

Various Business Intelligence Tools – A Comparison survey

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Abstract - This paper offers distinct statistics on Business Intelligence (BI) tools for growing a dashboard in an exceedingly regular corporation setup. Few BI tools like SpagoBI, Tableau, QlikSense Power bi, and JasperSoft are considered to support in terms of education and negligible initial cos. A sample dashboard has been developed the employment of 1 of the tools of Power BI to exhibit the feasibility for the Business statistics visualisation.

Key Words: Dashboard, Business Intelligence, Data Reports, Visualization, Data Analytics.

1. INTRODUCTION

Business Analytic or Business Intelligence (BI) is needed by the top management of any enterprise to examine, analyze and prepare the strategic designing for the long run. However, the supply of business intelligence tools, the support on the present infrastructure (including computer code and hardware), usability, measurability, money commitment and different parameters make it difficult for the knowledge Technology team to choose the correct BI tool for the organization. This work attempts in easing the decision-making process on the Business Intelligence tools, particularly useful for a typical enterprise setup by surveying the top BI tools in the market in terms of cost, scalability, support and other necessary parameters. This paper discusses regarding the Business Intelligence tools that are out there either open source or running on open supply with less price in implementing for an enterprise. This is prepared with an intention of identifying a suitable tool for the data visualization/ dashboard/business intelligence in an enterprise for business and management purpose.

2. SPAGO BI

SpagoBI is part of the SpagoWorld open source initiative tool which consists of dashboards, data mining to make charts and ETL. It covers Business Intelligence projects, with innovative themes and engines. The SpagoBI server also includes a very interactive dashboard that has integration with other reporting tools. SpagoBI mainly consists of the following modules:



Fig 1: SpagoBI Architecture

- SpagoBI Server, It includes analytic tools and features act as a core for the suite.
- SpagoBI Studio, The IDE
- SpagoBI Meta, The meta data environment
- SpagoBI SDK(Software Development Kit), It is the layer that allows SpagoBI to use external tools

➤ SpagoBI Applications, Using this a various vertical analytic models are developed.

2.1. Additional Features

- 1) Fully Open source: Spago has a strong community and forum to support the users and also has a tracker which is used to report the bugs and fix it.
- 2) Learning Support: SpagoBI has video tutorials, scheduled web learners, and presentations through Slide share.
- 3) Mobile Support: it allows access to mobiles through interactive reports, cockpits and dashboards. It enables user authentication, periodicals and automatic access to identify possible alarms and notifications.

3. POWER BI

Power BI (Business Intelligence) is a cloud primarily based records analysis, from large range of statistics sources, which can be used for records evaluation and reporting. It is person pleasant and simple that power users and enterprise analysts can work with it. Power BI is mature and effective that can be used via BI developers in organization systems for modeling eventualities and complicated data mash- up.



Fig 2: Power BI Work flow

3.1. Components

Power Query Discover	Power Pivot Analyze	Power View Visualize	Power Map Map
❖ Search organizational and Public (Cloud) data	❖ Create in-memory data model	❖ Analyze, visualize and display data	❖ Create maps and tours of data
❖ Import, merge, shape and cleanse Data	❖ Create hierarchies and KPI's	❖ Interactive data visualization tool	❖ Enables story telling using 3-D data
❖ Manage Shared Queries and Certify Queries	❖ Create derived fields and calculations	❖ Delivers intuitive ad-hoc reporting for business users	❖ Uses "Bing Map Service"

3.2. Data Sources

Data is a heart of Power BI. For exploring data, creating charts, dashboards and asking questions with Q&A, all of these visualizations and answers are really getting from data set.

- Files.
- Content Packs
- Databases.

3.3. Features

- 1) Dashboards: It combine various data visualizations in a single interface, easy way to monitor key performance indicators.
- 2) Visualizations: New Visualizations include gauges, combo charts, funnel charts, tree maps and fill maps.
- 3) Connectors for SaaS services: These connectors tap into services including Github, CRM, Sales force, ERP, Marketo, Sendgrid and Zendesk. Live connectivity to SSAS services: The cloud-based Power BI service without having to move data from Microsoft SQL Server into cloud and it maintain a secure connection.
- 4) Power BI Designer: which import the date and publish Power BI reports without Excel.

3.4. Benefits

- Live connection to your data sources, secure, on premises and in the cloud.
- Using natural language intuitive data exploration.
- Security
- hybrid connection
- Integrated with familiar Microsoft products.

4. TABLEAU

Tableau has been very aggressive in marketing by using the most attractive characteristic of drag and drop products. Anyone can use Tableau with no programming background as it use drag and drop products. Connecting and visualizing your information in minutes, Tableau is 10 to 100x quicker than existing solutions are some of the substantial facets for the enterprise analysts to pick this tool.

4.1. Tableau Products:

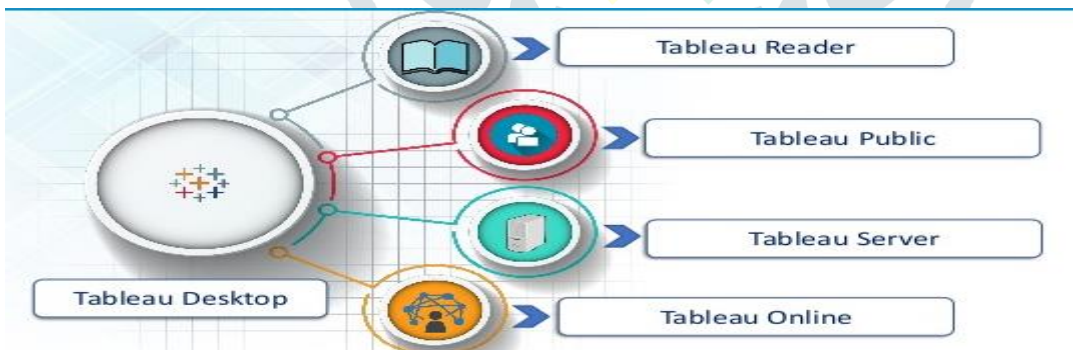


Fig 4: Tableau Products

- a. Tableau Desktop: - A drag-and-drop desktop program that permits users to quickly analyze, sort, and visualize huge knowledge in record time.
- b. Tableau Server: - Browser-based analytics with sharable, usable BI, associate interactive dashboard out there for desktop and mobile use.
- c. Tableau Online: - allows users to share live, interactive dashboards inside the corporate still like partners and customers.
- d. Tableau Reader: - A free computer app that permits sharing of information mental image created with Tableau Desktop.

e. Tableau Public: - web site sweetening with interactive knowledge storytelling. No programming necessary to form, publish, or share visualizations.

5. JASPERREPORTS

It is a BI device and open source reporting engine developed in Java programming language. It in most cases consists of countless functions consist of tables, dashboards crosstabs charts, and different gauges.

Data sources can be flat files or XML, relational databases and reports can be generated in many formats. A single document consists of more than one types of multiple information sources.

JasperReports is a section of countless suites of equipment that make up Jaspersoft Business Intelligence suite community edition. There are numerous tools handy for ETL, SOA internet services and OLAP. Under community and commercial licenses it has various versions, gets more in terms of professional support and add-ons.

5.1. Additional Features

1) Training support: The JasperReports has a robust gaining knowledge of sources which consists of coaching (self-paced and trainer lead), scheduled occasions and webinars, getting to know material.

2) Cloud Support: It is accessible on the cloud to host the services on a license basis. However, for an attempt, it affords a cloud primarily based keep trial surroundings with sample knowledge, reports, analysis views and dashboards.

6. QLIKSENCE

Qlik Sense is an interactive visualization tool to analyze, interpret and visualize huge data sources. The drag and drop features of the interface is efficient/good for rapid building of dashboards, reports and data visualization.

Versions for different users

1) Qlik Sense Desktop: This is for individual customers for importing their personal statistics and visualize on a non-public computer. It is free to download for personal use. Before going on a giant scale, this would be the great preference for analysis.

2) Qlik Sense Enterprise: This version is for organizations having large facts sources with customized visuals.

3) Qlik Sense Cloud: This model supports the cloud internet hosting of the records evaluation and visualization. It provides huge aid through forums, training material, online webinars and different video tutorials.

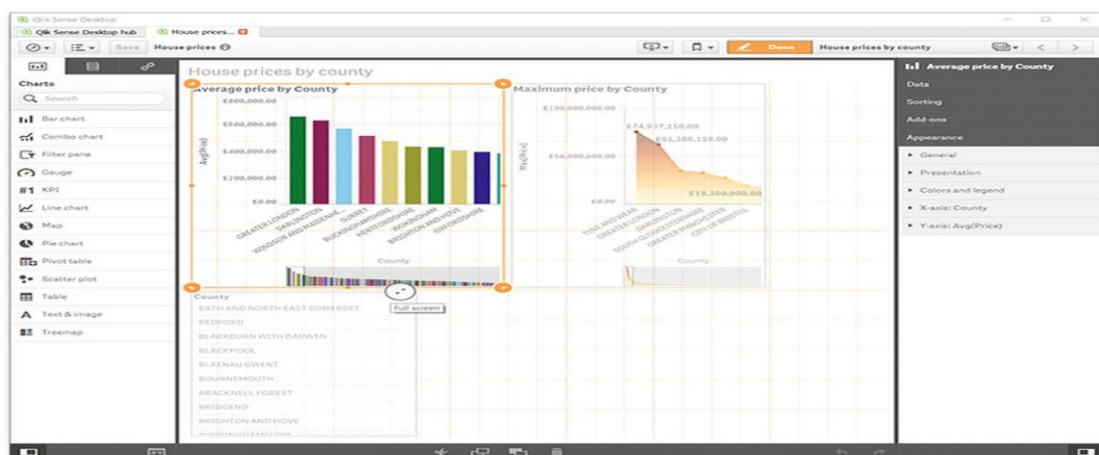


Fig 6: Qlik Sense desktop

7. COMPARISON AND INFERENCE

The above BI tools are examined for the purpose of developing a dashboard for an Enterprise. Hence all the tools are viewed and analyzed from the perspective of Business research and possible deployment of the tool for the analytics of Business data. Table 1 shows the comparison of the BI tools that have installed and tried from the Enterprise research perspective which includes resource constraints like computing platforms, licensing, data sources and Pricing.

BI Tool	License	Trail	Ease of Use	Training / Forums	Platform	Data Integration	Pricing model	Price
<i>Power BI</i>	Commer cial	Y e s	Easy to install	Tutorials	Windows	All	Free/Mon thly Payment	\$9.99
			Simple to Use	Videos	Android			
			Security for data	Demo/Webi nar	Iphone/I pad			
			Live connections	Training and Document	Web based			
<i>Qlik Sence</i>	Commer cial	Y e s	Easy to install and import data	Tutorials	Windows 8 (Not on e arlier versions)	All	Free/ Mont hly Payme nt/One -time paym ent.	\$20
				Online Forums				
<i>Tableau</i>	Commer cial	Y e s	Importing data is easier.	Videos	Windows	All	One- time paymen t/Annua l subscrip tion	\$500
				Tutorials				
				Demos				
<i>Jasper Reports</i>	Commer cial	Y e s	Simple preparation of visualizations	Demos	Windows	All	Quote based	By quote
				Tutorials	Android			
					Web based			
<i>SpagoBI</i>	Fully Open source	Ful l versi on	Bit tricky	Forums	Windows	All	Quote based	By quote
				Training and documents	Linux			

8. DASHBOARD DEVELOPMENT

In this section, a sample dashboard development has been demonstrated. It shows only a module of the whole dashboard. We have considered showing the visual interpretation of Sample Information in the organization. The dashboard represents different interactive visualizations to present our data in many different formats. The data source is from Oracle Database.

We used Power BI Desktop for experimentation because Power BI have advanced features like using Data Connectivity Gateways can access on-premises data, connect live data sources with full interactivity and Create, view and publish organizational content packs and many more. Also availed the feature of Power BI to demonstrate the availability of Dashboard online.

Fig 7, shows one of the screen shots of data visualization produced in organization. The data source includes oracle database and few data from Excel sheets. The front end is built interactive to filter the data Interpretation.



Fig 7: Power BI dashboard

9. CONCLUSION

There are lots of BI equipment handy in the market. In this paper, we have considered few manageable BI tools that ought to be used for the reason of business whereas the preference of this paper was on research on Business Intelligence. With the limited resources and the price of investment, we explored the equipment introduced in this paper. However, thinking about the dimension of agency and preliminary fee of investment, it is encouraged to go with fully open supply or partial open source where the training, deployment and continuous guide are provided by way of the carrier provider.

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