Technology Audit

Business Intelligence

Microsoft

Microsoft Office Excel 2007 and Microsoft Office SharePoint Server 2007 for Business Intelligence

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Date: January 2007

Abstract

Microsoft Office Excel 2007 is the latest edition of the well-known application that provides extensive functionality for the creation and formatting of spreadsheets for calculations and analysis of data. There are many changes in this latest version; the most visible being the new User Interface (UI) that has been updated in-line with the other main applications in the 2007 Microsoft Office system. The new UI is designed to deliver results with fewer clicks of the mouse button. Other changes include increased numbers of rows and columns, enhanced filtering, and the new default file format: Office Open XML. A major change is server-side operation that has been introduced with Microsoft Office SharePoint Server (MOSS) 2007 with Excel Services. The latter is a server-based version of Excel that is optimised for managing and sharing spreadsheets. When Excel 2007 is used with MOSS 2007, users can take advantage of Excel Services that refresh and render Excel spreadsheets in a Web browser with no client code. The browser-based rendering of Excel Spreadsheets remain interactive; for example, with drill-through functionality. Although interactive browser-based BI solutions are not new, this is a welcomed addition to Microsoft's portfolio of products, for easier sharing of Business Intelligence (BI) amongst users.

Also new with Excel Services is its Web services, which provide a set of Application Programming Interfaces (APIs) for manipulation or inclusion of spreadsheets in other applications. By introducing this capability Microsoft is positioning Excel 2007 as a front-end tool for non-Microsoft software applications, not just for BI, but for Line Of Business (LOB) too. There is also built-in functionality for Excel users to make queries via SQL Server Analysis Services and Reporting Services using pivot tables.

With SharePoint's search and collaboration capabilities, the complete package allows users not only to mine data but knowledge too; making this set of solutions a very attractive proposition from Microsoft. Excel 2007 goes someway to address the front-end hole that exists in Microsoft's BI offerings, but gaps remain. Front-end functionality has traditionally been provided by software from Microsoft's partners, but Butler Group expects Microsoft to improve its own offerings when ProClarity and Business Scorecard Manager are merged to produce Office PeformancePoint Server 2007.

KEY FINDINGS

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

✓	Microsoft Office SharePoint Services combines BI with search and collaboration technologies.	✓	Excel 2007 has much improved and easy to use visualisation capabilities.
✓	Interfaces to SQL Server Analysis and Reporting Services.	✓	Excel Services offers Web services and APIs for integration of spreadsheets with other applications.
i	2007 Microsoft Office system servers are exclusive to the Windows server OS.	✗	Internet Explorer provides the best browser interface for administrative tasks.

LOOK AHEAD

2007 looks set to be a pivotal year for Microsoft, as the company finally delivers a number of well-overdue products and technologies. In addition, the company's BI product range is set to be extended with Microsoft Office PerformancePoint Server 2007 that is scheduled for release in June 2007.

▶ FUNCTIONALITY

It is generally accepted that an organisation that fails to exploit its information assets places itself at a serious disadvantage. BI applications are one of a series of solutions that help organisations make the most of their information resources. BI empowers organisations to make informed decisions, based on analysis of business information, and to manage corporate performance whilst minimising risks. As a result, sales of BI applications are expected to increase steadily over the next couple of years. In terms of analytics, Datamonitor estimates the market to be of the order of US$6 billion worldwide. This growing demand has attracted all the major platform vendors to this market that is dominated by pure-play BI vendors such as Business Objects and Cognos.

As far as BI vendors go Microsoft has a surprisingly high mind-share amongst users. In September 2006 Datamonitor published the results of a survey that asked 400 IT decision makers, in different industries, who they considered to be the leading BI vendor. In that survey Microsoft attained first place, IBM came second, whilst Business Objects and Oracle shared third place. This was true in every sector except for Financial Markets and Education, where IBM took the lead. The results may be explained by Microsoft's strategic focus on BI in recent years. It followed the release of SQL Server 2005 (with its built-in BI query and analysis functionality), and Business Scorecard Manager 2005, with the acquisition of ProClarity, a pure-play BI vendor and long-standing partner of Microsoft. Furthermore, Microsoft consolidated its BI strategy by announcing plans to add performance analysis and planning applications to its Office suite, formally announcing a brand new product in the works, called Office PerformancePoint Server 2007. The software, is designed for performance management, and covers a broad range of capabilities, including data analysis, scorecard creation, financial consolidation, budgeting, forecasting, and business planning. PerformancePoint provides a clear focus and direction for Microsoft's BI ambitions and longer-term strategy. Additionally with Office 2007, Microsoft has firmly repositioned Excel in its BI stack, to differentiate the 2007 product from its predecessors.

Product Analysis

Excel 2007 is part of the 2007 Microsoft Office System product set which is the ninth iteration of this popular productivity suite, and comes just a few months after Office XP reached the end of mainstream support. Although Microsoft has promised to provide security fixes until July 2011 for Office 10, organisations still using this or earlier versions of Microsoft Office must now consider their options carefully. Sticking with Microsoft might be the easiest option, but it is not necessarily the cheapest, and with IT budgets still very tight, many organisations are considering the cost implications associated with upgrading or migrating to Microsoft's latest offering. One factor that distinguishes this release from the previous versions of course is the BI functionality built into Excel 2007, and Excel Services. For many SME's, who are eager to increase competitiveness and business agility, the BI functionality may well prove to be compelling enough to warrant the upgrade.

For years now Excel has played a major role in providing BI functionality as a do-it-yourself analysis tool, and/or as the front-end to third-party BI applications. The product is a personal productivity tool that was not ideal for collaboration and sharing. In fact often distribution of a spreadsheet leads to further manipulation of its content by users on their own PCs, which in turn can lead to 'many versions of the truth'. Excel as a client-side application does not scale-up well, and is certainly not designed to work on the server side.

To address these problems Microsoft introduced Excel services as part of Microsoft Office SharePoint Service 2007. Excel services provide functionality for securely sharing Office Excel 2007 spreadsheets with others and dynamically renders an Excel spreadsheet as HTML so others can access the information within a Web browser. MOSS itself, is an integrated suite of server applications that have been designed to improve the effectiveness of information workers by providing end-to-end control over electronic content; improving business processes and facilitating better-informed decisions and information-sharing across organisational boundaries.

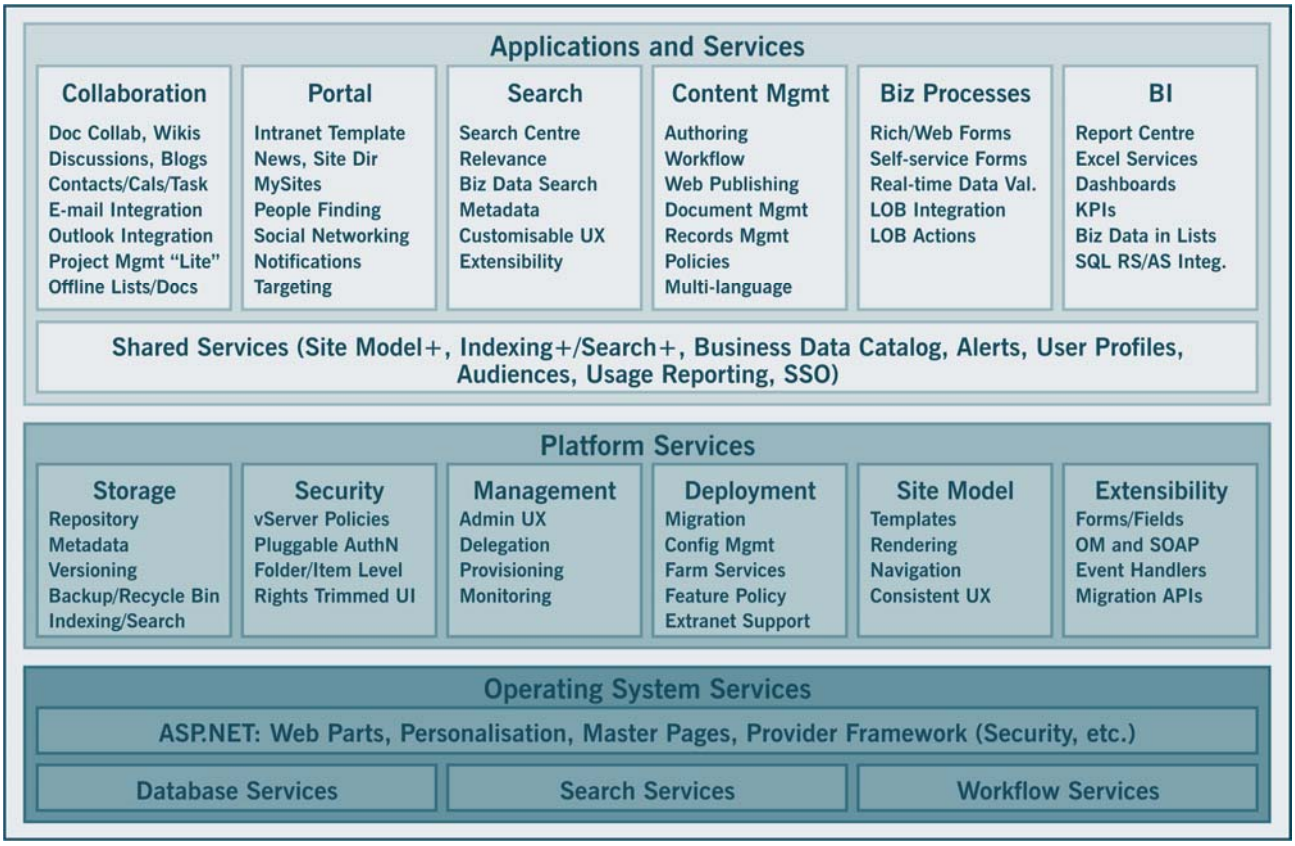

Figure 1: Microsoft Office SharePoint Server 2007 Architecture (Source: Microsoft)

Another feature of MOSS 2007 that helps bring BI to the masses is its enhanced Search functionality. The ability to find information easily and at the right time is very important. Otherwise the intelligence value that the information delivers may well be reduced.

Product Operation

Excel 2007

The UI has been overhauled to allow users easier access to functionality that they need at the right time. The look and feel is in-line with the main 2007 Microsoft Office products, and has come about as a result of increased functionality that would have made the previous user interface too cumbersome. In the 2007 Microsoft Office system, drop-down menus have been replaced by ribbons that offer functionality grouped in the appropriate context, with the menu bar options changing overall to represent the relevant grouping. This is shown in Figure 2.

In Excel 2007 the spreadsheet row and column capacity has been increased to one million rows by 16,000 columns, enabling users to import and work with very large amounts of data with support for dual or multi-core processors.

The formatting functionality has been improved with more cell and table styles. The Auto Filtering feature allows headers to stay in view while the user scrolls through the data. AutoFilters populate and expand any table automatically. There is a resizable formula bar with context-based Formula AutoComplete function which gives the user the option to type in the proper formula syntax the first time, on every occasion. Named ranges and tables can also be referred to within formulas and functions.

The visualisation capabilities have been much improved in Excel 2007. This is very important and strengthens the BI analytics functionality. There are consolidated visual effects that enable the user to create professional-looking charts quickly with predefined chart layouts and styles. These can be further enhanced with 3-D effects, soft shadowing, and anti-aliasing. There is interoperability with Microsoft Office Word 2007 and Microsoft Office PowerPoint 2007, with a consistent Excel charting engine for all those products.

Typical analytics functionality is provided via conditional formatting in Excel 2007 which when combined with its data visualisation schemes can help the user discover and illustrate important trends via coloured gradients (heat maps), data bars, and icons. New options for sorting and filtering, such as multiselect in AutoFilters, sort or filter by colour, and "quick filters" for specific data, help with analysis of large amounts of data.

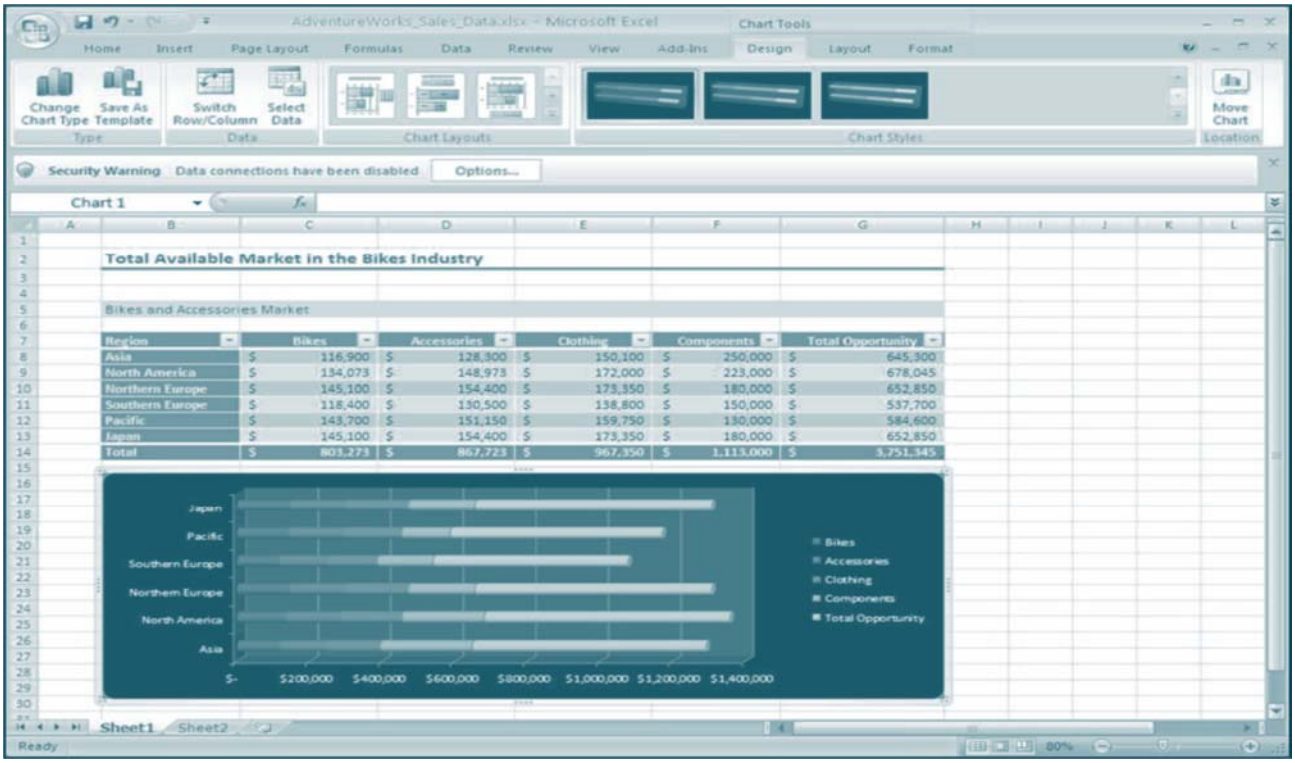

Figure 2: The New User Interface

Data fields can be used to create PivotTables or PivotCharts views more easily with reorienting data functionality. The pivot table capability for this release was redesigned to make it more intuitive. Fields can be dragged to where they are to be displayed.

There is support for Microsoft SQL Server 2005 Analysis Services (via PivotTables) and Reporting Services. These provide BI functionality with the ability to create business dashboards from spreadsheets and to share them within a portal. An example dashboard is illustrated in Figure 3. Dashboards have become a standard part of BI software as they allow the user to track key performance indicators.

Figure 3: Example of a Dashboard

The Office Open XML format is the new default file format for Excel 2007, but the application supports other file formats, including .xls, Microsoft's XML Paper Specification (XPS), and Portable Document Format (PDF). The latter two file formats, however, are only available after an add-in has been installed.

SharePoint Server 2007

Tightly integrated with familiar desktop productivity applications, and with a slick Web-based UI, MOSS provides users with a consistent and predictable framework through which people, process, and content can come together. MOSS offers the following features: BI, primarily through Office Excel Services 2007 and enterprise search; Enterprise Portal; Enterprise Content Management framework in the form of Document Management, Records Management, and Web Content Management; Business Processes; and electronic forms (also offered as a standalone product: Microsoft Office Forms Server 2007).

Excel Services' Calculation Services affords users server-side calculations that keep 100% fidelity with those of the client-side as carried out by Excel 2007 itself. Spreadsheets lodged in Excel Services are recalculated and cached for access by multiple users. Following the server-side re-calculation, the spreadsheet is then rendered in a browser window using Excel Web Access. The browser view of the spreadsheet is created with zero footprint on the client side and remains interactive; e.g. cells can be manipulated, tables explored, and pivot tables drilled through. Though successful drill through depends on where the source is located and if the user has access rights; an important factor that must be considered during set up and configuration. The spreadsheet can be taken back or moved to Excel on the client-side.

A new feature is a snapshot that can be generated in real-time out of the spreadsheet by Excel Services with the same look and feel as the source spreadsheet. The values are re-calculated and refreshed but the formulae are stripped out of the snapshot. There are no data connections and the author can select the level of content or sections that is appropriate for the intended audience of the snapshot.

In addition, Excel Services provides a set of APIs that allows programs to use Excel Services' Web services to make use of server-side calculations, to set values or even retrieve an entire workbook, to be integrated into other products and LOB applications.

At its front-end Excel Services uses SharePoint's UI and provides HTML rendering and Web services. At the Application Server level there is spreadsheet loading and refreshing and recalculation of data. Additionally, files and queries are cached for improved performance. Management and administration is done via the MOSS 2007 platform, as is security with settings and controls for authentication and authorisation.

As a browser-based system, Butler Group is disappointed to see that Microsoft has adopted a two-tier approach when it comes to browser support. As one might expect, Microsoft Internet Explorer delivers the best experience to administrators, while those who use Firefox, Safari, and other browsers are less well catered for. Microsoft points to compatibility with ActiveX plug-ins as a reason for this difference in experience. It is important to note here that Excel Web Access (EWA) displays and enables interaction with the Microsoft Office Excel workbook in a browser by using Dynamic Hyper Text Markup Language (DHTML) and JavaScript, which do not require ActiveX controls to be downloaded on the client computer.

Microsoft has beefed-up the search capabilities in this release of MOSS, and the Business Data Search feature of MOSS makes it easy to index and search relational databases or other information stores accessible by ADO.NET (the primary relational data access model for .NET-based applications) or a Web service.

Figure 1 shows the SharePoint stack, and although this appears to be fairly comprehensive, Microsoft still provides plenty of opportunities for partners and System Integrators. Microsoft offers no vertical solutions or industry-focused capability, and so this is the first area in which Microsoft's partners can add real business value.

Connection to external sources of information can be achieved via the Data Connection Library. This is a new type of SharePoint library where Office Data Connection (ODC) files can be stored, shared, and managed. ODC files contain all the information and parameters that are needed to form a data connection, such as server name, OLAP cube or table name, and query. The DCL library in SharePoint benefits from SharePoint features such as workflow support, file approval, library-level/item-level security, and sorting filtering based on metadata.

Product Emphasis

The revamped visualisation functionality within Excel 2007 and the server-side capabilities offered by Excel Services firmly position the solutions within Microsoft's BI stack. The capabilities are further enhanced with MOSS' integrated suite of server applications that include search and collaboration. Using this combination companies can start by building a small and basic BI capability that can be extended by integration with LOB applications. Those capabilities can be extended to enterprise-wide and end-to-end BI functionality with further investment in SQL Server 2005 and Business Scorecard Manager 2005.

This 'system' adds-up to a very competitive and compelling BI technology stack, and yet if one considers the various elements separately, then there is very little that is outstanding. Indeed, the real BI value of the Microsoft Excel 2007 application only becomes truly apparent when organisations build solutions on the SharePoint Server 2007 platform. The platform's search and collaboration technology add further benefits by offering organisations the potential to significantly improve the effectiveness of information workers.

▶ DEPLOYMENT

As with all Microsoft products, the services of a Microsoft Certified Systems Engineer or Microsoft Certified Solution Provider are not prerequisite, but Butler Group believes such investments are always going to pay dividends in the long run. Too many organisations are seduced by the 'plug-and-play' nature of Microsoft products, but when a product is going to be deployed on an enterprise-wide basis much more care and attention to planning is required.

Microsoft's Partner Program is one of the most extensive in the world, and so organisations should seek out a service provider that is both technically competent and industry savvy. The Microsoft ecosystem is well established, and so in most regions of the world organisations should have little problem in finding a Microsoft Partner with applicable industry insight and expertise. The Microsoft Partner Program is segmented into 13 discrete competencies, with Information Worker Solutions being the obvious touch-point for locating 2007 Microsoft Office system skills. The same thing applies to training with numerous training partners that provide classroom- or computer-based training. In addition, Microsoft offers support on a 24x7x365 basis.

Organisations should also consider the option of SharePoint through an ASP model, as an increasing number of providers are now offering services in this area. While these facilities usually require year-long subscriptions, Butler Group is expecting to see greater market variation in this area as providers try to differentiate their offerings.

Excel 2007

Excel 2007 is available on Windows Server 2003 SP1 or later or Windows XP SP2 or later. Whilst installation on earlier Windows versions is not possible, data from earlier versions of Office applications can be integrated with the new version of Excel. The application is usually deployed as part of a Microsoft Office Suite, but it could also be deployed as a standalone application. Either option can be installed via deployment tools with no special expertise required. The average time for implementation is approximately 30 minutes on each PC. Multiple installations in parallel can be carried out for deployment on a large scale.

There are deployment and management tools released with Microsoft Office 2007. The new tools include Office Migration Planning Manager, File Conversion Tool, and Office Customization Tool. There is new Setup architecture, a new multilingual architecture, and greater support for Group Policy. Additionally, Microsoft is releasing Desktop Deployment Planning Services, the Business Desktop Deployment Solution Accelerator, and an Office Resource Kit.

Training resources are available on-line on the Microsoft Web site. These include demos, help files, and tutorials. In addition there are job-specific resources with material that can be customised for end users.

SharePoint Server 2007

Microsoft Office SharePoint Server 2007 is built on the technologies and services provided by Microsoft Windows Server 2003, Windows SharePoint Services, and SQL Server. SQL Server is used for storing all content, data, and configuration information used by MOSS. Although Microsoft recommends SQL Server 2005 for production environments, SQL Server 2005 Express and MSDE (both of which are free) can also be used.

As with most Microsoft applications and technologies, deployment can usually be handled by a competent IT department; and as most organisations of any size now have Microsoft Certified System Engineers (MCSEs) on site, the setting up of MOSS should be relatively straight forward. However, organisations with multiple information repositories, and those wishing to exploit the enhanced capabilities and solution sets based on MOSS, should consider engaging with a Microsoft Certified Partner that specialises in SharePoint.

MOSS 2007 has three logical tiers: the front-end Web server tier, the application server tier, and the database tier. During installation, Excel Services installs two components (Excel Web Access and Excel Web Services) on the front-end Web server tier, and one component (Excel Calculation Services) on the application server tier, as shown in Figure 4.

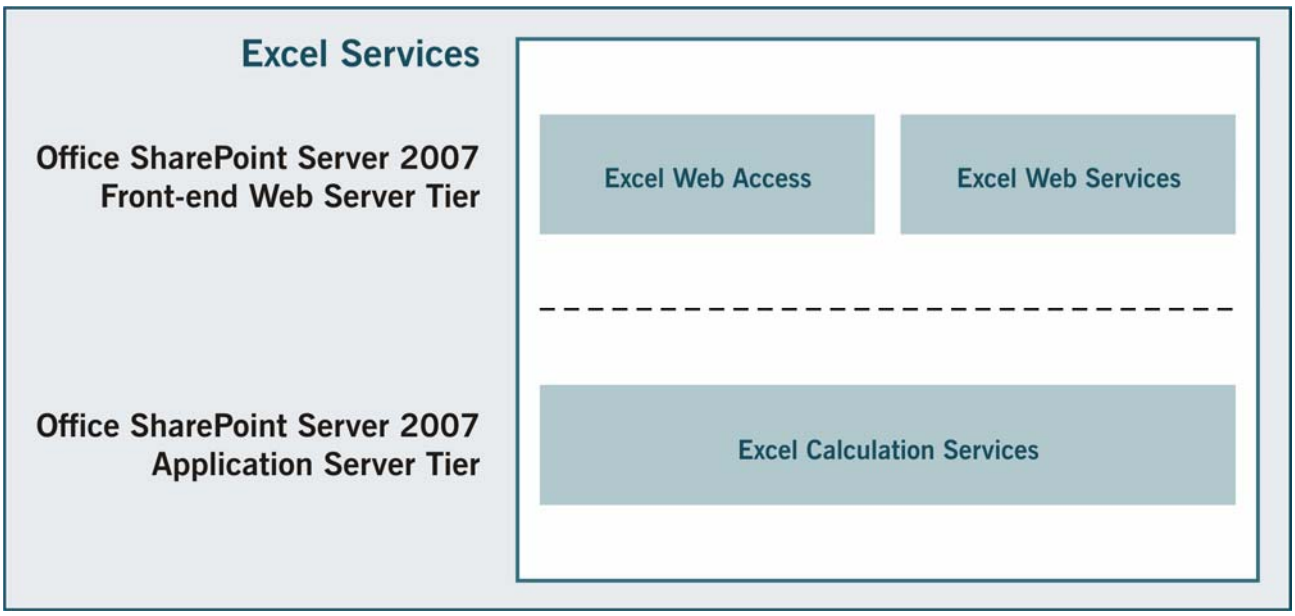

Figure 4: Excel Services Components

Office MOSS 2007 and Excel Services can be deployed in a number of topologies, from single-server to large, high-performance computing topologies. The Office SharePoint Server 2007 components (including the Excel Services front-end Web server components, Excel Calculation Services, and its application server) can be installed on one or multiple servers depending on requirements. The simplest deployment would have all the components on one server. This topology is useful for testing the core functionality of Excel Services, but it is not recommended as a scalable solution. Many other configurations are possible with the various tiers installed on different or multiple servers, or even on the individual compute nodes of a cluster.

Scalability on the client side is achieved by taking advantage of features in hardware platform such as multi-core and 64-bit CPU architecture. In terms of scale-out topology, the scalability of Excel services is achieved by utilising the Microsoft High Performance Computing (HPC) topology based on the Windows Server Compute Cluster edition. Essentially this means that with the correct design, additional servers can be added as required for parallel computational scalability. In a standalone deployment, significant scalability of Excel can be attained by making use of the scalable memory architecture of 64-bit server platforms. The performance of MOSS 2007 can be affected by Excel Services depending on the volume of client connections and the number of simultaneous Excel Calculation Services session requests. Calculation size and complexity can also affect Excel Calculation Services resource consumption. It is therefore advisable to assess baseline hardware requirements for system memory, CPU speed, and storage for each application server that runs Excel Calculation Services. A network load balancer is available that can be used for scaling out application servers. This can be achieved by adding computers within the shared services framework in Office SharePoint Server 2007.

▶ PRODUCT STRATEGY

Small and mid-sized organisations with significant investments in Windows Server, SQL Server, Exchange Server, and SharePoint Portal Server are, without doubt, Microsoft's core market, and so the company will of course target its "People Ready Software" campaign directly to this audience. However, the release of Windows Vista adds an interesting twist to Microsoft's strategy, and so we could see corporate IT managers at the centre of a pincer movement as end users demand the same experience in the workplace as they have at home with their new Vista PCs.

Microsoft Office Excel 2007 can be purchased either as part of Microsoft Office 2007 or on its own. Microsoft Office 2007 comes packaged as various suites with prices that vary from as little as US$149 for the Home and Student edition to US$679 for the Ultimate edition. There are also volume licensing prices that are subject to quotes. Microsoft Office Excel 2007 on its own is priced at US$229 and at US$109.95 for an upgrade. The following qualify for upgrades: Microsoft Excel 2000-2002; Microsoft Office Excel 2003; Microsoft Works 6.0-10; Microsoft Works Suite 2000-2006 or later; any 2000-2007 Microsoft Office suite; any Microsoft Office XP suite.

Microsoft Office SharePoint Server 2007 is priced on a volume basis.

Other elements of Microsoft's BI offerings include SQL Server 2005, which provides organisations with an end-to-end BI platform that includes Online Analytical Processing (OLAP), Extract, Transform, and Load (ETL) tools, Data Warehousing, and Enterprise Reporting. The latest version also offers extended choice of 64-bit processing capability. It is important to note that the BI functionality is bundled in with SQL Server 2005 Standard and Enterprise Editions, at no additional cost for the BI element. This is not to say that it comes for free, as no doubt BI leverages more sales of SQL Server licences than Microsoft would have achieved otherwise. Nevertheless, the relative low cost of entry (US$6,000 per processor, US$2,799 server + 10 users) brings BI within the reach of Small- to Medium-Sized Businesses (SMBs). There is also Business Scorecard Manager 2005, which is designed to bring business performance metrics to the desktop. This is soon to be merged with ProClarity to produce Office PerformancePoint Server 2007.

▶ COMPANY PROFILE

Microsoft Corporation (NASDAQ:MSFT) was formed in 1975 and has grown to be one of the most powerful IT companies in the world. It is headquartered in Redmond, Washington, USA, and has offices in more than 66 countries. Microsoft employs approximately 57,000 people on a full-time basis, 37,000 in the United States, and 20,000 internationally. The number in product research and development is 24,000. It supplies a wide range of products and services, including operating systems, business applications, office automation and information worker solutions, and consumer products. The company is structured around three divisions: the Platform Products and Services Division, which includes the Windows Client Group, Server and Tools Group, and MSN Group; the Business Division, which includes the Information Worker Group and Microsoft Business Solutions Group; and the Entertainment and Devices Division, which includes the Home and Entertainment Group and the Mobile and Embedded Devices Group. The company recorded revenues of US$44,282 million during the fiscal year ended June 2006, an increase of 11.3% over 2005.

	2006	2005	2004
Revenue (US$ million):	44,282	39,788	36,835
Change on previous year (%):	11.3%	8.0%	14.4%
Total Net Income/(Loss) (US$ million):	12,254	8,168	9,993

▶ SUMMARY

Although the World Wide Web and the Internet have had a huge impact on the lives of many information workers, Microsoft still commands the desktop. That presence on the desktop and the ubiquitous Windows platform afford Microsoft a unique position to mix and match products to bring BI to the masses. This is amply demonstrated by Excel and Excel Services 2007, which leverage the Microsoft technology stack to empower users to gather information, and turn it into business intelligence. Investment in the Microsoft server technology is a pre-requisite for all these elements to work. Indeed, the repositioning of Microsoft Excel 2007 in the BI stack only becomes truly effective with SharePoint Server 2007. Given that, and all the elements taken together, Butler Group believes that the Microsoft BI for the masses proposition adds up to a highly competitive solution.

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