

TECHNOLOGY AUDIT

IBM Cognos 8 BI

IBM

BUTLER GROUP VIEW

ABSTRACT

IBM Cognos 8 BI is a single, integrated, enterprise-class Business Intelligence (BI) and Corporate Performance Management (CPM) product constructed around a Service Oriented Architecture (SOA). The integrated nature of the platform simplifies deployment and increases visibility of key elements of performance management within the application environment and, as a result, within the organisations. It provides ad hoc query, reporting, dashboarding, analytics, scorecarding, event management, and data management facilities. The functional enhancements made available in IBM Cognos 8v4, the latest release of the product, are designed to accelerate and improve decision making and the management of business performance, and expand the business value of BI across and beyond the enterprise. IBM now offers all of its main flagship BI capabilities in a single product based on a single Web Services architecture. However, the company's acquired solutions from Celequest and Applix remain separate with only loose integration with the main platform. Cognos 8 BI deploys well into complex enterprise environments, is supported on all popular IT platforms, and is accessed via a well-engineered, browser-based interface. IBM offers extensive CPM functionality for financial performance management and financial consolidation. In addition, the vendor has been extending its solution into other applications and vertical areas.

KEY FINDINGS

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|---|---|
|  A mature and integrated BI and CPM solution built on a SOA. |  Continued focus on the end-user experience and system-wide manageability. |
|  Works with relational data, dimensionally modelled relational data, and all major OLAP engines. |  Business Viewpoint enables business users to manage dimensional data to create company-wide views of performance. |
|  Provides a solid foundation for CPM applications. |  Products acquired from Celequest and Applix are only partially integrated with Cognos 8 BI. |
|  TM1 from Applix can be used as a data source within Cognos 8 BI. |  Offered on Windows, UNIX, and Linux platforms, and IBM System z on Linux. |

Key:  Product Strength  Product Weakness  Point of Information

LOOK AHEAD

In future we anticipate further integration with the IBM technology stack and applications. In addition IBM is looking to take advantage of search technology to deliver search-led business intelligence. The company is also making investments in developing trusted business-driven mashups. Furthermore, work is in progress on collaboration aspects of BI with the aim of creating decision communities supported by decision-based content.

FUNCTIONALITY

Within an organisation there is a hierarchy of information requirements: summary, consolidated, and exception reporting at the executive level; detailed, focused, and specific at the operational level. With the acquisition of Cognos, IBM gained an acknowledged leader in the Business Intelligence (BI) market. Over the years, Cognos developed a range of products and solutions to satisfy any or all of these requirements. IBM Cognos 8 Business Intelligence (hereinafter referred to as Cognos 8 BI) allows users to follow a logical train of thought without having to swap between a multitude of applications; which, in Butler Group's opinion, is the kind of approach all organisations should be striving towards as they develop their BI strategies. BI should be woven into the culture and systems of the organisation; it should be part of every significant process; and it should be accessible and relevant to each and every employee without the need to undertake extensive product-related training.

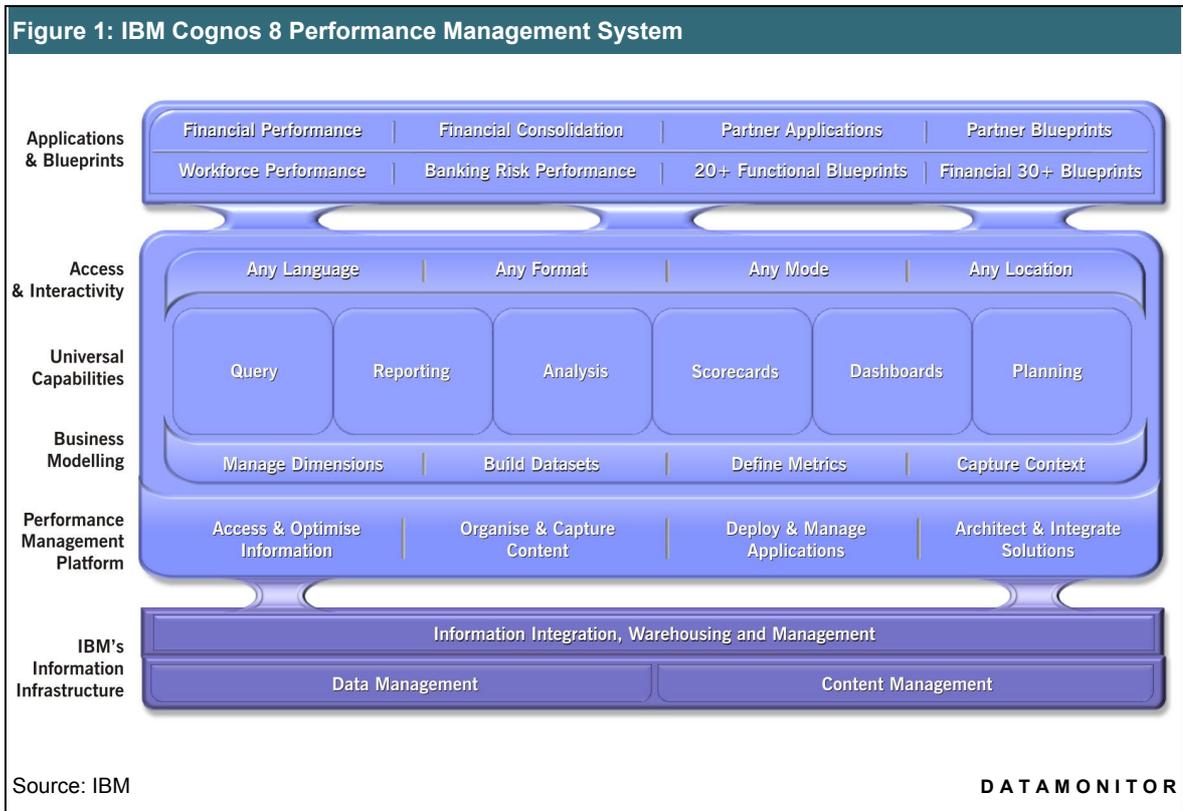
Product Analysis

Cognos 8 is an extensive and integrated BI and CPM platform which provides reporting, analysis, *ad hoc* query, dashboarding, scorecarding, planning and monitoring capabilities. The BI and Corporate Performance Management (CPM) capabilities were integrated into one platform with the release of Cognos 8.3 last year. The latest release of Cognos 8 BI is of 8v4 which became generally available in November 2008. In Butler Group's opinion the integrated approach towards BI and CPM together with the Service Oriented Architecture (SOA) of the package combine well to provide a flexible and comprehensive BI/CPM platform that is capable of delivering visibility of the planning process and monitoring of performance across businesses.

The CPM capabilities are primarily delivered by Cognos 8 Planning and Cognos 8 Controller and include planning, budgeting, forecasting, and consolidation functionality. Additionally, for reports and scorecarding the core capabilities of the platform are used to deliver the CPM functionality. The integrated nature of the platform allows the CPM components to benefit from common metadata as well as security and application management services provided by the main platform.

Figure 1 provides an overview of the IBM Performance Management System. The core CPM functionality is heavily focused on financial performance management and financial consolidation. However, IBM offers other CPM applications, for example for workforce performance management, banking risk management, and various pre-packaged performance analytics.

Furthermore, IBM provides a large number of functional and industry-specific blueprints to accelerate performance management in specific functional and vertical areas. These include CPM blueprints for retail, banking, and Government sectors.



Product Operation

Underpinning Cognos 8 BI is the Cognos 8 Platform, built on a modern service oriented architecture (J2EE) with support for industry standards such as Simple Object Access Protocol (SOAP), XML and HTTP.

The IBM Cognos 8 platform comprises a single set of standards-based peer-to-peer services that deliver functionality to drive the end-user experience, process application requests, and optimise access to all data sources. These can be summarised as follows:

- The end-user experience – delivered in the Web browser-based environment.
- The BI processing – handled by purpose-built services.
- Data access – supports a large range of data sources and combinations of them.

End-User Experience Management – All user interactions are handled in the Web environment. That means a zero-footprint, pure Web browser-based user interface. There is no requirement to download applets or plug-ins to install or maintain. The platform capabilities provide access to Cognos 8's extensive BI functionality: Query, Reporting, Analysis, Scorecarding, Dashboarding, Planning, Event Management, and User Administration.

IBM's approach is to enable BI applications to be developed once and run anywhere. That means, for example, that report specifications can be reused and consumed to deliver a report on a mobile device or in a foreign language browser without any modifications being necessary. Cognos 8 BI outputs can be consumed in a variety of modes: Web-based, via search, via mobile devices, as add-on functionality to Microsoft Office suite of applications, or embedded into applications via an Software Development Kit (SDK). The fully browser-based approach extends to interfaces for administration with no client software required on the administrator's machine.

BI Processing – The Cognos 8 architecture provides purpose-built services used to handle all BI processing. The services are delivered using SOA principles thus providing flexibility, re-use, and distributable BI capabilities. The application tier manages all incoming requests, both in an interactive or batch-based manner. The application tier automatically distributes requests in an optimal way, and provides a single set of standards-based services such as a common query engine, scheduling, monitoring, auditing, and security.

Open Data Access – The Cognos 8 platform provides access to a wide range of data sources or combination of them. A common metadata model can be developed across sources and then used to deliver common business views and business intelligence to users. This functionality has been enhanced in Cognos 8v4 with the introduction of Business Viewpoint. Business users can now easily add to key corporate hierarchies. The changes are stored pending approvals with workflow provided to allow colleagues to agree to the changes before they are published and put into use. Cognos 8v4 provides integration with IBM Cognos TM1, allowing it to be used as a data source for reporting and analysis. There is already integration with IBM WebSphere's Information Analyzer and QualityStage, as well as with DataStage. Cognos also supports third-party data integration software from Informatica and Composite Software. Data from IBM Cognos Now! can be accessed via connectors. However, the integration with Cognos' acquired products from Celequest (IBM Cognos Now!) and Applix (TM1) is loose, with the products remaining as separate platforms with little shared code between them. The former is used for real-time data streaming for operational BI and the latter offers read/write in-memory On-Line Analytical Processing (OLAP) functionality. IBM's main focus remains on data integration and the provision of common definitions for customers with a mix of these solutions.

The main CPM components of the platform are as follows:

IBM Cognos 8 Planning offers enterprise planning, budgeting, and forecasting capabilities whilst IBM Cognos 8 Controller supports financial close, consolidation, and reporting processes. It also offers general ledger and auditing capabilities with support for International Financial Reporting Standards (IFRS), Financial Accounting Standards Board (FASB), Basel II, Sarbanes Oxley, US, and other Generally Accepted Accounting Principles (GAAP) reporting.

IBM Cognos 8 Analytic Applications are a suite of analytical applications for data from Enterprise Resource Planning (ERP) software. These provide pre-packaged data models and reports as well as plans and metrics for customer analytics, financial/operational analytics, supply chain, and banking-risk performance.

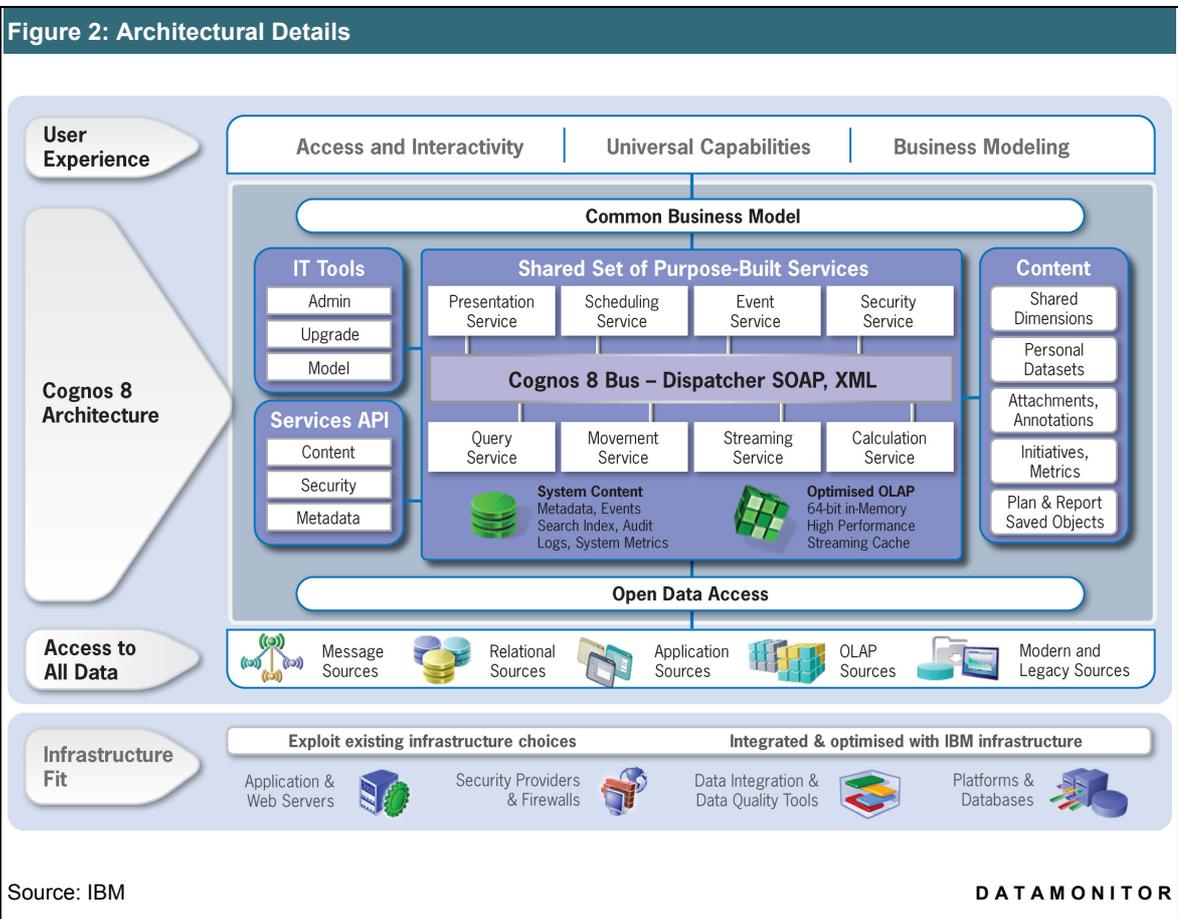
IBM Cognos 8 Workforce Performance provides packaged analytics with data connectors and models, reports, and metrics for workforce performance management to provide insight into factors such as workforce effectiveness, development, retention, and compensation.

IBM Cognos 8 Banking Risk Performance is a new Credit Risk application that provides packaged analytics to give bank executives and risk managers an immediate, up-to-date, and comprehensive view of their credit portfolio across products, geographies, and business units.

Monitoring is provided via Cognos 8 Go! Dashboard, while Cognos 8 Report Studio provides an authoring and development environment. There are a variety of charting options and visualisation capabilities. Butler Group particularly likes the micro-charting capability in Cognos 8v4. The charts increases the visibility of key measures that can be simply checked at a glance.

Scorecards are developed via Metrics Studio and are used to display Key Performance Indicators (KPIs). The scorecarding is certified by the Balanced Scorecard Collaborative (BSC) but is methodology agnostic, thus providing users with the flexibility to choose a methodology that best suits their organisational needs, e.g., Six Sigma.

Strategy maps and graphical representations of performance such as traffic lights, gauges, and meters can also be generated in Cognos 8 Metrics Studio.



Event Management alerts of key operational or performance events can be set up and generated via e-mail, reports, and RSS portal news feeds. These enable management by exception and escalation. Event Management can also resolve or escalate events automatically without the need for user interaction (via database update and Web services) and will integrate with third-party Business Process Management (BPM) systems such as IBM FileNet.

Other capabilities of the platform include interoperability with other applications such as Enterprise Search tools and BPM software as well as with Cognos 8 Controller and IBM Cognos Now! – the rebranded Celequest operational BI appliance.

As for deployment, IBM Cognos 8 is infrastructure platform neutral and location transparent, meaning it does not tie to a particular operating system or platform. Organisations can run SOA-based solutions on their existing, often heterogeneous, mix of hardware, databases, and application servers without having to maintain different executables for different environments.

Figure 2 provides a more detailed view of the architecture which is designed to support enterprise needs for scalable, highly available applications. All components can be configured for complete redundancy, such that the system will continue to operate without manual intervention even in the event of failures in any individual component. Multiple servers can be configured to share the application load, and these may be installed on any combination of supported hardware and operating system platforms (Windows, UNIX variants, Linux, Sun Solaris, HP-UX, and IBM/AIX platforms and IBM System z mainframe on Linux). By default, servers will balance the load between all active servers on a weighted, round-robin basis using predefined server weightings based on server parameters such as the number and speed of processors. If IT departments prefer to use network-based load balancing, then Cognos 8 BI can be configured to work with these devices.

In a distributed Cognos 8 BI installation, system administrators can choose to configure each gateway component to communicate with more than one dispatcher for failover purposes. The gateway components scan their associated dispatchers to ensure that requests are routed to dispatchers that are in service and responding correctly.

Robust and effective data management capabilities are enabled through IBM's use of relational databases to store application data. This allows organisations to take advantage of their preferred database platform's availability, security, and scalability features, and also allows Cognos 8 to share the same backup and disaster recovery procedures that would be implemented for other business-critical enterprise applications.

Product Emphasis

Cognos 8 is squarely aimed at the performance management and business intelligence market to enable enterprises to benefit from: better operational performance; improved visibility into the 'what' and 'why' of performance; improved ability to recalibrate strategies and plans as needed; informed and connected decision making throughout the organisation; sustainable management overseeing; improved competitive value from risk management and compliance efforts; improved process integrity for better control; and the linking of financial and operational data for greater transparency.

The enhancements delivered in IBM Cognos 8v4 were focused on integration with TM1 and complementary IBM tools as well as continuing the themes of increasing the ease of deployment, use, and management and easy consumption of BI content.

DEPLOYMENT

Deployments of IBM Cognos 8v4 vary widely from organisation to organisation, and are highly dependant on factors such as the business systems and applications in use, the resource commitment and education level of the client, the chosen model of engagement, and the size and complexity level of the applications to be designed, developed and deployed. To help customers with deployments, Cognos offers its own Implementation Methodology (SIM) provided through an interactive tool that is supplied free to clients and partners. SIM is comprised of roadmaps, templates, project plans, resource models, project phases, and deliverable specifications.

BI and CPM projects can be complex and require certain levels of technical expertise. To help maximise benefits from deployments, some organisations set up a Business Intelligence Competency Centre (BICC) to help them develop and reuse BI and CPM expertise within the organisation and to achieve a high level of take-up. IBM provides help and advice to organisations wishing to set up a BICC. Furthermore, IBM provides professional services and strategic consulting to assist organisations that don't have the resources to undertake an implementation themselves. Enterprises often also work with their chosen service provider to implement these solutions whereby IBM can assist in this capacity as product experts.

From a resource point of view, IBM suggests that the following roles and functions be defined to assist with implementation:

- On the IBM side: a Project Manager would be assigned to manage the overall project, with IBM Application consultants employed to develop and test the application models (this individual is typically responsible for defining data integration to transaction systems), and IBM/Cognos Technical Consultants for hardware, system software, database, and application server set-ups. The number of individuals involved will clearly relate to the complexities and specific business requirements of the project.
- On the customer side: an implementation team would be established, comprising of the project sponsor, project owner, subject matter expert, and ideally someone representing the interests of the user community. The subject matter expert would be needed to help define the organisation's data model requirements, and local IT resources may be required to support data integration and to help with the hardware, system software, database, and application server setups.

Although deployments vary significantly, organisations should expect a typical Cognos 8 deployment to take between four and six months to complete when following IBM's recommended methodology for a modular, phased deployment. Once the solution has been implemented, resource overhead should reduce with Cognos 8's unified architecture. For example, the integration of all Query and Reporting capabilities under Cognos 8 should help reduce the need for multiple reporting tools and therefore the associated costs such as training, maintenance, administration, server deployment, and support.

IBM offers training solutions to four primary groups of users: Computer-Based Training (CBT) for the casual user; a one-day course for business users; between one and five days training for 'power' users or report authors; and a five-day course for system administrators and data modellers.

IBM has world-wide presence and global support centres. Product documentation is particularly good, as is the company's customer support Web site which hosts the company's knowledge base, user forums, beta programmes, and software updates.

IBM offers its customers multiple support packages including standard, advantage, and premier support services. Each support package provides increasing levels of support, dedicated staff, and faster response and resolution times. In addition, online support services are provided on a 24x365 basis with access to case management, documentation, knowledge base, proven practices, and Web seminars. IBM also offers product continuation services including maintenance downloads, new releases, and advisories.

IBM Cognos 8 BI runs on Windows, UNIX (HP-UX, AIX, Solaris), and Linux (RedHat, Novell, IBM) and any combination thereof (for heterogeneous environments). This is for all tiers: Web server, application server, and database server. Cognos 8 also supports z Series mainframes from IBM running Linux for System z. The platform provides support for the following application servers: BEA Weblogic, IBM Websphere, JBOSS, Oracle Application Server 10G, and SAP NetWeaver.

Lastly, the IBM Cognos 8 platform supports a wide variety of database servers and data sources including DB2, Informix, Oracle, Sybase, SAP, and countless other data sources via Composite Information Server (now Cognos Virtual View Manager) and ODBC support.

Cognos 8 BI is typically licensed on a per-user, role-based model. An optional CPU-based model is also available to customers. Additional BI functionality is also licensed on a per-user basis. The base role is the Cognos 8 BI Administrator. At least one of these roles needs to be licensed at a cost of US\$10,000 with other user licences starting at US\$250. Depending on the level of usage and application requirements, a variety of other roles are available covering advanced uses of BI, read-only type users, or additionally functionality. Examples of some of these additional roles include Cognos 8 BI Professional, Cognos 8 BI Advanced Business Author, Cognos 8 BI Analyst, and Cognos 8 BI Consumer. Other roles are also available plus add-ons.

IBM Cognos 8 is licensed as a perpetual licence with annual maintenance. Customers pay an agreed upon cost for their first year, which includes both licence fee and first year maintenance, and subsequent years' maintenance is 20% of the total cost of the first year. IBM also has a financing organisation that can work with customers to meet their specific financing or payment needs.

According to IBM, in the six months ending 31 August 2007 the average selling price for deals over US\$50,000 was US\$202,000. This average excludes deals under US\$50,000. Implementation costs can be 1.5 to two times the licence costs.

PRODUCT STRATEGY

The IBM Cognos 8 BI is targeted at large enterprises and mid-market companies in all sectors. Enterprise organisations are those with revenues of US\$1 billion and above. Mid-market companies are targeted both by IBM directly, through specific campaigns and programs, as well as through the IBM General Business Division. Horizontal points of entry include the office of finance, HR organisations, sales and marketing, and operations.

IBM sells its products in all noted routes to market – direct, through channels including OEM and Value-added Resellers (VARs), and through a large network of over 3,000 partners that include OEM, VARs, Consulting, System Integrator, and Solution partners.

IBM's Global Alliance Partners include Accenture, BearingPoint, Capgemini, CSC, Deloitte, EDS, Infosys, IBM Global Services, KPMG, Satyam, Tata Consultancy Services, and Wipro. In addition, Cognos has approximately 2,000 technology partners, including over 300 OEM partners. These include, but are not limited to, Hewlett Packard, Netezza, Salesforce.com, SPSS, and Teradata. IBM's OEM partners include Avaya Communications, Concur, Deltek, Fiserv, GE Healthcare, Hewitt Associates, Infor Global Solutions, MediMedia, Open Pages, Sterling Commerce, and SunGard Higher Education Inc.

IBM delivers a major release of all products to the market on an annual basis. All major product components become available across all platforms and languages at generally the same time. This allows Cognos customers to plan their adoption of new releases of Cognos 8 BI better. New innovations may be brought to market earlier as a First Customer Ship (FCS) release which allows early adopters to gain access to new functionality without having to wait for the annual update. Maintenance releases and hotfixes are now bundled and released in service packs on a regular quarterly basis. High priority bug fixes can still be made available upon request for certain customer situations but this is the exception rather than the rule.

COMPANY PROFILE

Cognos, the world leader in BI and Corporate Performance Management solutions, was acquired by IBM in January 2008. It continues to provide world-class enterprise planning and BI software and services to help companies plan, understand, and manage financial and operational performance. The company brings together technology, analytical applications, best practices, and a broad network of partners to give customers a complete performance system. The performance system is an open and adaptive solution that leverages an organisation's ERP, packaged applications, and database investments. It gives customers the ability to answer the questions "How are we doing?", "Why are we on or off track?", and "What should we do about it?", and enables them to understand and monitor current performance while planning future business strategies.

The company serves more than 23,000 customers in more than 135 countries, and its top 100 enterprise customers consistently outperform market indexes. The IBM Cognos performance management solutions and services are also available from more than 3,000 worldwide partners and resellers.

Table 1 highlights Cognos' historical financial data, prior to the acquisition by IBM.

Table 1: Financial Details			
Year ending February 28 th	2007	2006	2005
Revenue (US\$ Million)	98,786	91,424	91,134
Change on Previous Year (%)	8	0.3	(5.6)
Total Net Income/(Loss) (US\$ Million)	10,418	9,492	7,934
Source: IBM			DATAMONITOR

SUMMARY

Cognos 8 BI delivers a tightly integrated, single architecture for BI and CPM. This provides a common set of services shared across all of Cognos 8 BI tools and applications. Cognos 8 BI offers one of the most extensive and established sets of BI and CPM capabilities in the market with a compelling proposition to ease deployment and administration of its analysis, reporting, *ad hoc* query, dashboard, scorecard, data management, and event management capabilities. The rich user interface, self-service, and visualisation capabilities increase the appeal of the application and Butler Group has no hesitation in recommending that companies looking to implement BI and CPM take a closer look at the IBM offerings.

Table 2: Contact Details	
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