Introduction

According to Gartner Group, Business Intelligence is still an area where considerable investment is being made by companies to maximize their investments and get the most return.

Microsoft in its recent release of SharePoint 2010 has added a number of Business Intelligence features. It is also positioning SharePoint 2010 as the delivery platform for Business Intelligence for the masses.

This pervasive convergence of Business Intelligence with SharePoint 2010 makes it imperative for SharePoint practitioners and Enterprise Content Managers in organizations to learn more about Business Intelligence.

The purpose of this document is to help readers understand the various components of Business Intelligence, and Microsoft's Business Intelligence roadmap from a SharePoint perspective. It will enable the senior executives, individuals responsible for making BI decisions and SharePoint practitioners to arm themselves with relevant information to prepare for the rollout of the Business Intelligence capabilities of SharePoint. It is the first in a series of articles that will be published by Netwoven on this topic.

This document does not cover the planning, budgeting and forecasting side of Business Intelligence. Microsoft does not provide any tools for these functions.

Core Requirements of a BI Platform

An organization's Business Intelligence capabilities should ensure that the information needs of the following types of users should be met:

User	Description
Executives	These users are the senior most people in organizations looking to obtain quick insight into the health of the business.
Power Users	These users are generally few in number and perform advanced analysis for the organization.
Casual Users	These users generally have a basic need for information to help with their day to day work efforts. The complexity of existing BI tools has prevented the large set of casual users to provide more insightful information.

In order to meet the needs of the above users, the following BI capabilities should be provided by organizations:

Type of Function		Description
Query and Reporting		This capability provides the ability for users to query the data sources directly. Reports are well formatted data in grid or graphical form that can easily be printed. Reports can be of any types as defined below. These functions are generally for the casual users.
	Managed Reports	These are reports that can be scheduled for delivery via email.
	Production Reports	These are reports that run against the production environment
	Ad-hoc Reports	These are reports that users can modify the parameters for.
	Personalized Reports	These are reports that are personalized for a person
Analytics		Analytic capabilities provide users with tools to obtain more details from the initial chart / grid. Users can use various techniques such as pivoting, drill-down,

		drill-through and other functions. Advanced analytical capabilities also exist for other types of analysis. These functions are generally for the power users.
Dashboards		Executive dashboard is like instrumentation panel of your business, where various gauges indicate the health of the business in terms of parameters which are critical for success of business strategy. These functions are generally for executives.

BI Technologies from Microsoft

The Microsoft Business Intelligence components are spread across multiple products. Below is a summary of the products that have BI components from Microsoft:

Product	Description	BI Components
SharePoint 2010	This product consists of the core presentation layers. It is currently in Beta.	o PerformancePoint Services o PowerPivot For SharePoint o Excel Services For SharePoint
Office 2010	Office 2010 is the familiar desktop suite of tools for users. It is currently in Beta.	o Excel 2010 o PowerPivot For Excel 2010 o Visio 2010
SQL Server 2008 R2	The latest release of SQL Server 2008 provides additional BI capabilities necessary and useful for SharePoint integration. It is currently in Beta.	o Analysis Services (SSAS) o Integration Services (SSIS) o Reporting Services (SSRS) o Master Data Management Services (SMDM)

In this document, we will focus on the SharePoint 2010 BI components as well as PowerPivot for Excel 2010 as it is tightly integrated with the overall Business Intelligence delivery method.

Working with Query and Reports

Casual users have been using query and reporting tools for quite some time to obtain the necessary information from various data sources. Several third party and Microsoft tools support this function. Examples of tools that provide query and reporting capabilities include Crystal Reports from SAP (formerly Business Objects), Report.NET from IBM (formerly Cognos) and Reporting Services from Microsoft. Below is a list of some of the characteristics that are common across most of these query and reporting tools:

Function	Description
Formatting Functions	Ability to create nicely formatted reports for viewing Ability to create nicely formatted reports for printing
Charting Features	Ability to support visualization needs with various charts
Filtering Features	Ability to filter the data along with creating parameterized reports
Calculations	Ability to add simple and advanced calculations to the reports
Analytic Report Features	Ability to drill down the data using predefined navigation
SharePoint Integration Features	Ability to publish reports into SharePoint
Data Source Support	Ability to report from various sources such as Oracle Applications, SAP, custom data sources using connectors
End User Reporting	Ability for end users to work directly with the data and create their own reports
Administration	Set of advanced administration features to create, manage, retire and schedule reports
Export	Ability to export reports in various formats

SQL Server 2008 Reporting Services is Microsoft's flagship reporting tool that provides support for all the above features and provides additional functions. More information can be found at the Microsoft site.

Working with Analytics

Overview

Basic analytics provides intermediate and power users the ability to work with data and perform basic analysis. Several third party and Microsoft products exist to support these capabilities. Examples include: SAP Business Objects Web Intelligence, IBM Cognos Business Intelligence, Microsoft PowerPivot, and Panorama Novaview. Below is a summary of some of the key capabilities that these analytical tools provide:

- Interactive grid
- Drill up/down
- Slice and dice
- Bubble up exceptions
- Data sorting
- Data Ranking
- Static and Dynamic calculations
- Advanced Filtering and ranking
- Grouping

Basic query and reporting is necessary, but insufficient. Advanced analytics are required for continuous learning and improvement, leading to real insight and sustained competitive advantage in a tumultuous economic environment.

According to IDC, Advanced analytics software includes data mining and statistical software (previously called technical data analysis). It uses technologies such as neural networks, rule induction, and clustering, among others, to discover relationships in data and make predictions that are hidden, not apparent, or too complex to be extracted using query, reporting, and multidimensional analysis software. This market also includes technical, econometric, and other mathematics specific software that provides libraries of statistical algorithms and tests for analyzing data. Although statistics products vary in sophistication, most provide base-level functions such as frequencies, cross-tabulation, and chi-square. This market also includes a specialized form of statistical software focused on functional areas such as the industrial design of experiments, clinical trial testing, exploratory data analysis, and high-volume and real-time statistical analysis.

PowerPivot for Analytics

Microsoft' primary tool for basic and advanced analytics had been Microsoft Excel. As you may know, it is the most widely used too for analytics. However, a number of organizations were looking for web based advanced analytics tool. With its PowerPivot offering, Microsoft has extended the capabilities of Excel to SharePoint and provided web based analysis capabilities.

SQL Server PowerPivot is a new application from Microsoft that is available in two places:

- Add-on to Microsoft Excel 2010 (SQL Server PowerPivot for Excel)
- Application service in SharePoint 2010 to support business intelligence (SQL Server PowerPivot for SharePoint)

A subsequent section provides more information about PowerPivot for Excel. The current section describes PowerPivot for SharePoint.
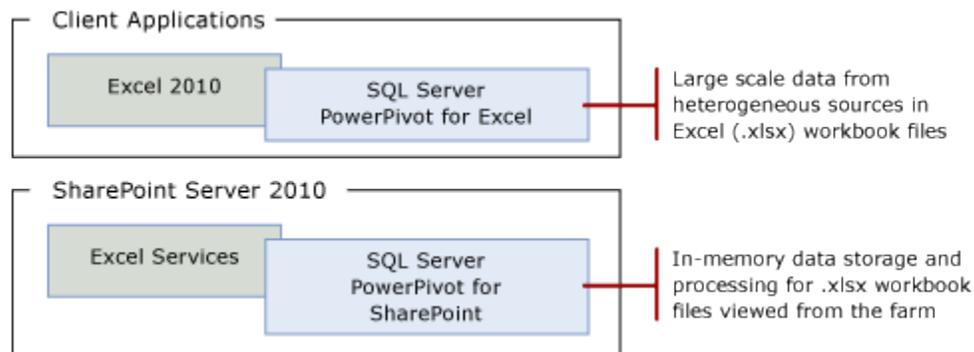
PowerPivot for SharePoint enables end users to effortlessly and securely share their PowerPivot applications with others and work seamlessly in the browser using Excel Services. PowerPivot for SharePoint also helps IT improve their operational efficiencies by tracking PowerPivot usage patterns over time, discovering mission-critical applications, and improving system performance by adding resources.

Key Components of PowerPivot For SharePoint

PowerPivot for SharePoint consists of the following components:

- PowerPivot Gallery – the Silverlight based gallery where users can share PowerPivot applications with others and visualize and interact with applications produced by others using Excel Services and Reporting Services.
- PowerPivot Management Dashboard – the dashboard that enables IT to monitor and manage the PowerPivot for SharePoint environment.
- PowerPivot Web Service – the "front-end" service that exposes PowerPivot data via XML/A to external applications such as Report Builder.
- PowerPivot System Service – the "back-end" service that manages the PowerPivot application database, load balancing, usage data collection, automatic data refresh, etc.
- Analysis Services – the Analysis Services server running the VertiPaq in-memory engine and integrated with SharePoint to load and manage the data within PowerPivot workbooks

Working with Dashboards

What is an executive dashboard and why do I need one?

Everyone who drives a car understands the importance of a dashboard. How fast are you going? How much gas do you have left? Are there any warning lights flashing?

An executive dashboard can give you the same kind of information in real time for your organization and its health.

Below are the key characteristics of an executive dashboard:

- Uses visual indicators as a primary mode of providing information
- Connected with databases that provide near real-time information

An executive dashboard runs on your computer, uses graphs and maps as a primary display device and is connected to databases which are updated regularly so you aren't looking at old information. Just like car dashboards, executive dashboards can vary in appearance.

Characteristics of a dashboard

The design of executive dashboards varies depending upon the needs of the executives for which they are designed. However, well-designed executive dashboards commonly have the following characteristics:

1. The executive dashboard is highly graphical in nature and enables the executives to read and understand the key metrics in very little time.
2. The executive dashboard is **tailored to the needs of the executive** who uses them. The VP of Sales probably doesn't need to see the total inventory turns or human resource information.
3. The executive dashboard starts with a high level view and, by clicking on the relevant graph or map, the user can drill down into more detail. **Navigation is easy and intuitive.**
4. The executive dashboard is **automatically updated** with the latest available data so you're not making decisions based on old information.

One needs to ensure that the dashboard adheres to the following rules of usability:

- Relevance - Ensure that only the relevant information is presented at the top level
- Clarity - Ensure that the data and information are assimilated well and presented in an easy to use way

- Hierarchy - Ensure that the users of the dashboard are easily able to navigate from high level metrics to the details

SharePoint 2010 PerformancePoint Services for Dashboards

PerformancePoint Services is a product from Microsoft to help organizations create dashboards in SharePoint Server. Microsoft is converging its presentation layer to be Sharepoint (2007 and 2010). Earlier in 2009, Microsoft retired its Planning module from the PerformancePoint Server product line and combined the dashboard and analytics into SharePoint rebranding it as PerformancePoint Services 2010. The following is a summary of some of the core PerformancePoint features in SharePoint 2010:

Feature	Description
Scorecard Features	Ability to drill down and access more detailed information. Ability to create dynamic hierarchies and calculated KPIs
Visualization Features	Availability of Decomposition tree to quickly and visually breakdown higher level data to understand the forces behind the values.
Analytic Report Features	Ability to better understand underlying business forces behind results. Provides value filtering and new chart types.
SharePoint Integration Features	SharePoint as the repository for information

About Netwoven

Netwoven is a professional services firm specialization in the design and implementation of Enterprise Content Management and Business Intelligence solutions. This paper is part of the Business Intelligence series of papers that Netwoven will be publishing over time. For additional information, please contact Netwoven at info@netwoven.com.