



CHAPTER 2

Planning Your Reports



efore you dive into building reports, take a step back, take a deep breath, and think about what you are doing. The Analytics pool is quite deep, and without proper planning, you will quickly find yourself drowning in columns, fields, views, calculations, charts, and interactivity. So often, we receive that call to produce something quickly for that executive meeting that should have started ten minutes ago. Sometimes we have no choice but to dive in and hope for the best. My hope with this chapter is to prepare you for those times when you do have time to plan. I believe that once you become skilled at planning reports, you will find yourself anticipating reporting needs and producing powerful and meaningful business intelligence before it becomes an emergency.

Planning and Report Validity

Like most creative processes, creating great reports takes a little planning. The array of features and functions in Answers On Demand is vast. This book will certainly help you master those features, but knowing how to create column formulas, complex filters, impressive charts, and highly interactive elements within your reports will not guarantee a report that is informative, useful, or effective.

This chapter examines the effort that you should make before beginning your report-building work. I encourage you to consider the advice in this chapter carefully. Having built many reports, and in teaching others how to build reports, I have found that these initial steps pay dividends in time and effort. If you do not take the time to plan your reporting effort, you are likely to need time to redesign and rebuild your reports.

Whether you are building reports for yourself or at the request of someone else, it is important to have a complete understanding of the report's purpose. Reporting without direction or reason is usually a fruitless effort. Reports should answer a business question. How much revenue did each sales team generate last month? What is the average service request volume by product type? What percentage of my customers is located in Texas? Having a question in mind and identifying what you need in order to answer that question will better enable you to build effective custom analyses using Answers On Demand that meet the unique reporting needs of your company.

Proper planning leads to report validity. There are different types of validity, all of which are affected by planning. A great report has the following:

- **Face validity** A report that has face validity looks like it measures what you intend to measure. The purpose of face validity is to win acceptance among report users. Users are likely to reject a report if they do not recognize the report as a valid measurement instrument that answers a business question. The question the report answers should be obvious to the user, and the report should clearly deliver the answer. Face validity alone does not make for a valid report. After all, a report can appear to be valid without actually delivering accurate data.
- **Content validity** A report achieves content validity when a subject matter expert reviews the report and certifies that it measures and reports the correct data. Someone intimately familiar with the data should review the report and validate the results. Proper planning and consideration of content validity before building a report helps to ensure that the content of your report is what it needs to be. Identifying the empirical data to include in the report is, of course, critical. An oft-overlooked element is how your user

will use that data to make judgments and draw conclusions. Perhaps you will even find it is possible to automate those decisions within the report itself based on these criteria. Any time you can transform qualitative information into valid quantitative report data, you add value to your report. More than anything else, a report with content validity ties directly to your business question.

- **Construct validity** A report has construct validity (my personal favorite) when it is formatted in such a way that it delivers the intended message in as accurate and useful a way as possible. It is the “quality of quantity” principal applied to reporting. A great report does not need to employ every flashy feature. Excessive formatting usually distracts from the data rather than clearly delivering the report’s intended message. As you saw with many of the prebuilt reports in Chapter 1, simple reports containing only the information required can be very useful and very powerful business tools. Charts and graphs should be simple and focused. Several views, each with a single objective, are more effective than a single view that attempts to deliver on multiple objectives at once.

Construct validity is not just about keeping your reports simple. You must also take care to identify the correct data elements. Verifying that you are targeting the most relevant data and the data required to answer the business question is critical to construct validity. If you do not start with the correct data elements, it hardly matters how you format the report. No matter how engaging and well designed your report layouts are, if the report does not provide an answer to the business question, it has failed, and is not valid.

- **Predictive validity** The holy grail of report validity is predictive validity. When your report has the ability to accurately predict future results, it is exhibiting predictive validity. This is often the goal of historical reporting. A report on the average win rate versus the win rate over the last few quarters may exhibit an ability to predict the win rate over the next few quarters. Predictive reports are extremely difficult to design. With so many variables affecting business outcomes, to accurately predict results is closer to impossible than we would like to admit. If a predictive quality in your report is a goal, you may want to seek the assistance of someone who has a degree in mathematics, actuarial science, statistics, or a business-related discipline such as economics, finance, or accounting.

You likely are beginning to sense how difficult it would be to build a valid report without a little planning. Before you can design and build a report, you need a plan. This plan begins as a question that you want to answer using the data in the CRM On Demand database.

First, you need to identify your business question. Developing reports without having first identified the business question is inefficient, and often ineffective. I have mentioned this repeatedly. It is not enough, however, to simply answer the question. A report is a business tool that you need to carefully design for a specific job. This takes planning.

I will illustrate this planning effort in the form of four questions that you should ask about every report that you build:

- Why do you need a report?
- How will you use this report?
- Who will use the report?
- What should the report contain?

Why Do You Need a Report?

This seems like such a simple question, one that someone requesting a report should answer easily. The answer, however, is often not so clear. Performing a simple needs analysis to determine the need for a report will save you the time and effort involved in creating reports that will not get much or any use. It is easy to lose sight of your objective in the excitement of having so much data at your disposal in CRM On Demand. Too often, report developers answer the call to create reports because they can, not because there is a real need for a report.

I encourage you to question requests for reports to separate the “wants” from the “needs,” even if that means you risk appearing hard to get along with. Ideally, all of your reports will support a specific business goal and answer a specific business question. If you are unable to identify these things, you do not have a legitimate need for your report.

Let us look at two different reports as an example. Suppose the marketing manager requests a report of the campaigns closed over the last 12 months. She wants to see the actual costs and the revenue generated from those campaigns, grouped by campaign type. When you ask this marketing manager why she needs such a report, she explains that the board has asked for a marketing plan for the next year, and she wants to maximize the return by making marketing channel decisions based on past performance.

This request certainly sounds legitimate. You have a clear business question and business goal. “Which campaigns were the most successful over the last 12 months?” The marketing department measures success of their campaigns by comparing cost and revenue.

You receive another request, this time from the service manager. He wants to have a real-time report that displays the number of service requests opened each week, organized by department. This initially sounds like a legitimate request. When you ask him why he needs this report, his justification is that he likes to know how many requests the department opens. Digging a little more, you find out that the company evaluates service representatives on the number of issues closed by priority. The risk of creating this report is that the service manager will soon stop using the report because there is no real value in it, or he will make business decisions based on the wrong data.

You may not be in a position to challenge every report request, but as a report developer, you certainly should be able to make some recommendations. I would like to offer you some strategies for working with superfluous report requests. Depending on the personalities you are working with, and your corporate environment, you may want to try one or more of these.

- **Redirect the request by making suggestions of your own** Do not be afraid to say something if you have an idea for a report that appears to fit the business requirements better than the report the requestor suggested. Often, the person making the request does not fully understand what is and is not possible with Reports in CRM On Demand. As the report developer, you have valuable knowledge to offer. Other times, someone may request a report just because it is flashy or looks impressive.
- **Develop or sketch out alternatives** It is usually easier to describe ideas when you can show someone the idea. It is also easier to understand what the individual making the request is looking for if you collaborate over a sketch. If there is truly no need for the report, and you are unable to redirect the request to a more useful alternative, explain why you think the report is not necessary. Recommend some alternatives such as using a custom list in CRM On Demand or using the printer-friendly link on a record to send the data to a printer. You might be surprised at how often a printout of a single record from the database will satisfy a “reporting” need.

Another very powerful tool that often helps people put their needs in perspective is the use of measurable objectives. Asking those who request reports to express their needs in measurable objectives tends to provide perspective for both you and the one requesting the report. The next section discusses this in more detail.

Finally, it is important to admit that it is not always possible to say “no” or suggest other options. In these times, you may need to go ahead and create a report that you are sure is unnecessary. When this happens, offer to follow up with the person who requested the report in a couple of months to see that it is still meeting the needs. This approach appears impressively proactive and gives the report user time to really evaluate the usefulness of the report.

How Will You Use This Report?

This question is twofold. You are asking about both physical use of the report and cognitive use of the report. Printing and mailing a report is physical use. Making marketing decisions is an example of cognitive use. Both of these have a profound impact on your report design. By conducting a little analysis before you begin building your report, you will spend less time struggling with design decisions and revising reports that do not fit the needs of your business.

Physical Use

Regarding the physical use of your report, there are several different options, and each option has implications. Users of CRM On Demand can view reports online, print reports, save reports as a PDF or HTML file, and download the data from reports to Microsoft Excel, a text file, or an HTML file. Each option is described in turn next.

Online Reports

Viewing reports online may seem like an obvious thing to a user of CRM On Demand. After all, there is some form of analytics on almost every homepage and an entire tab dedicated to nothing but reports. This use of reports, however, is a very important characteristic that the report developer needs to consider when designing a new report. There are features of analytics specifically designed for online use that would be pointless in a report that is only used offline.

- **Page size and line breaks** With a report that your users will view online, you do not need to worry too much about page size and page breaks. A report that stretches beyond the margins of the computer screen will have scroll bars.



NOTE

The report elements that I mention in this section are all described in detail in this book. I offer much more detail on their use in future chapters.

- **Drill downs** Many columns have drill-down interactivity by default. These columns allow users to click a value to further filter a report. It is also possible to change the default interactivity settings to add drill-down capability to your report. This interactivity is only available online.
- **Navigation** Another interactivity setting that you obviously can take advantage of only while online is the navigational interaction. With the navigational interactivity setting

on a column, you have the ability to move from the active report to another report. The value that you click on the active report passes to the target report as a filter value.

- **Action link** Another navigational element that you can take advantage of with online reports is the action link. Using the custom `ActionLink` class, you are able to create a hyperlink in a column that navigates the user to the detail screen for the clicked value.

In addition to the navigational features of online reports, there are several report layout views impacted by your decision to design a report for online use. Most of the prebuilt reports feature the Column Selector view. The Column Selector view enables the report user to choose which columns to view in the analysis. As the report developer, you determine which columns to make available. This view is obviously interactive only on the online reports.

Another view that is rather pointless outside of an online report is the Ticker view. A Ticker view scrolls data across the report. The Ticker view will only perform as designed when you view the report online.

Some views have elements that work best when online. You can, and often should, use these views on your reports even when the reports are not designed specifically for online use. The page selector on the pivot table view allows report users to select a value from a column placed in this section. The pivot table limits the values in the view to the data related to the selected page. This is but one element of the pivot table view. If you do not need to provide users with this ability, then online use of the report has no bearing on your decision to use a pivot table view.

The chart property that causes the chart values and value names to appear when you place your mouse cursor over the chart element is only effective online. This does not preclude you from using the chart view on other types of reports.

Clearly, there are some great interactive elements available for your CRM On Demand reports. When you are designing a report that users will view exclusively online, you have the ability to make your analysis more dynamic and personalized with these interactive options. It would be unusual for a company to have a set of reports that are never printed or downloaded. Think about how printing your report affects these interactive elements.

Printed Reports

When you design a report for printing, you have some other considerations. Rather than focus on how the interactivity affects your reports, as with online reports, you need to consider the implications of printing a report. Printing a report is akin to taking a snapshot. The printed report is a frozen image of your data. You still want that image to be useful, so you need to make some design decisions to maximize that potential usefulness.

When you know that you are designing a report for print, you want to consider what that report will look like when it rolls off the printer. You need to think about page margins and orientation. How will page breaks affect your report? You may find that you need to manually set column widths to keep tables on a single page.

Give some thought to colors and shading in your report. While colors may look great online, when a report is printed, they can render the report unreadable if poorly designed. Consider using a shading pattern rather than color for one-color printing of charts. Conditional formats (color changes based on data values) is another area that can cause problems with printing.

There are other considerations beyond readability of printed reports. When you run a report online, you can be certain that you are seeing current information. When you pick up a printed report, you may not have the same confidence. Consider adding a date or time stamp to your reports. You can show the date or date and time for a report within the title view or with a session variable.

You also need to consider the nature of the data you are exposing on your report. Is the information sensitive? Should the user shred this report within a specified period, or retain the report for a particular length of time? Is the report for internal or external use? Using a static text or narrative view on your report, you can provide instructions, a confidentiality statement, copyright, or any other text that you would like to include on the printed report.

As discussed for online reports, several interactive elements allow users to filter data or select the data on the report that they want to see. These elements are still effective for reports destined for the printer. The users just have to be sure to select options prior to printing. If you need to provide for user-controlled filtering of a report, but want to avoid adding drop-down fields to your report, consider setting up column filter prompts. These prompts allow users to make decisions about the data to include in their report without affecting the report layout.

Saved Reports

Online and print reports probably comprise a majority of your reports. There are, however, other options to consider. Suppose you are designing a report that users will save and retain. What about a report that users will attach to email messages? Many of the print considerations apply. One consideration may be the ability to modify the report after saving it. The Print view provides an option for PDF format or HTML format. If a user selects HTML format and saves the file, the user can edit and change the saved file. When a user selects PDF format and saves a copy of the report, it saves as a PDF file, which is not editable.

If this is a concern for your company, you need to consider access to your custom reports carefully. You do not have the ability to disallow saving the report or downloading the report. For this reason, it is best to restrict access to reports that are this sensitive.

Another common use of saved reports is inclusion of the report in presentations. Often managers will want reports to embed in their executive presentations, for example, to present business data to executives, partners, customers, investors, and employees. If this is the purpose of your report, consider keeping the report very simple. For example, add a chart view to your report and remove all other views. The user can then access the print view and save the report to create a chart file that they can embed into their presentation or document files.

Downloaded Reports

Finally, downloading data is a very common use of CRM On Demand reports. Users download report data for a number of different reasons. Users may be interested in opening the resulting data file in a spreadsheet program to further manipulate the data, performing offline analysis. Users may want to import the data into a table of another database application.

When you download a report from CRM On Demand, the only element of the report that downloads is the data table. That fact alone eliminates the need for any other views. The data table probably does not need much formatting, if any at all, since the data is destined for another file format.

If users plan to import the data into another application, be sure to identify any data requirements of the target application. Things to consider are column order, field length, number formats, date and time formats, column header names, and sort order. It is also important to ensure that the rows are not grouping. Set each column to repeat values in order to eliminate blanks.

Determining how your users intend to physically use the reports you create clearly gives you a lot of direction and certainly sets some parameters for your report development. Of course, you need to also give some thought to the way your users are planning to use the data within the report.

Cognitive Use

Now that you know what the users plan to physically do with the report, it is important to know what sort of decisions the report will influence. You may find that well-defined business objectives are helpful with this analysis. When answering the question “why do you need the report?” it makes perfect sense to put together some measurable objectives.

If a user plans to use a report to realign territories based on volume, for instance, it is helpful to express this in some sort of measurable objective. “I need to identify the average volume of sales for each territory, broken down by state, in order to realign territories into five territories, each with 20 percent of the average volume.” This is a very useful objective. Now, you know that you need sales volume data grouped by territory and state within each territory.

Suppose a user is interested in a sales revenue report to determine bonus amounts for each sales team. This seems like a straightforward request. Now consider the reports you would build based on each of the next two objectives:

- I need to identify the sales teams that met the team sales quota in order to distribute the bonus pool evenly across qualified teams.
- I need to identify and rank the sales volumes for each sales team in order to distribute the bonus pool according to the overall percentage of total volume across all sales teams.

The reports you build to satisfy these objectives would be very different.

What should you do if it is difficult to write a measurable objective? While it is preferable to work toward a very specific and measurable objective, the reality of the business world does not always fall so neatly into place. It is not unusual to receive a report request third or fourth hand. Often the report request passes from senior management to middle management to the report developer. For example, the best objective you might get could be something like this: “I need a report to summarize our business unit’s quarterly activity to executive management.” You have to work with the information you have at your disposal, and you cannot expect to get everything you need laid out for you so precisely. My favorite strategy for overcoming a lack of detail is the sketch. Ask the person requesting the report to sketch out what he or she has in mind for the report. This often exposes those expectations that you need to understand to develop a useful report.

Who Will Use the Report?

Knowing the users of the report is as important as knowing what they plan to do with the report. You will design a report differently for different users. For instance, a report for all users of CRM On Demand is likely quite different from a report for your business partners. A report designed for you will be different from a report designed for the officers of the company. Among the design considerations are level of data access, volume of data based on that access, type of information included, and the detail granularity of that information.

Let us consider a simple opportunity list report that displays some key details of opportunities visible to the sales employee running the report. A report of this kind may contain very useful information for a sales representative, but that same report would likely contain too much information for a senior-level sales manager who has visibility to all of the opportunities across all of the sales teams.

Consider also the type of information that you include in a report. At the risk of applying a stereotype, most senior-level executives do not have a need or interest in the minutia of every record in the database. These individuals tend to prefer summary data. I would even venture that these individuals will often prefer a visual chart that reflects the data to seeing actual numbers in a table. On the other end of the data granularity spectrum, we have our team leaders, the operational managers. These individuals need the details in order to make day-to-day decisions that keep the customers happy.

There is also a difference in the information you include on a report for internal use and one destined for public display. You would not likely send a detailed report about your accounts and contacts outside the company, but you may display a chart of the percentage of customers you serve in each industry.

A safe position to take regarding report design is to always assume that your report will be printed and left on the copier at the local 24-hour copier establishment. If you have any concern about data privacy, consider the design of your report, who is going to have access to that report, and what they are likely to do with that report.

Chapter 17 looks at organizing reports into folders and limiting access to those folders. This is a good way to ensure that the only people who *can* access a report are those who *should* access the report. It does not keep those individuals from leaving a printout of the report in the copier, but it is a start.

What Should the Report Contain?

Now that you have a handle on who the users are and how they intend to use the report, you can begin to think about getting the correct data into the report. This is more complicated than you might think. To make the decisions necessary to populate your report with the correct data, you need to consider which type of subject area to use, Analytics or Reporting, which subject area contains the fields you need, the data visibility implications, and, finally, which columns to include.

Analytics Subject Area Versus Reporting Subject Area

The first choice here is whether to use a subject area from the Analytics list or from the Reporting list. In most cases, an Analytics subject area is the best choice. In general, these subject areas result in better report performance and provide a more complete dataset with which to work. The only thing gained from using a Reporting subject area is that it offers real-time data. If you must have real-time data in your report, you must use a subject area from the Reporting section. Table 2-1 compares the pros and cons of the two types of subject areas.

Selecting a Subject Area

Before you begin building your report, you should give some thought to the most appropriate subject area for the report. You typically want to use a subject area that reflects the main topic of your report—that is, the thing you intend to measure.

The best subject area is not always obvious, and may require some trial and error depending on the details you want in your report. Consider a report that shows the amount of revenue generated by each sales team last month. Depending on the data you need, you could use one of the Analytics subject areas: Opportunity History, Opportunity-Product History, or Pipeline History.

	Analytics	Reporting
Pros	Better performance More complete dataset available Additional metric columns available	Up-to-the-minute data if needed
Cons	Data created or modified since the last overnight data update is not available for reporting	Much slower performance Data changes constantly, resulting in different report results for different people at different times

TABLE 2-1. *Pros and Cons of Analytics and Reporting Subject Areas*

Sometimes the best subject area is obvious, but depends on how current the data needs to be. A report that shows the average service request volume by product type might use the Service Request History (Analytics) or Service Requests (Reporting) subject area.

Determining Data Visibility

Different users may see different data in the same reports due to the rules that govern analytics visibility. There are several visibility controls in place in CRM On Demand. Users see data in reports based on their role privileges, shared folder role associations, Analytics Visibility settings in the user and company profiles, and the book or user selected in the Book of Business Look In selector field.

The Access All Data in Analytics role privilege overrides all other visibility settings and provides the user with complete visibility to all of the data in the entire organization, including records marked Private. If the user role does not have this privilege, the Analytics Visibility setting specified in the company or user profile determines which data the user sees in reports.

The Manage Custom Reports privilege provides access to create custom reports. With this privilege, a user has access to Answers On Demand and the ability to publish reports to a personal report folder and to the Company Wide Shared Folder. To provide access to create personal custom reports, but not shared reports, the user needs the Manage Personal Reports privilege.

When you associate a role to a shared folder, only users assigned to the role have access to the reports saved in that folder. Users with the Manage Custom Reports privilege or the Access All Data in Analytics privilege are still able to access these restricted folders.

The Analytics Visibility setting within the company and user profiles affects visibility for all other users in the organization. This setting is available on both the company and user profiles. If the user profile does not have this setting defined on a user’s profile, then the company profile setting applies.

The Analytics Visibility setting has three available settings:

- **Manager visibility** Allows users to see their own data and all the data directly owned by their subordinates, including records marked private.
- **Team visibility** Allows users to see their own data and all data shared with them by membership in account and opportunity teams and through group assignment.
- **Full visibility** Affects only historical reports, and combines Manager and Team Visibility.

If you are using the Full Visibility setting, the Book of Business feature allows additional control of which data you see in reports. Use the Look In selector on the report pages to restrict, or filter, the data to the selected book and any subbooks. This feature is only available to users assigned to one or more books of business. If the user has added another user to their Delegated User list, the delegated user can select the username from the Look In selector to see report data for that user. The delegated user does not gain a higher level of visibility through delegation. In other words, a user who does not have manager visibility does not gain manager visibility when delegated to by a user with that level of access.

Locating Columns for Your Report

The next step in designing the report is to think about what specific data columns you need in the report. It is often tempting to include “everything” or “as much as possible” but this is risky. You can easily lose sight of the question you are trying to answer by cluttering the report with nonessential data. Return to the business question and think about what data is essential to answering the question.

It is not unusual to refine your question at this point, now that you are beginning to see what the report contains and which data elements are available. Remember that the goal is to build a report that answers the question, not to come up with a question that fits your report.

Folders within each subject area contain the data columns. Folders represent data on the primary object and related objects. Usually, the correct folder can be identified using some simple logic, but you may have to do some searching if it is not obvious where the data would be held.

Column order is roughly the same order as appears on your default layouts. Custom fields are included in subfolders by field category. Measured data (or metrics) are available in the Metrics folder for the subject area. The Metrics folder is always at the end of the list, and contains not columns, but some common calculations based on numerical fields.

You may find it very useful, especially for more complex analysis, to sketch your report out on paper before you begin building it in Answers. As you become more familiar with Answers and report building, this may not be as necessary, but still having a clear picture of what your question is and what the report that answers that question looks like will save you time and frustration as you build the report.

If you are building a report for someone else, having that person sketch their idea out will often lead you to a refinement of the business question and help you both determine the best design for the report before digging into the details of building a report.

Without that question to guide you, you can get lost in all of the fantastic features of Answers and end up creating a report that has no business use.