

BUILDING DASHBOARD AND INTERACTIVE VISUALIZATIONS IN 3 BUSINESS INTELLIGENCE PRODUCTS

Tableau vs. Qlik (QlikView & Qlik Sense) vs.
SAP BusinessObjects (Dashboard Designer & Explorer)

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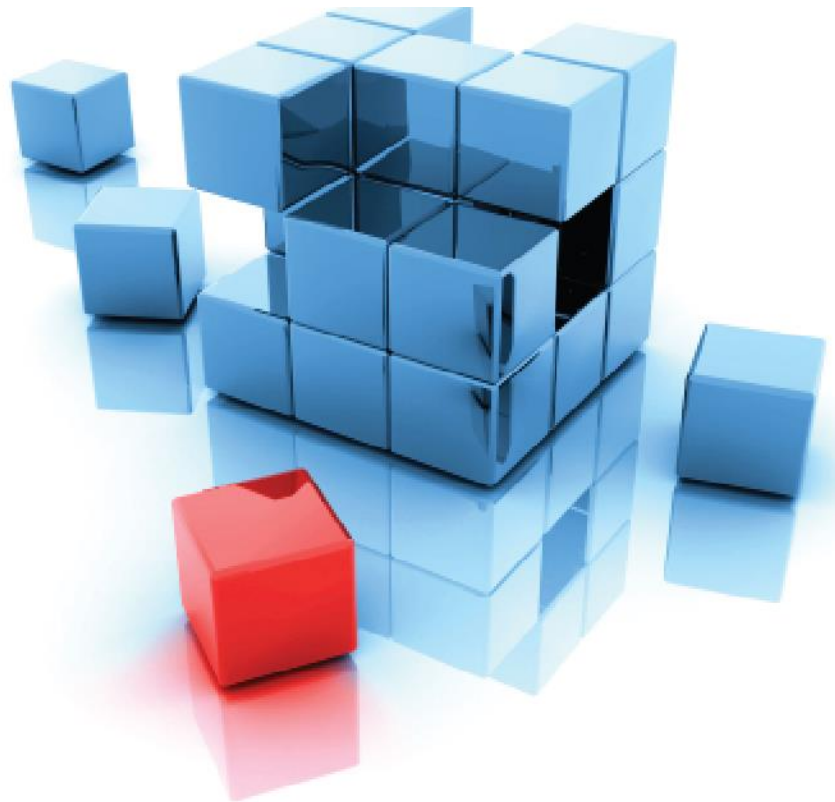


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Building Dashboards and Interactive Visualizations

Often as business intelligence professionals, we are tasked by clients to create “dashboards”. During the discovery and design phase of these dashboards we repeatedly discover that our clients actually want more analysis and less of a dashboard. While the distinction may not be clear to the audience, the difference in these two goals is significant in helping us to decide what tool to use and the manner in which we present the data.

Gartner defines data visualizations and dashboards as:

Interactive visualization technology enables the exploration of data via the manipulation of chart images, with the color, brightness, size, shape and motion of visual objects representing aspects of the dataset being analyzed [...] These tools enable users to analyze the data by interacting with a visual representation of it.¹

Dashboards are a reporting mechanism that aggregate and display metrics and key performance indicators (KPIs), enabling them to be examined at a glance by all manner of users before further exploration via additional business analytics (BA) tools.²

In this article we will discuss three different vendors and their tools: SAP BusinessObjects Dashboard Designer and Explorer, Qlik’s QlikView and Qlik Sense, and Tableau’s Tableau. Each tool has their own advantages and we’ll evaluate each one in the following categories:

- Ad Hoc Analysis
- Dashboards
- Visualizations
- Metadata
- Data Performance
- Security
- Server versus Client Install
- Mobile Accessibility

¹ <http://www.gartner.com/it-glossary/interactive-visualization/>

² <http://www.gartner.com/it-glossary/dashboard/>

Ad Hoc Analysis

SAP BusinessObjects Explorer

SAP's Explorer is part of the SAP BusinessObjects suite. It is a great product that can utilize either Microsoft Excel or CSV files and is fully integrated with SAP's metadata Universes. Graphical analysis can be quickly generated and explored within the dimensions of the original data. The results can either be exported out to other SAP tools or into Microsoft Excel for further analysis.

QlikView

While data can be quickly inserted into a QlikView visualization either via SQL or a flat file, using it solely for ad hoc analysis is perhaps a bit overkill. Compared to the other tools, graphical analysis takes a considerable amount of time, especially if the goal is to share the results of the analysis with others. The process to define certain KPIs after incorporation of the data into the model can be cumbersome and with so many options to modify and display the charts, developers can be inundated with the minutia of each option.

Qlik Sense

On the other hand, Qlik Sense is an ad hoc tool. The client tool is free and allows you to quickly import data from servers or flat files. The customization options are not as robust as in Tableau, however you can create almost all visualizations that you would like including maps (though the data has to be formatted specifically for that purpose).

Tableau

While not as fast as SAP's BusinessObjects Explorer tool, Tableau is another tool that finds itself more in the interactive visualization space than the dashboard range. You can quickly bring data in and with just a few clicks, visualizations appear in a myriad of options to showcase your data. Also, data can be exported into Microsoft Excel as well as other formats.

Dashboards

SAP Dashboard Designer

SAP Dashboard Designer is a flexible tool that can incorporate either a flat file or a metadata Universe as a source of data into highly customizable models. A robust dashboard environment is enabled through the choice of an assortment of visualizations ranging from pie and bar charts to maps of different geographies.

Of the three options, SAP Dashboard Designer has the highest learning curve for simple dashboard work and requires most of your interactivity programming to use a limited Microsoft Excel “programming vocabulary”. For those that are in the SAP BusinessObjects environment, this solution is the least costly and can be quickly integrated via Open Document calls to Web Intelligence, SAP Explorer, and other document types.

You can even animate your dashboard, see this video for more information: [Watch Video](#)

QlikView & Qlik Sense

Out of the three products, QlikView is perhaps the best compromise between ease of use and flexibility. You can create multi-paged dashboards quickly with a number of different visualization options. The aspect that makes QlikView really stand out is its inherent associative data model. This model links identical dimensions to each other rapidly, so that your IDs in one table will automatically be linked to the same IDs in another table, providing you quick and intuitive options to filter and group data.

While QlikView dashboard designers can get going very quickly out of the box to create rich and robust dashboards, QlikView also offers a rich community full of resources and the ability to create extensions in javascript for more advanced components. Unfortunately, one of the typical visualizations requested in QlikView is maps, and that must be incorporated via these extensions.

Qlik Sense has a very simplistic method of creating dashboards and does not have the same flexibility in design as QlikView, as it is designed primarily as an analysis tool. It also has a story mode where you can focus on parts of the “data story” to distribute via the Qlik Sense server, including animations.

If you are looking for a suite of products to meet both easy and simple analysis as well as robust dashboarding capabilities, Qlik provides both of these options. End users will find uniformity in using Qlik’s filters as well as the look and feel of the tools. Also developers will be pleased to find a similar development environment for both QlikView and Qlik Sense.

You can find videos on basic QlikView dashboard creation here: [View Playlist](#)

Tableau

As mentioned before, Tableau can create analyses very quickly. These analyses (called worksheets) can then be grouped together into dashboards. The construction of these dashboards is not only quick, but tends to appear modern since the default color scheme/design is inherently clean and slick.

Unfortunately, once you group the worksheets into dashboards the tool falls short of the other two products on this list in the sense of meeting common dashboarding design requirements. Tableau does not have as exhaustive control over the visual components, placement, etc. as either Dashboard Designer or QlikView and this becomes evident when trying to match exacting design requirements.

Tableau also has little “programmability” built into the product, meaning that many dynamic dashboarding tricks (e.g. hiding components and/or changing graph types on user input) that are present in Dashboard Designer and QlikView are not available as options when building dashboards in Tableau out of the box.

That being said, Tableau has a very interesting feature called “Stories” that allows an end user to share their analysis in a format that gives the viewer the ability to step through the analysis with the end user as they explain their findings to tell the whole story of the data.

You can find videos on Tableau dashboard creation here: [View Playlist](#)

Visualizations

SAP Dashboard Designer/Explorer

The visualizations in Dashboard Designer/Explorer appear very similar and allow for a seamless integration between Dashboard/Analysis Tool/Reporting (in Web Intelligence).

Visualizations in Dashboard Designer are easily modifiable, while those in Explorer are not. SAP also continually adds improvements to the charting engine for Dashboard Designer and now includes a majority of charts that three years ago were not present.

That being said, maps are sadly lacking in both tools when it comes to features and ease of implementation. There are other solutions in the SAP BusinessObjects suite, (namely SAP Lumeria) that meet these requirements, but may require separate licenses.

QlikView

QlikView has an exhaustive list of visualizations and provides great control over the actual appearance of those visualizations. Out of the three products, gauges are the easiest to create and modify in this tool. The notable exception is maps, which is not present out of the box and requires an extension to include in your QlikView dashboard. However, this functionality is available in Qlik Sense. One other note is that the visualizations in QlikView can feel dated when compared to Tableau, often appearing flatter than the Tableau counterparts.

Tableau

If you like maps, Tableau is your choice. Tableau will group your location information automatically, showing geographic information down to the state level. It also has two default map types – either filled or symbol maps. The maps can also show polygon information with the input of simple polygon creation data.

While Tableau has the widest breadth of visualizations out of the box, it is inherently an analysis tool and the control over the look and feel of those visualizations can be limited.

Other Considerations

Metadata

Gartner defines **Metadata** as:

Information that describes various facets of an information asset to improve its usability throughout its life cycle. It is metadata that turns information into an asset. Generally speaking, the more valuable the information asset, the more critical it is to manage the metadata about it, because it is the metadata definition that provides understanding that unlocks the value of data.³

Out of the three products, SAP's offerings have the best metadata layer. The Universe that is part of the BusinessObjects suite is robust and allows for great uniformity across all of their products. You can perform complex calculations once and use them in almost all of SAP's products.

With QlikView's associative data model and data scripting, the tool allows creation of files that can be duplicated over many different models by simply exporting the script. QlikView also creates a visualization of all data sources in the model for you, which is incredibly useful for both a savvy data engineer as well as report writers.

Tableau has the smallest metadata layer, mainly resulting in what your data sources are. Like QlikView, once you create a combined data source you can also export the result (in this case a Tableau data extract) and use that over various analyses/dashboards.

That being said, if you have disparate data sources (i.e. some database tables, some Excel files, etc.) either QlikView or Tableau can quickly integrate them into the same dashboard, while Dashboard Designer makes it slightly more difficult and it's near impossible in Explorer.

³ <http://www.gartner.com/it-glossary/metadata/>

Data Performance

The amount of data can also influence your decision on which product to use. Below you will find the products ranked as best to worst in the amount of data that the product can reliably use in its visualizations:

- 1) Tableau
- 2) QlikView
- 3) Qlik Sense
- 4) Explorer
- 5) Dashboard Designer

In the first three products, a flat file that is indexed for the tool specifically is created during the publishing process. This allows each one of these tools to handle significantly more data, but the server that the products are running on can directly influence the performance of said product. Dashboard Designer essentially turns the data fed into it to an Excel worksheet and then uses that information to show the visualizations. This causes issues in both run time as well as performance during user interaction.

Security

Since all three of these products are designed for corporate audiences, security is implemented in all three of them. Below you will find the products ranked from best to worst in security (both data and object security):

- 1) QlikView
- 2) Dashboard Designer
- 3) Tableau
- 4) Qlik Sense
- 5) Explorer

QlikView comes in at the top of this list, because security can be set up at three levels:

- 1) The Server Level (i.e. which dashboards can be seen)
- 2) Object Level Security (i.e. which parts of a dashboard can be seen)
- 3) Data Security (i.e. which data can be seen)

Dashboard Designer and Explorer both use the security setup within the Universe and BI Launchpad Portal to define security, though both require specific steps upon publishing the work to ensure that happens. Neither can limit via object level security.

Tableau cannot limit object level security, but implements a data security method similar to QlikView, essentially bringing in a separate source (or script in QlikView's method) that forces a join by username to restrict data.

All three products can use Windows AD security or Enterprise credentials as the basis of their security model.

Server versus Client Install

One other consideration is, after the visualizations or analyses are created, how are they shared with other users? For Dashboard Designer and Explorer, the distribution and security is handled by BI Launchpad. For Tableau, the distribution can be handled in one of two ways. The first would be to share the Tableau workbooks (.twbx) via a shared file location. The second would be through Tableau server and viewing the visualizations online. The second has the benefit of having data extracts refreshed on a schedule and the ability to add object security, while the former has a lower maintenance cost, though changes are not easily distributed.

Finally, QlikView's only distribution method is to publish and consume through the web server. Qlik Sense documents can be distributed through email or through the server (though the server unlike the client is on a license model and is not free).

Mobile

All three of these vendors have mobile apps that accompany the server/desktop version of the product. The Tableau and QlikView apps are essentially web containers of their dashboards and will provide fundamentally the same experience as their web counterparts (though on a much smaller screen). The SAP app provides a similar experience to the desktop/server model, but some visualizations in Dashboard Designer are not available for use in the mobile app.

Conclusion

Our clients often ask, “Which is the best Dashboarding Product?” There is not really a right answer to that question, as each project is unique in its own requirements.

For example:

If you have Business Objects, the first analysis would be whether a combination of Dashboard Designer and Explorer can meet your goals. If it cannot, which is more important? If the answer is pixel perfect design than QlikView is probably a good choice. On the other hand if you have many analysts and want a small learning curve Tableau or Qlik Sense are a better choice.

If you have to have maps and don’t want a large learning curve then Tableau is an easy win. If you have many disparate sources and need a dashboard with a lot of control over both security and visualization then QlikView is a great option.

If you are not fully engrossed with the Business Object’s ecosystem, but have a need for both quick analysis as well as dashboards, a combination of Qlik Sense and QlikView has many benefits.

Below is a summary of what we’ve examined when evaluating the different tools:

Company	Product	Ad Hoc Analysis	Dashboard	MetaData Level	Customization
SAP	Dashboard Designer		✓	✓	✓
	Explorer	✓		✓	
Tableau	Tableau	✓			
Qlik	QlikView		✓	✓	✓
Qlik	Qlik Sense	✓			

At WCI, we have many clients who are facing the same sort of questions. You can send us an email to info@wciconsulting.com or call 214-872-2900 and we’ll be happy to walk you through your choices to see which tool will allow your BI Department be the most successful.

About WCI Consulting

***Our Mission** - To provide an unrelenting focus of value to our clients through a dedication in excellence, integrity and the desire to foster long lasting relationships.*

Since our inception in 1998, WCI has been committed to helping our customers achieve success through the understanding and use of their data. Fast forward to today and WCI remains committed to our mission.

Our unique approach to Consulting, Support and Innovation within the Business Intelligence and Data Warehousing market has enabled us to provide comprehensive service to our customers as well as address unmet pains in the industry that have developed through the years. Our approach has been proven time and again through our client's ability to gain advantage over their competitors.



Consulting – Through our services, we help clients gain a holistic view of their data. Including: Enterprise Data Strategy Assessment, Data Visualization Selection, Development, Data and Systems Integration, Management of Systems, Data Movement, Data Presentation, Data Warehouse Modeling and Master Data Management.

Support – We understand that value not only comes from the successful delivery of projects, but also in the form of legitimate support that doesn't break a budget. WCI is the creator of the innovative solution Instant Access, which is a virtual platform that ensures end user adoption through knowledge on demand, training and mission critical support.

Innovation – WCI helps customers realize that at times there are more effective ways to get their data. WCI Consulting is the creator of Toreo Data, which is a driver that connects data stored in an Enterprise Business Intelligence system with market leading third party data visualization tools.

We excel in these three areas in order to meet the needs of a market focused on gaining insight into data.

"To truly serve customers entrusted to our care we must first put their needs ahead of ours."

– Marty Carney, CEO WCI Consulting