BUSINESS ANALYTICS: ENABLING STRATEGIC ALIGNMENT AND ORGANISATIONAL TRANSFORMATION

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BUSINESS ANALYTICS: ENABLING STRATEGIC ALIGNMENT AND ORGANISATIONAL TRANSFORMATION

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Abstract

Business analytics systems can potentially create value and provide competitive advantage to organisations. We argue that business analytics systems can also enable alignment between business strategy and IT strategy and support organisational transformation. We explain how a data warehouse, standardised metrics and global reporting supported the strategic transformation of a diversified and multi-layered international mining company to a unified and integrated global organisation. We identify a number of factors critical to the success of the business analytics initiative and to strategic alignment and organisational transformation, including: the early definition of globally standard metrics and dimensions; a high quality technology infrastructure and high quality data; sustained senior management support together with strong leadership within the business analytics project; effective governance structures that support change management and continual renewal of business analytics capabilities; and hybrid people with a mix of technical, business and strong communication skills. A number of implications of the study are discussed and suggestions for future work are provided.

Keywords: Strategic alignment, Business analytics, Data warehousing, Global reporting.
1. Introduction

Understanding how business analytics (BA) systems provide value and competitive advantage to organisations has been of considerable recent interest (Davenport and Harris 2007, Davenport et al. 2010). Business analytics systems support decision-making and involve the structuring, storage and use of large amounts of high quality data, typically in a data warehouse. Decision-makers use comprehensive reporting, dash-boarding and online analytical processing (OLAP) technologies to improve and enhance their decision-making capabilities.

It has been argued that BA systems can provide benefits to organisations by enabling improvement of business processes, firm performance and creating competitive advantage (Davenport and Harris 2007). A number of empirical studies have discussed BA application systems and reported performance gains (Carte et al. 2005, Kohavi et al. 2002, Piccoli and Watson 2008). However, most of these studies focus on specific applications within business processes rather than on enterprise-wide and global reporting. In this study we explore how business analytics systems can enable strategic alignment between business and information technology (IT) strategy and support organisational transformation.

Research on this topic is important for three reasons. First, business analytics systems are becoming an important strategic investment for many firms (Davenport et al. 2010). Organisations are investing large amounts of money in business analytics systems (Gartner 2010). ‘Business intelligence’ was the most important technology and application priority and ‘IT and business alignment’ was the most important management priority for information technology executives in 2011 (Luftman and Ben-Zvi 2011). Second, although much is known about how enterprise resource planning systems bring benefits to organisations (Gattiker and Goodhue 2005, Seddon et al. 2010), this does not generalise to business analytics systems with their strong emphasis on data management and decision support. Third, little previous research has focused on global data warehousing and reporting systems that are strategically important.

The paper is organized as follows. We first discuss relevant background literature focusing on three areas: business analytics systems, strategic alignment of business and IT strategy, and enterprise architecture operating models. In the following section we discuss the case study research approach we used in this study. We then present the case study and describe how business analytics systems were used to enable strategic alignment and support organisational transformation in an international mining company. In the following section we identify a number of factors critical to the success of the business analytics initiative. Finally we conclude the paper and provide some suggestions for further work.

2. Background

In this section we review three relevant areas of the literature. First, we discuss previous work that explains how business analytics systems provide value to organisations. Second, we discuss alignment between business strategy and information technology strategy. Third, we discuss how strategy can be conceptualized as enterprise architecture, and explain four different types of operating model.

2.1 How Business Analytics Provides Value to Organisations

BA systems enable managers and other decision-makers to interpret organisational data to improve decision-making and optimize business processes (Watson and Wixom 2007). The use of data to support decision-making is consistent with management theorists who argue for the use of ‘evidence-based management’ in business (Davenport and Harris 2007, Pfeffer and Sutton 2006). BA technology includes data warehouses and data marts, dashboards and reporting, on-line analytical processing,
visualization, and data mining. This technology has matured over the last decade from the early attempts to plan and implement data warehouses to enhanced data quality and optimization solutions, and its use is widespread in many business enterprises today (Watson and Wixom 2007).

A number of published case studies report the benefits achieved from the use of BA systems. These cases are from a variety of industry sectors and use a variety of mechanisms: a selection of examples is provided below in Table 1.

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>BA Systems and Mechanisms Used</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications</td>
<td>• Developing customised products, loyalty programs, and value-added services for profitable customers.</td>
<td>Rajesh (2008)</td>
</tr>
<tr>
<td>Retailing and Marketing</td>
<td>• Predictive models of customer spending patterns and profitability.</td>
<td>Piccoli and Watson (2008)</td>
</tr>
<tr>
<td></td>
<td>• Design of effective marketing campaigns and improvement of advertisement effectiveness.</td>
<td></td>
</tr>
<tr>
<td>Banking/Finance</td>
<td>• Customer segment analysis: segmenting customers into groups and analyzing the groups by targeting with customized banking products and services (based on costing, pricing and customer profitability).</td>
<td>Davenport and Harris (2007)</td>
</tr>
</tbody>
</table>

Table 1. Business Analytics Applications and Value

A number of insights can be inferred from previous empirical research. BA systems are typically used within a particular functional area within organisations. They rely on value-creating, entrepreneurial actions within a local context and are rarely planned or predicted (Sharma and Shanks 2011). There is little recent research on the value of global data warehousing and reporting systems, and no research on how BA systems may be used to support the strategic transformation of organisations. Research is needed in this area to better understand how BA systems may be used at the enterprise level.

2.2 Strategic Alignment and Enterprise Architecture

The alignment between business strategy and IT strategy has been of great concern to managers for many years (Chan and Reich 2007; Luftman and Kempaiah 2007). Alignment has been conceptualized in several ways. Henderson and Venkatraman (1993) defined alignment as the degree of fit and integration between business strategy and IT strategy. When alignment is good, organisations “apply appropriate IT in given situations in a timely way, and these actions stay congruent with the business strategy” (Chan and Reich 2007, p300). Strategic alignment involves several interrelated capabilities including effective communication between IT and business people, value to the business, governance structures, partnership and trust between IT and the business, flexible architecture to drive business process changes and human resource practices to hire, train, retain and encourage innovation in staff (Luftman and Kempaiah 2007). In this study we focus on the flexible architecture capability.

To support alignment between business and IT strategy, organisations may develop an enterprise architecture (Ross et al. 2006, Tamm et al. 2011). An enterprise architecture is defined as “the definition and representation of a high-level view of an enterprise’s business processes and IT systems, their interrelationships, and the extent to which these processes and systems are shared by different parts of the enterprise” (Tamm et al. 2011, p2). It serves to translate the broader principles and goals established in the business strategy into systems, processes and data that enable organisations to realise their strategy. Different types of enterprise architecture may be defined to support different types of strategy. Ross et al. (2006) provide a means of defining different types of enterprise architecture through the concept of operating model.
2.3 Operating Models

Ross et al. (2006) argue that strategy, conceptualised as enterprise architecture, may be operationalised as the operating model a business adopts. Operating models are defined in terms of the level of standardisation of business processes and the level of integration of business processes. Organisations with a high level of standardisation use the same business processes across all business units, regardless of who executes the process. Organisations with a low level of standardisation have few similar processes, and local innovation is encouraged. Organisations with a high level of integration have significant sharing of data between business processes and between business units. Organisations with a low level of integration choose not to integrate data across business units and process boundaries. Combining the two levels of standardisation and the two levels of integration results in four types of operating model: unification, coordination, replication and diversification (see Figure 1 below).

We now discuss the characteristics of each type of operating (Ross et al. 2006).

- **Unification**: (high standardisation and high integration). In this operating model organisations have shared processes and data, business units are tightly coupled and management is highly centralized. Standardised and integrated data will be of high quality for use in business analytics applications. Business analytics software and hardware will be shared amongst business units and hence well understood and supported.

- **Coordination**: (low standardisation and high integration). Organisations with this operating model have shared data but processes are designed within business units. Customer data may be shared but business units are autonomous with their own processes. The integrated data will provide opportunities for leveraging existing customers across business units.

- **Replication**: (high standardisation and low integration). In this operating model, processes are standardised and centrally controlled, but data is not shared. Business units are highly autonomous, but operate in a similar, highly standardised way.

- **Diversification**: (low standardisation and low integration). In the diversification operating model there is no need for standardisation of processes or integration of data, and business units have their own autonomous management and decision-making structures.

Understanding which operating model an organisation chooses to support its business strategy helps in the alignment of business and IT strategy. Furthermore, understanding the current operating model type helps to clarify how IT initiatives enable organisational transformation (Ross et al. 2006).

In this study we explore the role that BA systems, specifically data warehousing and global reporting, can play in enabling alignment of business and IT strategy and organisational transformation. We
focus on how both IT and business people work together from strategic, tactical and operational perspectives in organisational transformation. The research question addressed is:

How and why do business analytics systems support alignment between business and IT strategy and enable organisational transformation?

3. Research Method

We use an exploratory case study research approach. Case studies are particularly useful for in-depth studies of contemporary phenomena within their organisational context and are particularly suitable for answering how and why questions (Yin 1994). They provide a rich and detailed description of the phenomena and explain how and why outcomes occur. The unit of analysis in our study was the data warehousing and global reporting group within an international mining company. We were provided with access to the key stakeholders involved, including senior managers, BA technical experts and BA business experts. A single case study design was adopted, as the case was revelatory (Yin 1994).

Data collection included semi-structured interviews and access to relevant documents. Interviewees were selected using heterogeneity sampling to enable triangulation (Miles and Huberman 1994). We conducted fifteen interviews with key participants (see Table 2) over a period of eight months, with each interview lasting about one hour. Some interviews were face-to-face and others (interstate and international) were via the telephone. The interview protocol was designed to gain a longitudinal understanding of the evolution of business analytics and also included questions about concepts from the resource-based view of the firm. Two researchers took extensive notes during each interview.

<table>
<thead>
<tr>
<th>Roles</th>
<th>Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior managers</td>
<td>Manager reporting and analytics, General Manager solution delivery and services</td>
</tr>
<tr>
<td>BA technical experts</td>
<td>Head of applications support, Lead technical architect, Global solution architect, Global process architect</td>
</tr>
<tr>
<td>BA business experts</td>
<td>Business analyst, Business process consultant, Metrics specialist</td>
</tr>
</tbody>
</table>

Table 2. Case Study Interviewees

We used thematic analysis to identify common patterns and themes emerging from the data (Miles and Huberman 1994). We incorporated both deductive and inductive coding (Fereday and Muir-Cochrane 2006). Deductive coding was used first to classify the data based on key concepts in our interview protocol, and then inductive coding was used to identify sub-categories within the concepts. Data analysis was based on recurrence and salience rather than frequency (Blatt et al. 2006).

4. Case Study

The case study was conducted in an international mining company, Minco (pseudonym). Minco focuses on finding, mining and processing natural resources including iron ore, aluminium, copper, and other minerals. It is a complex, global organisation operating in many countries with significant manpower, equipment and other assets. Minco employs a large number of people, many in remote locations and places, where the health and safety of employees is a key priority.

Due to expansion by acquisitions and mergers over many years, Minco had evolved into a ‘holding company’ that owned many subsidiary companies. There was little standardisation and integration of information technology, data and processes across the subsidiary companies. This created significant challenges for Minco, particularly in reporting to and communicating with key stakeholders including shareholders, suppliers, customers, internal employees and government agencies. As there was no ‘single version of the truth’ in the data and few common key performance indicators, data quality was problematic and there was limited capacity for enterprise-wide data analysis.
To address these challenges, Minco initiated a business strategy to become a unified and integrated international mining company, supported by common core business processes, data and particularly standardised measures for reporting. This case study focuses on the business analytics aspects of the strategy, and the unit of analysis is the data warehousing and global reporting group.

4.1 Development of the Data Warehouse and Global Reporting Systems

In 2004, Minco initiated a global information systems program to implement an enterprise resource planning system together with the concurrent implementation of a data warehouse and global reporting system. In this section we focus on development of the data warehouse and global reporting system, which may be structured into three phases.

Phase 1: Conceptual Design

The conceptual design phase lasted for just over a year. Several core global business processes were identified including human resources, finance, procurement, mining operations, asset management, and health and safety. These were strongly supported by Minco’s senior management and applied to all Minco’s subsidiary businesses. They formed the basis for the governance structure designed to support implementation of the new information systems.

Data definitions for key metrics and dimensions were established at three levels: globally standardised data, data common to several business units, and data required for local business operations. Examples of global metrics included cost per unit of resource, headcount and several other safety performance measures. Furthermore, several standardised global dimensions were defined to accommodate Minco’s diverse business needs and reporting requirements. These included asset, person, location and time.

“In the beginning, we spent much time getting strict definitions of the data…to ensure we had the right data.”

(Head of Applications Support)

Phase 2: Incremental Development and Release

The development and release phase involved a large development team of over a hundred people. The data warehouse was implemented using a three-layer architecture to provide a flexible and scalable data warehousing solution. The three layers were the inbound data layer, the transformation data layer and the reporting data layer. The inbound data layer was essentially an operational data store, and included operational data that has been cleansed. The transformation data layer included cleansed, transformed and integrated data, forming a global, standardised source of data. The reporting data layer involved further filtering, transformation and aggregation to suit business reporting requirements.

The system was incrementally released, with the first ‘go-live’ in 2006. Although the system release initially was IT-driven, after the initial functionality was implemented, subsequent releases became more business driven. As business requirements were satisfied, use of the system for reporting became routine and ‘sticky’.

“Once the foundation was built, we could then shift the focus toward the business, core processes and team leaders to make it sticky.”

(Lead Technical Architect)

Over several years, the data warehouse was incrementally implemented and many globally standardised metrics became available for reporting. A governance model was implemented involving a team for each of the global business processes. Each team comprised a business owner responsible for sponsoring the system, a business process leader responsible for strategic direction, and a global process architect responsible for design, approval and scheduling of project implementation. The business owner was typically a senior manager with significant financial authority. The business process leader also convened a user group to provide feedback on the utility of reports and suggestions.
for future enhancements and new requirements. This provided a strong link between the business and IT, and the necessary authority for funding prioritised reporting initiatives.

**Phase 3: Refinement and Enhancement**

By 2008, the data warehouse had largely been successfully implemented and was providing reports throughout the organisation, included aggregated reporting to the Board, management reporting within each of the core business processes, and other reporting within subsidiary businesses. Reporting included standard reports together with more sophisticated dashboards, scorecards and multi-dimensional data analysis.

Since 2008, Minco has continued to expand through acquisition. The data warehouse had proven to be robust to change and the flexible design has readily scaled up to the growth. Most reporting is now business driven and the governance structure established to manage the data warehousing environment has proven to be very effective.

### 4.2 Global Reporting Benefits

A number of benefits have been achieved from the data warehouse and global reporting systems. A particularly valuable one is the capability to aggregate global data and report to the Board on a monthly basis. Not only are key financial metrics reported in scorecards, but also metrics from the other core process areas are reported for trends and exceptions. Other areas where reporting benefits are clear include Human Resources, Asset Management, and the Health, and Safety core business processes.

**Human Resources Reporting**

The human resources process has become a strong user of the data warehouse and associated reporting capabilities.

> Originally the Human Resources area was one of the lowest users of the data warehouse. Now it is sitting just below financials in usage and everyone talks analytics, everyone wants analytics...In Human Resources, it's all about a person and it's all about master data.

(Business Process Consultant)

The human resources process includes employee performance, talent management, personal and organisational master data, payroll and benefits, workforce planning and remuneration, and learning and development. Reporting analytics is used successfully within several of these areas. For example, analysts use integrated data to support workforce planning by forecasting salaries for the next two to three years. They also plan training requirements within the learning and development area based on data used to estimate the number of recruits required. In the talent management area, global visibility of latent patterns of external versus internal hires has enabled more effective recruitment processes. Within the employee performance area, the definition of common metrics and dimensions has enabled better performance assessment of individuals with the highest potential and performance results. This has lead to improved succession planning and improved identification of training requirements.

**Asset Management Reporting**

The management of assets can have a significant impact on the overall performance of the organisation, and even a one percent improvement can result in many millions of dollars in cost savings. Maintenance scheduling for heavy equipment is an area in which reporting analytics has made a significant difference. Maintenance reports that included details about forward planning for maintenance schedules in terms of resource availability and utilisation are used to optimise equipment use. The reports have enabled managers to carefully plan for the most efficient and effective utilisation of equipment and people. Also, better reporting has enabled more effective use of warranties on expensive equipment that has led to significant cost savings.
Health and Safety Reporting

Due to the nature of its mining operations and the remote locations of many of its facilities, Minco places a major emphasis on health, safety and the environment. Detailed data is kept about health and safety events including standardised metrics for incidents, injuries, and risk assessments. A variety of reports are produced including daily reports to managers about incidents, actions, trend reports that focus on health and safety events over time and the impact of improvement plans, and scorecard reporting that enables drill-down capabilities to explore problems further. Reports use colour coding to facilitate easy understanding and highlight key data.

“We use traditional metrics such as frequency rates in incidents, hazard metrics, reports with drill down capabilities and further analysis…Our reports are very advanced…we are currently promoting reporting capabilities in our training sessions and developing an appetite for scorecards.”

(Global Process Architect)

4.3 The Role of Business Analytics in Supporting Organisational Transformation

Prior to the implementation of the data warehouse and global reporting system, Minco could clearly be classified as having a diversification operating model (Ross et al. 2006). There was little standardisation or integration of business processes and data. An enterprise-wide strategy was initiated for Minco to become a unified and integrated international mining company, rather than a holding company with many independent subsidiary companies. This business strategy would be realised with a unification operating model. The change from a diversification to a unification operating model was a significant organisational transformation, particularly in the complex and turbulent global context of mining and exploration.

The alignment of business and IT strategy is essential in supporting this organisational transformation. The design and implementation of a global data warehouse and reporting system with clearly defined core global metrics and dimensions, and been crucial. In particular, this has enabled aggregated reporting at Board level of many key performance indicators across Minco.

A widely acknowledged indicator of the success of the data warehousing and global reporting system was its use.

“Minco’s business analytics system has had a 20 per cent rise in users per month through to 2008.”

“My indicator of success is use…Benefits do not just come from the system…[but] data is part of the process and people use it to make decisions.”

(Lead Technical Architect)

5. Discussion

A number of factors critical to strategic alignment and organisational transformation emerged from the case study.

5.1 Early Definition of Standardised Metrics and Dimensions

The early definition of standardised metrics and dimensions within the global information systems program was crucial to the success of the data warehousing and reporting initiative. Many large organisations implement their transaction processing systems first and focus on the development of data warehousing and business analytics applications later. This can lead to difficulties if data required
for decision support is not readily available from the transaction processing system. The extra time spent in conceptual design ensured that important data requirements were understood and planned for.

“I think what made us successful in this project is that we supported the idea of standardised metrics, defined our reporting strategy upfront, established a stable delivery team and on top of it—used a fit-for-purpose iterative methodology to test some of those ideas in different business units, before implementing it globally.”

(Metrics Specialist)

Having standardised metrics and dimensions was clearly crucial to the successful transformation of Minco from a diversification operating model to a unification operating model (Ross et al. 2006). The early establishment of global metrics and reporting dimensions enabled Minco to achieve an integrated perspective of global processes and financial information for corporate reporting. The use of standardised measures derived jointly by IT and business stakeholders has provided Minco with a stable and flexible data platform in a turbulent business environment, including numerous acquisitions and changing internal processes (Luftman and Kempaiah 2007).

5.2 High Quality Technology and Data Infrastructure

In order to deliver business analytics applications successfully, it is crucial to have a high quality technology and data infrastructure. The three-layer architecture (inbound, transformation and reporting layers) provided a robust and flexible platform to support reporting requirements and for scalability in the turbulent global resources business environment. Data within the data warehouse is of high quality and is widely recognized within Minco as the ‘source of truth’ about the organisation.

“We’ve got now a single source of truth.”

(Head of Applications Support)

“Data quality is key to success and key to failure. If the data is not correct that would kill analytics.”

(Business Process Lead)

Specification of standardised metrics and dimensions was vital to achieving high data quality in the data warehouse. Ensuring completeness, accuracy and timeliness of data is easier when standardised metrics and dimensions have been defined in advance and implemented in the transaction processing system. Hierarchies designed into dimensions can be used for aggregation, drill down and roll up capabilities in reporting applications. This enables reporting applications to be readily developed at various levels of management within the organisation and for executive summaries to be included in the global reports. This supports clarity and consistency of both IT and business strategies for successful alignment (Choe 2003; Henderson and Venkatraman 1993).

Rather than viewing technology and data infrastructure as a utility that provides IT-enabled services at minimum cost, Minco viewed the infrastructure as a resource to enable fast response to changes in the marketplace by incorporating flexibility and agility into organisational processes (Luftman and Kempaiah 2007).

5.3 Senior Management Support

The concurrent implementation of the enterprise resource planning system and the data warehouse globally is a major information technology implementation program with associated costs and risks. Strong senior management support is crucial to the success of such large projects (Parr and Shanks 2000; Shanks et al. 2003). Significant funding for the project was required in the first four years after it was initiated in 2004, for conceptual design and initial development and implementation of the enterprise resource planning system, the data warehouse and other associated information technology infrastructure (hardware and software, and people with the required expertise).
Sustained management support was achieved by the incremental implementation of the systems.

“You need to pick the target carefully to be able to show a payback…and you also need management buy-in from CEO to superintendent level to go through roadblocks.”

(Metrics Specialist)

There was also strong management support within the data warehouse and global reporting program. In particular, the manager of the Global Reporting and Analytics team provided strong leadership throughout the first five years of the project. He was also well supported by the senior data warehouse architect and the business metrics specialist. Many interviewees identified these three leaders as crucial to the success of the project. The importance of the senior management support has been widely acknowledged as one of enablers of successful alignment between business strategy and IT (see for example Luftman and Brier 1999). Support from senior managers has enabled transformation of the organisation where business and IT strategies emerge together rather than sequentially (Baker et al. 2011).

5.4 Change Management and Governance

Change management was crucial to the successful implementation of the global information systems program. The use of reporting within business processes as a key input to decision-making is important in embedding BA within the business. Central to successful change management was the incremental release of the system to ensure early successes, ensuring business sponsorship of changes and new initiatives, and maintaining a close relationship with business users in both daily interactions and governance mechanisms. Extensive training accompanied the roll-out of reporting initiatives and changes.

“This is what I call relentless business alignment, which is not just requirements, understanding priorities but also change management and integrating the content and the change together. Having change management capabilities is absolutely crucial for business analytics.”

(Global Solution Architect)

“When implementing business solutions, there was a strong embedding process…”

(Global Process Architect)

It is important that business analytics systems are not seen as technical initiatives, but are truly integrated into the business. Perhaps the best indicator of successful change management is the level of usage of reporting systems. The usage is growing and new initiatives are now driven and funded by the business rather than IT.

The governance model used within Minco was to establish a management team for each of the global business processes, involving a business owner, business process leader and a global process architect. This enabled strong alignment between the business experts and the BA experts, and covered aspects of strategic, tactical and operational governance (Luftman and Kempaiah 2007). Members of the team had authority to provide resources for initiatives (business owner), to provide feedback on BA systems and requirements for new reporting initiatives from business users (business process leader) and BA technical expertise for feasibility and cost estimates of new initiatives (global process architect). The governance model provided a ‘dynamic strategic alignment competency’ (Baker et al. 2011), in that strategic alignment is conceptualized as a management capability that fits the perspective of dynamic capabilities (Barreto 2010, Teece et al. 1997).

5.5 People with Hybrid Skills

People within the data warehousing and global reporting group and the core business process teams have extensive technical knowledge about the data warehouse environment and also software tools
used for reporting purposes, together with a deep knowledge of the business context within Minco. This mix of technical and business knowledge is important when implementing business analytics systems (Davenport and Harris 2007). Also, many of the key staff have been with Minco for many years, ensuring well developed and mature skills. The balance between business and technical skills is well recognized.

“*You need a leadership group for analyzing and viewing the world, and a group of people to translate those business needs into design layout and technical requirements.*”

(Global Process Architect)

Good interpersonal skills are also very important in implementing BA systems, and facilitating effective IT and business partnerships (Luftman and Kempaiah 2007). These skills are important in several contexts at Minco including understanding user requirements, training users in new reporting systems, and change management activities. The combination of interpersonal skills with technical and business skills is important in facilitating organisational learning and innovation, particularly across organisational business units (Baker et al. 2011; Luftman and Kempaiah 2007).

6. Conclusion

The Minco case study has shown how BA can take on an important strategic role, and support the business strategy of an organisation. Alignment of business strategy and IT strategy was strong, and BA systems were crucial to the successful transformation of Minco from a diversification to a unification operating model. Implementation of BA, including a data warehouse and global reporting capabilities has been very successful within Minco. Benefits achieved include high quality data (standardised and integrated), advanced analytics capabilities (dashboards, scorecards, drill-down reports), and improved efficiency of business processes (using high quality reports).

Several important lessons emerged from the case study that are important for researchers and practitioners including the importance of early definition of globally standard metrics and dimensions, high quality technology infrastructure, sustained senior management support together with strong leadership within the BA project, effective governance structures that support change management and continual renewal of BA capabilities and hybrid people with a mix of technical, business and strong communication skills. So this provided a necessary analytics baseline for operating transformation.

We argue that the insights gained in this study apply to other organisations in similar settings with similar underlying causal drivers using analytical generalisation (Seddon and Scheepers 2012, Yin 1994). Our insights should generalise to other large, global organisations implementing BA systems within a business strategy to become more unified using common core business processes, data and standardised measures for reporting. Further case studies of large and complex BA systems in different industry sectors and different contexts are required to further strengthen the insights.

References


