

Using the wrong tool as a “work around” rather than buying or using the right one is a common way in which organizations cause unintended negative consequences in their Clinical Business Intelligence (CBI) implementations. This white paper examines the tools organizations need to consider for a successful CBI strategy.

Implementing Clinical and Business Intelligence (CBI)

Developing a good CBI reporting strategy

I love the wisdom to be found in old adages. One of my favorites is “Don’t use a sledgehammer to crack a nut”. This wisdom really should be heeded when you begin your journey toward developing a working Clinical and Business Intelligence strategy.

It’s not that a sledgehammer won’t crack a nut, it’s that using a sledgehammer for this purpose might break the table that the nut is on, hit you in the leg or do some other damage to your surroundings. The tool may work, but you really should be using the right tool, the one that was designed for this purpose.

Using the wrong tool as a “work around” rather than buying or using the right one is a common way in which organizations cause unintended negative consequences in their CBI implementations. The purpose of this paper is to lead you through the tools you need to consider for a successful strategy.

The major questions that any CBI strategy should consider are

- What kind of tools should we use to retrieve data
- Who should have access to the data
- How do we plan to distribute data and reports
- What kind of tools should we use to distribute data and reports
- What kind of tools should we use to develop reports and make the BI team more productive and efficient

These questions should be asked and answered very early on in the initiative because failing to answer these questions up front can lead to tremendous rework, unusable distribution methods, unhappy data recipients and unhappy DBA’s.

What kind of tool(s) should we use to retrieve data?

One of the things that often worries me is the amount of data I see being detached from the source database and used for analysis in products like Access and Excel. While these products are easy to use, most people have them and they can get the job done, they present a level of data security that is completely inappropriate for a healthcare organization. To make matters worse, once the data is separated from the source, it can be changed and those changes are not auditable. This is not to say that employees are likely to “fudge” the numbers or accidentally overwrite something in the data. But they could. Finally, once the data is segregated, it is siloed and is no longer synchronized with all of the rest of the data in the source database as that data changes.

While I realize that most users of data are not SQL coders, and yet they want to be able to pull data on their own, using extracted data should not be the strategy. Consider using the power of existing CBI tools to provide users with ways to conveniently access and manipulate the data in all the ways that they can do so in Excel (and then some). The data they are manipulating, however, must be in the source database and protected from the issues mentioned above. Enable secured data source connections and use good query tools to let them see what they want to see, without the ability to change it.

Who should have access to the data?

In a healthcare environment this is a very important question for obvious regulatory reasons. But restricting access to data can also mean restricting employees in the ability to do their jobs productively. While on the one hand, database administrators have a mission to protect their databases with their lives, they are often overprotective in ways that make implementing CBI very difficult. I heard a story from a report developer at one of my clients about what happened when he asked the DBA for read-only access to their SQL production database so he could develop reports. He was told that he could not have access and would only be allowed to get data from the application front end. Clearly a report developer needs to have access to the data. And report developers need access to current meaningful data, which usually means production data.

Obviously lots of other people need access to data in order to do their jobs. An overly complicated and restrictive security methodology can quickly become a headache for both users and for IT, which gets the calls about people not being able to see their reports. A hospital is a complex organization with employees with many overlapping responsibilities. Plan out a fairly well organized and simple to implement security methodology that takes this into account. There are also plenty of ways to distribute data that also provide varying methods of securing the data. Using products like Microsoft SSRS or Business Objects Enterprise allow you to secure reports within folders to specific users for on demand reporting. They also allow you to predefine where and to whom a report is delivered when run on a schedule. Restricting data access within the EMR software can be more difficult to organize since you have to work within the structure of the software's security method. But don't build yourself a web you cannot negotiate your way through.

How do we plan to distribute data and reports?

Part of a strong CBI strategy is determining up front the various ways in which reports and data will be delivered. There are many options. For example think about the following:

- **Data extracts that are sent to outside parties**
 - Send to ftp sites?
 - Create secured email distribution?
 - Provide outside party access to your server?
- **Data extracts that are used internally**
 - Email them?
 - Provide shared folders where users will find their data?
 - Allow users to query the data directly and export it (see my first section)?
 - Is the user asking for raw data for analysis in ways that the reporting team cannot provide at all without giving them an extract? Report developers with the right tools can pretty much calculate and massage data any way you want. Does the user really have to do it themselves in Excel?
- **Reports delivered to different users and or locations**
 - Should you implement tools for report bursting and distribution rather than creating a maze of individually scheduled runs of the report that clog up the server?
 - Should you provide self service on these reports to the various users rather than automating delivery?
 - What formats should you allow users to receive the report in? PDF format that is not alterable or Excel format which is?
 - Should we use email or should we use shared and secured folders? Do we need an ftp site? Under what circumstances would we use any of these options?

What tools should we use to distribute data and reports?

The decisions you make here can have a huge impact on your CBI budget. On the one hand there are big, multi-functional tools like Business Objects Enterprise that allow you lots of options for distribution and access. Tools like that cost a lot of money per license and if you intend to provide broad based access to reports, be prepared to invest in a tool like BOE.

On the other hand there are small, simple report viewers available for small per seat license fees that allow users to run reports on demand but not to modify them. Crystal Reports has a viewer available from SAP that is somewhat limited but is free. There are other viewers for Crystal Reports that are really robust and cost a lot less per seat than Infoview (the web-based BOE on demand viewer) does.

Come up with a strategy that gives your organization the best functionality for the various types of user needs. Perhaps your strategy will include both types of products.

On a different note, once you have decided on your distribution tool, you will have to decide what parts of that tool you can implement to make reporting more productive. For example, why not make use of a report bursting capability right from the start rather than develop umpteen different scheduled runs of the same report to go to different people with perhaps different parameters? The former makes schedule maintenance a breeze while the latter is a nightmare.

Perhaps your BI tool allows you to set up Universes over your data which can then be used for cubing and graphing and reporting with less training, database overload, and without actual report developer resources. If your overall strategy is self-service, start with the tools that will make that possible.

Don't plan to use the tools you buy for purposes that they are not intended for. For example, data extracts should be done using SQL data transformation services as opposed to by creating a Crystal Report and exporting from the report to a file. Crystal Reports and Microsoft SQL Reporting Services are report formatting tools and all you need is raw data. You don't need a header and a footer and you don't need to create problems with fonts and formatting when Crystal exports to Excel, which is often the case.

What kind of tools should we use to develop reports?

Working with complex data is not for the faint of heart. With some EMRs I would actually compare it to brain surgery. One of the important things to consider in your overall plan is what kinds of tools your developers might need that would enhance their efficiency. There are some excellent developer toolkits on the market that speed up the development, maintenance, testing and control of source code and you should not deny these tools to anyone. I know that I personally increased my productivity by at least 200% when I started using the toolkit I have. It prompts me from the database structure, it formats my code for me, it compares versions of my scripts and highlights the differences, it applies my changes from one version to another, it develops documentation, shows me dependencies and lots of other wonderful things. It doesn't brew my coffee, but much like my coffee, I couldn't live without it. These tools are well worth their price. For example, just today I was able to determine all of the views and stored procedures that would be affected by the change to ICD-10 just by using one of the search tools I have.

Obviously the most important tool decision you have to make is what report formatting tool to use. For example, one of my clients decided to use Microsoft SSRS instead of Crystal Reports because licensing was cheaper for them and because everything else in their shop was Microsoft. SSRS was not the best tool for formatting forms like After Visit Summaries but it is great for cross-tabs and exports to other Microsoft products much more seamlessly. Other clients stick with the Business Objects suite of products. Crystal Reports can format reports any way you want but using their cross-tabs can be



a beast and exporting to Office products can be tricky.

Whatever choice you make, be sure to consider the ways in which the reports and data can be secured, delivered, displayed and manipulated and whether those capabilities fit your current and future plans. And by the way, Microsoft and SAP are not the only players in the market. Look around. What works best with your choice of EMR or database? What is easiest for your developers to use and set up and what is easiest for your users to get and manipulate data with?

In closing, planning out and implementing a sound Clinical and Business Intelligence strategy should involve early consideration of the types of reports people need, how they will get them, how you will write them and how you can accomplish that most efficiently. Don't put your team into a situation where they are forced to use the wrong tool for the wrong purpose as a workaround for not having planned in advance. Plan to buy a nutcracker.