Managing e-Business Change within a Global e-Marketplace

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ABSTRACT

This paper presents the results of a case study into the management of change in B2B e-marketplace adoption by a globally distributed mining company. The case represents a large buyer organisation's perspective on participation in public e-marketplace for the mining industry. Detailed case study analysis of the facilitators of change which were essential in overcoming the barriers of B2B e-marketplace adoption. The cases presented used an established research framework for gathering evidence to identify the factors for success of an e-business project. This research framework was chosen as a method for its ability to examine complex phenomena of e-Marketplaces. It specifically explores the components of the successful learning organisation where the key issues remain as people oriented organisational issues.

INTRODUCTION

Numerous papers have been written about e-business and how this concept will change the way companies do business, characterised by rapid exchange of information within a virtual network of customers and suppliers working together to create value-added processes (Ticoll et al., 1998; El Sawy et al., 1999; Jansen et al., 1999; Burn & Barnett, 2000). However, little information is available on how to successfully integrate e-Business projects with ongoing B2B e-marketplace systems (Kaplan & Sawhney, 2000; Segev & Gebauer 2001). As more and more established organisations realise that they need to form alliances with their customers, partners and suppliers over the Internet, e-business integration with B2B e-marketplace systems becomes a critical issue (Koch, 2002; Osburn & Kisiel, 2003).

Several studies relevant to the topic of B2B e-marketplaces have been completed in the automotive sector, e.g. studies of Covisint on e-enabled procurement in the European automotive industry (Thomson, & Singh, 2001; Arbin, & Essler, 2002). Further, BHP Billiton a founding shareholder of Covisint, initiated the development of two other e-markets in Australia, corProcure, and Quadrem for the mining industry (Segev & Gebauer, 2001). Yet previous studies have not addressed the foundations of successful B2B e-Marketplaces within the mining industry.

This paper reports on the initial findings from a case study of a global mining organisation's ongoing e-business projects within an e-Marketplace. This involved the collection of most recent information from multiple interviews from four distinct internal mining sites and web-based secondary data. An established research framework of e-business change (eBC) is used to identify the factors for success of e-business implementations (Ash & Burn, 2004). The qualitative data provided content and discovery of elements that surround each construct to identify those facilitating and inhibiting factors that lead to ultimate eBC goals.

The results confirm that a successful project was found to have facilitators in all components of the eBC framework, including the change environment and management practice. Further, there is the implication that successful e-business projects between buyers and sellers within a public e-marketplace will have facilitators in all components, especially in the area of cultural readiness and the management of e-business change.

THEORETICAL FRAMEWORK

We define a B2B e-marketplace (or e-Marketplace) as a virtual marketspace where multiple buyers and sellers can interact with information and transactions supported by additional value-add facilities. This involves the application of Web-based technolgies, including "sell-side" and "buy-side" applications. In this study Global Mining Corporation (GMC) is the alias name of a large internationally distributed mining company and QTX represents the mining industry's global public e-Marketplace organisation, illustrated in Figure 1.

GMC is leveraging QTX's e-Marketplace to position itself as a major buyer within this global mining industry virtual market-space. The positioning by GMC demonstrates a differentiation towards this public e-Marketplace to enhance the flexibility to source from local and regional suppliers to take full advantage of operational obligations.

Model of e-Business Change

Barua et al. (2001) specifically refer to the success of a company's e-business initiatives coming from the readiness of buyers and suppliers to engage in electronic interactions. Norris et al. (2000) capture the essence of moving to an e-business environment involves a major organisational change. "Like ERP major business initiatives, e-business forces change to occur to three corporate domains – *technology, process, and people* – at both a strategic and operational (tactical) level". To overcome resistance to change, each component must be aligned, along with the enabling technology, to the strategic initiatives (Hesterbrink, 1999).

This cased based research uses a model of e-business change (eBC) developed by Ash and Burn (2004) was derived from the results of a longitudinal analysis of e-business implementations with existing ERP systems. In this model of eBC all constructs within each component level are considered as antecedents to success. The results from the previous research suggested a more elaborate set of interrelationships between each level. A more comprehensive model of eBC (Figure 2) is therefore proposed for this case study of e-Marketplaces to examine the interrelationships between the three component levels.

The eBC model shows the focus for strategic planning shifting through three stages of development with outcomes and performance gains realized through greater progression towards extended enterprise resource planning (e-ERP). The associated management issues evolve through self-service, care and empowerment towards extensive relationship building with multiple alliances. This is quite distinct from the 'one size fits all' approach of centralized planning and allows strategy
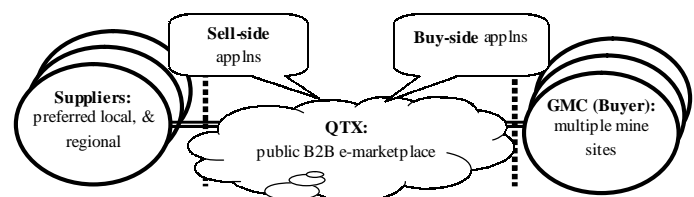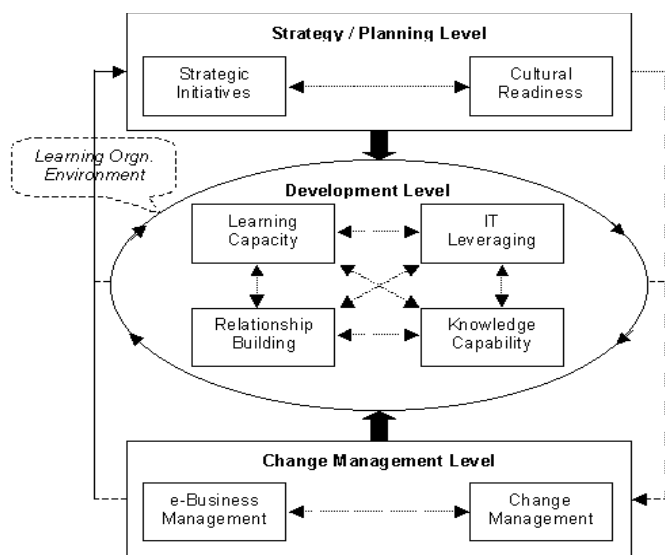
Figure 1. QTX's Public e-Marketplace

Figure 2. Model of e-Business Change (Ash & Burn, 2004)

to evolve with changing market conditions. This approach provides the means to explicitly define and manage relationships between supply network partners and to monitor trends and trigger a revisiting of strategic decisions across the network (Oliver et al., 2003).

METHODOLOGY AND DATA COLLECTION

The study was carried out over a two month period and using multiple interviews of senior project staff on a global mining company (GMC) involved in extended or integrating e-business applications with the systems of a developing B2B e-marketplace. Data was gathered from three sources; primary, secondary and tertiary:

1. Primary data, from open and semi-structured interviews conducted between June and July 2004. Telephone interviews and email correspondence help to verify the case notes.
2. Secondary data, from company documents; case papers and company reports sent via emails.
3. Tertiary data, from case papers and company reports accessed via the Internet.

The analysis techniques were used at 3 levels and are summarised in Table 1.

The case material collected was used to distill the characteristics and issues of e-Marketplaces and to examine change in developments for online interactions between buyers and suppliers.

CASE BACKGROUND:
GLOBAL MINING CORPORATION

Global Mining Corporation (GMC) is one of the world's largest producers of precious metals. GMC is the only precious metals producer ranked in both Standard & Poors 500 and the Fortune 500. With mining operations in North America, South America, Australia, New Zealand, Indonesia, Uzbekistan and Turkey, the company has implemented e-business across cultures to achieve a unified global corporate supply chain strategy. The company's four core assets are mine sites in Peru, Indonesia, Australia (with six sites) and Nevada operations in the United States which combined represented 4.9 million ounces of reserves at year-end 2002:

*   GMC[1] (Peru) – GMC's mine site in Peru was instrumental in developing a "Procure-to-Pay" (P2P) digital document suite and was the first GMC site to implement. The level of monthly purchase orders transactions has risen from 80% to almost 100%.
*   GMC[2] (Indonesia) – one of two GMC's Indonesian subsidiaries, transacts online between US$6 and $9million each month in expenditure to more than a hundred suppliers worldwide.
*   GMC[3] (Nevada, USA) – one of GMC's North American sites transacts over 3,100 electronic purchase orders per month, representing over 50% of their monthly purchase orders.
*   GMC[4] (Australia) – This has been GMC's quickest e-business on-ramp to date, by integrating to QTX in less than a month and very quickly transacting with well over 100 of its suppliers.
*   QTX Organisation – The e-Marketplace QTX is a globally distributed company operating on six continents. This company is able to provide quality IT support to GMC's global e-business effort.

CASE ANALYSIS WITHIN EBC MODEL

The changing strategic focus across the stages of the eBC model is now redefined in Table 2. At stage one of the extended enterprise, the focus is very much internal with top-down planning and an emphasis on training employees to become proficient in self-service to improve operating efficiencies and increase returns on investment. The first shift comes when the enterprise extends its relationships across the full supply chain for products or services. At this stage, the focus is on empowerment and self-learning through bottom up planning within the organisation. There is also a realignment of business objectives to include external alliances across the supply chain. Finally, the planning focus will be directed towards re-engineering the supply chain though collaborative planning to gain value enhancement throughout the networked community.

e-Business Processes

At the development level, business process was a critical component in GMC's e-business effort. The company had to devise the best way to approach digitisation of current procurement processes and identify new business processes that needed to be developed in order to execute to GMC's supply chain strategy.

Table 1. Analysis Techniques

Level	*Coding Technique	Data Analysis
1. Lower levels of detailed benefits	Selective	Content analysis of each sub-case** to examine the construct, using exemplar cases.
2. Next level detail of content within key themes	Open and Selective	Cross-sub-case content analysis of selected themes to determine the elements of eBC that contributes to superior value, using exemplar cases.
3. Top level themes	Open	Cross-sub-case content analysis to determine the highest level themes that are critical / essential to e-Marketplace B2B interactions.

* Coding techniques open and selective are from Strauss and Corbin (1990: 117-118). ** Sub-cases refer to GMC's core assets or regional sites

Table 2. Stages of eBC Model

	Stage 1	Stage 2	Stage 3
Strategic level	Self-service	Empowerment	Relationship building

Development level:
* e-Business processes
  Learning
  Communication
	Internal BPR
	Training
	Top-down
		External Coordination
		Self-learning
		Bottom-up
			Re-engineering for
			  value enhancement
			Community
			Collaborative

Management level: * e-Bus. change managt. * People	Shared vision Teams	Change coordination Preferred Suppliers	Cultural readiness? Partners: QTX, local suppliers, Micom

* Table 2 is an update of eBC model and populated by detailed findings from GMC Case

Stage 1: Internal Business Process Re-design (BPR) played a critical role in GMC's e-business effort. Because of the technological change required, GMC was forced to review the orchestration of accomplishing its business objectives, that is, its business processes. In many cases, this forced view uncovered existing process inefficiencies, requiring GMC to change the way business was performed in order to streamline its supply chain operations. The results were positive and twofold: (1) existing and efficient processes were made more efficient due to digitization and (2) existing, inefficient processes were re-designed and digitized, reaping additional value.

Stage 2: External coordination was achieved by new business processes created to; enrol, test, and ultimately enable key GMC suppliers. This process was a concert of working relationships between GMC, QTX and Mincom. GMC and QTX performed supplier enrolment workshops around the world for the sole purpose of communicating the reciprocal value of e-business to GMC and its suppliers – on a global, regional and local level. Once enrolled, the joint team collectively enabled the suppliers through QTX.

e-Business Change Management

At the management level e-business has at its core a massive change management effort requiring an arsenal of change management tools and techniques (Kalakota & Robinson, 1999; Scheer & Habermann, 2000).

Stage 1: GMC's shared vision GMC relied on proven change management techniques – namely General Electrics' change acceleration process (CAP) model. This CAP model requires a significant amount of communication and action around; creating a shared need, shaping the vision, mobilizing commitment, measuring success and making change last.

Stage 2: Change coordination was action was required by GMC's management team to lead the change and in many cases to change systems and structures in order to support the e-business effort.

People

People, both internal and external to GMC were, and continue to be, the heart of GMC's e-supply chain effort. Communication across multiple sites and throughout the organization (top-down, bottom-up and outward focused) was critical to achieve buy-in, address change management issues and ensure the best solution was optimally implemented. To support the effort, performance incentives were established to motivate employees to reach milestones. GMC also created consensus-building, cross-functional teams to ensure everyone stayed informed and synchronised, and that all knew what the value to their part of the organization would be as a result of the implementation.

Stage 1: *Teams* - The GMC teams and their contributions are listed: (i) *GMC Executive Management* – One of the most critical groups of stakeholders to GMC's e-business effort. GMC's executive management team, both at the corporate and operating level believed in the long term value, efficiency and cost out savings of e-business. It was because of this belief that they made QTX implementation an imperative at the operating level and incorporated it into performance development plans for those involved. (ii) *GMC Site Level Teams* – The site teams on the ground that were responsible for e-business execution were equally critical to GMC's success. GMC's effort gained traction in the early days of QTX through hard work and commitment to achieving the strategy. The traction was achieved through constant and consistent communication of the change and related value of e-business. Overall, communication was multidirectional - upwards, downwards and outwards. This site-based hard work paid off, as the effort had a cumulative effect of success breeding success. (iii) *Global Project Management Organization (PMO)* – GMC Executive Management created a small team whose sole purpose was to develop and implement the e-business strategy at GMC. This small team developed the strategy, established virtual teams, developed work plans, obtained funding, prepared communication plans, assisted in supplier enrolment and overall project execution. The Site Teams and PMO worked closely together during GMC's execution phase. (iv) *QTX Secondees* – Another critical success factor was QTX Seconded supplier enrolment. GMC seconded key internal employees to work on behalf of QTX to enrol suppliers at all levels. Armed with industry experience, information and senior supplier contacts these key individuals contributed greatly to the overall effort. The seconded GMC employees have since been re-absorbed back into the GMC organization and continue to have a significant impact on GMC's e-Business Program.

Stage 2: *Preferred Suppliers.* GMC's preferred suppliers were, and continue to be, the cornerstone to GMC's ability to execute to its e-Business strategy. Without the suppliers' participation, the effort would fail quickly. From inception, GMC's more progressive suppliers saw the immediate value of streamlining the business relationship through digitized processes. These suppliers joined QTX immediately. Other GMC suppliers were less clear on QTX and its value proposition, which required additional explanation and a longer enrolment process. Ultimately an overwhelming majority of GMC's preferred suppliers have recognized the long-term value, have joined QTX and are transacting in key regions around the world.

Stage 3: *Partners.* GMC local suppliers were instrumental in GMC's success as they provide important goods and services required to operate the mines. As part of GMC's Social License to Operate and its commitment to being a good corporate citizen, enablement of these local suppliers was a high priority. The local supplier network of forward thinking people contributed significantly to GMC's effort. The QTX Organisation – GMC developed a very positive and close working relationship with QTX at the onset of its e-business Program at both the regional and corporate levels. Because QTX is a globally distributed company – operating on 6 continents – they were able to provide quality people to support GMC's global implementation. The QTX team have been an integral part of GMC's success from a supplier enrolment/training effort as well as listening to GMC's business requirements and developing the digitized solutions that deliver value. Mincom – GMC determined that from a technical architecture perspective, outsourcing the middleware systems and solutions made the most economic sense. GMC awarded the business to Mincom, GMC's preferred supplier for its ERP systems. Mincom Axis (GMC's middle ware) played an important role in GMC's ability to connect to QTX globally. A good example of this close working relationship between GMC, QTX and Mincom is the development of the QTX "Procure to Pay" (P2P) digital document suite.

IMPLICATIONS OF FINDINGS

People, both internal and external to GMC were, and continue to be, the heart of GMC's e-supply chain effort. Communication across multiple sites and throughout the organisation (top-down, bottom-up and outward focused) was critical to achieve buy-in, address change management issues and ensure the best solution was optimally implemented. To support the effort, performance incentives were established to incent employees to reach milestones. GMC also created consensus-building, cross-functional teams to ensure everyone stayed informed and

synchronised, and that all knew what the value to their part of the organization would be as a result of the implementation.

At the management level e-business has at its core a massive change management effort requiring an arsenal of change management tools and techniques (Kalakota & Robinson, 1999; Scheer & Habermann, 2000). GMC relied on proven change management techniques – namely a change acceleration process Model. The CAP model requires a significant amount of communication and action around; creating a shared need, shaping the vision, mobilizing commitment, measuring success and making change last.

Another critical success factor that was instrumental to GMC's success was establishing and reporting to an objective set of performance metrics. Overall, communication was multidirectional - upwards, downwards and outwards. GMC used the same internal performance measures in both e-business and traditional business operations. They canvass the measures at the level of employee performance. Additionally, action was required by GMC's management team to lead the change and in many cases to change /improve systems and structures in order to support the e-business effort.

The changing strategic focus across the stages of the eBC model are classified in Table 3, and viewed as interdependent and supportive of each other. This is especially so in the area of *outcomes and performances objectives* where *efficiency* through employee self-service and *effectiveness* through empowerment in customer care is used to support *value adding* activities for sustained competitive advantage. Value includes complementary benefits realized for all network partners across the virtual supply chain.

By taking a more holistic approach, executives can turn these stages of a company's transformation into the drivers of e-business excellence. So the central task for senior managers lies in understanding what drives operational excellence in the e-business realm, and then committing the necessary resources (structures, training, planning responsibilities) to the development of the drivers. To this end managers should assess the company's operations by looking at both the traditional and e-business measures.

CONCLUSIONS

This study of GMC's successful implementation within the mining industries B2B e-marketplace phenomena was based on the application of a previously developed research framework of e-business change by Ash and Burn (2004). The eBC model offers a foundational perspective of strategies, planning tactics and performance objectives for e-business implementations. This can be viewed as a comprehensive planning approach, in which improvement is achieved and measured at three levels: *strategic planning, organisational development*, and *management of change*.

The case showed that a key to success has been a commitment to excellence in three key areas: *People, Process and Technology*. Within this case the change management effort was a major challenge. A critical success factor instrumental to GMC's success was establishing and reporting of an objective set of performance measures. Reporting these measures was a key part of the change management effort. The local site teams used a benefits scorecard to assist in developing business measures and continue to report on a monthly basis. These measures provide organisations with the ability to diagnose its e-business effort and take corrective action where required.

Change still requires that resources be matched to the business objects and tasks and, further that planning systems are appropriate to drive organisational change through workplace implementation. In the new business environment organisational business models are more complex, supply chain networks more flexible and agile, training is shifting to self-directed learning, and collaborative planning approaches are needed to achieve greater added value to the community network.

In the long term the viability of this public e-Marketplace organisation is dependent on the continued growth of relationships within the community of buyers and preferred suppliers.

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