



# CAN OBIEE BE REPLACED BY TABLEAU?

Whitepaper

## Abstract

Can you overcome OBIEE's shortcomings by replacing with Tableau? What are the challenges?  
Read more to learn why combining OBIEE with Tableau, not replacing, is a superior solution.

# Can OBIEE be replaced by Tableau?

Many companies we talked to are frustrated with Oracle BI(OBIEE) and want to look for an alternative. What they are looking for is an ideal tool which can replace OBIEE like-for-like and also provide modern visualization, flexibility, data wrangling, and blending capabilities. But does such a tool exist in the market today? A lot of companies are looking towards Tableau and trying to see if it can replace OBIEE entirely plus do what Tableau does best. Is this realistic?

Before we go further let's look at what are OBIEE's strengths and weaknesses.

OBIEE has three-tier architecture with a presentation server, BI server and database backend which are connected through the physical layer of the Repository Database aka RPD. The RPD is what combines the metadata layer, physical joins, logical joins, calculated fields, security, logical grouping of folders, and columns into subject areas. All of these capabilities that get built into the RPD are also called the "semantic layer" or the "common enterprise model".

## OBIEE Strengths

The power of OBIEE and potentially the weakness is the RPD. The common enterprise model in the RPD lends itself to a traditional design, development, testing, and move to production kind of project. With this approach, IT gets requirements from users, comes up with a data model design, builds the three layers of the RPD, builds the security the layer, and then releases the subject area to the users to test and build the reports and dashboards. Once it goes to production any changes need to be brought back to IT and then the cycle continues. Some companies have an agile methodology to release more content quickly but IT will still be the bottleneck here.

The advantage of this model is that the data model is fully tested and validated. A super-user who builds the report can be confident that the results are as per her expectation. This kind of project design and development works really well for enterprise level dashboards with standardized dimensions and metrics. Users can come to the dashboard, change their filters as needed, and get the data they need once a month or once a quarter. A significant portion of data needs in every company fits in this bucket and OBIEE is a really useful tool to address these needs.

## OBIEE Shortcomings

For a long time, there have been three fundamental issues with OBIEE.

### Speed of change

Adding a new column or a new calculated field or a new table in OBIEE could take several days to months depending on each company's processes and how much bandwidth the BI development team has. In most cases multiple business departments will need changes to the RPD and it becomes a political battle to see whose requirements get done first. This leads to frustration and the businesses

that can't wait for IT to deliver, find their own solution. They find a way to get the data they need and start creating their own offline data mart and start building their reports using Tableau or similar tools. Over time this data mart becomes more valuable than the OBIEE system that IT maintains for that business group. This leads to lots of duplicated effort in the company and a very high possibility of two groups of users getting different results from the same data set.

### Data blending or mashup

Combining data from OBIEE with other external data is not possible for an end user or super user. The only way for adding a new data source into OBIEE is by adding it in the RPD. This has a lot of overhead and development cycle involved. In addition, it's not worth adding data with short life to the RPD. In OBIEE 12c, Oracle has given the capability of mashing OBIEE data with Excel data where a user can upload a spreadsheet to the server and mash it up with OBIEE data. However, there are few drawbacks to OBIEE 12c mashup:

- a) First, you need to upgrade to OBIEE 12c which can take several months to years of testing.
- b) OBIEE 12c could be unstable and you might have to wait for the second or third release for it to be stable enough to go to production. Think back to your OBIEE 11g upgrade pains!
- c) We are hearing from sources that this mashup feature comes at an additional cost even for existing customers.
- d) The biggest drawback is that the mashup is limited only to Excel. We often run into requirements of mashing with other databases or file formats.

### Data visualization and ease of use

Using OBIEE as a super user to build a report or as an end user to consume data in the dashboards is not really a user friendly experience. For a super user to build a report they have to use the Analysis tool to build the pivot views, charts, tables and then create dashboard, build the prompts and filters and finally arrange the reports in the various dashboards. Finally they have to build the various drill through and drill paths among the reports and dashboards. It's a very long and cumbersome process to get their dashboards to where they want it. There is a steep learning curve to get familiar with the tool.

For the end user who consumes the data from the dashboard, OBIEE can be quite confusing to use and it's not really visually appealing. In most cases, executives do not bother logging into the system and rely on analysts to use the system and download it to Excel and send it to them by email.

Oracle has started to address this problem using the Visual Analyzer in OBIEE 12c. The problem with Visual Analyzer is that it is not a replacement for Analysis (or Answers) tool but it's an add-on. It does not have all the features of Analysis. In addition, it can do drag and drop reporting only with what is available in OBIEE subject areas which were built with the RPD. It does not solve the original problem of speed of change.

On top of this, Visual Analyzer has additional licensing cost even for existing OBIEE 11g customers who upgrade to OBIEE 12c. This has to be taken into account also.

## Is it feasible to replace OBIEE with Tableau?

As we have seen, OBIEE has both strengths and weaknesses. But the frustrations of the businesses to move fast and get the data they need out of OBIEE has bubbled up to such an extent that almost all OBIEE customers are looking for an alternative tool to fill the gaps. They are looking to do one of two things –

1. Replace OBIEE with some new tool
2. Add a new tool into the mix along with OBIEE

A lot of OBIEE customers are very impressed with Tableau due to its strong data discovery, visualization and blending capabilities and have purchased both Tableau desktop and server licenses. They have added a brand new tool into the environment without exactly having a plan on whether to replace OBIEE with Tableau or to somehow co-exist.

Let's look into whether its realistic to replace OBIEE with Tableau.

We believe OBIEE and Tableau are fundamentally different tools built for entirely different purposes. The technical architecture and UI of Tableau are built for flexibility and ease of use for the business user while OBIEE was built with a common enterprise model, IT development and deployment model in mind.

Replacing OBIEE with Tableau is a very difficult journey for the following reasons –

### Complexity of the RPD and reporting layer

The OBIEE RPD normally has hundreds if not thousands of tables. A lot of companies use BI Applications which comes with hundreds of tables pre-built into the RPD. These tables are then joined in the physical layer after creating aliases and then moved to the logical layer where additional logical columns are developed, dimensional hierarchies are created and outer/inner joins are further defined. These logical tables are then further reused in various subject areas in the presentation layer. Data level security can be applied at the database level or at multiple levels at the RPD. There are also complex repository and session variables which drive the application behavior.

In addition, users and administrators create complex filters, calculated columns, presentation variables, drill paths, navigation schemes, union reports, ibots or agents, caching, hierarchical columns among others in OBIEE presentation server and BI server level. All these functionality need to be addressed in Tableau if OBIEE needs to be replaced.

Companies have to think through all this complexity and functionality that the RPD and the BI presentation server provides and see if Tableau is the right fit for replacing these functions.

### Like-for-like replacement

If customers embark on a like-for-like replacement of OBIEE with Tableau, they will have to build out the functionality that the OBIEE RPD, BI server and presentation server provides in Tableau. Unfortunately its easier said than done. Here are two primary challenges -

## Data model and reporting challenges

Tableau was not built for a single data model which contains hundreds of tables and then create multiple workbooks (each representing an OBIEE subject area) out of them. In fact, in some field tests we have seen Tableau having challenges after joining about 25 tables. The results could vary with each situation depending on the performance of the database and size of tables. But with the same system OBIEE was able to handle several times the number of tables easily. This is essentially because Tableau is an in-memory tool and tries to verify the joins at design time and not run time like OBIEE. In the figure below, you can see the out of the box Sales - Order Lines subject area that comes with BI applications. This kind of data model is very difficult to replicate in Tableau.

Then there are other limitations like Tableau can only handle 16 textual columns in a workbook without the fields and labels concatenating. You can read about it [here](#). These kind of limitations, and there will be several of these that you will find when trying to replace OBIEE with Tableau, are to be expected as we had already mentioned the use case for these two tools are completely different. We have personally built OBIEE reports with 100 text columns (an example for a manufacturing customer is a report with item number and 100+ item attributes in a complex Bill of materials (BOM) hierarchy output) and it performs without any issue. Many Tableau enthusiasts will question this kind of requirement but it exists in the real world and need to be addressed one way or the other in BI tools.

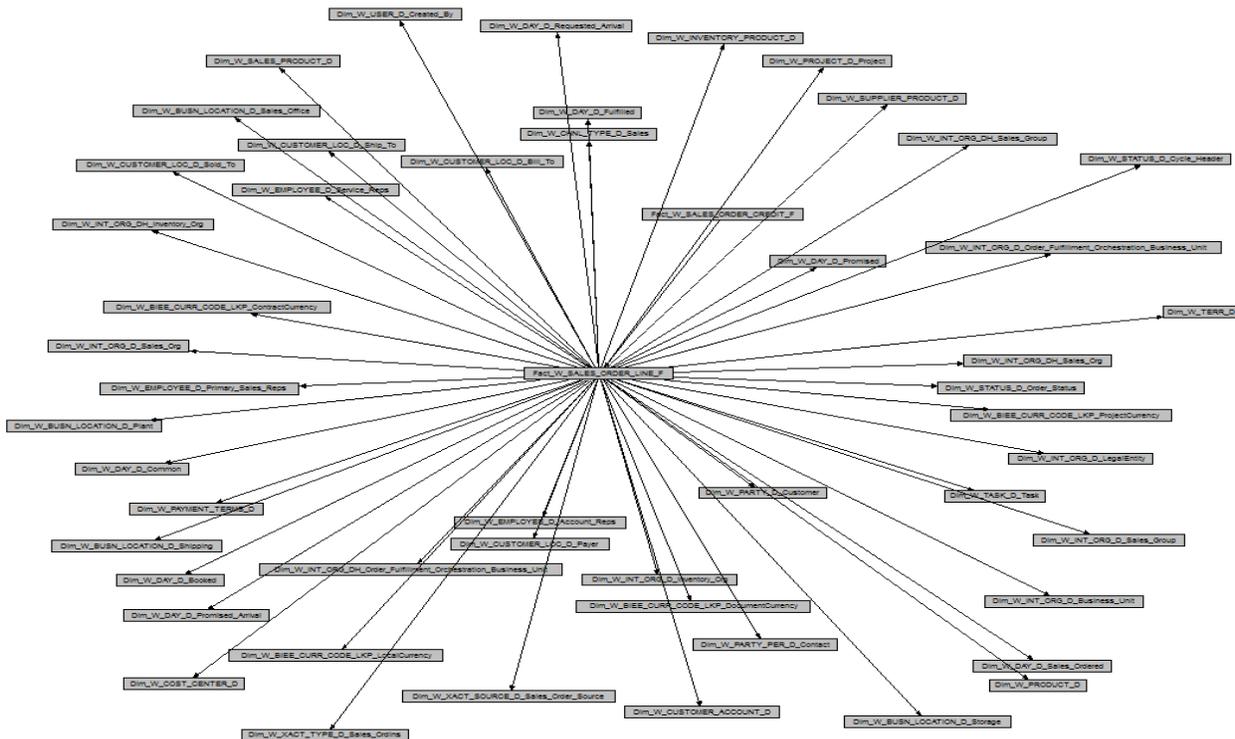


Figure 1: Sales Order Lines Subject Area

## Time, opportunity cost and real cost

Even if you do succeed in creating a similar data model in Tableau you still need to write all the reports and dashboards that this data model uses in Tableau. Who is going to work on that and who is responsible for testing and certifying the data needs to be organizationally worked out. Are the resources readily available when you need them?

This brings us to the second very important factor to consider. While working on a lift and shift tool replacement project in BI is you are really working with a moving target. The business needs are dynamic in BI and you will not get a window where you can tell the business users that “Please wait for the next 6 months to 2 years while we replace our OBIEE system with Tableau”.

Not only are the requirements dynamic, nowadays even the tools are dynamic. OBIEE would have come up with a new version while Tableau would have come up with several versions in that time frame. There will be an enormous expense in real dollars and opportunity cost of not doing improvements to your BI systems in both OBIEE and Tableau while you are working on the replacement project. This kind of large monolithic BI projects are a thing of the past in our opinion.

## So what should customers do?

Customers should recognize that there is a need for two kinds of BI tools. A BI tool like OBIEE which can handle large data models with robust security security model and have years of development of reports and dashboards built in it. This tool can handle stable requirements which are needed periodically by business users.

They also need a modern data discovery and visualization tool like Tableau with which business users can extract comparatively small amount of data from multiple sources and get the answer and visualization that they need. These kind of tools are excellent for transient data and transient requirements which legacy tools like OBIEE struggle with.

If customers recognize this fact that they need two different kind of tools then they can clearly segregate the use cases for these tools. They can group what tool should be used for what purpose and educate their user community accordingly. This will alleviate frustration on both IT and business user community and save potentially a huge amount of real and opportunity cost in replacing the legacy tool like OBIEE with Tableau.

## Introducing BI Connector for Tableau

Now that we have clearly laid out the case for the need of both OBIEE and Tableau in the BI tool ecosystem, there is one issue that still needs to be addressed. Most of the existing data models, reports, security setup is built out already in OBIEE. When Tableau is introduced into the company what users tend to do is to go to OBIEE and download the data into excel or csv format and start uploading them into Tableau desktop or server for analysis and visualizations.

When multiple users start doing this then there are excel files floating around the company's network causing security risk, plus after each ETL there is a manual step of downloading and uploading into Tableau and also there is a real possibility of users making mistakes and getting the wrong results.

Clearly there is a need to connect from Tableau to OBIEE in live connection mode. That's where BI Connector comes in. Now, you can leave what's already built in OBIEE, just connect live to it and build your Tableau desktop and server visualizations on top of it. Users can easily blend external data with data from OBIEE. OBIEE security rules are fully followed. At the same time the huge investment that has gone into OBIEE is preserved.

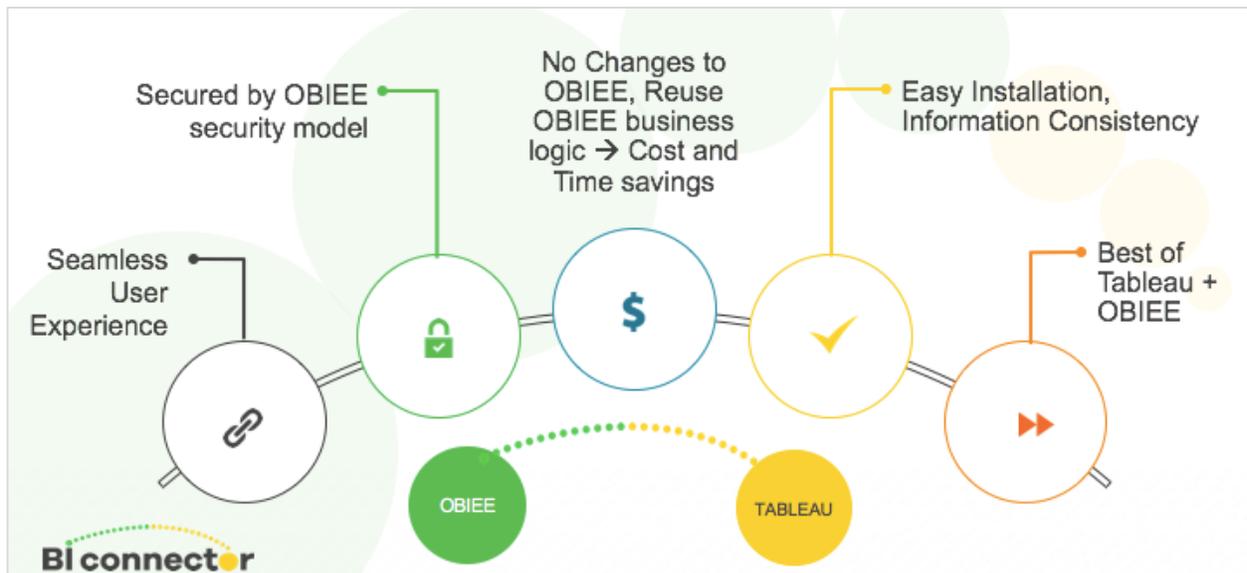


Figure 2: BI Connector Overview

We believe the approach of combining OBIEE and Tableau together with the connectivity provided by BI Connector is the best way to provide today's business users with a complete set of tools for their BI, data discovery, data mashup and visualization needs. In addition, this approach provides the cost and time savings, data security and immediate ROI that is demanded by today's business and IT organizations.

### Recommended Next Steps

View a recording of the widely attended [webinar](#) on this topic. [Download a free trial](#) and try this proven approach in your organization.

### Resources to learn more:

1. [BI Connector Website](#)
2. [BI Connector – How it works](#)
3. [14 Day Free Trial of BI Connector](#)
4. [Contact Us](#)