A STRATEGIC ANALYSIS OF
BUSINESS OBJECTS' PORTAL APPLICATION

by

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Abstract

Business Objects is the leading software firm producing business intelligence software. Business intelligence is a growing market. Small to medium businesses are increasingly looking at business intelligence. Business Objects' flagship product in the enterprise market is Business Objects XI and for medium-size companies it has Crystal Decisions. Portals are the front end for the two products. InfoView, Business Objects portal application, lacks a long-term strategy. This analysis evaluates alternatives for future development of InfoView in respect to industry influences, Business Objects' goals and its competitive advantage. Business Objects competitive advantage lies in offering complete business intelligence solutions with high interoperability with enterprise systems. Recommended strategy for InfoView is to enhance it, making it a center for business intelligence services that deliver relevant business intelligence information and tools to the end user.

Dedication

I dedicate this work to my spouse, Kristbjörg, who has showed enormous patience and support.

Acknowledgements

Table of Contents

List of Figures

List of Tables

1 Overview - Purpose of this analysis

Business Objects is a large software firm that produces business intelligence software. The firm primarily targets corporations and medium-sized businesses. Business Objects' flagship product in the enterprise market is Business Objects XI. An equivalent product for medium-size businesses is Business Objects Crystal Decisions. Both products include a portal application, called InfoView.

The purpose of this analysis is to evaluate Business Object's InfoView application, with its future strategy in mind. The analysis is in respect to the attractiveness and competitiveness of the industry and does not include market or user requirements research. An important part of the evaluation is to determine if portals can provide a strategic advantage for Business Objects. Further, the evaluation should illuminate whether Business Objects should continue to develop its own portal or if it should integrate with external portals. The analysis also briefly explores the definition of portals and their usage. This analysis will examine the benefits of the portal in connection with applications or products within Business Objects.

Business Objects could better understand the industry and its own capabilities with additional market and customer information. Consequently, it would be better able to tailor its portal application strategy for long-term competitive advantage.

This analysis adopts a framework for comprehensive strategic analysis (Boardman, Shapiro and Vining, 2004). The framework involves dividing the analysis

1

into three major components. The first component is an analysis of the current situation; Sections 1 to 5 present that situation analysis. The second component is an assessment of the situation concerning future developments; Section 6 provides that fulcrum analysis. The third component is a solution analysis; this analysis is presented in sections 7 and 8. The solution analysis examines the strategic alternatives that follow from the previous two components, and recommends a preferred solution.

A detailed overview of the document follows. Section 1 introduces the analysis. It describes the purpose and the scope of the analysis. Section 2 is an introduction to Business Objects. It provides an overview of its ownership, its customer base, and its software applications. Moreover, this section includes general background information on business intelligence. In addition, it gives an overview of what portals are and introduces Business Objects' portal application. Section 3 provides an industry level analysis. It defines the business intelligence software industry, looks at major competitors and the market prospects. Additionally, the section analyses the major forces that shape competition. Section 4 looks at the internal characteristics of Business Objects. It examines the current corporate strategy and provides an analysis of how Business Objects creates value. Finally, the section investigates Business Objects' sources of competitive advantage. Section 5 examines Business Objects' financial situation. That determines if the company has sufficient financial resources to invest in new and ongoing projects. Section 6 focuses on Business Object's portal strategy. The section includes general background information on portals. Further, the section provides a detailed analysis on InfoView, Business Objects' portal application. Section 7 presents and evaluates

strategic alternatives for Business Object's portal development. Section 8 is a summary

of the analysis and the recommendations to Business Objects.

2 Introduction

This introduction establishes the basics for the analysis. The purpose of this introduction is to threefold. The purpose is to: 1) give an overview of Business Objects, 2) introduce business intelligence, and 3) give an overview how portals relate to Business Objects. Introduction to Business Objects examines the ownership and control of Business Objects. Furthermore, the introduction to Business Objects gives an overview of Business Objects' customer base. Moreover, the introduction to Business Objects summarizes Business Objects products and applications as relevant to this analysis. Introduction to business intelligence defines "business intelligence". Moreover, the introduction to business intelligence gives an overview how business intelligence creates value. Finally, the last sub-section gives an overview of how portals relate to Business Objects.

2.1 Introduction to Business Objects

2.1.1 Ownership and control of Business Objects

Established in 1990, Business Objects is a public company that operates globally. Listed on NASDAQ in September 1994, the company has the market ticker "BOBJ". Business Objects was the first French software company listed in the USA (Datamonitor, 2005). Business Objects head office is in Levallois, France. In addition, it has a North American headquarters in San Jose, California, USA. Other main offices are located in Maidenhead (UK) and Vancouver (Canada). The Vancouver office is the largest, with

approximately 1,200 employees. Business Objects has offices and partners throughout the Americas, Europe, the Middle East, Africa, and the Asia Pacific region. As of the third quarter of 2006, Business Objects had 5,141 employees.

Former CEO and founder of the company, Mr. Bernard Liautaud is chairman of the board and the Chief Strategy Officer. Mr. John Schwarz is the company CEO. Previously, Schwarz was the president and COO of Symantec Corporation. Jim Tolonen is Chief Financial Officer and Senior Vice President, Finance and Administration.

2.1.2 Overview of Business Objects' customer base

Business Objects has over 39,000 customers worldwide. Their customers range from the medium-sized firm market to large enterprise customers in industries, such as financial services, government, education, manufacturing, pharmaceutical, healthcare, retail, consumer product goods, and telecommunications. More than 80% of the Fortune 500 companies use products from Business Objects.

2.1.3 Summary of Business Objects' products and applications; logistical grouping of applications

Business Objects has a number of software products. Describing all these products in detail would not serve a useful purpose for this analysis. Rather, this section focuses on introducing Business Objects' offerings that relate to its portal application. This section also describes the platforms that these offerings use. Appendix A provides Business Objects' product catalogue.

The company's flagship product is Business Objects XI, which is a suite of products that integrates all functionalities bundled into one solution. The product suite is

cohesive and logically fits together into one package. Business Objects XI delivers a full

range of business intelligence functionality. Logistically, that functionality can be

classified into a few "platforms". Table 1 provides Business Objects' definition of the

platforms that fall within Business Objects XI. Broadly speaking, the products fall under

the following platforms: the Business Intelligence Platform, the Enterprise Information

Management (EIM) platform, the Enterprise Performance Management platform, the

Enterprise Reporting platform, and the Query and Analysis platform. Each platform may

include many products and specific applications.

Table 1: Description of platforms within Business Objects XI

Platform	Role
Business intelligence (BI)	It is the use of an organization's disparate data to provide meaningful information and analysis to employees, customers, suppliers, and partners for more effective decision-making.
Enterprise information management (EIM)	Applications and services that deliver physical and virtual data integration, data quality, and metadata management capabilities that ensure BI information is timely, accurate, and trustworthy.
Performance management	Applications and services help users align with strategy by streamlining the planning process, setting targets, and tracking key business metrics via management dashboards, scorecards, analytics, and alerting.
Reporting (or enterprise reporting)	Tools facilitate accessing data, formatting it, and delivering it as information inside and outside the organization. Reporting serves as the foundation of a broader BI strategy by providing the most-requested pieces of information reliably and securely – via the web or embedded in enterprise applications.

Platform	Role
Query and analysis	Tools that allow end users to interact with business information and answer ad hoc questions themselves without advanced knowledge of the underlying data sources and structures. These tools support query generation and basic report authoring, as well as integrated analysis.

(Clark, 2006, p. 1 and 5)

Business Objects Enterprise is a product within the Business Objects XI product suite. Business Objects XI product suite is a component of the business intelligence platform. Business Objects XI product suite has specialized tools for reporting, performance management, query and analysis. A few of the applications within that product include InfoView, Encyclopaedia, Discussions, Integration Kits, and OLAP Intelligence Explorer. InfoView is a business intelligence portal that gathers and consolidates a company's business intelligence information and presents it for users in a personalized view. Within the portal, users can view and manage reports or other BI content. The portal is the users' first stop for business intelligence from the Business Objects Enterprise product. The applications listed above, excluding InfoView, are tools that are used within InfoView. Encyclopaedia, for example, is accessible within InfoView. It is used for the creation of business intelligence (BI) reference guides. The Discussions component enables users to add comments and maintain discussion threads around any selected topic, inside the InfoView portal. The integration kits applications "offer integration between Business Objects Enterprise and enterprise applications – SAP, Oracle, PeopleSoft, JD Edwards, Siebel and Baan so users can extract, report on, and distribute data from these systems" (Clark, 2006, p. 7). The OLAP Intelligence Explorer application allows users to interact and perform analysis with OLAP

Intelligence workbooks over the web via the InfoView portal. Although InfoView is the centre for users to access information, there are other tools for presenting business intelligence content. In addition, there are tools within the product, but outside of InfoView, to handle administration, security, and content creation.

2.2 Introduction to business intelligence

Business Objects competes in the business intelligence software industry. This section summarizes what business intelligence is and how it creates value for customers. First, this summary defines business intelligence. Subsequently, this summary explores the internals of business intelligence. Accordingly, the internals of business intelligence present how business intelligence creates value for the customers.

2.2.1 Purpose of business intelligence: 360-degree view of the business

A general definition of business intelligence (BI) is that "BI provides organizational decision makers a 360-degree view of their business, enabling them to make faster and more reliable decisions" (Adelman, Moss and Abai, 2005). Business intelligence is not a system or a product. "It is an architecture and a collection of integrated operational as well as decision-support applications and databases that provide the business community easy access to business data" (Moss and Atre, 2003).

2.2.2 Internals of business intelligence – how business intelligence creates value for the customers

In a broad context, business intelligence is transition from raw data to details that support a decision. This can be broken down to a chain of activities as outlined in Figure 1. In order to make business intelligence create value, firms must implement the

illustrated activities. Each activity has many solutions and firms choose solutions that provide a good fit.

Figure 1: Chain of business intelligence activities transform data into a decision

| Provide Data | → | Prepare Data | → | Store Data | → | Analyse Data | → | Present Data | → | Decision Support |
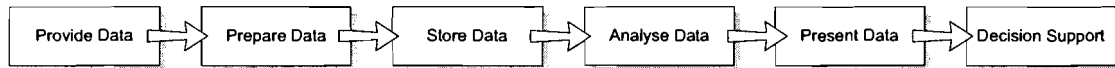
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Firms in the business intelligence industry provide tools or services to one or more of those business intelligence activities. Firms that use business intelligence need to implement solutions touching all those activities. Business intelligence implementation uses either internal solutions or external solutions. Internal solutions are often in-house projects. Firms usually acquire external solutions from business intelligence vendors. There are number of business intelligence vendors providing solutions and services for different steps. Thus, firms may be buying tools and services from many vendors to form the business intelligence solution that suits the company. What each activity includes varies by firms. In general, the following explains the business intelligence activities.

Provide Data: The data provided can be internal data and external data. Internal data is data from systems or processes within the firm. This can be any kind of systems, such as Enterprise Resource Planning (ERP), Point of Sale (POS), or Inventory systems. Sources outside the firm provide the external data. Example of external data includes information on competitors, weather statistics, and information on censuses.

Prepare Data: An important component of a sound business intelligence platform is data transformation and cleansing. The data needs to be prepared so it conforms to the definitions of the firm's business intelligence architecture.

Store Data: Data is typically stored in a database commonly referred as Data Warehouse in the context of business intelligence. There are three types of data warehouses: 1) Enterprise Data Warehouse, which has detailed and summarized data of a long time span attained from operational systems. 2) Operational Data Store, it contains current "detailed data for regular, tactical, day-to-day analysis of business operations" (Adelman, Moss and Abai, 2005). 3) Data Mart, it contains subset of data specific to one business unit within the firm.

Analyse Data: The data analysis is the basis for a successful business intelligence solution. Tools for query and online analytical processing (OLAP) are examples of tools used to view data at many levels of summarisation.

Present Data: A common way to present data is through a report. Other methods of providing the viewer an understanding of the contents is via visualization. That is a graphical presentation such as charts and graphical dashboards.

Decision support: The previous steps provide results, information, which will support a decision. Analysis or presentation of the information may be sufficient for support. Further steps are possible to facilitate decision. That is, to use tools and processes specific to the problem domain. Examples of such tools or processes include: performance management analytic tools, scorecards, executive information systems, process re-engineering, and competitive analysis.

2.3 Overview of how portals relate to Business Objects

The definition of the English word "Portal" is "A doorway, entrance, or gate, especially one that is large and imposing" (Webster's Online Dictionary, 2006). Another meaning of the term portal is software *that provides a framework for integrating information and business processes within the enterprise or business.* Thus, portals are an entrance to corporate information. According to Gartner Research, users in high-performance workplaces rely extensively on portals (Austin, et al, 2005). Portals are the "front-end" for the two main business intelligence products of Business Objects. A part of Business Objects XI product suite, the Business Objects Enterprise (BOE) is a business intelligence product targeted towards enterprises and large customers. A part of Business Objects Crystal Decisions product suite, Crystal Reports Server is a mid-market product. The portal application InfoView is included in both of these platforms. InfoView has the same set of features for both products, although the prices for the two products can vary, depending on many factors.

InfoView provides a center for business intelligence reports. Other Business Objects applications generate the reports, but InfoView acts as the repository for them, providing deep integration with the creation and display of reports. Dashboards are a fast growing technology in the business intelligence arena. Dashboards are a way to visualize data in a more graphic view than reports. However, the InfoView application does not support much integration of dashboards.

3 The business intelligence software industry

This section examines the business intelligence software industry. This section starts with identification of major competitors within the industry. Subsequent investigation focuses on the growth and future prospects of the industry. Lastly, overall competitiveness of the industry is assessed. The analysis uses an analytic method to explore the forces that shape competitiveness.

3.1 Major competitors in the industry

Some competitors are "pure play" business intelligence software firms. In other words, most or all of their products are in the business intelligence arena. The major pure play competitors are Business Objects, SAS Institute, Cognos, Hyperion, MicroStrategy and Actuate. Other pure play competitors, but with smaller market shares, include Information Builders, Pentaho, Applix, QlikTech and ProClarity. ProClarity is a subsidiary of Microsoft. In contrast to the pure play firms, there are firms with more diversified product offerings. Companies with diversified product offerings that compete in the industry have database and/or enterprise applications that their business intelligence product complements. The main competitors of this type are Microsoft, Oracle, SAP and IBM. These enterprise software vendors have vast resources and are many times bigger than the pure play companies.

3.2 Growth and future prospects

In a report forecast for Worldwide Business Intelligence Tools 2006-2010, IDC analysts Dan Vesset and Brian McDonough (2006) anticipate that the business intelligence market will continue to have "healthy growth". Furthermore, IDC forecasts that the compound annual growth rate will be quite high: 9.8% from 2006 to 2010. The report emphasizes that the large enterprise software vendors are aggressively entering the market. Unlike their position in the database market, they are not expected to dominate in this market. For the pure play business intelligence vendors, there are two primary tracks. The pure play business intelligence vendors will position themselves to compete with the larger enterprise software vendors and, therefore, pursue opportunities to bring out tools that reach further into the customer organisations. Alternatively, the pure play business intelligence vendors will focus on the analysts as before and engage in rapid innovation to respond to the demand for deep and broad business intelligence functionality.

3.3 Industry forces that determine competitiveness

A widely used tool for strategic analysis is Porter's Five-Force analytic method (Porter, 1979). The model assesses the attractiveness of the industry, based on the level of competitiveness. The five primary forces are: threat of entry, bargaining power of suppliers, bargaining power of customers, threat of substitutes, and rivalry among existing competitors. Figure 2 summarizes how these forces apply to the business intelligence industry. A discussion of each force, as it applies to the business intelligence industry, follows.

13

Figure 2: Summary of the competitive forces shaping the business intelligence software industry

Threat of Entry

Moderate to High

(−) Access to distribution channels
(−) Benefits from economies of scope
(+) High upfront costs
(+) Experience curve and scale effects
(+) Low entry and exit costs for existing
enterprise software vendors

Bargaining power of Suppliers

Moderate

(−) Low manufacturing costs
(+) Human capital know-how
(+) Strategic alliances with
competing and non-competing
software vendors

Rivalry Among Existing Competitors

Moderate

(−) High growth rate
(−) Product differentiation and industry niches
(−) High switching costs
(+) Low competitive concentration
(+) Increase in low priced product offering

Bargaining Power of Customers

Low

(−) Product complexity
(−) System lock-in and high
switching costs
(+) Increasing number of
buyers

Threat of Substitutes

Low

(−) Technical products and complex solutions
(−) Difficult to achieve recognition
(+) Office productivity tools and bundled solutions

3.3.1 Rivalry among business intelligence competitors is moderate

3.3.1.1 High growth rate

The business intelligence industry is maturing somewhat although it still has many attributes of a growth industry. The industry has a high growth rate especially

compared to the enterprise software industry. The market for business intelligence software grew at a 11.5% rate in 2005 (Vesset and McDonough, 2006a). An above average growth rate is anticipated to continue for the next three years. A projection made in 2003 for the 2004 to 2009 period expected a higher growth rate for security software than for business intelligence, but still forecasted a 9.2% compounded annual growth rate.

There are many business intelligence vendors, but few have large market shares. In 2005, the top ten business intelligence vendors had a combined 62.5% market share. That represents an increase in market share of 7.6% over the 2003 market share of 57.9% (Vesset and McDonough, 2006b). A 2006 survey, conducted by the Gartner Executive Programme, among 1400 Chief Information Officers (CIOs) found that the most highly ranked technology priority is business intelligence: "with CIOs reporting plans to increase their BI budgets by an average of 4.8 percent in 2006" (Gartner Inc, 2006). An increase in access of business intelligence tools in organisations' operational applications will facilitate adoption of business intelligence software. A key challenge for business intelligence vendors is to capitalize on this growth. In order to do so, they must have an effective sales strategy. Furthermore, this requires a focus on niche customer segments. These niche segments involve fewer, but higher, value deals.

3.3.1.2 Product differentiation and industry niches

A number of firms in the business intelligence industry specialize in specific industry customer segments. Speedware (now a division of Activant Solutions Inc) is an example of a firm that focuses on business intelligence for call center operations and the healthcare industry. Other firms in the business intelligence industry provide more

general business intelligence products. They offer these products to wide variety of industry customer segments. The business intelligence firms that focus on these broader customer segments are either general "pure play" business intelligence vendors or general enterprise software vendors. The general enterprise software vendors provide a software platform and related software products. SAP is an example of a firm where its business intelligence tools work with its suite of enterprise applications. Microsoft is another example. Microsoft has built its business intelligence product offerings around its database server, financial suite and office suite. The general business intelligence vendors, such as Business Objects and Cognos, work on a number of different platforms. As well, these firms focus on more diverse customer segments. Because there is considerable differentiation, competition is muted. The business intelligence vendors marketing message is on reducing the "customers' total cost of ownership".

Most software products involve no direct variable costs. However, indirect marketing and sales costs are generally high. In the software industry, "[m]ost of the product cost of software is fixed up front in the form of R&D, so per unit costs go way down as volume rises" (Aley and Faircloth, 1996). High fixed costs make it less appealing to compete on price. Therefore, all business intelligence vendors adopt a differentiation strategy to some degree. Consequently, price is usually not the main competitive dimension. However, open source business intelligence is different. Open source business intelligence software vendors do compete on price. Open source business intelligence software vendors usually price their products at zero. Effectively, open source vendors price their products at zero to exploit the open source development model. The open source development model "presents an alternative to the traditional

way of developing and selling software" (Brownstein and Lin, 2005, p. 18). Moreover, the open source development model can have disruptive affects to the current proprietary software vendors. "When something different comes along that is not bound by the same set of rules, the market dynamics can change in any number of ways" (Brownstein and Lin, 2005, p. 18). Commonly, open source vendors make revenues from complementary products or services. Yet, open source vendors may have other business motivations than to create revenue. Nevertheless, given zero pricing of the products, cost minimization is important. Open source vendors generally have low development costs because they get much of the development free. They also have low variable costs because they minimize their marketing costs. However, because of low expenditures in marketing, these lower cost providers do not have much market share. The business intelligence vendors that use differentiation commonly highlight the products' core features. Similarly, they attempt to minimize the value of their competitor products' core strengths.

3.3.1.3 High switching costs

Once a given business intelligence software is set up and in use, it is costly to switch to a different vendor of business intelligence software. Business intelligence software has, in many cases, deep ties with numerous systems within organisations. Switching requires new deployment and integration in addition to the retraining of employees.

The vendors' customer-specific knowledge and close relationships would take time for other vendors to learn. This incumbency contributes to systems lock-in and high switching costs. High switching costs reduce rivalry among competitors.

3.3.1.4 Increased industry consolidation

The industry has been consolidating. Recent acquisitions have increased the market share of the top business intelligence vendors. There are indications that this trend will continue. Business intelligence vendors look at the market consolidation as an opportunity for new revenue sources (Hostmann and Schlegel, 2006, p. 2). The customers want to buy software that effectively operates with current systems. Larger business intelligence vendors offer an extensive array of products. These products provide many business intelligence functions. In some cases, the products provide customers with all the required functionality to implement a large-scale business intelligence solution. Larger business intelligence vendors have stable sources of income. Moreover, the larger business intelligence vendors have vast resources to couple its systems with other enterprise systems. Larger business intelligence vendors increasingly get a bigger pie of the market. Accordingly, smaller business intelligence vendors focus on niche markets in search for profits and market share. In turn, this market consolidation reduces rivalry among business intelligence vendors. However, new entrants are attracted to the market when the consolidation slows down.

3.3.1.5 Increase in low priced product offering

Small to medium businesses are increasingly looking at business intelligence. For non-complex solutions, there are a number of business intelligence vendors. This lower end of the market differentiates on features. However, business intelligence vendors compete on price to reach the customers that only long for basic features. Consequently, there are vendors that offer free business intelligence software. Pentaho, a business intelligence software company, offers free open source software. However, Pentaho

offers complementary services for purchase. In the same manner as free software, "bundles" are a threat to business intelligence vendors. "Bundles" essentially compete on price. Microsoft provides, without extra charge, limited business intelligence with its next version of Office scheduled to release in 2007. (Microsoft, 2006) Thus, the buyers of Microsoft Office receive "free" business intelligence features. Low priced business intelligence product offering increases rivalry. Moreover, increasing low priced competition makes the basic features of business intelligence homogeneous. Thus, basic business intelligence moves closer to be "commoditised".

3.3.2 Threat of entry is moderate but increasing

3.3.2.1 Benefits from economies of scope make entry desirable

Recently, the two biggest software companies, Microsoft and Oracle, have aggressively entered into new areas within the business intelligence industry. Although they have had minimal presence, they are now taking an advantage of their product scope, distribution and marketing to sell business intelligence software. Other large enterprise software companies can take a similar approach to capitalize on economies of scope. Examples include SAP, which could consider deploying its business intelligence software to other users than its own ERP system users. Thereby, taking an advantage of the development work that would otherwise only benefit their solutions.

Established enterprise software firms, which want to enter the business intelligence software industry, may benefit from acquisitions of existing business intelligence software firms. Such acquisitions would be to adapt the acquired companies' products to one's current product matrix. The ultimate purpose of such an acquisition is

to take an advantage of the economies of scope. Economies of scope can be in product development. However, the main gains of economies of scope are in marketing and distribution. A start-up does not have the enormous scope effects like established firms in the enterprise software industry. Although start-ups can enter the business intelligence software industry, it is very costly to gain customers. Economies of scope greatly reduce that cost.

3.3.2.2 Favourable entry and exit costs makes entry advantageous for existing enterprise software vendors

Entry costs are low for existing enterprise software vendors that have little presence in the business intelligence industry. Enterprise software vendors have extensive infrastructure that is comparable to the infrastructure required in the business intelligence industry. Moreover, enterprise software vendors are familiar with the technology applied in business intelligence because of work in related technologies. Thus, it comes as no surprise that Microsoft and Oracle have entered the market with their own products in relation to their database products. Moreover, Microsoft and Oracle have as well acquired business intelligence vendors to improve its market position. Because the large enterprise software vendors enjoy economies of scope, the costs are low for entering the industry. Similarly, enterprise software vendors do not sustain high exit costs if they choose to leave the industry. Enterprise software vendors may choose to exit the industry if profits are not satisfactory. Firms that do not benefit from economies of scope do have high entry costs. The high entry costs are partially due to high marketing costs.

3.3.2.3 High upfront costs reduce threat of entry

There are high upfront costs in creating and marketing business intelligence software. The most significant is marketing cost, although often realized at later stages of the product creation. The high upfront costs require business intelligence vendors to have sufficient capital to create and market business intelligence software. Open-source business intelligence software has lower development costs but still faces high marketing costs. According to Gartner Research (2005, p. 72), there are indications that decision makers build their initial vendors list based on recognition of firms as market leading providers. Branding costs are high, but essential, in order to gain reputation and market lead. New entrants are going to have a hard time getting recognition with well-known and recognized companies, such as Oracle, Cognos and Business Objects, leading the industry. However, large enterprise software vendors, like Microsoft and IBM, have vast resources to spend on branding and marketing in order to get a foothold in the business intelligence industry. Despite a strong brand image, a company like Microsoft has to address credibility issues in terms of both security and platform support. Moreover, the creation of positive image for the business intelligence market, leads to high marketing costs. Many corporations have software from a number of vendors. A hypothetical example would be a firm with a point of sale (POS) system from NCR, Enterprise Resource Planning (ERP) system from SAP and a Customer Relationship Management (CRM) system from Siebel. Big software firms with a number of products, like Microsoft, have to convince its customers that its business intelligence systems will support competing heterogeneous systems. The high upfront costs reduce the threat of new entrants.

3.3.2.4 Experience curve and scale effects create entry barrier

The business intelligence software industry relies upon the expertise of the employees. Established business intelligence companies have an advantage, since they can build on its experienced staff and its established knowledge management. For these reasons, a newcomer like the business intelligence firm Pentaho, states clearly that the company is "[f]ounded by industry veterans with a track record of delivering successful BI products for leading commercial vendors" (Pentaho, 2006). Statements like that allegedly increase the credibility of the firm since it lacks the experience that an established firm would have. For a new entrant, it requires significant capital resources to acquire experienced, skilled workers.

Closely related to the importance of experience is the influence of scale effects. Scale effects are especially important in the enterprise segment of the business intelligence market. The enterprise segment of the business intelligence market favours deals with companies that have experience with enterprise clients. Additionally, the buyers in the enterprise segment favour business intelligence vendors that operate in a global market and have considerable revenues. Buyers in the enterprise segment are commonly dealing with expensive projects. Thus, the buyers have stringent criteria to select business intelligence vendors. The stringent criteria are to mitigate the risk of failure.

Experience and the global operations of business intelligence vendors are less important in the market for small or medium-sized businesses. Small businesses however, are more stringent on capital and thus more vulnerable to failure than capital

22

rich enterprises. A business intelligence firm with proven experience and low price is the Holy Grail for small businesses.

Solving industry specific problems is a huge area for business intelligence. Thus, not only is expertise important in software development and business intelligence, so is deep industry specific knowledge. New entrants can spend money on expertise and knowledge management to improve their position. Firms that have established position in the industry do not require these additional costs. Thus, extra costs to remedy issues of knowledge, do give established companies enough cost advantage that it creates an entry barrier for potential entrants.

3.3.2.5 Access to distribution channels is important for a new entrant

Distribution of business intelligence products is mainly through: 1) an alliance with independent software vendors (ISVs), 2) wholesale or retailing channels, or 3) direct to customers. It is not easy to set up or establish distribution channels. Establishing alliances with ISVs or with wholesale/retailing partners requires consideration of numerous factors.

Distribution partners need to have an extensive network. Sales and marketing activities require high costs. These costs are mostly human capital costs. Direct distribution to customers does not need to be costly. However, direct distribution makes it hard to differentiate enough to stand out from the crowd. Accordingly, additional expenditure may be required for effective direct distribution model. Extensive marketing and sales activities are capital aggressive. Thus, without access to distribution channels, a new entrant has to overcome obstacles of high costs.

3.3.3 Competition from substitutes is low

3.3.3.1 Technical products and complex solutions thwart competition from substitutes

Business intelligence products analyse data from many systems that may be otherwise incompatible. This scenario is common. Business intelligence products need to function with a vast number of integrated and non-integrated systems. In addition, business intelligence products have to deliver the output that organisations require. Even though organisations might have the same systems, the output required may be quite different. Business intelligence products are commonly very technical products that allow a great deal of flexibility. To get the most value out of business intelligence, organisations exercise the product flexibility to tailor its business intelligence solutions. Some organisations do little tailoring and rely on initial configuration. However, the tailored business intelligence solutions are most effective at meeting the organisations' needs. Business intelligence software, like many enterprise software systems, links with many other systems and their data. The linkage can result in quite complex solutions. Because business intelligence products are very technical and many solutions are complex, it reduces the threat of a substitute. Business intelligence vendors commonly gain much revenue from a service factor, which comes in addition to the sale of the business intelligence software.

3.3.3.2 Difficulty to achieve recognition decreases threat of substitution

Commonly organisations consider the return of investment as an important factor in evaluating a business intelligence solution. The price of business intelligence products is less important, given that the return of investment is satisfactory. Organisations are prone to select business intelligence vendors based on market share and the vendors'

recognition as industry leader. Prospective customers perceive the relationship between business intelligence vendors' success and the success of the customers' business intelligence solutions. Recognised business intelligence vendors with good reputation are in a good position. Getting recognition and establishing above-average market share is capital intensive. Without enough capital, business intelligence vendors are going to have a hard time competing. The difficulty to achieve recognition decreases the threat of substitution (Gartner Research, 2005, p. 72).

3.3.3.3 Office productivity tools and bundled solutions provide threat of substitution

Office productivity tools, such as Microsoft's Office or Corel's WordPerfect Office, provide functionality that can substitute some basic, limited, business intelligence functionally. The functionality is often limited to basic reporting or data query. Similar solutions are often bundled with databases and related applications. The functionality from those bundled applications is, for some organisations, considered decent enough for minimal analysis or reporting. Commonly, this is in departments that do not have a high need for data analysis. Business intelligence vendors do not target this market. As these bundled business intelligence tools get better, they work in scenarios that are more complex. Hence, the bundled business intelligence tools would compete with other business intelligence products. Small and medium businesses may find business intelligence projects to be expensive and time consuming. Bundled tools may provide acceptable results as an alternative to larger, more expensive business intelligence products. Moreover, bundled tools may be cheaper and less time consuming than larger business intelligence products. Although bundled business intelligence tools do not

replace current business intelligence tools, there are strong signals that these bundled business intelligence tools are a threat of substitution.

3.3.4 Bargaining power of suppliers is moderate

3.3.4.1 Human capital know-how provides employees bargaining power

Because software is not a physical product, it does not require high expenditure in non-intangible capital assets. Technical expertise is all the more important. Firms in the industry require technical expertise throughout their value chain. Business intelligence vendors require not only technical expertise in technical roles, like design and development, but also in sales and marketing since the products involve technical complexities that the customers need to deal with. Thus, knowledge and technical skill-set of employees has an influence on salary costs. Lack of solidarity and increased supply of skilled people reduce the bargaining power of the workforce, while the reversed will increase the bargaining power.

3.3.4.2 Equipment and assets are non-essential, its suppliers have limited bargaining power

Software is not a physical product. Software does not go through manufacturing process like hardware. Software relies little on physical inputs or locations that are strategic to distribution of goods. Software products are not dependent on inputs from sources other than human capital. Thus, physical assets such as facilities and hardware can be low cost. The suppliers of physical assets have none or little bargaining power over business intelligence vendors. Location is not important concerning distribution of software. However, location can have importance in regards to human capital expertise. Access to human capital might influence the costs of physical assets. Because changing

location is easy, the suppliers have very limited powers and none beyond regional market trends.

3.3.4.3 Alliances with competing and non-competing software vendors gives them leverage

Business intelligence products have to work with a variety of enterprise systems. To create a product that has this relation, the business intelligence vendors need to access enterprise systems and related specifications. Access to data in enterprise systems provides value to the business intelligence vendor's customers. Without this access, the value of the business intelligence products decreases. Thus, business intelligence vendors are somewhat dependent on the relationships with software firms that represent the main enterprise systems. Business intelligence vendors commonly form strategic alliances with software vendors of enterprise systems. Although it are mostly business intelligence vendors that benefits from the access, support and sometimes official recognition, the enterprise software vendors can also receive accreditation and even monetary value from such alliances. In spite of co-operation, these business intelligence vendors and enterprise software vendors may be competing in business intelligence or other areas. Co-operating vendors have bargaining power. However, excessive use of the bargaining power does harm the co-operating vendors' reputation. Accordingly, the possibility to diminish greater interests, limits the bargaining power.

3.3.5 Bargaining power of customers is low

Customers in the business intelligence software industry have low bargaining power. For most relevant parts, business intelligence software is complex. Purchase or implementation of business intelligence solutions requires significant expertise.

Switching-costs are high. Customers rely on their vendors in the sales process. Moreover, the customers rely on their vendors for project successes. It is in the vendors' greatest interest to be devoted to their clients' successes. An initial implementation for a customer that is successful is likely to secure the customer's commitment to that vendor for future projects.

3.3.5.1 Product complexity limits bargaining power of customers

The purpose of business intelligence is to reveal unknown information. Because of its nature, it is hard to pinpoint ex ante exactly what firms will gain from using business intelligence products. The initial purpose of utilizing business intelligence is to reach out for data that is stored in various systems. Nevertheless, ultimately the purpose is to help firms to create value or decrease costs. However, to put business intelligence system in place presents a technological complexity. Evaluation of how a business intelligence product fits in the computing environment of a firm is complicated. Moreover, it is complicated to compare different vendors' business intelligence products. Business intelligence vendors are in the position of supplying current or potential customers with information about their products and technologies. The buyers must largely rely on that information, despite having technical experience available in-house. The business intelligence vendors must provide guidance on a viable business intelligence strategy, since this kind of information is not widely shared within the buyers' industry. Sharing a business intelligence strategy with competitors is not a feasible option for companies. Revealing firms' business intelligence strategies might expose firms' competitive advantages. To decrease the value of vendor reliance, the buyers can rely on external consultants. These consultants have expertise in business

28

intelligence for relevant industries. Additionally, the buyers can request that the business intelligence vendors do a "proof of concept". Although the business intelligence vendors incur costs in supplying a proof of concept, it is in their benefit since business intelligence software in general creates a lock-in. The customers are likely to experience a lock-in, because of high switching costs. The customers' strong reliance on the business intelligence vendors decreases the bargaining power of customers.

3.3.5.2 System lock-in and high switching costs restrict the customers' bargain power

There are significant switching costs associated with moving from one business intelligence vendor to another. The incumbent has a system lock-in with respects to system integration, infrastructure and employees training. The incumbent's knowledge and relationship that is specific to the customer would take time for another vendor to relearn. The educational costs increase the customer switching costs. Thus, the systems lock-in and the incumbent factor contribute to increasing switching costs. High switching costs reduce the bargaining power of customers.

3.3.5.3 Increasing number of buyers positively affect customers' bargaining power

The business intelligence industry has grown in recent years. This growth will continue. There are both new buyers and existing buyers that will continue to invest in business intelligence. Because there is a large pool of buyers, the buyers' individual bargaining power is not great. However, an increasing number of business intelligence vendors make it easier to consider alternative options. To value alternatives, buyers need to compare vendors' products. The business intelligence vendors' ability to differentiate from its competitors makes comparison difficult. However, differentiating by product

features is not sustainable as the products commodify. Vendors more rapidly imitate the features of their competitors. Differentiation will become less when the market growth decreases. Decreased market growth will result in price competition and will increase the bargaining power of buyers (Vesset and McDonough, 2006b, p. 3).

4 Internal characteristics analysis of Business Objects

This section examines the internal characteristics of Business Objects. This section starts with examination of Business Objects' strategy. The strategy section examines two topics. First, the strategy section looks at Business Objects' corporate strategy. Consequently, the strategy section looks at how growth plays a role in Business Objects' corporate strategy. An analysis on how Business Objects creates value follows the strategy section. That analysis explores Business Objects' business activities. Moreover, the analysis describes the business activities and their value. Furthermore, the analysis identifies added value. Subsequently, the analysis investigates how well Business Objects creates value. Finally, this analysis presents a summary of Business Objects' value creation.

4.1 Current strategy

4.1.1 Corporate strategy – Solve business problems

According to Business Objects' 2005 annual report (2006), the vision is "to be a company that solves business problems". Business Objects intends to supply all the business intelligence tools and services so that businesses can improve their business and become higher performance organisations. Further, the annual report states that a "high performance organization possesses certain characteristics—it transforms data from liability to a true information asset, embraces information sharing, aligns goals and

metrics to drive performance, and shares key metrics with a network of partners" (Business Objects, 2006). To deliver on this vision, Business Objects has set forth business strategy that focuses on five "tactical execution" points. These tactical execution points are:

- Extend the lead in the core business intelligence market.

- Expand into performance management analytic applications.

- Expand the presence in the enterprise information management (EIM) market.

- Penetrate the BI mid market.

- Grow the global services business.

Business Objects has historically been very strong in analysis and presentation of data. Addressing all elements of business intelligence is the basis for the strategy to extend the lead in the business intelligence market. Thus, the purpose is to offer customers the tools and services for all their business intelligence needs. The business intelligence activities in Figure 3 illustrate a chain of activities, in relation to the business intelligence framework (Kempf and Soejarto, 2001). The chain of activities sequentially summarizes the activities required to execute business intelligence solutions. Business intelligence vendors may focus on one or on few activities. Moreover, business intelligence vendors may have many solutions or products to cover many of the tasks within an activity. This analysis does not analyse how well Business Objects covers each activity. Business Objects has presence in each activity. To exemplify this presence, the

business intelligence activities in Figure 3 illustrate anecdotal presence of Business

Objects products. A gradient bar at the bottom of each activity shows this presence.

Figure 3: Business intelligence activities in relation to the business intelligence framework
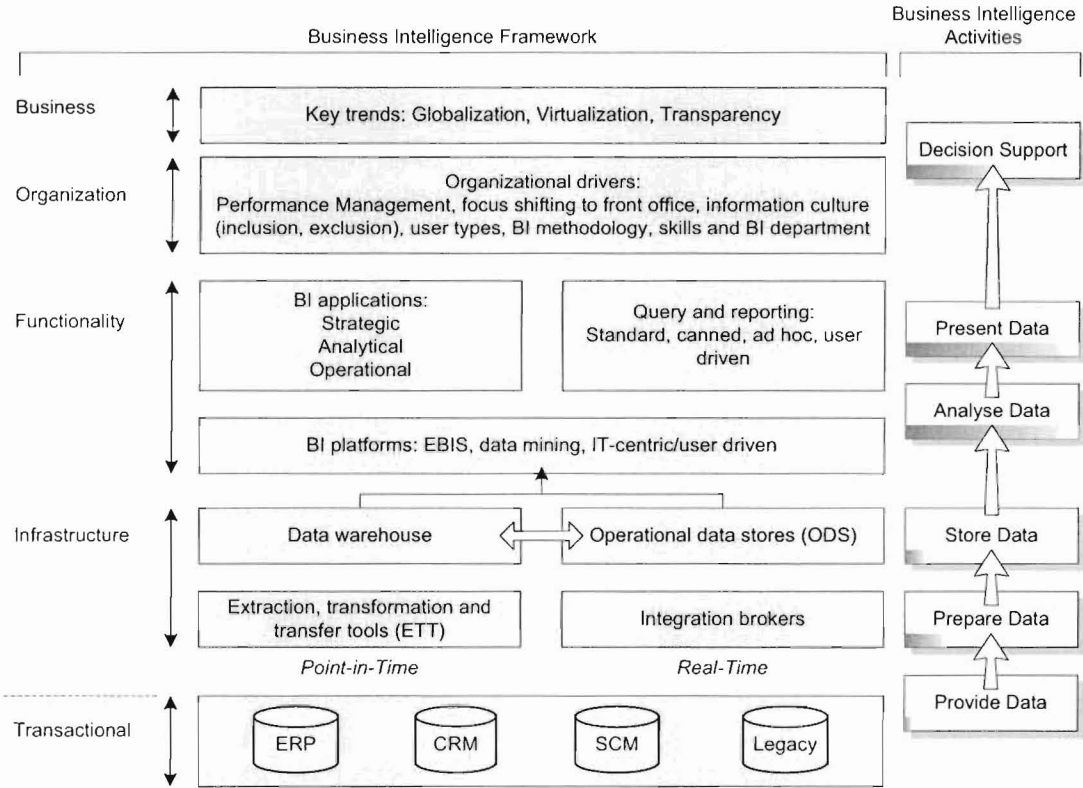
Adapted from Kempf and Soejarto, 2001

Section 2.2.2 explains the specific business intelligence activities. Business

Objects' ambition is to provide all the business intelligence activities required by its

customers. Hence, Business Objects aims to make other business intelligence vendors

unnecessary at each step of the business intelligence solution. The five tactical execution

points focus on strengthening Business Objects' solutions to increase its presence within

each business intelligence activity. Two of the execution points provide a clear

indication of this. The expansion into performance management is a way to add more effective decision support to a problem domain. Expansion in the Enterprise Information Management market enables Business Objects to remove their clients' reliance on other vendors' products that are needed for management and preparation of data.

4.1.2 Growth delivers on Business Objects' vision

Business Objects aims to grow its operations. Business Objects does not spell out overall growth as an objective. However, overall growth does underlie Business Objects' way to deliver on its vision. Business Objects is in a growth industry. Thus, the industry does not actuate diminishing returns. Diminishing returns would require Business Objects to resolve to specific growth strategies. However, "the road to improved performance must involve a renewed emphasis on growth. Growth not only provides the potential for enhanced profitability, but it also introduces vitality to an organization by providing challenges and rewards" (Aaker, 2001, p. 212). Business Objects' business strategy focuses on specific growth areas.

Business Objects has grown substantially over the last few years. Large portion of Business Objects' growth has been in its present markets. Business Objects' growth in its present markets comes from two sources: 1) growth in existing product markets and 2) growth via product development. Business Objects anticipates further growth. An obvious way to grow is to increase market share. Business Objects can capture short-term growth with tactical actions such as advertising, promotion, and price reductions. Such tactical actions can be expensive and unprofitable. To generate permanent share gain, Business Objects needs to deliver solid value and thereby create customer

34

satisfaction and loyalty. Development of assets and competences that lead to this result can be costly. Business Objects has explored new markets to generate further growth. There are two sources to generate growth via new markets: 1) market development, and 2) diversification involving new products and new markets. Market development includes two ways: 1) expand geographically with current products, and 2) target new market-segments with current products. Business Objects already operates globally, so geographical expansion mostly involves entering small, but growing, market regions. Business Objects considers targeting new market-segments. One of Business Objects' tactical execution points is to penetrate the business intelligence mid-market customer segment. Business Objects has recently entered this mid-market segment. Expansion with current products into business intelligence for small-sized businesses is risky, as it does not provide incremental customer value. If Business Objects were to expand into business intelligence for small-sized businesses it likely needs new, more appropriate products. Diversification involving new products and new markets is a growth strategy that Business Objects strongly considers. The basis of that strategy is to utilize the strong sales, marketing and distribution to add compatible software products for current Business Objects' customers (Aaker, 2001, p. 212-229).

4.2 How Business Objects creates value

Value chain analysis is a tool to analyse "how the firm produces its goods or services, and how well it does them" (Boardman, Shapiro and Vining, 2004, p. 17). The focus is on evaluating the efficiency by looking at the flow of activities. The analysis signals where value is added and how that value sets the ground for the firm's competitive advantage. This analysis is in the following steps: identification of relevant

35

elements that support the business; description of those activities along with identification of how the activities add value; evaluation of the performance for each activity.

4.2.1 Business activities

There are primary activities and support activities. Primary activities decompose the product flow within the business. The support activities are necessary to support that flow. Figure 4 summarizes the elements that form Business Object's value chain. The value chain is structurally similar to other firms' value chain in this industry.

The primary activities are: 1) product research and development, 2) manufacturing, 3) marketing, 4) retail and distribution, 5) sales, and 6) services. The support activities are: 1) infrastructure, 2) human resources, and 3) information technology. These activities play a vital role in supporting the primary activities.

Figure 4: A diagrammatic summary of how Business Objects creates value
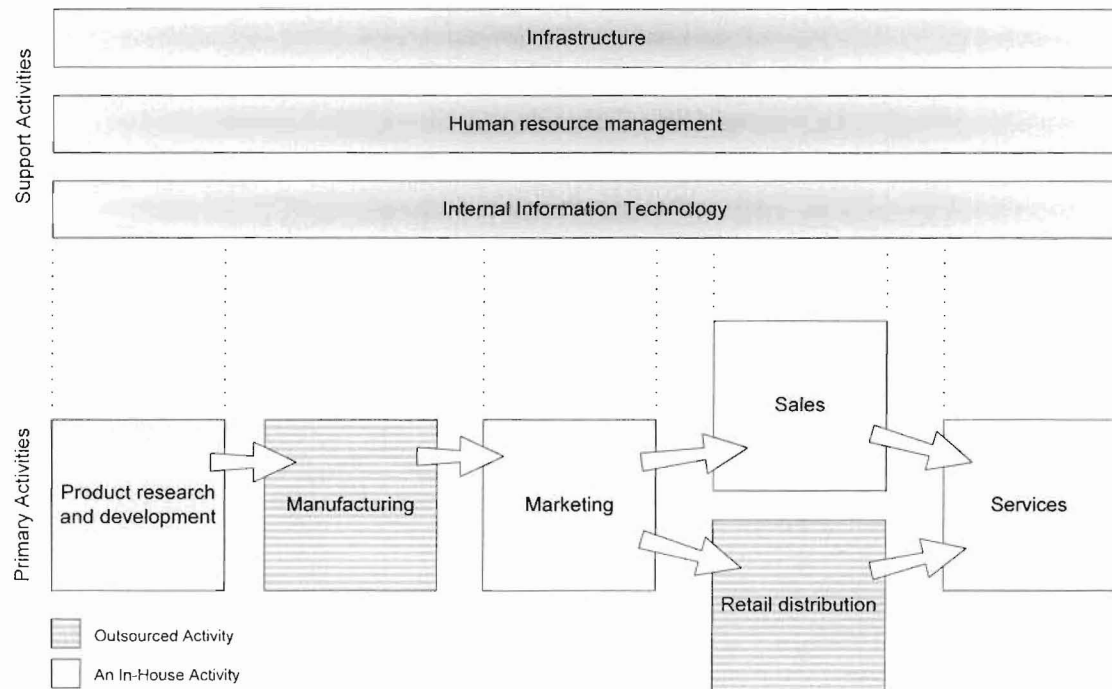
Adapted from Porter 1985a,

4.2.2 Description of activities and their value

4.2.2.1 Product research and development

Business Objects develops almost all of the products it offers. The major element of value creation takes place in research and development. Product research, architecture, and development require substantial technical capabilities. Business intelligence software interacts with other systems, which raises numerous technical issues. Moreover, the creation of business intelligence software relies on highly technical software development libraries and tools. Further, different platforms and operating systems need to be taken into account, and this increases complexity. Business Objects is dependent on having developers that have deep technical skills in different programming languages, in a variety of application programming interfaces, and in development systems. The

product management group is ultimately responsible for product features and functionality. The product management group analysis products requirements. Additionally, the product management group examines how the products align with the company differentiation strategy. The product management works with marketing, sales and support to map what features customers require. Moreover, the product management must evaluate what issues need to be addressed to maintain or increase customer satisfaction. Further, the product management group does analysis of the competitors' products. Competitors' analysis is a way for the product management to compare its product strategy with its competitors' strategy. The competitors' position and market situations may reveal threats or open up new opportunities. The product management, along with others in research and development, needs to respond to emerging threats or opportunities. Processes and structures must be in place so that resources are accessible. Moreover, these resources must have the competence to engage in rapid development. Two scenarios are possible as responses to threats or opportunities. The first scenario requires an acquisition of resources for modifications. The second scenario is to develop a solution in-house. An in-house development relies on efficient software development life cycle management within the firm. The former response is often a case of acquiring firms, such as the instance when Business Objects bought Infommersion to develop its dashboard technology. Infommersion is now a part of the Crystal Xcelsius product. Additionally, an external product can be bought and incorporated. Upper management does take strategic decisions of acquisitions but this ultimately becomes the responsibility of the product development team. Acquisition versus develop in-house depends on many

issues, such as: time to develop, timeframe of the opportunity, technology solutions or patents, time to market, and ways to potentially intercept the competitors.

Business Objects has focused on connectivity and information sharing. Business Objects has developed solutions that grant interaction with many other systems. Those other systems cover many industries. Business Objects has developed a technology, Business Objects Universe, which makes their users non-dependent on database or system providers. Business Objects Universe is a metadata solution that enables access to many industry specific systems. Business Objects' technological approach of being industry "independent" is contrary to many business intelligence firms that focus on industry niches or have specialised in specific industries. Many business intelligence software firms that have specialised in specific industries have from there, gained momentum to act on related industries.

4.2.2.2 Manufacturing

Software creation occurs in the research and development. The manufacturing stage is simply a way to put the software into a package for distribution. This usually consists of putting the software on a compact disc. The packaging contains the compact disc along with printed installation and user manuals, together in a small box. Once the software has been set up, the package has no real value for the buyer. The process of packaging has nothing to do with the value that the customer gets. In some cases, it is possible to skip the manufacturing stage completely and enable customers to download software over the Internet. This is especially convenient for product updates or add-on products.

Business Objects, like many software companies, outsource the manufacturing activity. There are many low price providers in compact disc manufacturing and publishing. These industries commonly keep costs down by exploiting economies of scale. Business Objects does not require large-scale manufacturing. In addition, this is outside Business Objects' core activity.

4.2.2.3 Marketing

Business Objects relies heavily on marketing. For success in the business intelligence industry, it is essential to have powerful marketing. Divided into several tasks that operate in harmony, the marketing moulds the stepping-stones for Business Objects' accomplishments.

A vital function of the marketing activity is to create demand. Product benefits are many, but the greatest benefit for any customer is outstanding return on investment (ROI). The marketing team communicates the benefits of business intelligence to potential customers. Firms seek advice from consultants and industry analysts on business intelligence. Business Objects conveys its product offering to all these parties.

Business Objects' target audience are decision makers. The decision makers are managers within firms, commonly chief information officers (CIO) and chief executive officers (CEO). To reach that target audience, Business Objects, and the business intelligence industry in general, focus on decision makers through events and publications. Seminars and conferences on business and IT held by Business Objects or others where CIOs or CEOs are the audience, are an example of marketing events. Publications of white papers by Business Objects or other credible industry sources are

another way of marketing. Moreover, presence in and promulgation in high profile publications such as Business Week and the Wall Street Journal addresses the relevant target market.

Business Objects' relationship with industry analysts and the press is a key function in the marketing. A part of firms' purchasing process involves getting advice from industry sources. Moreover, firms' purchasing process involves carrying out due diligence on the vendors' resource and financial standing. Analysts such as Gartner, Forrester Research and IDC Research supply information on software solutions and feasibility of business intelligence vendors' position. Information supplied by those analysts can greatly influence the decision of potential customers. Thus, it is imperative that Business Objects mightily manages relationships with industry analysts and the press.

There is a strong connection between marketing and sales. One measure of marketing success is to establish the amount of sales marketing activity creates. For that to happen, the marketing team has processes to turn demand creation activities into indications of interests. The sales force follows up on those clues. Co-operation between teams in marketing and sales is common in special marketing campaigns. These marketing campaigns often target firms for potential purchase. The marketing and sales teams also co-operate on competitive marketing. Competitive marketing analysis what the competitors are focusing on. A part of the analyses is to determine what constitutes to decisive factors in a sale. The analysis enables Business Objects to chip away market share from the competition in future marketing and sales initiatives.

The sales and marketing teams, along with product management, are responsible for product marketing. Product marketing involves managing product brands and requirements gathering. Sales teams obtain information from potential and established customers on attributes that are important to them. The marketing group actively passes this information on to the product managers. What functionality included in product upgrades is determined partially with this information. Further, the product marketing is about materialising the information of the customer needs into marketing. Accordingly, the marketing team develops marketing material positioned against the competitors' product offerings.

Marketing is responsible for creating demand. Important aspect of demand creation is to take into account geographical differences. The marketing team has to articulate their messages to fit for different geographic regions. In regions where Business Objects does not have local presence and relies on retailers, the marketing team develops marketing programmes in partner with the sellers. This partnership mutually benefits both parties as it may increase sales and establish a stronger position for the retailer. There are disparities in different industries that the marketing team may wish to target specifically. To address industry differences, the marketing team specifically targets verticals or specific industries such as the Banking industry. This may result in direct competition with niche business intelligence vendors that solely focus on specific industries.

The final key function carried out by the marketing team is responsibility of the Business Objects brand. Business Objects is a global firm and as such requires a consistent and a positive perception. The marketing team preserves the public image of

the firm. Corporate activities, such as public relations and promotions, bear the firm's identity. Business Objects' website and promotional material all reflect the firm's brand.

4.2.2.4 Sales

The exact return from business intelligence is hard to determine. Examples of business intelligence usage are: to discover new products, generate more revenue, or to find ways to lower costs. Realization of business intelligence solution is to discover the unknown in businesses. Because of the unknown factor, the return is not prominent upfront. As a result, the pre-sales activity is extremely important in the business intelligence market. Pre-sales effectively is consultation that happens early in the sales cycle. The purport of pre-sales consulting is either to provide proof of concept or guidance in concurrence with a consulting partner.

Sales teams may wish to deliver functional example solutions to potential customers. The solutions give customers an example of an implementation. Importantly, the example solutions provide a proof of concept to the customers. At the same time, the sales teams can collect requirements from the customers. This information passes on to marketing. In addition, the requirements information assists the sales teams in the later stages of the sales cycle. In later stages, usage of the requirements information is to bring a point to attention. This "functional-example" activity serves as an influential sales tool that helps to persuade buyers. Moreover, it enables the sales team to move forward towards the closure of a sale.

Pre-sales consulting may also take place in concurrence with a consulting partner. The purpose is to provide guidance in a multi-vendor arrangement or to assess customer

needs for a consulting partner. An example of such an arrangement is a firm that contracts a consulting agency to assess and implement an enterprise system. The consulting agency would select few parties to work with on both requirements and planning. As one of those partners, Business Objects is in good position to realise sales. Business Objects' stance to realise sales is because of the consultancy effort.

Business Objects own sales team is responsible for the majority of the sales. A part of the sale comes through external sales channels. By selling directly to the end customer, the sales team gains valuable information on the customers' preferences and requirements. Other resources within Business Objects can then utilize the information. The information is commonly utilized in product management and the marketing group. In addition, by handling the sales process, Business Objects can have a greater control of what it sells. A sale generally consists of: 1) licenses for the software product, 2) consultation on implementation, and 3) maintenance agreement that covers support services and software updates. Without direct sales, Business Objects would risk losing the revenue it gains from the consulting services.

Deals in the enterprise market segment are large and complex. The sales process takes a long time. A sales deal often takes more than a half year before a formal signature takes place. The stakes are high, because the corporations are investing large sums of money in the business intelligence systems and related infrastructure. These high stake deals call for highly skilled sales people. The sales people need to have experience in business intelligence and in sales methods commonly used in the enterprise software industry. Deals in the mid-market segment are not as valuable. However, as usage of business intelligence increases within the mid-market segment, the number of

potential clients increases. The sales teams rely on sales technique and processes based on proven sales models. The sales team actively use tools such as Customer Relationship Management (CRM) to assist in the process.

4.2.2.5 Retail distribution

There are two scenarios where Business Objects sells products through retailers. First scenario is retailers that sell Business Objects' low priced products. Second scenario is retailers that sell Business Objects' products in small markets. Moreover, it is when a market is not big enough to support a sales unit. These small markets can be markets such as niche industries or regions with small market size. Business Objects may choose to work with value added resellers. The resellers then bundle products as a part of a larger agreement. The resellers are often system providers or consultants. It is not profitable for Business Objects to spend much of its own resources on the retailing side. Likely, if a market were big enough, Business Objects would build its own sales team in the specific market and exit the retail distribution. Business Objects does outsource the retail distribution activities. However, resources that go into marketing and management of the relationships with the resellers are not outsourced. This arrangement is in line with other retail distributions in the software industry. Vertically integrated software firms in the retail segment are extremely rare.

4.2.2.6 Services

Business Objects provides customer support, consulting and education services. All these services fall under Business Objects' Global Services programme. Business

Objects also provides software-service products. Of the services provided, the customer support functions as a cost centre, the other services generate revenue.

The customer support function is a key service to ensure successful implementation of newly sold solutions. Additionally, the customer support function maintains a continuing relationship with the customers. The customer support function helps to deliver on the promises made in the sales process. Because of technical complexities and system flaws, either in Business Objects' products or in collaborating products, many problems can arise. In addition, many issues are likely to come up because of customization. These customizations are on customers' processes and systems. The technical support deals with all these problems. The product management group receives information of the issues that come to the attention of the customer support. The information is the basis for identifying areas of improvement. Future versions of the software will incorporate changes of identified issues for improvement. Those changes may in return, reduce the burden on the customer support. However, new problems will always arise. Because of the valuable knowledge gained, Business Objects would loose a critical source of information if it were to outsource the customer support.

The consulting service consists of four different groups. These groups are: 1) Product Services, 2) Platform Services, 3) Data Services, and 4) Decision Services. The main purpose with these consulting services is to make sure the customers successfully implement business intelligence solutions. Additionally, the consulting services are to provide customers with the benefits of Business Objects' expertise. Business Objects' expertise improves the customers' business intelligence endeavour. The consulting services are important to Business Objects. Because of their importance, the consulting

services are maintained in-house. The consulting services provide substantial value for Business Objects' customers. Moreover, the consulting services generate sizeable revenue for Business Objects. The consulting services provide an important insight into the customers' processes and operations. Mingling a business intelligence implementation with firms' processes and operations can provide many challenges. The information gained in the implementation process passes on to the product management group. The product management group identifies areas of improvement. By outsourcing the consulting services, Business Objects would miss an important revenue source. In addition, outsourcing the consulting services would eliminate an important feedback loop. This feedback loop is important for product development.

Business Objects' customers are the main target of the education services. The services mainly deal with four groups: 1) Business users, 2) Report designers, 3) Data managers and data designers, and 4) System administrators. Education helps to build up customer acceptance. Business Objects does not build up competencies related to their core operation by having education services in-house. Many software firms outsource the education services to avoid investment in resources such as teaching facilities and instructors. However, education services generate revenue. Revenue is little in comparison with revenue from other operations of the business. Business Objects contracts parts of its education services.

Services that are more recent in the IT industry are software-service products. Software-service products are essentially software products that pertain to certain delivery methods. Software-as-a-service (SaaS) is one such model where the software firm provides maintenance, technical operations, and support for the software provided.

Business Objects collaborates with partners and delivers its own software-service products. These services can provide substantial revenues. A reason for having these services in-house would be to enable rapid results in response to changes and to gain experience. Economies of scale drive down the cost of the service. Thus, to lower costs, it may be more convenient to outsource the services to a large-scale provider, which specializes in software services. However, it is important for Business Objects to have flexibility and experience in this area. Thus, as Business Objects increases the number of software-service products it will gain increasing scale effects. The scale effects provide Business Objects enough cost benefits to keep this function in-house.

4.2.2.7 Support activities

The support activities, infrastructure, human resources, and information technology, are essential to support the primary activities. The support activities affect all the in-house primary activities. As the description of the primary activities indicates, the human resource management is especially important. Software firms rely greatly on their employee expertise.

4.2.3 Identification of value added

The value chain activities provide a clue what specifically adds value. The value chain activities assist to identify the source of competitive advantage. This analysis inspects the main strengths associated with each activity to identify value added. Value can be added to businesses either through a cost advantage or through a differentiation advantage (Boardman, Shapiro and Vining, 2004, p. 18).

4.2.3.1 Value created through product research and development is the main source of differentiation

Product research and development is the basis for Business Object's differentiation strategy. Business Objects' capability to deliver innovative solutions creates an extensive value. This results in functionality that differentiates Business Objects' products from its competitors. Moreover, Business Objects' products bring value to its customers. In addition, Business Objects has the means to deliver upgrades or solutions promptly. Business Objects' research and development team has highly skilled employees. Business Objects has resources to acquire technology, products or firms. Such acquisitions support Business Objects means to deliver relevant solutions rapidly to market. Merging can prove difficult for many firms. However, judging from Business Objects' history, it has the aptitude needed to do it successfully.

Business Objects' ability to create and maintain relationships with software vendors provides immense value. Because of these relationships, Business Objects' products have a high interoperability with enterprise systems and software. The high interoperability further differentiates Business Objects' products.

4.2.3.2 Marketing communicates product differentiation and increases willingness to pay

Marketing delivers a key role to communicate the message of Business Objects' product functionality. There are three important aspects to that communication. Those aspects are: 1) to articulate the right message, 2) to communicate to industry influencers, and 3) to target the most profitable segments. Taken these aspects into consideration, the marketing team emphasises it communication on product differentiation. Emphasises on product differentiation further utilizes the value created in the Research and Development

group. In addition, the marketing team sets the foundation for value creation within the Sales activity. Moreover, the marketing team builds up perceived quality. Highly notable perceived quality makes Business Objects' products more valuable to customers. Perceived quality can lead to increased willingness to pay. Perceived quality has associations with the brand and the overall corporate image. The marketing activity provides costs savings through economies of scope. Thus, marketing strategies such as family branding, bundling and advertising decrease costs per product.

4.2.3.3 Willingness to pay increases with Sales cogent demonstration of ROI

Sales teams' cogency in providing proof of concept increases customers' willingness to pay. Key attribute in the sales activity is to have highly competent employees. The sales force needs to be experienced in business and sales techniques. The business experience along with in-depth knowledge of the products enables the sales force to form a scenario that demonstrates an advantage for potential customers. Sales techniques and models are used throughout the sales cycle to make the execution efficient and more likely to lead to result. The information gathered in the sales cycle provides feedback to the sales activity, and to other activities within the supply chain.

4.2.3.4 Services provide value based on Business Objects' reputation

Business Objects needs to make sure that customers' business intelligence solutions are successful. Lack of success or indication of low return reflects a poor usability of Business Objects' products. Moreover, indication of low return diminishes Business Objects' reputation. Damaged reputation influences sales and can greatly increase marketing-costs. The purpose of Business Objects' customer support,

consulting, and education services, is to make its customers' solutions successful. In addition, consulting services generate profits. Furthermore, value creation takes place in utilization of these services as feedback channels. This feedback contributes to Business Objects' learning curve. This feedback is especially important for product improvement. Moreover, this feedback distributes beneficial information throughout the value chain.

4.2.4 How well does Business Objects create value

Business Objects' ability to compete rigorously and continue to increase its revenue and market share is an indicator of its value chain performance. Over the last three years, Business Objects has increased its revenue more than its costs have arisen. Analysis of the value chain indicates that few key factors from the value chain's primary activities contribute substantially to the increased growth. These factors are as follows.

- Create intuitive product design and rich functionality, which differentiates the products and creates value for the buyer.

- Develop and advance relationships with partners and vendors, with emphasis on recognized agreements.

- Develop and maintain relationships with key industry influencers such as industry analysts and press to enhance the marketing capabilities.

- Skilled sales force with expert knowledge of the products and technical experience. Particularly in high value long-term software deals.

- Use services to deliver more than a post-sale experience, in order to create new opportunities for sales and marketing.

51

These factors contribute to Business Objects' competitive advantage. However, these factors do not provide sustainable competitive advantage. A closer look at Business Objects' strategy, on how to compete in relation to its product offerings, gives an indication of a long-term competitive advantage. The following presents an inspection on what contributes to Business Objects' long-term advantage.

Analysis of the value chain provides evidence of Business Objects' strategy to compete on differentiation. Business Objects' research and development, which does product development, is responsible for lot of the product differentiation. Nevertheless, Sales, Marketing, and Services carry an important role of collecting feedback from potential buyers and customers. The collected feedback is an important input into product design. Moreover, the collected feedback positively affects Business Objects' experience curve. Business Objects' products have a number of features that differentiate themselves from the competitors. However, information technology generally constitutes a poor basis for competitive advantage due to firms' ability to imitate the technology. Business Objects has patents on some of its important technology. These patents present a highly effective barrier to duplication; but they do not eliminate imitation (Clemons and Row, 1991, p. 275-277).

Business Objects has dozens of patents. Some of these patents present methods to simplify connections to variety of data sources. Business Objects' products implement these methods. As a result, Business Objects' users have great ability to work on data from many sources. Business Objects' products work *on* a number of platforms and *with* a number of enterprise systems. Business Objects' products have a high interoperability. That interoperability distinguishes Business Objects' products from business intelligence

products offered by the large enterprise software makers such as Microsoft, Oracle and SAP; but their business intelligence products weigh heavily towards their own enterprise software solutions. For example, SAP's business intelligence product does not work well with Oracle's ERP solution.

Business Objects' advantage over other specialised business intelligence vendors is the comprehensiveness of its products. To examine it more closely, it is necessary to understand what is involved in business intelligence. A firm that wishes to do business intelligence has to go through six steps to extract business intelligence from its data. Each step involves a number of actions that are performed by multiple products, each specializing in that business intelligence activity or action. The final step provides content that is an argument for decision support, performance management, product discovery, or etc. Extraction of business intelligence from raw data is an extensive process with a many variations. Only few software firms have the greatness to offer products that cover all the business intelligence needs. Microsoft has the resources to do so, as does Oracle, but they have a vast number of software products. Like these large software enterprises, Business Objects has extensive resources. Moreover, Business Objects has extensive resources already invested in business intelligence. Business Objects is the largest vendor in the business intelligence software industry. If Business Objects continues to increase its product offerings, it will effectively cover all the business intelligence needs of large corporations. Thus, it is possible for Business Objects to offer a "one-stop-shop", where a customer could buy all the necessary business intelligence software and services.

Business Objects' main competitive advantage is the ability to offer products that have a high interoperability with enterprise systems, and functionality that covers all of the aspects in business intelligence. This advantage is not easily replicated. Smaller software firms and specialised business intelligence vendors require vast resources to offer all the business intelligence functionality that enterprises require. Those resources are not available unless the vendor has extensive income. The large enterprise software makers have the resources; but do not have as rich product interoperability as Business Objects does. The large enterprise software makers would have a hard time to imitate Business Objects' products' interoperability. Imitation of Business Objects' interoperability would mitigate the cohesiveness of the large software vendors' business intelligence systems and their enterprise solutions. That is, imitation of the interoperability would reduce the economies of scope. Moreover, imitation of the interoperability would loosen up the enterprise software vendors' ability to have a system lock in. In addition, buyers would have a hard time to be convinced of the true nature of the interoperability. Perhaps it is not in the best interest of the enterprise software vendor to maintain interoperable quality to support the buyers' enterprise systems from other vendors; the enterprise software vendors would rather convince the buyer to get in on their enterprise systems.

4.2.5 Summary of Business Objects' value creation

Business Objects competes on differentiation. Business Objects' value creation reinforces its way to compete on differentiation. Business Objects creates value throughout its business. Few factors contribute substantially to Business Objects' competitive advantage. These factors include value creation in all of Business Objects'

business activities. Combinations of two factors contribute to Business Objects' main competitive advantage. That competitive advantage is not easy to replicate. Moreover, those factors provide Business Objects with a long-term competitive advantage. Those factors are the ability to offer products that have a high interoperability with enterprise systems and functionality that covers all of the aspects in business intelligence. Importantly, this advantage enables Business Objects to offer a "one-stop-shop" for business intelligence.

5 Business Objects' financial performance

This section analyses Business Objects' financial situation. This financial analysis is in four parts. The first part inspects Business Objects' financial growth. The second part examines Business Objects' financial flexibility. The third part considers Business Objects' overall financial outlook. The last part concludes on Business Objects' financial ability to utilize its portal strategy as a contribution towards its overall business strategy.

5.1 Financial growth

Table 2 displays selected financial data for the years 2003 to 2005. Business Objects has had positive income for the last few years. The biggest source of income is net license fees and services revenues. The net license fees come from the sale of licenses to use Business Objects' software products. Services revenues come from annual maintenance agreements and professional services. In addition to training customers' employees, the professional services "earns revenues for consulting and training to plan and execute the deployment of [Business Objects] products." (Business Objects, 2006, p. 37) Income from operations as percentage of total revenues has increased from 7% in 2003 to 12% in 2005.

The biggest expenditure is sales and marketing, which is roughly 2.6 times more than is spent on research and development (R&D). That is a healthy ratio for the software industry, which reflects the importance of sales and marketing. From 2003 to

2005, the expenditure for those operations has increased, which mirrors an increased head count in the firm. However operating expenses as a percentage of total revenues have gone down to 65% compared to 69% in 2004 and 76% in 2003. That may indicate an increased efficiency in the value chain, leading to more sales and improved productivity.

Table 2:   Selected financial data for 2003 to 2005 (In thousands of USD)

	2005	2004	2003
Income Statement			
Total Revenue	$1,077,151	$925,631	$560,825
Gross Profit	$830,810	$725,226	$465,869
Research and development expenses	$162,540	$150,562	$95,399
Sales/Marketing and Administrative expenses	$532,342	$490,743	$295,525
Operating Income	$132,194	$81,752	$39,197
Net Income	$92,625	$47,123	$22,562
Balance Sheet			
Total Current Assets	$699,742	$615,219	$476,566
Total Assets	$2,123,358	$1,922,928	$1,775,062
Total Current Liabilities	$504,543	$501,737	$427,053
Total Liabilities	$533,903	$515,784	$432,003
Total Equity	$1,589,455	$1,407,144	$1,343,059
Cash Flow			
Net Income/Starting Line	$92,625	$47,123	$22,562
Cash from Operating	$162,653	$88,141	$98,499
Cash from Investing	($172,889)	($30,552)	($134,377)
Cash from Financing	$53,113	$2,481	$29,110
Net Change in Cash	$39,292	$58,105	$1,439

Source: Business Objects Form 10-K

5.2 Financial flexibility

The financial flexibility of Business Objects can be assessed by looking at their liquidity and solvency. Liquidity is an indicator of the ability to convert an asset to cash quickly. Solvency is an indicator of the ability to meet one's long-term fixed expenses as well as accomplishing long-term growth. The analysis uses common ratios to weigh up the financial flexibility.

Table 3: Business Objects' liquidity ratios (Amounts in thousands of USD)

Year	Cash and cash equivalents	Current assets	Current liabilities	Current ratio	Acid test ratio
2005	$354,934	$699,742	$504,543	1.39	1.27
2004	$307,528	$615,219	$501,737	1.23	1.13
2003	$254,623	$476,566	$427,053	1.12	1.04

Source: Business Objects Form 10-K

Table 3 shows ratios for evaluating liquidity. The Current Ratio indicates Business Objects' ability to meet short-term debt obligations. The Current Ratio has been increasing. For 2005, it is 1.39. This is below currents industry ratio of 2.3 but more in line with the market as a whole (S&P 500) which has a ratio of 1.7. The Acid Test Ratio for 2005 is 1.27, which is well below the industry ratio of 2.3. Like the current Ratio, the Acid Test Ratio is close to the market as a whole (S&P 500) which has a ratio of 1.4. Both ratios have been increasing. Higher ratios indicate an increased flexibility to pay off short term liabilities. Given the industry ratios, Business Objects' short-term financial viability could be threatened. However, given the positive working capital of $195,199,000 it indicates an acceptable liquidity. In 2005, Business Objects' working capital has increased four fold since 2003 (Reuters, 2007).

Table 4: Business Objects' solvency ratios (Amounts in thousands of USD)

Year	Total debt	Total assets	Total equity	Debt to total asset ratio	Total Debt to total equity ratio
2005	$533,903	$2,123,358	$1,589,455	0.25	0.34
2004	$515,784	$1,922,928	$1,407,144	0.27	0.37
2003	$432,003	$1,775,062	$1,343,059	0.24	0.32

Source: Business Objects Form 10-K

Table 4 shows ratios for evaluating Business Objects solvency. The better the solvency, the better company is financially. When a company is insolvent, it can no longer operate and is undergoing bankruptcy. The debt to total asset ratio is used to measure a company's financial risk by determining how much of the company's assets have been financed by debt. Business Objects debt to assets ratio of 0.25 is a good balance. In a case of bankruptcy, a repayment to creditors always comes first. Thus, a high debt to equity ratio translates to a higher risk for shareholders. Conversely, no or very little debt can result in lost opportunities of increased earnings by financing projects that will give better returns than the cost of the debt. The 0.34 debt to equity in 2005 is an accepted ratio in this industry (McClure, 2003).

5.3 Overall financial outlook

In 2005, Business Objects had revenue over billion US dollars. Table 5 displays Business Objects' revenue for each quarter from 2004 to 2006. For the first three quarters in 2006, the revenue has increased compared to previous quarters. Historically the revenue has a seasonal spike in the fourth quarter. Thus, the year 2006 will create more revenue than 2005. Business Objects' third quarter financial statement for 2006 reveals that "[t]otal cash, cash equivalents and short-term investments were $504 million at September 30, 2006, up $167 million from December 31, 2005" (Business Objects,

2006). This gives Business Objects greater financial flexibility. Business Objects will continue to fund operations with its revenues.

Table 5: Revenue for each quarter from 2004 to 2006

	Q1	Q2	Q3	Q4
2006	278,271	294,484	310,435	N/A
2005	248,775	262,409	261,381	304,586
2004	217,235	222,238	219,470	266,688

Source: Business Objects 2005, 2006

Business Objects has ample financial resources to invest in research and development for new initiatives. Moreover, Business Objects has the financial strength to acquire companies that are a good fit to its business.

5.4 Conclusion of financial analysis

Business Objects' financial strength is important so it can deliver on its vision. Business Objects' business strategy focuses on specific growth areas. Business Objects requires financial strength for successful accomplishments in these areas. Business Objects' portal strategy can be a factor in its growth strategy. However, Business Objects needs to have the financial strength to utilize its portal strategy as a way to increase growth. The financial analysis shows that Business Objects has considerable financial strength. Moreover, Business Objects has the financial strength to use its portal application to enter new markets or introduce related products. Business Objects has the financial resources to boost development efforts. Thus, if required, Business Objects can add resources to execute its portal strategy.

6 An analysis of Business Objects' portal strategy

This section provides an analysis of Business Objects' portal-strategy. First, this section provides background information on portals. Consequently, this analysis examines InfoView, Business Objects' portal application. Lastly, this analysis presents a detailed strategic analysis of Business Objects' InfoView.

6.1 Background on portals

This section presents background information on portals. The background information provided in this section sets the foundation for the analysis of Business Objects' InfoView portal application. This information is in three parts. The first part examines those factors that drive firms to utilize portals. It examines how portals benefit customers in improving their business. Accordingly, it rationalizes why firms might adopt portals. The second part investigates what features and functionality is desirable in portals. The extent of portal functionality determines potential portal benefits. Thus, the functionality determines the usefulness of portals. The material presented in this sub-section sets the basis for comparison of InfoView's "usefulness". The last part of this portal presentation explores the most common portal software technologies. Although portals effectively operate as black box, a decision of a portal development strategy may depend on software technologies and software models. Thus, that sub-section introduces the most relevant technologies.

6.1.1 Business drivers – how businesses justify portal adoption

This section discusses why businesses adopt portals. Ultimately, most firms are concerned with how an IT system affects the "bottom line". On the surface, businesses must evaluate portal benefits; they must evaluate how these benefits lead to a positive end-result. Thus, this section explores what business drivers there are to justify portal adoption. Specific functionality of a portal may be a push for portal adoption. However, specific functionality is usually not the fundamental business motive. Subsequent section examines desirable portal functionality. An overview follows on how businesses justify portal adoption.

The Internet increases information flow. This increased information flow allows businesses to leverage the Internet for communications, exchange of information and collaboration. More knowledge-intensive products and services require an increasing level of collaboration. More information leads to increased complexity. One consequence of complexity can be information overload (Terra and Gordon, 2003, p. 17-32). Portals help to solve this problem in two ways. First, portals simplify information structure. Second, they make the most relevant information more accessible. Solution to information overflow is only one of many claimed benefits. The benefits of adopting portals are widely claimed. Firms that contemplate on portal solutions see the benefits as business drivers. Firestone (2003, p. 35-41) lists widely claimed business drivers which are commonly used to justify portal adoption. The following sub-sections review many of Firestone's claims.

6.1.1.1 Portals can increase employee productivity

It is quicker to find information on a portal than, for example, to browse the web for the same information. When everyone in the organisation uses a portal, substantial timesaving occurs. This timesaving leads to increased employee productivity. However, the exercise of the freed time defines if it translates to monetary benefits. A precise analysis is required to establish that the timesaving actually saves money. Increased productivity may also lead to accelerated innovation.

> Innovation is a completed knowledge process life cycle event, beginning with knowledge production and ending in incorporation of knowledge structures within business structures. Innovation acceleration involves continuous decrease in the cycle time of the knowledge process life cycle. *(Firestone, 2000, p. 55)*

If there are targeted efforts to produce and integrate knowledge with assistance of portals, the time saving benefits are more likely to translate into productive and valuable knowledge life-cycle activities. Thus, it is easier to rationalize accelerated innovation than financial savings, from the benefits of increased employee productivity (Firestone, 2003, p. 37-38).

6.1.1.2 Portals can increase effectiveness

Portals provide information in an integrated and personalized way. Users' job roles are commonly the focus of information. Therefore, more related information leads to improved job performance. Consequently, improved job performance leads to a more knowledgeable and to a more effective organisation for the long run. Thus, it is apparent that portals can increase effectiveness. However, empirical analysis together with a clear model is required to demonstrate the plausibility of increased effectiveness.

6.1.1.3 Portals can decrease the cost of information

Using the Web to publish information is cheaper than using paper. However, that does not exclusively apply to portals. For those who utilize Web-based publishing, the portal provides an alternative that can result in savings from Web administration. This is only a small part of any justification for portal adoption. Nevertheless, portals can decrease the cost of information.

6.1.1.4 Portals can provide universal access to enterprise resources

"A particularly attractive appeal of [corporate portals] is their promise to provide universal access to enterprise and extended enterprise (extraprise and interprise) information and knowledge resources" (Firestone, 2003, p.39). This is attractive because the internet is a cost-effective way to provide such access. However, there are other means to provide such access without the aid of portals. Web-services and web-applications, without integration into portals, can provide such access. Thus, the significance is the marginal benefit provided by portals, over other ways to access information. Moreover, it is questionable if mere access to information is a benefit per se. Excessive quantity of information causes "information overload". The organization of information, not the access to information, may provide much more value.

6.1.1.5 Portals can provide increased collaboration within enterprises

Fragmentation and isolation of enterprise components is a problem for many modern decentralized enterprises. Utilization of portals for collaboration can help solve that problem. However, to validate the prospective benefits, firms need to do a careful analysis. This is because "collaboration across formal boundaries can also have the effect

of lessening integration within an organization's formal structures" (Firestone, 2003, p. 39). While that may be appreciated, it is not always and may have disadvantages.

6.1.1.6 Portals can give corporations a competitive advantage

Portals provide access to valuable information that would otherwise be hard to find through disparate systems. Portals combine and integrate internal and external information. Moreover, portals play an extensive role to accommodate all the information needed in users' job-role. Firms that can get at the information will "have a competitive advantage because they have access to timely and accurate information on marketing, performance, and customer relationships as well as in other areas" (Firestone, 2003, p.36). Portals are a key to get such information. However, it is a generalization to state that portals give corporations a competitive advantage. Information may not be so hard to find, for example in ERP or data warehouse systems. To manage, to publish and to deliver information, one can use content management systems. Business intelligence applications make it possible to analyse information. Specifically, previous investments in new IT systems may already have enhanced the competitiveness. To establish competitive advantage as a benefit of portals, it is necessary to do a comparative analysis on benefits and cost of portals, in correlation with other alternative IT systems.

Business drivers such as increased effectiveness and increased employee productivity, as mentioned previously, purportedly lead to enhanced competitive advantage. However, a thorough analysis is required to establish the exact correlation from these business drivers to firms' competitive advantage.

6.1.1.7 Portals can increase return on investment (ROI)

Portals are commonly packaged solutions. Packaged solutions are less expensive than customized systems. Moreover, packaged solutions are easier to maintain. Furthermore, it is quicker to deploy packaged solutions. In addition, packaged solutions contain functionality specific to particular industry verticals. Packaged solutions should produce higher ROI than other IT applications. Realization of an increased return on investment is only if a packaged portal solution is better than custom applications. While this may hold true in some cases, it may not do so in other. Experience shows that "packaged applications can too easily become stovepipes representing differing and incompatible definitions of the same critical concepts and differing business models" (Firestone, 2003, p. 37). The main issue is to demonstrate the marginal improvement in ROI in portal implementations compared with packaged application alternatives.

The business drivers that lead to competitive advantage should ultimately lead to increased return on investment. After all, the purpose of businesses is to improve the "bottom line". However, as deliberated before, this may require exertion to demonstrate conclusively.

6.1.1.8 Conclusion of claimed business drivers for portal adoption

Each of the arguments made above about the benefits of portals are plausible. Indeed, in some cases a single benefit may be a driver to adopt portals. These claims purportedly lead to enhanced competitive advantage. Enhanced competitive advantage should lead to increased ROI. Nevertheless, the relationship of these claims with corporate goals, business processes, and IT applications, are questionable. "Most discussions of [portals] and for that matter, of the benefits of other software alternatives,

are not tightly coupled to corporate goals and business processes" (Firestone, 2003, p.41). Although some firms use an intuitive approach to justify portals, an analytical approach may be more appropriate. A thorough analysis is required to estimate the benefits of portals. Otherwise, envisioned outcomes or effects are likely the basis for justification. Firestone's (2003, p. 43-58) "Framework for Enterprise Information Portal benefit estimates" provides a thorough analytical approach. That framework gives "an estimation that is tightly coupled to corporate goals and that distinguishes benefits according to their relative importance" (Firestone, 2003, p. 43). Such a framework sets the foundation for a corporate portal strategy. Costs involved in such a strategy are often an issue. However, "putting portal infrastructure in place is a relatively simple and inexpensive exercise. Making a portal strategy work for the business is a far more complex, long-term, and accordingly expensive undertaking" (Murphy, 2005a).

6.1.2 Portal functionality – how customers use portals

This section establishes what functionality is desirable in portals. First, this section provides an overview of the main advantages of portals software. These advantages are not necessarily the principal factors that drive businesses to adopt portals. Previous section discussed the factors that drive portal adoption. The overview of the main advantages of portal software, leads to an introduction of the functionality commonly featured in portals. Subsequently, this section presents the general idea of an information-based model of portals. That model leads to a listing of desirable functionality in portals. How well portal vendors implement the desired functionality, may stipulate buyers' choice for a particular portal solution. Finally, this section

concludes with a review on how to approach nonexistent, but required, functionality of portal software.

Corporate portals integrate concepts from groupware systems, such as Lotus Notes. Moreover, corporate portals have followed the evolution of corporate intranets and web portals like Yahoo. Simplicity is the advantage of corporate portals. Portals use existing web standards and only require a web-browser. The end users require little or no training. Corporate portals are scalable solutions. Therefore, the number of users is as good as unlimited. Corporate portals are a single point of contact to all information sources and relevant daily software applications. Portals represent an approach to move away from information living in the silos of software applications. However, that does not necessarily introduce many portals that all have their specific function or knowledge area. Some businesses have needs for knowledge management practices. Businesses may incorporate various knowledge management components into the portal interface (Terra and Gordon, 2003).

A few of the basic elements that portals commonly feature are: 1) enterprise taxonomy or categorization of information for easy retrieval, 2) ability to search for specific and exact information requests, and 3) links to various information sources from both internal and external web sites. More often, portals include some kind of document and knowledge management features. Advanced portal features include access to productivity tools like e-mail, calendars, workflow and project management software. In addition, advanced portal features include specialised functions for transactional process-ing systems. These advanced portal features are sometimes available as separate portal components when not included in the portal itself.

Together, the features of a portal form a *shared information work space.* This *shared information work space* is for creation, exchange, retention and reuse of knowledge. An information-based model of the corporate portal has three major components. These are "a *content space* to facilitate information access and retrieval; a *communication space* to negotiate collective interpretations and shared meanings; and a *coordination space* to support cooperative work action" (Detlor, 2000, p. 93). Illustrated in Figure 5 are the components of the shared information work space.

Figure 5: The corporate portal as shared information work space
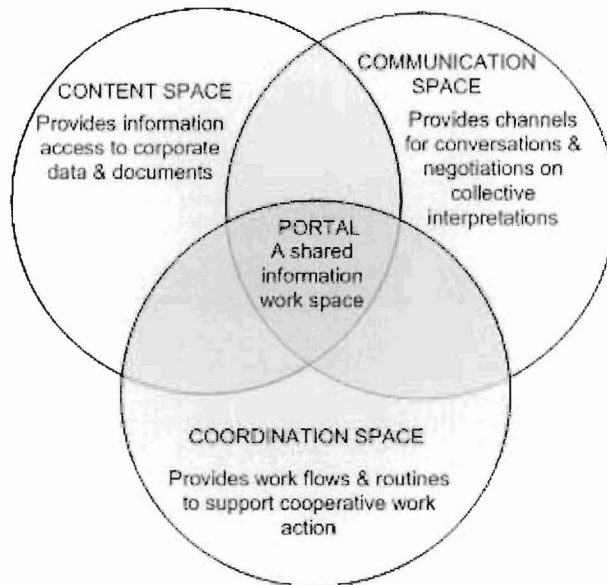
Based on Detlor, 2000

The corporate portal information-based model indicates that the focus should be on information needs and its uses of the people in the organisation. Thus, portals should have emphasis on people. "People more often use a portal not to find a specific answer, but rather to help them make sense of their environment, learn new ideas, or resolve their

problems" (Detlor, 2000, p. 95). Portals need to encapsulate how people work with information. Employees using a portal do not necessarily know what information they want. Functionality of a portal needs to be flexible and rich of features that deliver content, communication and coordination in a cohesive way. There are certain key features that support the shared information work space. These features are desirable to give users as much value possible from their portal environment. Listed in Table 6 are the key features for corporate portals (Watson and Fenner, 2000).

Table 6: Key functionality for corporate portals

Feature	Description
Information gathering	• The ability to access and index information from disparate data stores such as file servers, databases, business systems, groupware systems, document repositories, and the web • Gathering can be performed by both proactive and reactive methods such as user- or administrator- initiated searches, Web crawling, site and directory monitoring, full-text indexing, and indexing of meta data and taxonomies
Categorization and organization	• The ability to manual or automatically index information (both content and context) • Support for a taxonomy or hierarchy for information organization
Collaboration	• Interactive features such as discussions, bulletin boards, whiteboards, application sharing and information sharing • Business process automation capabilities such as routing and workflow
Search	• Includes full-text and fielded searching
Distribution and publishing	• Delivery via Web distribution, Web content management, push delivery, e-mail notification, etc. • Includes the ability to render or publish documents in alternate formats including HTML, PDF, XML, etc.
Personalization	• Ability for users to modify their own interfaces and specify their preferences • Ability of the system to use such information to dynamically deliver specific content to users

Feature	Description
Life cycle management	• Includes the ability to store information efficiently, make it readily available from an archive over time to use an understandable metaphor (such as a document metaphor or file-folder metaphor), and to dispose of information that is no longer relevant or that should be destroyed per corporate policy
Auditing	• The ability to track usage, information access, modifications and changes, update, etc. • Reporting capabilities
Analysis	• The ability to refine and filter information for business-specific needs • Data analysis or data mining capabilities for information in the knowledge store and other disparate data sources
Determine expertise	• Ability for individuals to declare their expertise in a given area • Ability for the portal to infer an individual's expertise based on actions
Locate individual experts	• Includes the ability to look for expertise or knowledge and locate individuals within the organization that possess that knowledge

Source: Watson and Fenner, 2000

The features that are most important for organisations depend on the key needs of the business. Thus, portals with features that address key needs in a significant way, but do not have other useful features, might be the best choice for businesses. Software applications or additional portals would then cover the missing features, if required. This reduces the simplicity and is less likely to guard against information overflow, but may provide a better fit. Many of today's portals offer the ability to integrate third party components. Portal components are an extension to the portal user-interface. Portal components make it possible to add features, without new releases of the portal software. Portal components provide a wide source of features. Moreover, portal components extend the usefulness of portals, as required. Portal components are developed by others or in-house. In addition, portal components allow rapid integration of all types of

applications. Rapid integration of applications, further, establishes the portal as a center for information.

6.1.3 Portal technology – the machinery under the hood

Portals operate as a black box for the end users. For firms that are deciding on a portal development strategy, it is relevant to have information about the underlying technology. This section examines the most relevant portal technology. Importantly, the most relevant technology concerns portal components.

Portals utilize web-server technology. Portals either have an integrated web server or plug into existing web-server technology. The most common web-servers have some kind of plug-in ability and/or allow execution of external applications. Most web-servers support major web-standards and internet related protocols. Because of complexity and scalability, it can be hard to configure applications such as portals to work with web-servers. However, portal setup relies on the technical knowledge of IT departments within organisations.

Portlets and Web Parts are common terms of portal components. Two standards of portal components are dominant. The first one is based on the Java Portlet Specification. That specification is also referenced as the *Java Specification Request (JSR) 168: Portlet Specification.* A newer version, *JSR 286: Portlet Specification v2.0* is currently under development. The specifications are a part of the Java platform and lead by an expert group as a part of the Java Community Process (Sun Microsystems, 2006). The specification is open to everyone and there are number of portals that implement it. The standard allows interoperability of portlets across different portal platforms.

Secondly, there are Microsoft's *Web Parts* portal components. Web Parts work in Microsoft's Sharepoint portal server. Moreover, Web Parts work with portals developed with the ASP.NET 2.0 development framework. Web Parts enable rich customization in Sharepoint portal-server. Today, there are many Web Parts available to integrate information from various systems (Microsoft, 2006). Some Microsoft-specific Web Parts require the usage of Microsoft's web browser, Internet Explorer. That lock-in can limit the ability of organisations with heterogeneous systems to adapt the Web Parts technology.

The data for portal components can come from various sources. These sources include data warehouses, enterprise applications, and data from other websites via web services. Web services enable a data provider to distribute its data over the web to any application that requests the service. Creators of portal components can create an interface that exploits data from web services. However, that interface would require all portal sites, which want to exploit the data, to create a portal component. The specification of *Web Services for Remote Portlets* (WSRP) defines how the presentation layer, description of the user interface, is included with the web service data. This eliminates the need for everyone to create a portal component to exploit the web services data, if the web service and the portal support WSRP (Oasis, 2006). Today there are Web Parts and Portlets that implement the WSRP definition. Portals supporting Web Parts or Java Portlets, thus, support WSRP (Dunwoodie, 2004).

6.2 InfoView - Business Objects' portal application

Business Objects' InfoView portal application is a decision-processing portal. Decision-processing portals provide little content management and collaborative capabilities. Decision-processing portals focus mainly on structured data processing and analysis. Moreover, decision-processing portals have a strong orientation towards business intelligence and reporting applications (Firestone, 2003, p. 13-31, 269).

Business Objects provides a portal application to meet its customer requirements. Business Objects' customers request to have a portal interface for the business intelligence functionality. InfoView is a simple, central application that provides Business Objects' users an easy access to its business intelligence content. This business intelligence contents includes reports and analytics. Business Objects' decision to put forward a portal application is also a defensive move. It is a defensive move for Business Objects, since other business intelligence vendors offer portal applications.

To make decision on InfoView's future development, it is necessary to look closely at InfoView's present condition. An examination of InfoView is in two parts. In the first part, this section summarizes InfoView's functionality. In the second part, this section looks at InfoView's current application strategy.

6.2.1 The functionality of InfoView

InfoView is a central web-based environment for exploring and interacting with information and documents. For navigation, InfoView has an integrated search facility, as well as a folder navigation tree. InfoView has a repository to store business intelligence content. The content is accessible through a simple web interface. The

repository can store all types of business intelligence information. This business intelligence information includes reports, analytics, dashboards, scorecards and strategy maps. The repository enables information to be stored for later display and interaction. Stored along with business intelligence contents, are attachments that contain metadata. The metadata can include attributes such as author, title, and date. The metadata enables users to do a quick keyword search. It is possible to categorize content based on attributes and their value (e.g. region, department, and position). Consequently, the combinations of values can be associated with roles and information workers.

InfoView has a feature called "MyInfoView". That feature allows personalisation of the portal interface. InfoView users can customise folders or documents they want to view, so it matches their desired categories. In addition, it is possible to split the main view into frames. Selected frames can display specific reports or business intelligence content on start-up. This information can be static or interactive, all according to preference. This personalisation allows users to display frequently used analyses and reports that are relevant to users' roles.

The metadata associated with the content is used to define document and report profiles. Profiles are associated with users or user groups. Profiles control security access. Hence, data-level security is provided for document delivery to particular roles, positions, or individuals. In addition, InfoView can utilize the operating system's security profiles for a single sign-on. Consequently, users logged in the operating system do not have to log in again for InfoView.

Combined with the portal user-role based security, is a scheduling service. The scheduling service makes it possible to schedule and distribute content throughout the enterprise. Moreover, the scheduling service can distribute content to other parties outside the organisation. Users can also publish Business Objects' Web Intelligence reports and performance management metrics. It is possible to share these reports and metrics via email or through other formats of distribution. Business Objects' Web Intelligence reports and performance management metrics allow rich interaction with data.

A feature within the InfoView environment is threaded discussions. Threaded discussions enable users to add contextual information to documents in the portal repository. The portal interface can display discussions within the portal-environment. Moreover, performance management dashboards and scorecards can also display the threaded discussions. Creation of new content within the portal can trigger notification to users. Thus, when working collaborative on a document, the participants, if chosen so, receive alerts when new contribution is made to their collaboration.

6.2.2 Current application strategy

A long-term strategy does not exist for InfoView. However, there is a strategy for the near term. That strategy reaches to 2008. The plan is to release two versions of the application. The former version slated for release in the first half of 2007. That version will have user interface enhancements such as better-integrated search. The second version, scheduled for the latter half of 2007, will mostly contain new or upgraded maintenance features, such as simplification of patching and upgrading the application.

In addition, that version will make greater use of shared code components. Those changes will make it simpler and faster to make future improvements to the application.

6.3 Strategic analysis of InfoView

Business Objects is active in its research and development efforts. Some of Business Objects' products utilize innovative software technology. Business Objects has a number of software technology patents. Business Objects' innovative technology is a driver for its unique products. Moreover, the innovative technology enables Business Objects to compete on differentiation. Business Objects has a huge market share in the business intelligence software industry. That huge market share clearly indicates that Business Objects' customers value their distinctive functionality and their technological leadership.

A requirement from Business Objects' customers is to have the ability to access business intelligence content from any workstation within their organisation. Both operation and licensing issues mitigate the feasibility to have a client application set up on all workstations within organisations. By offering a portal, Business Objects meets its customer requirements, satisfying those who seek the aforementioned trait. Business Objects could use the portal application as an element of differentiation. If used as an element of differentiation, the portal application would distinguish Business Objects' products from its competitors' products. However, today, the competitors have web-based interface to allow similar access to business intelligence content. Access to the content is comparable, whether it is a portal or not. Business Objects' competitors will gain from the removal of a central web-based focal point for Business Objects' business

77

intelligence content. Business Objects' competitors will gain from the removal of InfoView because the customer requirements are still in place. Thus, InfoView acts as a defensive move. InfoView only contributes to Business Objects' product differentiation if the functionality is distinctive enough to make a difference to the customers.

To assess the functionality of Business Objects' portal application, it is important to identify how the functionality of InfoView compares with the key features for corporate portals as identified in Table 6 on page 70. InfoView's strength in each feature receives a rating from zero to four. For a mark of zero (None), the feature is barely noticeable. For a mark of one (Low), the feature is there, but is limited in many ways. For a mark of two (Medium), the feature is available, but has some restrictions. For a mark of three (High), the feature is without major limitations and on par with other portals. For a mark of four (Extensive), the feature is noticeable better than in many other portals.

Table 7: Comparison of InfoView's strength to key features for corporate portals

Feature	Strength	Description
Information gathering	Low 1	InfoView does provide information gathering. However, it is restricted. The access to data sources is limited to Business Objects' repository and file based documents.
Categorization and organization	Medium 2	InfoView supports hierarchical view and the ability to associate metadata for indexing for categorization. In spite of this, there is a lack of control and flexibility in regards to categorization and the organisation of data.
Collaboration	Low 1	Embedded within InfoView is the option of threaded discussions. That is however, the only option for collaboration within the InfoView environment.
Search	Low 1	The search feature in InfoView is underperforming.
Distribution and	Medium	InfoView's scheduling services have the ability to publish documents in different formats. It is also

78

Feature	Strength	Description
publishing	2	possible to receive notifications on updates etc. However, the distribution and publishing features are not on par with other solutions available.
Personalization	Low 1	The personalization in InfoView is rudimentary. It is possible to customise certain elements so that information is delivered dynamically but the whole concept is very limited.
Life cycle management	None 0	InfoView completely lacks life cycle management support. Although there is a file-folder metaphor, it is not utilized for managing the life cycle of information.
Auditing	Low 1	InfoView is lacking extensive auditing capabilities. The ability to track usage, information access, etc, is limited.
Analysis	Extensive 4	InfoView is tied with the business intelligence capabilities of the product suite. Thus, there are extensive options for data analysis and data mining.
Determine expertise	None 0	It is not possible to associate individuals or actions to specific knowledge or an area of expertise.
Locate individual experts	None 0	InfoView has little knowledge management functionality and thus it is not possible to tie knowledge with individuals.

InfoView gets a score of 13 out of 44. In essence, InfoView has 29.55% of the key features for corporate portals. Missing from this assessment is evaluation of the ability to host portal components. InfoView does not support portal components. However, Business Objects offers portlets, for use in other portals. This means that other portals can utilize InfoView's functionality. Business Objects' portlets come as a part of Business Objects' portal integration kits. InfoView's advantage lies in the ability to provide analysis. InfoView works in close relation with Business Objects' business intelligence tools. These tools complement InfoView.

Firms generally refer to technological leadership or followership as strategy on the organisation level. However, in this case it also refers to the application level. The strategies refer to the application level, because Business Objects would compete outside

79

of the business intelligence software industry if it positioned InfoView as a standalone product. As a standalone product, InfoView would directly compete with products in the portal software industry. The lack of innovative features within Business Objects' portal application is a clear indication that Business Objects has chosen to be a technology follower in the portal area. There are benefits and drawbacks of both the follower and leader positions. As a follower of technology change, Business Objects benefits in having lower costs in research & development. Moreover, as a follower of technology change, Business Objects learns from the mistakes and successes of other portal applications. Business Objects can adapt the portal to its customer needs by learning from the experience of portal vendors (Porter, 1983, p. 12).

Business Objects does have a technological leadership when it comes to the firm and its business intelligence products. Part of the functionality within Business Objects' suite of business intelligence products, is unique and provides genuine value to its customers. InfoView's strategy as a follower of technology change does not undermine Business Objects' position as a technological leader. There are other means to approach business intelligence content than through a portal. As a result, InfoView's impact on the technological leadership of Business Objects' main business intelligence products is minimal.

Given InfoView's position as a technological follower, an examination of the portal industry can give an indication of a viable portal application strategy for Business Objects. Review of the portal industry follows.

Pure play portal vendors have been subject to acquisitions and mergers. As a result, "no vendor regards the portal as its primary purpose of existence" (Murphy, 2005c). Large enterprise software vendors are now the driving force behind portals. This includes companies like Microsoft, IBM, SAP, Oracle and BEA. BEA acquired Plumtree, the largest pure play portal vendor at the time, in October 2005. Most of these are heavyweight firms with large presence in the infrastructure and/or enterprise software area. The competition is apparent since firms largely grow by invading each other's territories. The vendors may compete for buyers in many areas. The vendors are likely to put up front their solutions for infrastructure and applications. Moreover, the vendors will likely emphasise their solutions for enterprise and desktops. To get the best fit, buyers may mix and match solutions and vendors. As a result, buyers may end up with heterogeneous systems. To escape from "system silos" the portal comes into play. Firms' disaggregated information systems drive vendors to push their portal solutions. There is more meat on the bone. The portal offerings facilitate the vendors' bigger picture. The vendors see the portal as a way to bring in their enterprise systems. Consequently, the "portal market embodies the battlefield for enterprise software market" (Murphy, 2005c). The portal provides a tactic to "drive forward or protect their [the enterprise vendors] traditional, more lucrative sources of business" (Murphy, 2005c).

Portals are an integrative part of many enterprise system infrastructures. Following description lays out a common scenario. This scenario exemplifies how enterprises use portals:

> They're pulling together the information, processes, and people required to address compliance; they're using portals to engage and retain customers; they're building dashboards to sense and respond to industry

changes as they occur; and they're establishing and maintaining vital connections with suppliers and partners." (Murphy, 2005d)

Firms using today's portals will face risks when it comes to new versions and continued development of portals. It is unlikely that firms will throw away the work done to implement a portal framework, only to redo the work for the latest and greatest portal product released. A way to mitigate that risk is to have a portal framework that employs a Service-Oriented Architecture (SOA). The fundamental design behind Service-Oriented Architecture is to have loosely coupled services accessible without knowledge of their underlying platform implementation. It is difficult for firms to justify Service-Oriented Architecture for whole organisations. There are two reasons. The first reason is most firms' lack of experience. The second reason is the extensive prior sunk cost investments they have made in their existing platform infrastructure. However, firms have found specific service-oriented portal projects straightforward – "especially where no packaged application exists or provides sufficient differentiation" (Murphy, 2005d).

Service-Oriented Architecture links computational resources and promotes their reuse. Importantly, both linkage and reuse helps firms to simplify interconnection and usage of legacy systems. The architecture helps firms to respond more quickly to IT issues brought about by changed business conditions. Enterprise software vendors have found that portals provide opportunities to sell new services. Portals do not introduce yet another enterprise software platform into firms' IT environment. Thus, enterprise services established in portals via Service-Oriented Architecture are less complex for firms' IT environments than completely new enterprise software platform. This architec-

ture provides an advantage for buyers of portal software. Business Objects' InfoView does not facilitate Service-Oriented Architecture.

Business Objects' strategy is to maintain technological leadership. However, InfoView's position is a technological followership strategy. "Firms tend to view technological leadership primarily as a vehicle for achieving differentiation, while acting as a follower is considered the approach to achieving low cost" (Porter, 1985b, p. 68). Business Objects could potentially benefit from both strategic aspects of differentiation and cost advantage of technological followership, as described in Table 8.

Table 8: Technological strategy and competitive advantage

	Technological Leadership	Technological Followership
Cost Advantage	• Pioneer the lowest-cost product design • Be the first firm down the learning curve • Create low-cost ways of performing value activities	• Lover the cost of the product or value activities by learning from the leader's experience • Avoid R&D costs through imitation
Differentiation	• Pioneer a unique product that increases buyer value • Innovate in other activities to increase buyer value	• Adapt the product or delivery system more closely to buyer needs by learning from the leader's experience

Adapted from Porter, 1985b, p. 68

As a technological followership, Business Objects can imitate portal vendors and learn from their experience. Moreover, InfoView would benefit from differentiation from other parts of its represented products. Specifically, inclusion of Service-Oriented Architecture would imitate other portals functionality. Furthermore, inclusion of Service-

Oriented Architecture would enable Business Objects to differentiate via software services delivered through the portal. InfoView is a part of more than one product. Thereby, InfoView would be adapted to fit with applications within the products. Then again, Business Objects' differentiation strategy enables Business Objects to position InfoView as a separate product to enhance its customers' values. However, portals are a non-essential part of business intelligence. Thus, it is questionable if Business Objects should continue development of its portal application. Next section establishes strategic alternatives for Business Objects' portal development.

7 Strategic alternatives for Business Objects' portal development

This section presents and evaluates strategic alternatives for Business Objects' portal development. This section has two sub-sections. The first sub-section introduces four strategic alternatives to InfoView's development. The second sub-section evaluates the four alternatives. Evaluation of the alternatives is two-fold. First part of the evaluation is a qualitative analysis. The qualitative analysis examines cons and pros of the alternatives in regards to Business Objects' objectives and competitive advantage. Second part of the evaluation is a quantitative analysis. The quantitative analysis examines the alternatives based on a quantitative impact matrix. The impact matrix uses same objectives as presented in the qualitative analysis. The evaluation ultimately identifies the most viable option. The purpose of the evaluation is to provide a supplemental measure to aid decision of the strategic direction of Business Objects' portal application strategy. The evaluation analysis does not specifically consider financial obligations. Moreover, the analysis does not carry out a marketing or customer research.

7.1 Alternative Strategies for InfoView

7.1.1 Status Quo (First alternative)

Business Objects can continue to build on its roadmap and have InfoView as its portal software. This alternative embraces InfoView's current strategy. The problem is

85

that the current strategy is very short term. As outlined in section 4.1 the future development is to make maintenance easier for corporate IT departments. Otherwise, there are not many changes and the application is set to continue much in the same manner as it has done before.

The advantage with this alternative lies in known development costs, which are not extensive. However, this does not bring anything new to the table. There is an uncertainty how this fits with the customer needs.

7.1.2 Stay out of the Portal business (Second alternative)

Corporate portals are a non-essential part of business intelligence. Standalone corporate portals are available from a number of industry corporations, such as Microsoft, IBM and Oracle. Business Objects offers portal-components for business intelligence access. These portal components can integrate into most portals provided by portal software vendors. Given that Business Objects is competing in business intelligence, it is reasonable to state that it should leave it up to others to develop portals. Instead, the focus should be on the portal integration components. InfoView is an inferior portal application compared to other available corporate portals. This alternative suggests that Business Objects abandons InfoView.

InfoView's functionality is limited compared to other portals. Customers that do not have corporate portals beforehand are not likely to utilize InfoView as an extensive corporate portal. However, customers utilize InfoView as a portal for business intelligence content. Thus, InfoView acts as a client application to Business Objects' reports and data. However, InfoView is using a web-interface; but a client application

86

has the potential to be easier to use and contain more features. A standalone client interface could be a replacement for InfoView. Business Objects currently has a standalone application for accessing reports. A standalone application instead of InfoView would remove the centrality that InfoView has offered. As an option, Business Objects should collaborate with providers of portal software. This can be free or more expensive software. Business Objects does offer database software from MySQL. MySQL database software is free or low priced, depending on platforms. Business Objects to offer free or low priced third party portal software would be similar to its database offering. Consequently, Business Objects' customers could use portal integration components along with non Business Objects' portal software. Business Objects may potentially be an intermediary for that third party portal software.

Further development on the portal integration components is the basis for this alternative. The consideration here is to make the portal integration components so customers can retrieve and work with business intelligence data in their existing portal; yet in similar way they would do in InfoView. An important issue is security and authentication. Architecture of the integration components would have to take advantage of a single sign-on and other security attributes currently in InfoView. The way portals provide access to security features to portal components can have a limiting factor. While work on the portal integration components is in progress, Business Objects can continue to offer InfoView. However, Business Objects should halt all further development on the portal application. The biggest advantage with this alternative is that Business Objects focuses on its core business, business intelligence, instead of trying to dip its toes into the portal business. Hence, it is better not to develop portal software,

instead of having a poor one. The portal integration components are all the more important. Interoperability is a part of Business Objects' core competency. By putting, more weight on the portal integration components Business Objects is strengthening its core competency.

7.1.3 Matching competitive portals (Third alternative)

Since Business Objects is providing a portal, then why not have one that provides features so it can act as an organisations' only portal? InfoView does a poor job compared to other available corporate portals. InfoView needs enhancements in many areas to compete realistically with portal software that is available from other vendors. For Business Objects it is more than to add or to enhance features, it is about position. Business Objects' vision is to be "a company that solves business problems". Information overflow is common factor in businesses. Corporate portals are a solution to address information overflow. Moreover, portals increase productivity of employees in businesses. Corporate portals will help information workers to surround themselves with most relevant information. Consecutively, most relevant information will help employees to solve business problems.

Transformation from current business intelligence portal to a full-feature corporate portal strengthens Business Objects' vertical tendency. That is, Business Objects is in a better position to offer its customers a one-vendor solution. Expanded enterprise product-portfolio may lead to decreased complexity for Business Objects' customers since it introduces a more homogeneous system environment.

Key element for corporate portals is the ability to share information. Information workers benefit from having all the necessary information in one place. Corporate portals can help organize all the necessary information to one place. Because information is stored in many systems, it is critical that there is a way to display information from all those systems in corporate portals. Business Objects needs to support portal components in its portal software. Portal components are critical to make information sharing successful. Moreover, portal component support enables Business Objects to match its competitor's central features. To utilize components made for other portals, it is important to exploit the common standards. The technology supported for portal components should be either, or both, Java Portlets and/or Microsoft's Web Parts.

Ideally, portals should provide enough connectivity to make additional, supplementary portals unnecessary. That may not always be possible because of requirements of other applications. However, the key issue for InfoView is to implement component based plug-in architecture based on either, or both, the Java Portlet specification or Microsoft's Web Parts specification. Implementation of component based plug-in architecture allows Business Objects to add functionality in the form of portal components. Moreover, Business Objects can add functionality without releasing a new version of the portal application.

7.1.4 Platform for services (Fourth alternative)

InfoView provides a centre for business intelligence content in Business Objects' flagship products for the enterprise and mid-market segments. Despite InfoView's central role, it does not provide some of the rich functionality as provided by other Business

Objects applications and services. InfoView only takes advantage of few products within Business Objects product line. This alternative proposes modification of InfoView to enhance connectivity and information sharing. This option does not suggest changes to InfoView so it will be in line with other portals, and therefore match some of the capabilities of the competitors. However, this option does suggest changes to InfoView to improve connectivity to Business Objects' products or services. Those changes will result in a portal that better complements Business Objects' products and services. Currently, InfoView does not come as a standalone product. InfoView is included in Business Objects' flagship products for enterprise and mid-market segments. InfoView's market position is considerably changed if it where to match the functionality of other vendors' portal products. To position InfoView directly against other portals, it is effectively set to compete in the portal market. However, without setting a price on InfoView, extraction of additional value does not occur. With additional value invested in the product, this low return cannot be justified.

InfoView requires changes so it better interconnects with other Business Objects' products. These changes result in increased value for the customers and for Business Objects. An example of changes is to tie InfoView with data or software services, for purchase on demand. In that example, InfoView would offer easy access to data services for analysis of connections between a firm's internal and external data. This external data could be data such as real estate pricing trends, weather, etc. Another example to increase interconnections is to integrate software-service products. Such software-service product could be Business Objects' dashboard solution. The dashboard solution would be accessible through InfoView's interface. That would enable the end user to buy a

dashboard solution without buying the standalone dashboard product. For this to happen there would be changes to the portal to integrate Service-Oriented Architecture (SOA) and/or Software-as-a-Service (SaaS) architecture. To add these architectures, Business Objects should look at the portal vendors and adapt their implementation of Service-Oriented Architecture to fit with Business Objects' business intelligence emphasis. This enables Business Objects' differentiation in business intelligence products to shine through the portal product, promoting value for the consumer and for Business Objects.

7.2 Evaluation of the four alternatives

To assess the strategic alternatives for Business Objects' portal development, each alternative is analysed to determine its potential impact on Business Objects' overall objectives. Five objectives are used to evaluate the impact of each alternative on: 1) revenue, 2) growth in business intelligence offering, 3) building of relationships and partnerships, 4) global services growth, 5) focus on mid-market segment. These objectives are selected based on the company published strategy and its competitive advantage. The evaluation is twofold. First part of the evaluation is a qualitative analysis of Business Objects' portal development alternatives. The second part of the evaluation is a quantitative analysis of Business Objects' portal development alternatives. The qualitative and the quantitative analysis use the same objectives to evaluate the impact of the alternatives.

7.2.1 Qualitative analysis of portal development alternatives

Table 9 outlines issues that affect the alternatives in terms of the company's objectives. However, the table excludes the status quo alternative. The status quo alternative does not contribute any change to the current situation. Hence, status quo situation will not have an influence on the company objectives or on Business Object's competitive advantage. The following section examines each of these goals in terms of the impact that the alternatives will have on the achievement of these objectives.

Table 9: Qualitative evaluation of portal development alternatives

	Stay out of the Portal business	Matching competitive portals	Platform for services
1. Impact on revenue	• Potentially scares of buyers in need for a comprehensive solution • Loss of opportunity to productize the portal	• Provides a selling point • Opportunity to create a new product • Capital investment	• Possible new sources of revenue • Capital investment
2. Impact on growth in business intelligence offering	• Could be perceived as lack of commitment	• Focus on portal may take away resources otherwise intended for BI • Provides a tighter integration with corporate systems	• Introduction of service oriented BI products
3. Impact on building of relationships and partnerships	• Opportunity to partner with portal providers	• Greater competition with current partners • Opportunity for relationships with providers of portal components	• Opportunity for new relationships
4. Impact on global services growth		• Could lead to more consulting re corporate portal infrastructure	• Improves integration with existing and new services • Provides a platform to introduce new services
5. Impact on mid market focus	• More costly to have a central access to BI content	• Potentially brings more value to buyers	• Integrated services potentially bring greater value to this segment • Potentially a selling point

1. Impact on revenue

If Business Objects abandons development of a portal application, it may scare away buyers that need to have the ability to access business intelligence content centrally. Buyers would look at other vendors and potentially buy competing products. This loss of sales would have a negative impact on revenue. Since Business Objects could provide a third party portal application and provide access to business intelligence content through portal components, it is not likely to be a large risk. However, a third party application may increase complexity since it might require services and consulting from other parties than Business Objects. To dump InfoView from Business Objects' products is not likely to cause a decrease of the product prices. However, the abandonment means a loss of opportunity to productize the portal application. Creating a product out of the portal application might bring in additional revenue.

Improvements to InfoView's functionality, so it matches or succeeds the functionality of competitive portals, provide an opportunity to transform the portal application into a standalone product. A portal product might trigger increased revenue. The extensiveness of the portal application functionality, presents an opportunity for more extensive feature-based comparison. The opportunity is to emphasise features in Business Objects' business intelligence products in comparison with competitive business intelligence products. Matching competitive portals potentially contributes to increased sales. Depending on the extensiveness of new functionality, the cost of development might have higher return if spent on other projects.

InfoView's position as a platform for services will build new sources of revenue. Although there are other ways to launch new services, the utilization of the portal as a central hub for business intelligence provides a straightforward way to introduce related services. Going forward with this option would require capital investment. That capital might provide more revenue if spent on other projects.

2. Impact on growth in business intelligence offering

If Business Objects abandons its portal application, it may create the perception that the firm is scaling back its efforts to grow its offerings. It certainly eliminates the possibility to grow Business Objects' offerings with the aid of its portal application. Such growth would be possible if Business Objects were to use the portal as opportunity to present new products or services.

Resources are required to match the functionality of other portals. Moreover, resources are required to bring an updated application to the market. The intense focus on the portal may pull away resources that otherwise would be used to grow the business intelligence offerings. However, because of the portal's added functionality, the portal might offer tighter integration of business intelligence products with corporate systems. Added functionality may include support for portal components. Tighter integration of business intelligence products with corporate systems may reveal opportunities for product expansion.

Use of the portal as a platform for services will result in growth in business intelligence offerings. Business Objects can use the established platform to introduce new services that help information workers to do business intelligence.

3. Impact on building of relationships and partnerships

Business Objects obtains an excellent opportunity to collaborate with one or many portal providers if it chooses to stop development on its portal application. Such a relationship is likely to provide a win-win situation. Portal vendors could gain revenue from support. Moreover, Business Objects would save on development costs.

Increasing competition with current partners is an issue with improving InfoView so it matches competitive portals. Many portal providers have relationships with Business Objects. Portal vendors may interpret this increased portal interest by Business Objects as competition in the portal industry. If Business Objects were to support portal components, it would give Business Objects an opportunity to build up relationships and partnerships with providers of various portal components.

A change to InfoView so it becomes a platform for services gives Business Objects an opportunity to build up relationships and partnerships with potential service providers. There are benefits to offer related services from other parties. The customer receives a greater variety of tools. Greater variety of tools helps the customer to select appropriate tools. As a result, the customer can better focus on its business.

4. Impact on global services growth

A fully featured portal application is likely to attract customers that wish to use the portal as a central for corporate collaboration. Portal buyers will seek to implement effective portal infrastructure. Buyers search for effective portal infrastructure could lead to consulting projects for Business Objects.

A positive impact on the growth of global services will occur if Business Objects implements InfoView as a platform for services. Integration with existing services will improve. In addition, implementing InfoView as a platform for services will provide a way to introduce new services. New services are not limited to new product releases. Moreover, new services can be introduced standalone. These services are likely to be mostly software services; but other services, such as education services and product support could be partly integrated. Incorporating product support and education services into InfoView would enable its users to access relevant help on Business Objects' products in a similar manner they would access information relevant to their work.

5. Impact on mid-market focus

Removal of InfoView from Business Objects' products will increase costs for customers in the mid-market segment. Costs will increase as customers as have to engage in adoption of an additional system to provide central access to its business intelligence content.

A beefed up portal product that offers same, or better functionality as competing portals, brings value to Business Objects' customers. Given that InfoView eliminates customers' need for additional portal functionality, the value lies in lower costs. These cost savings are purchase and execution costs of competing portals.

If InfoView's integrated services improve a firms' business intelligence, it will facilitate the sales cycle of Business Objects' products in the mid-market segment. This is because the customers in the mid-market segment are more restricted on resources than

large enterprises. Firms in the mid-market may see value to pay for the services as they are used – instead of paying lump sum upfront and license fees for every year.

7.2.2 Quantitative analysis of portal development alternatives

To aid decision support in business, senior managers often look for specific measures. These measures are used to evaluate and justify opportunities with methods such as return on investment (ROI) estimates based on financial models like discounted cash flow and net-present value. These models could absolutely be used as in-depth measures of required financial investment for each of the alternatives. However, initial quantitative assessment can be carried out using an impact matrix to assign value to alternatives (Boardman, Shapiro and Vining, 2004).

Based upon the objectives used in the qualitative impact evaluation, a weight is assigned based on the importance placed on each objective. These weights provide a percentage for each objective in terms of caluculation of a rating for alternatives two, three and four. The status quo alternative is left out of the calculation. The status quo alternative is left out because the effects have already realized and do not add future value towards the defined objectives. The schema used for this quantitative analysis is based on estimation of impact that each alternative will have on the stated objectives. The rating schema uses a measure from low to high. Corresponding values are indicated in Table 10.

Table 10: Ratings for quantitative analysis estimation

Impact on objective	Rating
Low	1.0
Med-Low	1.5
Med(ium)	2.0
Med-High	2.5
High	3.0

Each alternative is assigned with an estimated impact and its associated numerical rating. In addition, a calculation of weighted rating follows for each combination of alternative and objective. The sum of these weighted ratings gives an overall score for each portal development alternative. Table 11 shows the impact matrix.

The last alternative, *Platform for services*, gives the highest rating of 2.35. This supports the qualitative assessment performed in Table 9. The other options, *Stay out of the portal business* and *Match competitive portals*, receive a rating of 1.1 and 1.63 respectively. The matrix is based upon a subjective evaluation that can be subject to biases. However, this does provide a tool for decision makers to develop tactical plans based on formal methodology. Additional tools and models, such as mentioned before, can be examined to supplement this assessment.

Table 11: Impact ratings and overall scores for the portal development alternatives

Alternatives → Objectives ↓	Weight	Stay out of the Portal business			Match competitive portals			Platform for services		
		Impact	Rating	Weighted Rating	Impact	Rating	Weighted Rating	Impact	Rating	Weighted Rating
1. Impact on revenue	0.10	Low	1.0	0.10	Low	1.0	0.10	Med -low	1.5	0.15
2. Impact on growth in business intelligence offering	0.30	Low	1.0	0.30	Med -low	1.5	0.45	Med -high	2.5	0.75
3. Impact on building of relationships and partnerships	0.10	Med	2.0	0.20	Med	2.0	0.20	Med	2.0	0.20
4. Impact on global services growth	0.25	Low	1.0	0.25	Med	2.0	0.50	High	3.0	0.75
5. Impact on mid market focus	0.25	Low	1.0	0.25	Med -low	1.5	0.38	Med	2.0	0.50
Overall Score				1.1			1.63			2.35

8 Summary and recommendations

Business Objects has enjoyed success with its latest product offerings. Yet there is plenty of room for further growth. InfoView, Business Objects' portal application, lacks a long-term strategy. This analysis has evaluated strategic alternatives most suitable to InfoView's current position in consideration to the company's objectives and its competitive advantage. Evaluation of these alternatives designates alternative four, *platform for services*, as the most viable option. This option recommends continuing to invest in the portal platform but specifically enhance the portal so it integrates services, or other products within the portal. This places InfoView better as centre for business intelligence content. In addition, the portal is potentially an effective way to introduce service-oriented architecture (SOA). This can potentially be more beneficial for the mid-market customer segment, whereas the corporate clients generally have more in-house resources. Although Business Objects has stayed on the technological lead for business intelligence, the portal application has, in a silo, followed portal vendors and adopted their solutions when applicable. Portal vendors are now promoting SOA in their portals as a strategic way to bring the technology and its services into businesses. "Vendors are using the portal as a vehicle to move their customers forward and insulate them from the pain of their own transformations as they shift to a Service-Oriented Architecture (SOA), [...] and [as] they respond to changes in the way customer buy and deploy their software." (Murphy, 2005c)

101

This analysis does not provide cost/revenue breakdown for the alternatives. If the analysis is considered then financial estimations should take place, along with other tools. It is important to stress that the analysis does not base its findings on any market study. Thus, investigation on market issues is necessary as a supplement to this analysis. It is imperative that Business Objects continues to understand the needs of buyers and customers, as "organizations sustain a competitive advantage only so long as the services they deliver and the manner in which they deliver them have attributes that correspond to the key buying criteria of a substantial number of customers" (Duncan, Ginter and Swayne, 1998, p.6-16). Business Objects' focus on expanding its business intelligence tools, so buyers do not have to look elsewhere for business intelligence functionality, is a strategic move and is a part of Business Objects' competitive advantage. Business Objects' competitive advantage also relies on the high interoperability that their products have. Business Objects has good relationships with many major vendors of enterprise solutions.

Appendices

Appendix A - Business Objects Software A-Z Catalogue

Products
Brand Assortment Optimization Analytics
Budgeting
BusinessObjects Enterprise
BusinessObjects XI
BW Universe Builder
Campaign Analytics
Capital Planning
Cash Flow Analyzer
Composer
Crystal Reports Developer
Crystal Reports Professional
Crystal Reports Standard
Crystal Reports Server
Crystal Reports Explorer
Crystal Vision
Crystal Xcelsius Standard
Crystal Xcelsius Professional
Crystal Xcelsius Workgroup
Consolidations
Customer Profiling and Campaign Management Analytics
Dashboard Manager
Data Federator
Data Insight
Data Integrator
Data Integrator Interfaces
Data Quality

Data Quality for Informatica
Data Quality for Siebel
Data [Quality] for SAP
Data Quality for PeopleSoft
Desktop Intelligence
Forecasting
Integration Kit for Baan
Integration Kit for PeopleSoft
Integration Kit for SAP
Integration Kit for Siebel
Knowledge Accelerator
Knowledge Accelerator – Crystal Reports
Knowledge Accelerator – Crystal Reports Explorer
Knowledge Accelerator – InfoView
Knowledge Accelerator – Intelligent Question
Knowledge Accelerator – Live Office
Knowledge Accelerator – OLAP Intelligence
Knowledge Accelerator – Web Intelligence
Knowledge Accelerator – Web Intelligence and Crystal Reports Explorer
Live Office
Metadata Manager
OLAP Intelligence
Payroll Planning
Performance Manager
Plan Reporting
Predictive Analysis
Process Analysis
Productivity Management
Rapid Mart – Accounts Payable
Rapid Mart – Accounts Receivable
Rapid Mart – Cost Center
Rapid Mart – General Ledger
Rapid Mart – HR

Rapid Mart – Inventory
Rapid Mart – Pipeline
Rapid Mart – Plant Maintenance
Rapid Mart – Production Planning
Rapid Mart – Project Systems
Rapid Mart – Purchasing
Rapid Mart – Sales
Reimbursement Modeling
Sales Analytics
Sales and Marketing Effectiveness Analytics
Sales Planning
Sarbanes-Oxley Compliance Analytics
Scorecarding
Set Analysis
Store Assortment Optimization Analytics
Strategic Planning
Trade Promotion Effectiveness Analytics
Watchlist Security
Web Intelligence
Web Intelligence Interactive Viewing

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