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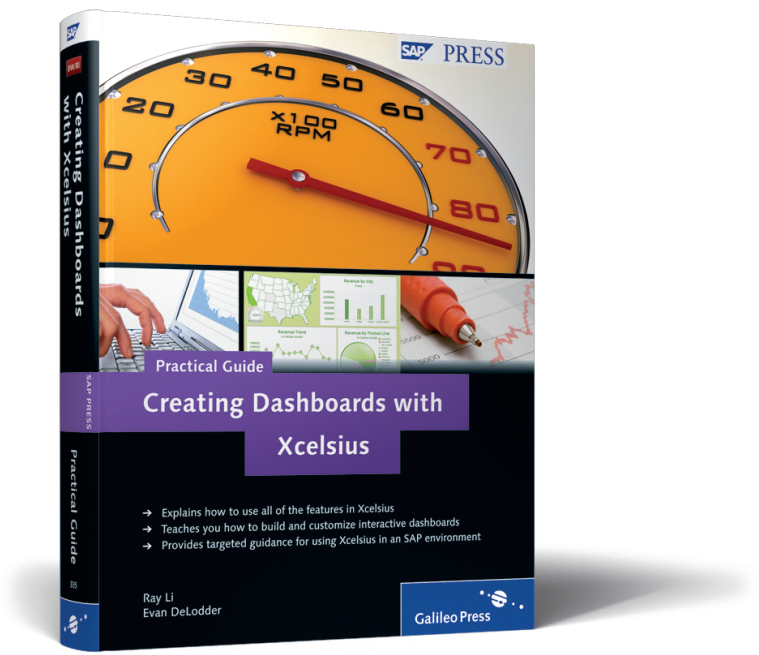
# Creating Dashboards with Xcelsius — Practical Guide

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# Contents at a Glance

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*Xcelsius® is an outstanding and easy-to-use data visualization tool to create interactive, attractive, and powerful analytics or dashboards with secure and live connections to your real data.*

# 1 Introduction to Xcelsius 2008

This chapter provides a general introduction to Xcelsius 2008, including what it is, what you can do with it, and how it is positioned in the SAP® BusinessObjects™ portfolio. After reading this chapter you should have a basic understanding of Xcelsius 2008 and know whether it's the right tool for your analytic and dashboard requirement.

## 1.1 What's Xcelsius?

Xcelsius is a flagship product of SAP BusinessObjectsthat allows users to transform plain data into interactive Adobe® Flash®–style visualization. Simply speaking, it's a tool to design dashboards and connect to live data.

As a dashboard designer, you may want to use it to create interactive dashboards to visualize your data and turn data into information. Xcelsius adopts Adobe Flash technology to represent such information which is a cutting-edge technology now widely used in frontend development for its nice visualization and excellent user experience.

The end user, often the decision-makers in a company or department, uses the output of Xcelsius, which is a Flash file or a PowerPoint® slide where the data is represented in a straightforward and attractive way, to make wise decisions either in business or in daily life.

Xcelsius mainly targets enterprise users as an enterprise-level business intelligence (BI) visualization tool. However, no matter who you are, you may find it very useful and easy to use. The users of Xcelsius can be divided into three categories as below:

- Enterprise users
  Enterprise users, typically the business user and IT department in a large company, can use it to create reliable, visually stunning and accurate dashboards to access timely and relevant business data.
- Common users
  Common users, such as students, can use it to create fantastic dashboards about anything they're interested in and share it with friends or colleagues.
- Developers
  The developers or programmers can develop plug-ins or new components using Xcelsius Component SDK for their specific use scenarios. They can then either share the new plug-in with others for free or sell them at some marketplace.

Xcelsius bridges the gap between data analysis and data presentation, empowering anyone who can point and click a mouse to create a professional and compelling dashboard. It's the most powerful data visualization tool in the world, with plenty of users. Both enterprise users and individuals can use it to present data in a clearer style so that information can be delivered in a more effective way. Everyone is a data analyst to some extent.

### 1.1.1 Installation

Xcelsius can only be installed on Windows systems from Windows® XP, Vista, to Windows 7, either 32-bit or 64-bit edition. However, its output, a Flash file (.swf) or something else containing the Flash file such as HTML and Adobe PDF (Portable Document Format), is supported by all platforms including Mac OS®, Linux®, and so on. You can run it as a stand-alone application using Adobe Flash Player or Adobe AIR® or through a web browser such as Internet Explorer® or Firefox®. To run the flash files, you need have Adobe Flash Player 9.0.151.0 or above installed.

Xcelsius is a multilingual product, supporting more than 10 languages including English, French, German, Spanish, Chinese, Russian, and Korea. It provides an intuitive integrated development environment (IDE) with which you can easily design the dashboard you want by simply dragging and dropping user interface (UI) elements. The user doesn't need to have any programming skill to create a powerful dashboard, thus saving much time for users to get hands-on. Throughout this book you will see exactly what you can do with Xcelsius to present your data, and how.

### 1.1.2 Relationship with Excel

Xcelsius has much to do with Excel®, as you may have guessed from its name. In fact, Xcelsius treats Microsoft Excel as its one and only direct data source. It was originally designed to turn Excel spreadsheet data into dashboards.

Now Xcelsius is used for creating straightforward and engaging dashboards to convey information in the best way. Some business users may have used Excel spreadsheets to do this, to represent data with tables and graphs. Compared to Excel, Xcelsius provides a better look and feel, is more powerful, and is easier to use. In the meantime, users can benefit from their experience with Excel, because Xcelsius uses Excel as its direct data source, where Excel experts can write Excel formulas (for example, HLookup) to make a powerful visualization.

### 1.1.3 History

Xcelsius was originally developed by Infommersion, which was founded by Santiago Becerra, Sr., a Harvard MBA and former Booz Allen & Hamilton management consultant, in 2002. In 2005, Infommersion was acquired by BusinessObjects, and in 2006, BusinessObjects released Xcelsius version 4.5, named Crystal Xcelsius. Then in 2008, with SAP's acquisition of BusinessObjects, Xcelsius became a product of SAP. Now the latest version is Xcelsius 2008, which SAP released in 2008, with Service Pack 3 released in December 2009.

With Xcelsius, you can realize the slogan "Your business, visualized."

## 1.2 What Can Xcelsius 2008 Do?

You can use Xcelsius to create dashboards to visualize information for others or for yourself. The dashboard can be attractive, interactive, and powerful, with rich intuitive information that the consumer can act upon immediately. This can help executives and business users to better understand their business situations and then make wiser decisions. It applies to both enterprise and individual uses of data visualization. For example, a sales manager can use Xcelsius to create a dashboard illustrating the sales info in each region and/or for each product so that the general manager can see the sales info at one glance, and an individual can use Xcelsius to show the monthly expenses and consumption distribution for himself or his family.

Under certain circumstances, the functionalities of Xcelsius 2008 may have some limitation in satisfying your needs. To solve such problems, Xcelsius 2008 provides Flex®-based software development kit (SDK), which you can use to create Xcelsius add-ons for your specific requirements. To do this, you need be familiar with Adobe Flex programming language.

In a word, Xcelsius is used to help you create interactive dashboards to present your data in a fancy way. You can design your dashboard with UI elements connect to your live data with some kinds of data connectivity, and distribute it to others by either exporting it to a local file and sending it to others or hosting the output in a web application server so that the information consumer can access it with a web browser.

Briefly, with the help of Xcelsius 2008, you can:

- Create attractive and interactive dashboards, using several kinds of UI controls such as charts and gauges
- Connect dashboards to your real and live data, using many kinds of data connectivity provided by Xcelsius such as web service connections and XML data
- Distribute dashboards through several media including Flash, Microsoft Office Word and PowerPoint, and SAP BusinessObjects Enterprise
- Develop an Xcelsius add-on component using the Xcelsius SDK when the existing features have limitations for your specific requirement

In the three sections below, we'll talk more about each of Xcelsius' capabilities of UI components, data connectivity, and distribution.

### 1.2.1 Data Visualization Capabilities

The traditional way to represent data is in tables, including vertical tables, horizontal tables, and cross-tables. When there's too much data, it's difficult to understand and hard to remember. By visualizing data, the consumer can easily and quickly understand the data and even the information behind the data (such as the relative difference between two items) and have an intuitive impression of the visualization, and thus can remember the data easily.

Data visualization transforms data into a form that is comprehensible to the eye, allowing you to analyze data through the sense of sight. An Xcelsius visualization provides insight into complex data and delivers confidence to those who will use it to make decisions. Xcelsius 2008 provides several types of UI elements such as

charts, gauges, and maps for data visualization. Each type of UI element may again contain several kinds to satisfy different situations. For example, the elements of type "chart" include pie chart, stacked column chart, and bubble chart. You can use them to convert data from plain sheets or tables to attractive dashboards.

Most charts support drill-down ability, which means that you can drill from summary level to more detailed level. This is very important and helpful in data analysis. By using drill-down, the user can drill from the top level to the more detailed level to find the de facto cause of a problem.

As described in Figure 1.1, using Xcelsius, you can convert data presentation from a static and difficult-to-understand Excel worksheet to a dynamic, visualized, and easy-to-understand presentation.

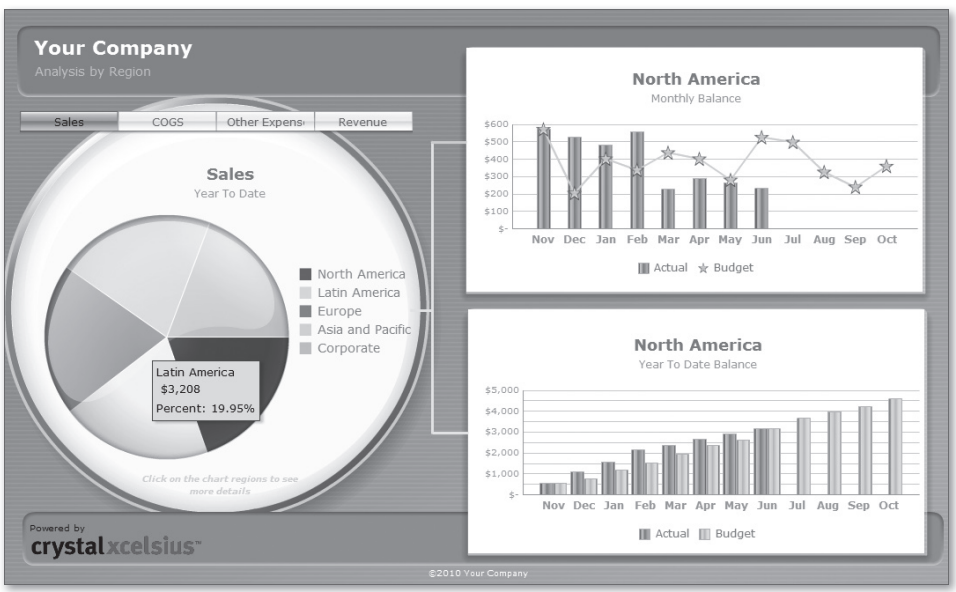


**Figure 1.1** Typical Dynamic Dashboard Created with Xcelsius 2008

In Chapters 4 and 5 you will see detailed descriptions of UI elements provided by Xcelsius 2008. To help you get acquainted with Xcelsius UI elements, here we'll show you some simple examples, categorized into percentage, comparison, and interactivity.

Remember, choosing the right UI element as your display medium is one of the most important steps during the design of a good dashboard.

### Percentage

Sometimes you may want to see the percentage or contribution of each item to get a rough idea about who's doing well and who's doing badly at a glance. For example, you can use a pie chart to show the contribution of each region to the company's total sales revenue. Xcelsius 2008 provides pie charts and radar charts for this situation. Figure 1.2 and Figure 1.3 are examples of these two kinds of charts.

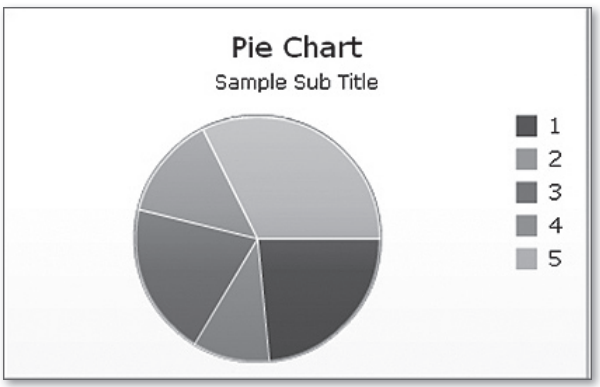


**Figure 1.2** A Pie Chart to Visualize Contributions

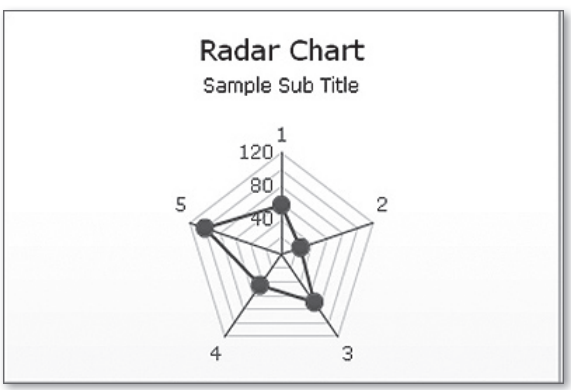


**Figure 1.3** A Radar Chart to Visualize Percentages

These figures are just two examples. Note that the title, subtitle, color, legend, and so on can all be customized according to your real data. For more information about these charts and how to use them, please refer to Chapter 4.

### Comparison

You use comparison charts when you want to show the differences among several items instead of the contribution of each item.

Xcelsius 2008 provides several charts for comparison such as column charts, bar charts, and stacked bar charts. For example, you can use a column chart to show the sales amounts of all regions or to see the difference between region 1 and region 2. Figure 1.4 and Figure 1.5 show a column chart and a stacked bar chart, respectively.

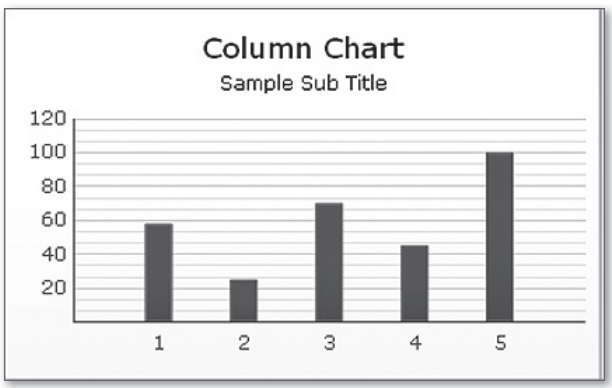


**Figure 1.4** A Column Chart to Show a Comparison

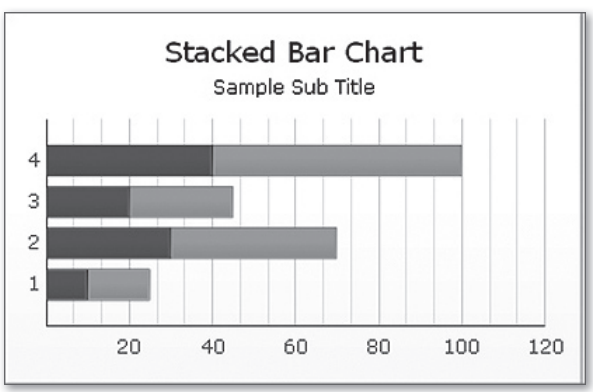


**Figure 1.5** A Stacked Bar Chart to Show a Comparison

Xcelsius 2008 also provides bubble charts and XY charts for multidimensional comparison and analysis. For example, you can use a bubble chart to compare a

group or series of items based on three different parameters. It has an X-axis and Y-axis to represent the item location over the chart area, and a Z value to represent the item size. For example, you can use this chart to represent market composition, with the X-axis representing the return on investment (ROI) by industry type, the Y-axis representing the cash flow, and the Z-axis representing the market value. Note that the bigger the bubble is, the higher the Z-value is. Figure 1.6 shows a simple bubble chart.

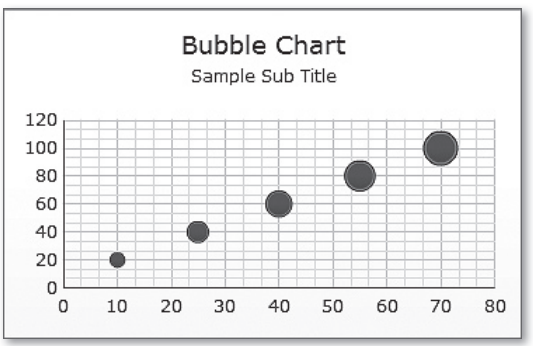


**Figure 1.6** A Bubble Chart to Show a Multidimensional Comparison

### Interactivity

Xcelsius 2008 provides several UI elements to make your dashboard interactive, including combo boxes, sliders, gauges, maps, fisheye picture menus, and calendars, which are like parameters or filters. The user can see information fit to him by setting corresponding values for these elements. Essentially, such UI components all act as selectors.

For example, you can create a dashboard with a combo box of regions, as shown in Figure 1.7. The end user can then see the information for a specific region instead of all of it by selecting one region from that combo box.

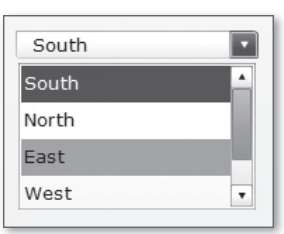


**Figure 1.7** A Combo Box for User Selection

Xcelsius 2008 provides maps of many countries as selectors. With these maps, the user can select what region he is interested in in a quite obvious way. Imagine that you need to select a region or city without a map; you have to select from a large list, either a combo box or a radio box. Figure 1.8 shows an example of a U.S. map.

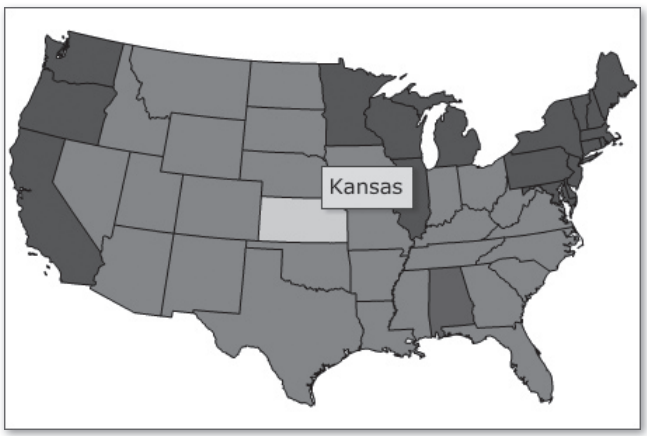


**Figure 1.8** A Map for User Selection

A map is a very good choice to display geographical data.

You can also create a gauge-based dashboard, in which gauges are available for the user to set values interactively. Such dashboards are usually used for what-if analysis, when you need to change the conditions on the fly to see what will happen in a particular situation. See Figure 1.9 for an example of gauge usage.

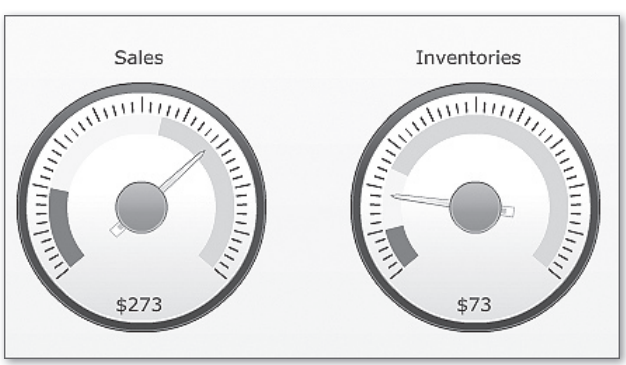


**Figure 1.9** A Gauge for Displaying and Setting a Numeric Value

### 1.2.2 Data Connectivity Capabilities

In the section above we have seen that we can create robust dashboards with Xcelsius 2008 using its rich and attractive UI elements. However, it is not enough to create a dashboard with only static UI elements, which is just a beautiful picture but far from an interactive dashboard. To make it really useful and meaningful, you need to bind the UI elements to your real and live data source. In this way, you enable the dashboard to reflect the real status and convey the accurate, up-to-the-minute information.

Data connectivity is a part of Xcelsius 2008 to solve such a problem. Xcelsius provides several kinds of data connectivity for your specific data sources. In this way you can provide everyone in your organization with live data and manage multiple data sources by controlling all data connections from one central interface.

Generally, there are two ways to reflect real data in your dashboard: Put data in the embedded Excel spreadsheet at design time, or connect to the external data source using one or more kinds of data connectivity.

An Excel spreadsheet is embedded into Xcelsius as the direct data source for UI elements. You can write your data in an Excel spreadsheet file and then import it into Xcelsius, put the data directly into the built-in Excel in Xcelsius' workspace, or connect to dynamic data through data connectivity but map the returned data into the built-in Excel spreadsheet. Remember, Excel is the one and only direct data source for all UI components. You can bind UI elements to a single cell or a range of cells in the embedded spreadsheet.

You can write the data that you know at the time you create the dashboard (design time), such as the metadata of the dashboard like the titles, directly in the built-in Excel spreadsheet and bind it to UI elements. This is usually the case for one-time visualization, when you know the data in advance.

However, in most of the cases, the data will not be available until runtime. Sometimes the data must be processed by some server before being consumed in your dashboard. Sometimes the data resides in another data source such as an XML file. To connect to such data, you need to use data connectivity.

A wide range of data connectivity methods are available to satisfy different environments, such as Web service connections and XML data. You can use the data connectivity to connect to your real data source. For example, let's say you're creating a dashboard to show the sales info for each region in each quarter. The data resides in the database and a Web service hosted in a Web application server at

your company is providing the data you require. In this case, you can create a Web service connection to that Web service to request data.

### 1.2.3 Distribution

Your dashboard is designed to communicate information in the best way. Usually, the dashboard is designed is to be consumed by someone else. With Xcelsius 2008, you can export your dashboard into many formats so that it can be distributed through several kinds of media. The available distribution methods are explained below.

- You can export the dashboard to Macromedia Flash, Adobe AIR, or HTML so that it can be viewed stand-alone or from a web browser.
- You can also export it to PDF or Microsoft Office documents including Word, Outlook, and PowerPoint so that you can send your dashboard via email or present your dashboard during a speech. In this way you can leverage the large installation base of Microsoft Office.
- If you are an SAP BusinessObjects Enterprise user, you can also export it to the SAP BusinessObjects platform. By doing so you can make use of the security settings provided by SAP BusinessObjects Enterprise, so that only people you permit have the right to access your dashboard, and the data they see will depend on their roles.

## 1.3 Reasons to Choose Xcelsius

So far, you have gotten some idea about what amazing dashboards you can create with Xcelsius 2008 with its rich UI elements and data connectivity. In the following chapters you will see more detailed information about what you can do with Xcelsius 2008 and how. Before that, let's check some reasons to choose Xcelsius as your dashboarding tool.

- It's powerful.
  By using cutting-edge technology, Xcelsius provides the best visualization effect and user experience. With several kinds of data connectivity, such as Web services and XML data, you can connect to almost any kind of data source.
- It's easy to use.
  Xcelsius offers a wide range of UI components such as pie charts, candlestick charts, accordion menu, and maps, and you need simply drag and drop the

components to create a professional dashboard. It uses almost everyone's daily tool, Microsoft Excel, as its direct data source and provides a built-in Excel. In this way, you can easily bind the UI components to a single cell or a range of cells in the Excel spreadsheet.

- It's extensible and growing.
  Xcelsius brings with it a wide range of UI components and data connectivity methods, but sometimes you may encounter a scenario where you need something new. Xcelsius is extensible in that it provides a software development kit (SDK), which you can use to create your custom UI components and data connectivity. Moreover, some companies are working on developing a new component, and there are many active forums about how to use Xcelsius. Also, SAP keeps releasing new features to Xcelsius.

## 1.4 Xcelsius in the SAP BusinessObjects Portfolio

Xcelsius is the dashboard and visualization component in the SAP BusinessObjects portfolio. In the reporting category, SAP BusinessObjects provides three outstanding tools: Crystal Reports®, SAP BusinessObjects Web Intelligence, and Xcelsius. Among them, Crystal Reports is for enterprise reporting, SAP BusinessObjects Web Intelligence is for ad-hoc query designer, and Xcelsius is for analysis.

Xcelsius can work with several other SAP BusinessObjects products in a business intelligence (BI) solution, such as Crystal Reports, SAP BusinessObjects Web Intelligence, SAP BusinessObjects Universe Designer, and BusinessObjects Enterprise, as explained below.

Xcelsius can consume data from Crystal Reports or SAP BusinessObjects Web Intelligence with the help of SAP BusinessObjects Live Office. You can create a Crystal Reports report within a Microsoft Excel document after installing SAP BusinessObjects Live Office. The Excel document can then be used as a data source for Xcelsius. Of course, you can also export your Crystal Reports report directly into an Excel file.

A special kind of data connectivity, Crystal Report Data Consumer, can also be used to integrate Xcelsius with Crystal Reports 2008, as will be explained in Chapter 7.

Xcelsius can also consume data from a universe with the help of Query as a Web Service (QaaWS), another SAP BusinessObjects produce that exposes data from a universe query into a standard Web service.

Xcelsius can be exported to an SAP BusinessObjects Enterprise system, thus distributing the dashboards to other users in the organization and making use of SAP BusinessObjects Enterprise security mechanisms to control users' access. Other SAP BusinessObjects Enterprise users can access then the dashboard through a browser from the BI portal, if they are permitted to.

## 1.5 Summary

In this chapter we introduced Xcelsius 2008 as a powerful yet easy-to-use tool to design dashboards and its targeted designer and end user. As to its functionalities, we talked about its rich set of UI elements and included some figures in the hope of giving you a rough idea about what it can do. We also talked about its data connectivity to connect to external live data and how to distribute it to other users in several kinds of formats.

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