE BIG BOYS  
DON'T JUST PLAY WITH THEIR TOYS**

**CSC**



# EMBRACE CHANGE ACCELERATE GROWTH



## IN LIFE AND IN BUSINESS THERE IS ONE CONSTANT - CHANGE. IF YOU'RE NOT AGILE IN RESPONDING TO CHANGE - SUCH AS SHIFTS IN BUSINESS GOALS, NEW REGULATIONS, THE START OF A RECESSION, AND INDEED ITS END - YOU'LL FALL BEHIND.

As we pull out of the GFC, we now have the pleasure of looking retrospectively at predictions in China's growth - the previously projected 12% growth, has now been balanced with the reality of around 10% (Goldman Sachs 5 Jul 2010, Citibank 5 Jul 2010).

This is still a positive for the mining industry however the underlying and fundamental challenges still remain. With this slower than anticipated growth, now is the best time to take stock and address long outstanding points of weakness in the supply chain.

Infrastructure constraints, sustainability, human capital, safety, asset reliability and maintenance, and compliance, need to come back into focus.

IT can assist mining companies to address all of these issues. Positive outcomes are underpinned by the ability of mining operations to understand and analyse the data that they already have available.

The mining industry generally is not well prepared to use the data that currently exists, let alone take advantage of the data that will be available in the near future.

To face these challenges and improve operations, mining companies must take action in many areas, but we don't advocate doing everything all at once.

By taking a 'pareto' approach and using integrated information technologies to develop an holistic view of the enterprise, mining companies can gain competitive advantage over their peers by:

1. Optimising their operations with more effective supply chain management, better maintenance practices, better mobile communications, better work force management, and better collaboration between dependent organisation silos, using a mix of integrating unconnected systems, providing visibility of the entire operation and its internal linkages, and sophisticated

use of analytical techniques.

2. Delivering better capital project outcomes by integrating acquisitions earlier, and commissioning new assets faster by early development of IT strategies and by building systems that ensure information handover when projects are complete is seamless.

The benefits that just these activities can deliver include:

- Greatly improved safety outcomes
- Lower cost production
- Improved transport scheduling
- Higher equipment work rates
- Reduced inventory cost
- Better NPV on new assets
- Longer staff retention
- Knowledge retention

# BUILDING THE BUSINESS CASE FOR IT INVESTMENT

## UNLOCK IT EFFICIENCIES

It's harder to say which moves more quickly, technology or the business's demands to deliver more for less. There are hundreds of ways to make your IT team more efficient and cost-effective; the challenge is to identify those that will deliver the best value to the business in both the short and long term.

Business Process Management is the understanding, visibility, and control of business processes. A recent survey showed 95% of BPM projects exceed corporate ROI and yield results in around six months. BPM provides improved visibility into key business metrics, reduces costs through automating processes, and improves productivity by allocating resources more efficiently.

## INFRASTRUCTURE TRANSFORMATION

A utility or pay-as-you-go service model not only gets assets off your balance sheet, it lets you align your costs with fluctuating business needs.

For example, CSC Dynamic Server gives you access to fully configured computing resources on demand in your data centre or ours. Why pay for server and storage capacity just in case? We can deliver a fully configured virtual operating environment, with software, ready to use, in just 30 minutes. Users pay only for the capacity used and software licences needed. Typically organisations see a 30% reduction in total cost of ownership (TCO) and a 90% reduction in the procurement and provisioning lifecycle.

History will record cloud computing as the catalyst for a tectonic shift in the business world - creating new business models, accelerating innovation and fundamentally changing the economics of many industries. For early adopters, there will be market-killing advantages.

Leading organisations in the energy, natural resources and utility industries are already using cloud computing to improve their agility. In Houston, Texas, half a dozen or more cloud data centres have emerged to service local firms needs for massive compute power on demand to analyse geological and geospatial data, to provide IT infrastructure for short or medium term projects and to help mine the massive amounts of data produced from Smart Grid technologies. Meanwhile, a consortium of energy companies and IT firms in Qatar is building a regional cloud facility to share common IT applications.

These sectors have vast quantities of data generated from sensors and devices in real-time and event-based exploration and production operations - all suited for cloud services such as backup, archiving, data mining and analytics.

## EMPOWERING YOUR MOBILE WORKFORCE

A little known fact about desktop virtualisation is that it can save lives - the lives of support staff that traditionally venture out into hostile environments to provide much needed emergency response to PC issues. Desktop virtualisation now allows an improved level of support from the safety of an onsite support office or remote control centre, over the network. With applications hosted from a central data centre, issues with applications can be rectified quickly without the need of maintenance call outs.

## CSC'S DYNAMIC DESKTOP PROVIDES:

- A platform that will deliver increased safety in delivery of services through a reduction of site based personnel and use of remote technology solutions
- Increased focus on remote and automated resolution for end user computing incidents
- Increased reliability through a stable, flexible and consistent desktop environment
- Greater control and knowledge of the overall end user device landscape
- Significantly improved scalability and availability, allowing rapid provisioning of desktop environments

## A GOOD NEWS STORY FOR THE CIO TO SHARE WITH THE CFO...

### MINIMISE UPFRONT AND FIXED COSTS

Managed services, on-demand utility computing and business process outsourcing can not only free cash by converting CAPEX to OPEX, but deliver a more cost-effective, better-quality service through economies of scale and access to specialised expertise. Outsourcers commit to deliver not just immediate savings, but sustained year-on-year savings. Nor must an outsourced service take a year or more to complete and longer to deliver benefit. When clients need to act quickly, CSC can take on infrastructure, applications or process management within weeks.

# TAKING CONTROL OF MINE OPERATIONS

## IT'S ALL ABOUT CONTROL

Remote Operations Centres (ROCs) are collaborative environments that are used for more than just managing the day to day operations of equipment. Increasingly they are used to monitor and control every aspect of the operation, including providing the data and information necessary at different levels of the business for a variety of purposes. The ROC is the nerve centre of the operation which has been evolving in capability to handle an increasing number of tasks through its application in a number of different industries.

Outcomes from implementing ROCs in other industries include:

- More activities are conducted remotely, so fewer personnel are exposed to hazards
- Greater visibility of entire operations to a wider audience, including off-site specialists, leading to faster and better reaction to tactical production issues and emergency situations
- Increased depth and breadth of information, analysed in an integrated and timely manner, leading to more efficient operations, such as detection of equipment degradation before it impacts production
- Optimised production through timely and accurate operational information delivered to all levels of planning and operations, regardless of location
- More informed strategic decisions based on improved business processes that deliver the right information to the right people at the right time, who collaborate more widely
- All this leading to higher production via more available equipment, working at specified rates, for longer periods, at lower cost and lower operational risk

## ANALOGUE VS DIGITAL

Wireless communications across the mine site are now a critical enabler to ensure a safe and efficient mine operation. Two-way radio, frequency management, analogue voice communications, network bandwidth, and the new digital age all present challenges to mine managers. CSC has unique knowledge and a balanced approach to all these technologies that can make a fundamental difference to strategic planning and forecasting, saving you dollars, time and effort.

## POWERFUL COMMUNICATIONS

When a global miner wanted a robust wireless solution for a green field mine site, CSC were able to deliver.

### CLIENT CHALLENGE

The client needed a future-proof architecture to enable site-wide two-way communications in a single, integrated wireless network for a new greenfield coal mine. They wanted a solution that could support all applications, including environmental monitoring, PLC and video data from fixed and mobile plant, and mobile heavy fleet applications.

### OUR SOLUTION

A proven digital trunking two-way radio system and ruggedized Industrial Wireless Service™, incorporating Proprietary Mesh and point-to-multi-point wireless-enabled Intelligent End Points.

### THE RESULTS

The client had previously relied on application vendors supplying multiple contention-based wireless networks supporting single applications, or labour intensive manual methods of removing application data from vehicles for analysis. We developed a solution that provided a pervasive network and self-healing active mobile mesh with intelligent end points, ensuring maximum coverage whether at the ROM or the mine face. Application data is presented in real time to operators who, while at the mine today, could be in a remote operations centre tomorrow.

## WHY THE MINE MANAGER SHOULD TALK TO THE CIO...

For ROCs to be successful it is necessary to incorporate and integrate a number of emerging technologies. These technologies include new intelligent sensors, real-time data collection and management, advanced data and application integration, expert systems for alarm management and escalation, robust communications networks within and between

sites, linked geospatial and document management systems, and collaboration rooms with both video and data feeds.

The mining industry does not need to break new ground to implement significant improvements in the remote management of operations. The lessons already exist for designing, developing, implementing and running Remote Operation Centres.

## KEEPING SAFETY, TRAINING AND ACCESS UNDER CONTROL

Maintaining site safety, training and access across 11 mine sites and four city offices is a major undertaking for any organisation however, the largest private employer in Queensland, Australia can now achieve just that with its refreshed Training and Access Management System (TAMS) implemented with support from CSC.

### CLIENT CHALLENGE

Achieve compliance with relevant state and federal level legislative requirements. Further support goal of Zero Harm and support a sustainable improvement in safety performance.

### OUR SOLUTION

Implementation of automated business rules through swipe access cards. Comprehensive data cleansing and SAP integration with access management system. Enforced policies ensuring compliance.

### THE RESULTS

Improved safety through better compliance means great economic benefits, less operation shutdowns, reduced risks to workers, less compensation due to fatigue related injury. Auditable compliance to state and federal legislation governing mine safety and company HSEC policies.

## WHAT IF YOU COULD SEE EVERYTHING?

Enterprise visibility brings a new, enlightened and proactive discipline to your strategic asset management, sales and marketing decisions. It comes from a cohesive understanding of critical business intelligence across four domains: geographic visibility (facilities, infrastructure), asset visibility (things that move), organisation visibility (people), and operation visibility (interaction of people, things, and infrastructure).

This allows you to intervene proactively to protect people, plant and equipment, optimise asset utilisation across the supply chain and improve your cost structure.

Most companies are pretty good at reporting on 'who' (customer/employee/supplier), 'what' (task/product) and 'when' (time). But, to date, the 'where' has received little attention. Yet, your business is immersed in a world of readily accessible location, status, and performance data that could significantly improve your organisations' efficiency, effectiveness, and profitability. Location technologies and geographical information systems (GIS) are nothing new to the mining industry, which already uses location intelligence in minerals exploration and environmental monitoring. Mineral exploration geoscientists use diverse types of data sets to search for new economic deposits. Geospatial data sources include geologic maps, hyperspectral airborne and multispectral satellite images, geophysical maps and images and a variety of field data in many formats.

## PROTECTING PEOPLE AND ASSETS

Think about your assets: where are your vehicles, are they being driven safely to avoid injury and breakdown?

Who has custody of your shipments? Is everything you put on the truck still there? Think about your employees: are you able to locate them in case of emergency? Have they been evacuated to a rally point? Are they safe? Do they need assistance? You can use 'enterprise visibility' to exercise both due diligence and due care in protecting the lives and property of your enterprise. It gives fleet managers the ability to handle multiple types of mobile fleet and field equipment in a single coherent environment, using mobile equipment tracking, collision detection and driver monitoring to support safety policies.

You can also improve asset reliability by implementing reliability-based maintenance practices and systems that are linked to the location, status, and performance of the equipment.



# VISIBILITY OF COSTS ENHANCES BUSINESS DECISIONS

## EVERY DOLLAR COUNTS

Leveraging IT and improving business processes are fundamental to realising efficiency improvements. And that's our field. While it's vital to improve customer service and deliver your products and services more efficiently, the focus should equally be on using your relationships with customers to anticipate their needs so you can be prepared for the way the economic climate will affect demand. An effective business intelligence project won't just help you identify where to focus your resources, it will also tell you where to cut your losses.

## WHY THE CFO SHOULD TALK TO THE CIO...

CSC's Business Intelligence solutions encompass three key capabilities: creating a single view of your customers, analysing customer information to derive market- and customer-specific insights, and converting these insights into improvements in your customer-facing operation.

## ON-PREMISE VS CLOUD - A CFO PERSPECTIVE

For a CFO, paying for IT services by the month as they are used, rather than up front for uncertain use, has numerous advantages:

- Enhance cash flow - reduced CapEx
- Reduce financial risk - you can adjust spending based on business activity, terminate services no longer used and only pay for value delivered
- Provide greater financial visibility - Cloud Computing providers offer greater transparency on spending than most in-house IT functions
- Deliver a healthier return on assets - the expense of using Cloud Computing services are incurred in the same period that the value is delivered, so your balance sheet doesn't carry an ever-depreciating capital asset of hardware and software

Clearly, these benefits are extremely compelling. But how is this huge cost differential possible? Your IT is still being hosted on someone's computer, somewhere. Part of the answer is that the flexibility of virtualisation and economies of scale enable cloud data centres to use computing power so efficiently that they can rent computer time and services extremely competitively to even the largest consumers. The other part lies in your own IT story. Over the years, your IT infrastructure has become increasingly layered, complex, and sprawling - to the point where your IT department spends most of its life (and 70-90% of your IT budget) simply maintaining the status quo. You're paying a complexity tax.

## SMARTER DECISIONS WITHOUT REINVENTING

When a leading global miner wanted to take stock of data stores and information platforms, CSC developed a beneficial solution that ticked all the boxes.

## CLIENT CHALLENGES AND REQUIREMENTS

- Replace fragmented business unit data warehouses with an enterprise solution
- Lower total cost of operations
- Meet the needs of global and local business units
- Consistent treatment of core processes and data supporting over 9,000 users
- Standard toolset for database, security, reporting and enterprise portal
- Enterprise content usable by all
- Collaborative governance framework between business and IT

## OUR DELIVERABLES

- Develop the business case and architecture and migration approach for legacy warehouses
- Execute the Enterprise Data Warehouse strategy and legacy warehouse migrations
- Key roles in building and operating the governance framework
- Ongoing development and support

## THE RESULTS

- 50% reduction cost of operating Business Intelligence
- Re-use of business unit specific content at 10 - 20% of original development costs
- Access to savings of \$30million pa in maintenance costs through operational reporting in one business unit alone
- Reporting platform from executive/board to operating management, e.g. Finance, HR, Supply
- Streamlined and faster legal, management and International Financial Reporting Standards (IFRS) consolidation



# OUR COMMITMENT TO DELIVERING BUSINESS OUTCOMES

As the No.1 IT Services provider to the natural resources industry, we can help you grow your business through a wide range of technology and business services specifically tailored to your needs. We currently deliver mission critical services to a growing list of natural resources clients around the globe including: BHP Billiton, Rio Tinto, Newmont, Xstrata, Vale, Chevron and Woodside Petroleum. Our expertise spans mine IT planning, end-to-end plan and execute, logistics, equipment tracking, technical data management, remote communications, and information management.

## WHAT DO WE KNOW, THAT YOU NEED TO KNOW?

We see enormous opportunities for miners to exploit emerging technologies: advanced wireless communications, robotics and automation, and smart analytical software applications. Successful technology innovation is driven by business stakeholders from Day 1; from Senior Executive sponsors to Plant Operators and Subject Matter Experts (SMEs). The business value must be crystal clear. As early as possible, business value must be demonstrated to stakeholders and they must be involved at every stage of the journey.

## INVESTING IN YOUR FUTURE

Companies that will be successful in the future will be those that are comfortable and practiced at technological innovation. We are totally committed to bringing new ideas and technologies to our clients in the natural resources sector to help them achieve that technological innovation. To demonstrate this, our Natural Resources Centre of Excellence (NRCoE) was established with the single purpose of acting as a focus for these efforts and as a catalyst for change and it has a track record of successful innovation in partnership with our clients over the last four years.

## OUR INDUSTRY KNOWLEDGE

We are a trusted partner with our clients and we participate at many levels within the organisation, from strategic planning at the corporate level to implementation and support of production systems at the coal face. The result is that we understand the business of mining and distribution. We have proven capability, experience and intellectual property that greatly benefits our clients.

Our IT services and experience are used by many companies across many industries. The NRCoE shares the experience from technology application in other industries such as NASA, aerospace and defence, applying this to the natural resources sector - we call this industry transference. Many of our extended networks provide access to incubator projects and R&D vehicles that present options for clients to invest and jointly drive innovation projects.

## PERSPECTIVES AND INSIGHTS

Our industry perspectives and idea generation provides insights into the key business challenges confronting our clients. This, combined with our knowledge of the technology landscape is based on work we are executing in multiple industries.



### BUSINESS OPPORTUNITIES

- Occupational Health and Safety
- Environment and Sustainability
- Asset Reliability and Maintenance
- Production Management
- Improved Yield and Throughput
- Capital Project Enablement
- Inbound Logistics
- Integrated Planning
- Outbound product supply chain
- Fleet Management
- Workforce Management

### EMERGING TECHNOLOGIES

- New Generation Mining Applications
- Intelligent sensors (RFID and motes)
- Intelligent Data Aggregation
- Predictive Interpretation Systems
- Mobility and Wireless
- Automation and Remote Operations
- Data and Application Integration
- Business Process Management
- Decision Support
- Web 2.0 Virtual Collaboration
- Digital Dashboards



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## About CSC

The mission of CSC is to be a global leader in providing technology-enabled business solutions and services.

With the broadest range of capabilities, CSC offers clients the solutions they need to manage complexity, focus on core business, collaborate with partners and clients, and improve operations.

CSC makes a special point of understanding its clients and provides experts with real-world experience to work with them. CSC is vendor-independent, delivering solutions that best meet each client's unique requirements.

For 50 years, clients in industries and governments worldwide have trusted CSC with their business process and information systems outsourcing, systems integration and consulting needs.

The company trades on the New York Stock Exchange under the symbol "CSC."

For more information, visit the company's website at [www.csc.com.au](http://www.csc.com.au) or email [talk\\_to\\_us@csc.com.au](mailto:talk_to_us@csc.com.au)

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