Chapter 1

Introducing Crystal Xcelsius

In This Chapter

▶ Overcoming static cling

▶ Seeing beyond fancy graphics

▶ Checking out Crystal Xcelsius under the hood

So here you are with this new software application — Crystal Xcelsius — in your hand, ready to read this book, hoping to see how to make some really cool dashboards that organize and present your data in a brilliant new way. Little do you know that you are on the cusp of a revolution. It's true! I sit here writing one of the first chapters ever written about Crystal Xcelsius, which is fast becoming a force to be reckoned with in the world of business intelligence.

Using cutting-edge technology, Crystal Xcelsius bridges the gap between data analysis and data presentation, empowering anyone who can point and click a mouse to create professional and compelling dashboards. Gone are the days of deferring to the local Excel guru to help analyze your data or calling the local PowerPoint guru to help you build your presentations. Crystal Xcelsius simplifies even the most complex functionalities, enabling even a beginner to play the part of the guru, creating stunning presentations with just a handful of basic techniques. So as you sit there with your copy of Crystal Xcelsius, don't look so worried. Steady your hand, lift your head, and say with me, "I am the guru. I am the guru!"

This chapter is all about gaining some familiarity with Crystal Xcelsius before creating your first dashboard. Here, I give you an overview of the concepts behind Crystal Xcelsius, how Crystal Xcelsius works, and how you can use Crystal Xcelsius as an integral part of your daily operations.

Overcoming Static Cling

I love the TV show *Little House on the Prairie*. One of my favorite characters on the show is Doc Baker, who is the old country doctor fighting illness armed with nothing more than a stethoscope. (Sometimes I wonder just how effective he is with that stethoscope. I mean, how much information could he, or

any other doctor in the 1880's for that matter, possibly gather with a stethoscope?) That's a long stretch from today, where technology provides doctors with an unprecedented amount of data with dynamic visualizations of the human body that are interactive, real-time, and 3-D. *Visualization* transforms data into a form that is comprehensible to the eye, allowing you to analyze data through the sense of sight. This allows surgeons and medical students to see the breathing patterns of an asthma patient or the beating human heart in rhythm with an EKG output.

However, these advances in visualization technology aren't limited to the medical field. Many industries have striven to move away from static data environments by using interactive visualization technologies. Consider some of the other industries that have taken advantage of interactive visualization technology:

- ✔ **Aviation:** In the early 1900s, pilots would spend the first weeks of flight training in a rocking fuselage with mock instruments. Pilots today train in flight simulators that use animation and interactive visualization to replicate a wide array of atmospheric scenarios.

- ✔ **Sports:** Professional athletes have the benefit of computer models that interactively capture their movements with animation, helping them pinpoint their problem areas and maximize their kinetic potential.

- ✔ **Meteorology:** Meteorologists use interactive visualization systems to model the effects of wind force from storms and hurricanes.

- ✔ **Toy industry:** Even popular board games that are inherently visual, such as chess, *Monopoly,* and *Risk,* have been augmented with technology that offers imaginative animations that enhance a player's gaming experience.

What's the point of all this visualization talk? Well, the question that you and I should be asking is what happened to the business world? Although tools like Excel and PowerPoint have brought us a long way from the days of using paper spreadsheets and overhead projectors, by no means have they come close to the interactive visualizations that other industries have benefited from. We still sit through hours and hours of boring meetings where we point to static charts like one you see here in Figure 1-1.

The question is, why are we still clinging to static technologies? Why hasn't anyone moved us forward? This is the same question that Santiago Becerra, Sr., and his son Santi Becerra, Jr., asked each other before they developed Crystal Xcelsius.
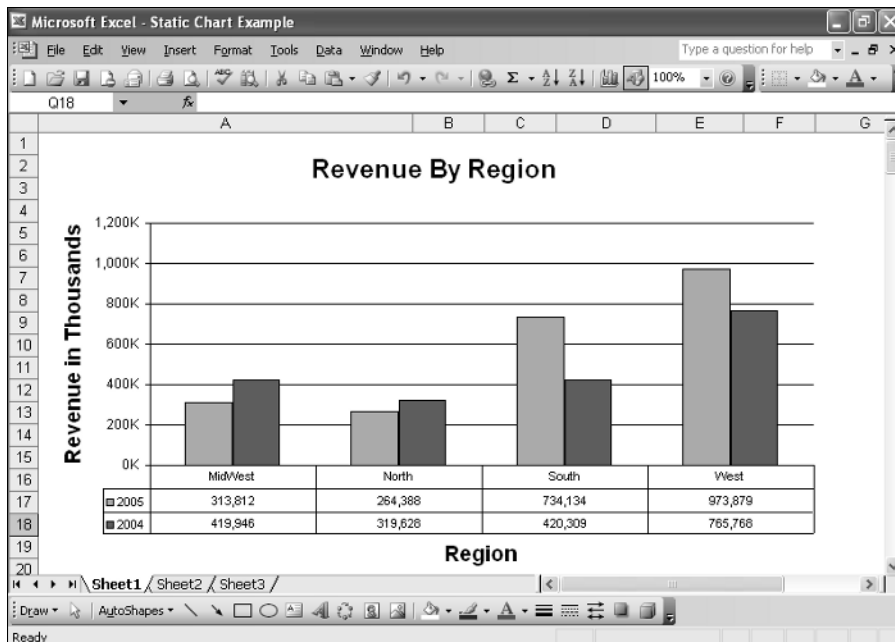
Like many of us in the corporate world, Santiago Becerra, Sr. has first-hand experience with the dull data environments that leave many managers and key decision-makers ill-equipped to manage their businesses. In his various roles in the business world, he knows that the problem he constantly faces is the same problem that many organizations suffer from — that too much information is lost in the transition between data analysis and data presentation. That is, after a presentation is put on paper, managers are automatically boxed into the thought processes of the presenter, often forcing them to either take the data analysis at face value or to ask for more analyses, which naturally takes up more critical company time. The question was how to provide a compelling presentation without losing the ability to interactively change the direction and scope of the data analysis behind the information being presented.

Becerra eventually joined forces with his son who had spent his career creating many popular video games such as *Midtown Madness* and *Midnight Club*. Together, they used video game technology in conjunction with practical business concepts to create Crystal Xcelsius. With Crystal Xcelsius, the Becerra father-and-son team provided business professionals with something few

have had access to in the past: affordable, interactive visualization of business data that could be delivered in easy-to-create dynamic presentations. For the first time, managers could bridge the gap between data analysis and data presentation without the need for expensive enterprise solutions. Figure 1-2 illustrates this bridge.

Figure 1-2: Crystal Xcelsius bridges the gap between data analysis and data presentation, converting dull spreadsheet tables into interactive dashboards.
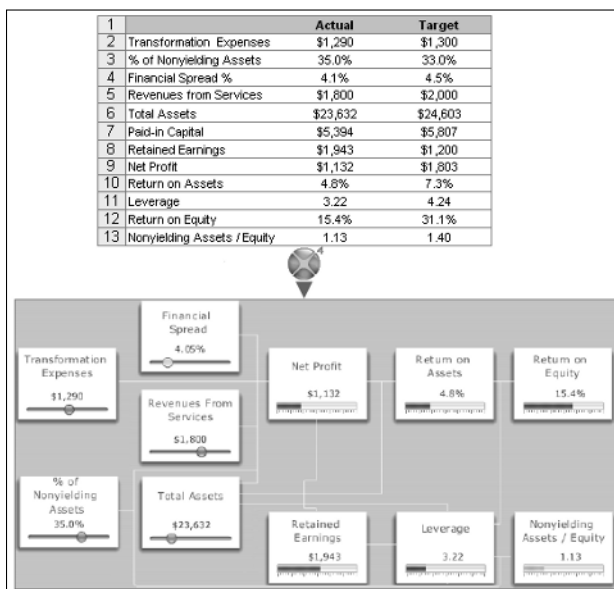
More Than Just Fancy Graphics: The Benefits of Using Crystal Xcelsius

I've actually met people who use Crystal Xcelsius simply for the slick look and feel of the graphics. Face it: Many of us were initially attracted to Crystal Xcelsius because of the sleek graphical components, such as the gauges shown here in Figure 1-3.

And there is nothing wrong with that at all. The truth is that when many people see the slick and easy-to-use components in Crystal Xcelsius, they tend to lift some of the restrictions they have subconsciously placed on their presentations. For example, before Crystal Xcelsius, I would never even *have thought* about creating the gauge-based dashboard shown in Figure 1-3 because I didn't know how to create one in Excel or PowerPoint. Indeed, the stunning graphics alone undoubtedly fosters ideas about new and exciting ways you can present your data.

Figure 1-3:
Many
people
use Crystal
Xcelsius
for the
sleek, fluid
graphics.
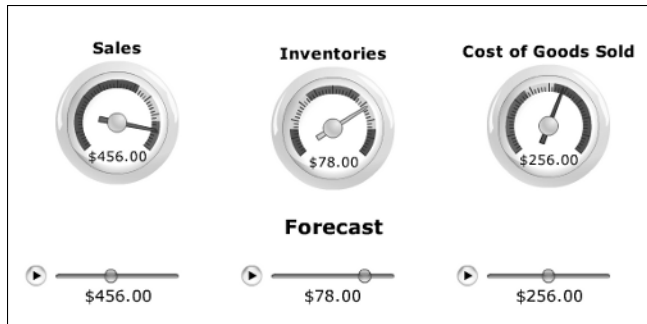
Although you can easily get lost in the stunning graphics, remember that Crystal Xcelsius is a versatile tool that allows you to do more than just create fancy-looking presentations. Take a look at some of the other things that you can accomplish with Crystal Xcelsius that you might not have thought about.

Creating more robust presentations with interactive summary and detail layers

ON THE WEB

I exported a sample dashboard into a PowerPoint file called Chapter1 - Example_A, which you can find at the companion Web site for this book. To follow along with the demonstration in this section, go to this book's companion Web site. (The exact address appears in the Introduction.) Open the Chapter1 - Example_A PowerPoint presentation, found in the C:\Xcelsius Sample Files\Chapter 1 directory, and run the slide show. Figure 1-4 shows the interactive dashboard that you see in the slide show. The idea is to select a Sales Rep from the list to see the key metrics for that Sales Rep.

TIP

To run the slide show in PowerPoint, go to the menu and choose Slide Show⇨ View Show. I show you how to export Crystal Xcelsius dashboards into PowerPoint in Chapter 12.

What is the point of this demonstration? Think about how much data is contained in this one-megabyte presentation. For 14 Sales Reps, you are showing the metrics around each rep's actual revenue, budget target, and revenue forecast. Not for 1 month, mind you, but for 12 months! Consider how many slides it would take to present something similar to this dashboard in a standard slide show. You can imagine that this would take, at a minimum, 14 slides to produce similar results — with less appealing graphics.

Figure 1-4:
Select a
Sales Rep
from the list
to see the
metrics
for that
Sales Rep.

What about Excel? Could you fit all this information on an Excel spreadsheet? Sure, but as you can see in Figure 1-5, this data in an Excel spreadsheet is somehow not as compelling.

Figure 1-5:
Showing the
same data
in an Excel
spreadsheet
is not as
effective.

You can see that with Crystal Xcelsius, you can create multiple layers of summary and detail data in visually appealing dashboards. And because the average Crystal Xcelsius output is around 1.5 megabytes, you won't inundate clients with unnecessarily large files.

Because of Crystal Xcelsius's ability to produce presentations in relatively small files, you'll likely notice something different happening in your presentations. I bet you start consolidating information that you would normally parse into separate presentations. This not only gives your dashboards a more robust feel, but it also allows you to present lots of data without breaking the flow of your presentation. In addition, because you can easily build interactivity into your presentations, you won't have to worry about showing too much information at one time.

Building what-if analyses into your presentations

We all have an analytical side to us that feels compelled to question and analyze what we see. Everyone is a data analyst on some level. This is usually a good thing, but it can be a nightmare if you're the one giving a presentation to a roomful of inquisitive people playing the role of analyst. How many times have you given a presentation, only to be challenged with questions about the variables that you use in the analysis? In these situations, you probably do one of two things: fumble through papers as you try to answer the question, or turn to the ever-embarrassing standby, "I'll get back to you on that," followed by an awkward pause as you try to get back into the flow of your presentation.

Crystal Xcelsius can help you better prepare for these situations by enabling you to build what-if analyses directly into your presentation, allowing you to literally change your presentation on the fly. To demonstrate this, I exported a sample dashboard into a PowerPoint file called `Chapter1 - Example_B`, which you can find at the companion Web site for this book. To follow along with the demonstration in this section, go to this book's companion Web site. Open `Chapter1 - Example_B`, found in the `C:\Xcelsius Sample Files\ Chapter 1` directory, and run the slide show. Upon opening, you'll see the table shown in Figure 1-6.

Imagine that it's the end of FY (fiscal year) 2004 and you're presenting the budget plan for FY 2005, which is based on the assumption that gross sales will grow by 7 percent. When you present this plan, a few managers are disappointed at the fact that the planned net income for FY 2005 is less than the net income for FY 2004, so they ask you what the net income would look like if gross sales grew at a rate of 12 percent. In a standard presentation, this is

where everything falls apart. Even if you are some mathematical genius who could quickly calculate the net income at the new growth rate, you wouldn't have visual backup for your explanation of how the change would ripple through the other parts of the budget.

In this situation however, I don't worry because I used Crystal Xcelsius to build myself a little insurance policy. Click the What If button to reveal a set of sliders that allow you to change the makeup of the analysis.

Now simply slide the vertical Gross Sales Growth Rate slider up to 12%, as illustrated in Figure 1-6. At this point, your presentation actually changes to reflect the new analysis!

Table	What If		
Income Statement	**FY2005**	**FY2004**	
Revenues			
Gross Sales	$12,305	$11,500	
Sales Return & Allowances	$369	$500	
Net Sales	$11,936	$11,000	
Cost of Goods Sold	$5,537	$5,550	
Gross Profit	$6,399	$5,450	
Selling Expenses	$2,153	$1,900	
General & Admin.	$2,461	$1,099	
Operating Income	$1,784	$2,451	
Other Income / Expenses	$12	$25	
Income Before Interest & Tax	$1,796	$2,476	
Interest Expenses & Taxes	$790	$990	
Net Income	$1,006	$1,486	

Gross Sales
Growth Rate

7.00%

Figure 1-6:
Crystal
Xcelsius
makes it
possible to
make on-
the-spot
changes to
the analysis
behind your
presentation.

Table	What If		
Income Statement	**FY2005**	**FY2004**	
Revenues			
Gross Sales	$12,880	$11,500	
Sales Return & Allowances	$386	$500	
Net Sales	$12,494	$11,000	
Cost of Goods Sold	$5,796	$5,550	
Gross Profit	$6,698	$5,450	
Selling Expenses	$2,254	$1,900	
General & Admin.	$2,576	$1,099	
Operating Income	$1,868	$2,451	
Other Income / Expenses	$12	$25	
Income Before Interest & Tax	$1,880	$2,476	
Interest Expenses & Taxes	$827	$990	
Net Income	$1,053	$1,486	

Gross Sales
Growth Rate

12.00%

This is an unbelievable feat that would have been impossible without Crystal Xcelsius. The ability to make on-the-spot changes to the actual analysis behind a presentation is one of the most powerful and attractive functionalities of Crystal Xcelsius.

Building tools that help make decisions

ON THE WEB

A key benefit to building what-if analyses into your presentation is the ability to give managers a decision-making tool — a tool that allows them to test several scenarios and then choose the most appropriate scenario for the task at hand. For instance, open the PowerPoint presentation `Chapter1 - Example C`, found in the `C:\Xcelsius Sample Files\Chapter 1` directory (at this book's companion Web site), and run the slide show. This presentation, as shown here in Figure 1-7, presents the budget plan for FY 2005, which is based on the assumption that gross sales will grow by 7 percent.

Figure 1-7: Presenting the budget plan for FY 2005 and comparing it with actual revenue for FY 2004.

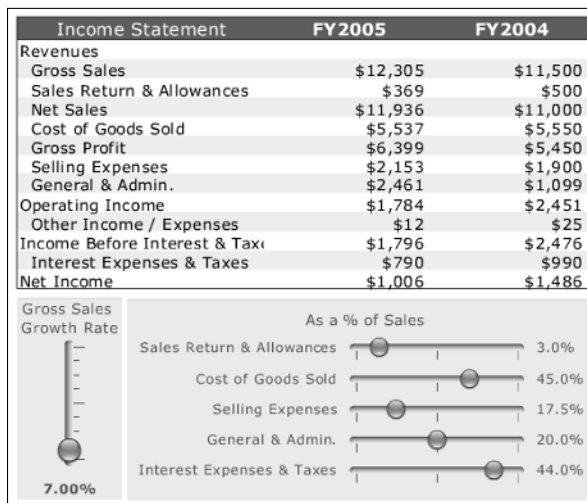| Income Statement	FY 2005	FY 2004
Revenues		
Gross Sales	$12,305	$11,500
Sales Return & Allowances	$369	$500
Net Sales	$11,936	$11,000
Cost of Goods Sold	$5,537	$5,550
Gross Profit	$6,399	$5,450
Selling Expenses	$2,153	$1,900
General & Admin.	$2,461	$1,099
Operating Income	$1,784	$2,451
Other Income / Expenses	$12	$25
Income Before Interest & Taxes	$1,796	$2,476
Interest Expenses & Taxes	$790	$990
Net Income	$1,006	$1,486

Gross Sales Growth Rate

As a % of Sales

Sales Return & Allowances	3.0%
Cost of Goods Sold	45.0%
Selling Expenses	17.5%
General & Admin.	20.0%
Interest Expenses & Taxes	44.0%

7.00%

Suppose that when you present this plan, a few managers are disappointed that the planned net income for FY 2005 is less than the net income for FY 2004. In a knee-jerk reaction, they ask you to increase the gross sales until the net income for FY 2005 is more than FY 2004.

As you can see in Figure 1-8, the problem is that you will have to increase gross sales by 59 percent — yikes! — in order to beat FY 2004's net income. Needless to say, it is unrealistic to think that the company will increase gross sales by 59 percent.

Income Statement	FY 2005	FY 2004
Revenues		
Gross Sales	$18,285	$11,500
Sales Return & Allowances	$549	$500
Net Sales	$17,736	$11,000
Cost of Goods Sold	$8,228	$5,550
Gross Profit	$9,508	$5,450
Selling Expenses	$3,200	$1,900
General & Admin.	$3,657	$1,099
Operating Income	$2,651	$2,451
Other Income / Expenses	$12	$25
Income Before Interest & Taxe	$2,663	$2,476
Interest Expenses & Taxes	$1,172	$990
Net Income	$1,491	$1,486

| Gross Sales Growth Rate	As a % of Sales	
	Sales Return & Allowances	3.0%
	Cost of Goods Sold	45.0%
	Selling Expenses	17.5%
	General & Admin.	20.0%
59.00%	Interest Expenses & Taxes	44.0%

Figure 1-8: Use the sliders to present scenarios.
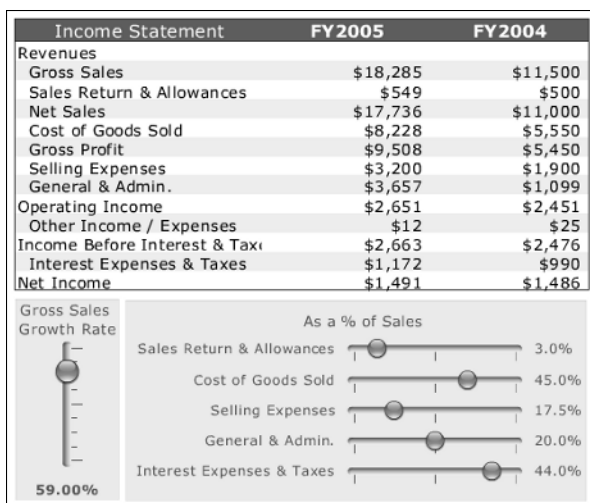
The solution is to use the other sliders, in conjunction with the gross sales slider, as levers to increase FY 2005 net income. You can test various scenarios to find one that is both realistic and conducive to your analysis. In this case, you can set your gross sales rate to 7%, reduce the Cost of Goods Sold to 42%, reduce Selling Expenses to 15%, and reduce General & Admin Costs to 18%. As you can see in Figure 1-9, this combination of sales growth and cost reduction helps to beat FY 2004's net income.

Income Statement	FY 2005	FY 2004
Revenues		
Gross Sales	$12,305	$11,500
Sales Return & Allowances	$369	$500
Net Sales	$11,936	$11,000
Cost of Goods Sold	$5,168	$5,550
Gross Profit	$6,768	$5,450
Selling Expenses	$1,848	$1,900
General & Admin.	$2,214	$1,099
Operating Income	$2,706	$2,451
Other Income / Expenses	$12	$25
Income Before Interest & Taxe	$2,718	$2,476
Interest Expenses & Taxes	$1,196	$990
Net Income	$1,522	$1,486

Gross Sales Growth Rate	As a % of Sales	
	Sales Return & Allowances	3.0%
	Cost of Goods Sold	42.0%
	Selling Expenses	15.0%
	General & Admin.	18.0%
7.00%	Interest Expenses & Taxes	44.0%

Figure 1-9: Test scenarios to find one that is both realistic and conducive to your analysis.
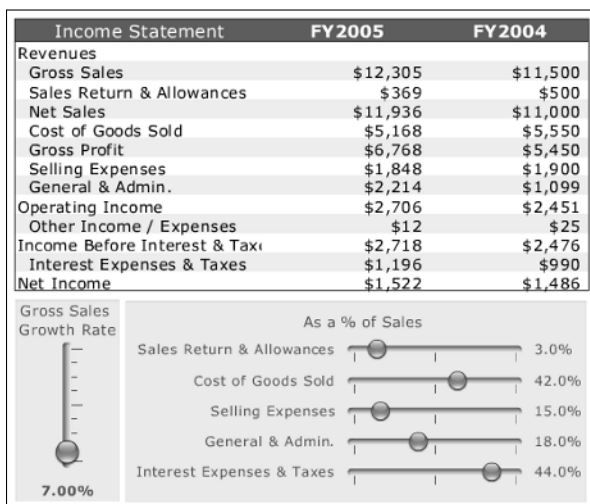
Again, this analysis could be done in Excel, but you would have to take this back to your desk to create different scenarios on different tabs, effectively making everyone wait for your answers. With Crystal Xcelsius, you can have everyone in the room as you test out the various scenarios in real-time, allowing for on-the-spot decision making.

# Crystal Xcelsius under the Hood

With your newly found perspective on Crystal Xcelsius and what it can do for you, you're probably chomping at the bit to get started building your first dashboard. But before I show you how to do that, you need to understand how Crystal Xcelsius really works.

In a nutshell, Crystal Xcelsius imports a snapshot of your Excel file, allows you to build a visual model by tying components to your data, compiles your final dashboard to a Flash SWF file, and then publishes your final dashboard to a chosen format. *SWF* (often pronounced *swiff*) is the vector-based graphics format designed to run in the Macromedia Flash Player. Figure 1-10 illustrates the basic workflow for a Crystal Xcelsius report.

Remember that Crystal Xcelsius is designed to work only with Excel XLS files. Therefore, you can not import other types of files such as text files (`txt`, `csv`, `dbf`) or Access MDB files. The good news, however, is that Excel spreadsheets of any size can be used in Crystal Xcelsius. Just keep in mind that the amount of data that is being moved and changed in your visualization can affect the performance of your dashboard.

Figure 1-10: The basic workflow for a Crystal Xcelsius report.
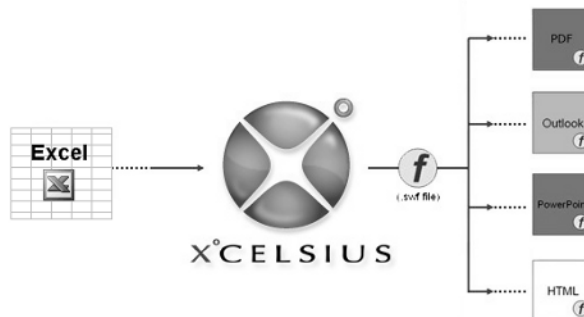
When you install Crystal Xcelsius, it gives you the option to install the Macromedia Flash Plugin/Player. If you have not elected to install this *and* if you do not already have Macromedia Flash Player installed on your computer, you will not be able to use Crystal Xcelsius properly. However, you can easily get Macromedia Flash Player by downloading it free from `www.macromedia.com`.

As mentioned before, the three versions of Crystal Xcelsius are

- ✔ **Standard:** The Standard version is designed for those who are looking to get started with interactive visual analytics. It provides the basic features of Crystal Xcelsius.

- ✔ **Professional:** The Professional version is designed for large organizations that require dashboards that contain many layers of information.

- ✔ **Workgroup:** The Workgroup version is designed for environments where connections to live data are essential.

The components that are available to you depend on the version of Crystal Xcelsius you are using.

Importing data

All Crystal Xcelsius dashboards start with an Excel spreadsheet that typically contains data that has already gone through some analysis, massaging, and shaping. Crystal Xcelsius takes a snapshot of the Excel spreadsheet and imports that snapshot into memory. After the data is in memory, Crystal Xcelsius disconnects from the Excel spreadsheet.

This method of separating the data from the actual spreadsheet ensures two things. First, your final dashboard is a standalone object, independent of the location or status of the original spreadsheet. Second, it ensures that the size of your final dashboard is as small as possible, making for easy distribution.

Problems getting Crystal Xcelsius up and running?

There are three versions of Crystal Xcelsius: Standard, Professional, and Workgroup. No matter which version you have, getting Crystal Xcelsius up and running is a relatively intuitive process. However, if you find yourself having trouble getting started, help is at hand.

The Crystal Xcelsius team has a support desk that is willing to help you with any issues you may have. You can contact them by phone at 858-552-6674, or by e-mail at `crystalxcelsius support@businessobjects.com`.

Building the visual model

After the data you're using is in memory, you can start building your visual model. The visual model is essentially your dashboard in design mode. Much like a PowerPoint slide, your visual model starts off as a blank canvas on which you can add components. *Components* are those things that give your dashboard its utility and purpose: charts, gauges, menus, tables, and so on. The idea is to add individual components to your visual model, tying each component to the data that you import.

Compiling and publishing the dashboard

After you're happy with the functionality and look of your visual model, Crystal Xcelsius is ready to compile it.

First, Crystal Xcelsius compiles your visual model to a SWF file format. Compiling to a SWF file format ensures that your final dashboard plays back smoothly on any screen size and across multiple platforms. In addition, this ensures that your dashboard file size is small so as to not inundate your users with gigantic 40MB files.

After your visual model has been compiled to a SWF file, it is then published to a format of your choice. You can choose to publish your dashboard to PowerPoint, Outlook, an HTML Web page, an Adobe Acrobat PDF file, or a Macromedia Flash file. At this point, your dashboard is ready to share!