Power BI vs Tableau vs Excel

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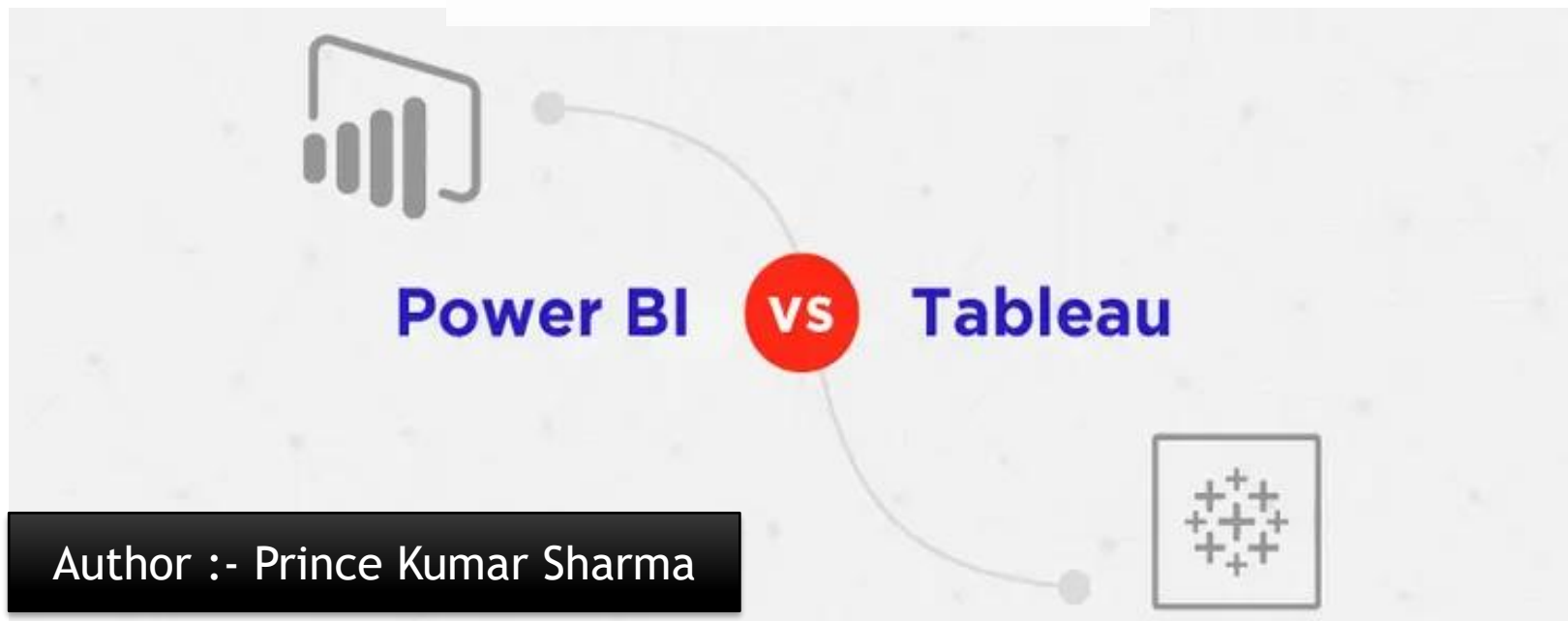
Introduction of Power BI

▶ Power BI is one of the most popular **Data Visualization** and **Business Intelligence** tool. The Power BI tool is the collection of **apps**, **data connectors**, and **software services** which are used to get the data from different data sources, transforms data, and produces useful reports.

▶ Power BI was designed by the **West Chadic George** in 2010.

▶ In September 2014, Microsoft revealed the first preview to Power BI.

▶ The first version of Power BI is released on 24 July 2015. It was based on Excel-based Add-ins such as Pivot, view, Power Query, and Map.

What is Power BI ?

▶ Power BI is a **Data Visualization**, and **Business Intelligence** tool which helps to convert data from different data sources into interactive dashboards and BI reports. It provides interactive visualizations with self-service business intelligence capabilities where end users can create reports and dashboards by themselves, without having to depend on information technology staff or database administrators.

Why we use Power BI

Here are some significant reasons to use the Power BI tool:

- It allows real-time dashboard updates.
- It provides secure and reliable connections to the data sources in the cloud.
- It allows data exploration using a natural language query.
- Power BI provides a hybrid configuration, quick deployment, and secure environment.
- It provides features for dashboard visualization regularly updated with the community.
- It provides pre-built dashboards and reports for SaaS solutions.

Importance of BI

Business intelligence is used to improve all parts of a company by improving access to the firm's data and then using that data to increase profitability. Companies that practices BI can translate their collected data into insights their business processors.
Then the insights can be used to create strategic business decisions that improve productivity and accelerate the growth.

Some more potential benefits of business intelligence tools include:

•Driving new revenues.
•It increases operational efficiency.
•It optimizes internal business processes.
•It improves decision making.
•It is gaining a competitive advantage over business rivals.
•It is used in spotting business problems that need to be addressed.
•It can be used in assisting companies in the identification of market trends.

Power BI Advantages

Here are some advantages of Power BI, as shown below:

1. Secure Report Publishing: You can automate setup data refresh and publish reports that allowing all the users to avail the latest information.

2. No Memory and Speed Constraints: To Shift an existing BI system into a powerful cloud environment with Power BI embedded eliminates memory. Speed constraints ensure that data is quickly retrievable and analyzed.

3. No Specialized Technical Support required: The Power BI provides quick inquiry and analysis without the need for specialized technical support. It also supports a powerful natural language interface and the use of intuitive graphical designer tools.

4. Simple to Use: Power BI is simple to use. Users can easily find it only on behalf of a short learning curve.

5. Constant innovation: The Power BI product is updated in every month with new functions and features.

6. Rich, personalized dashboard: The crowning feature of Power BI is the information dashboards that can be customized to meet the exact need of any enterprise. You can easily embed the dashboards, and BI reports in the applications to provide a unified user experience.

Advantage of Power BI
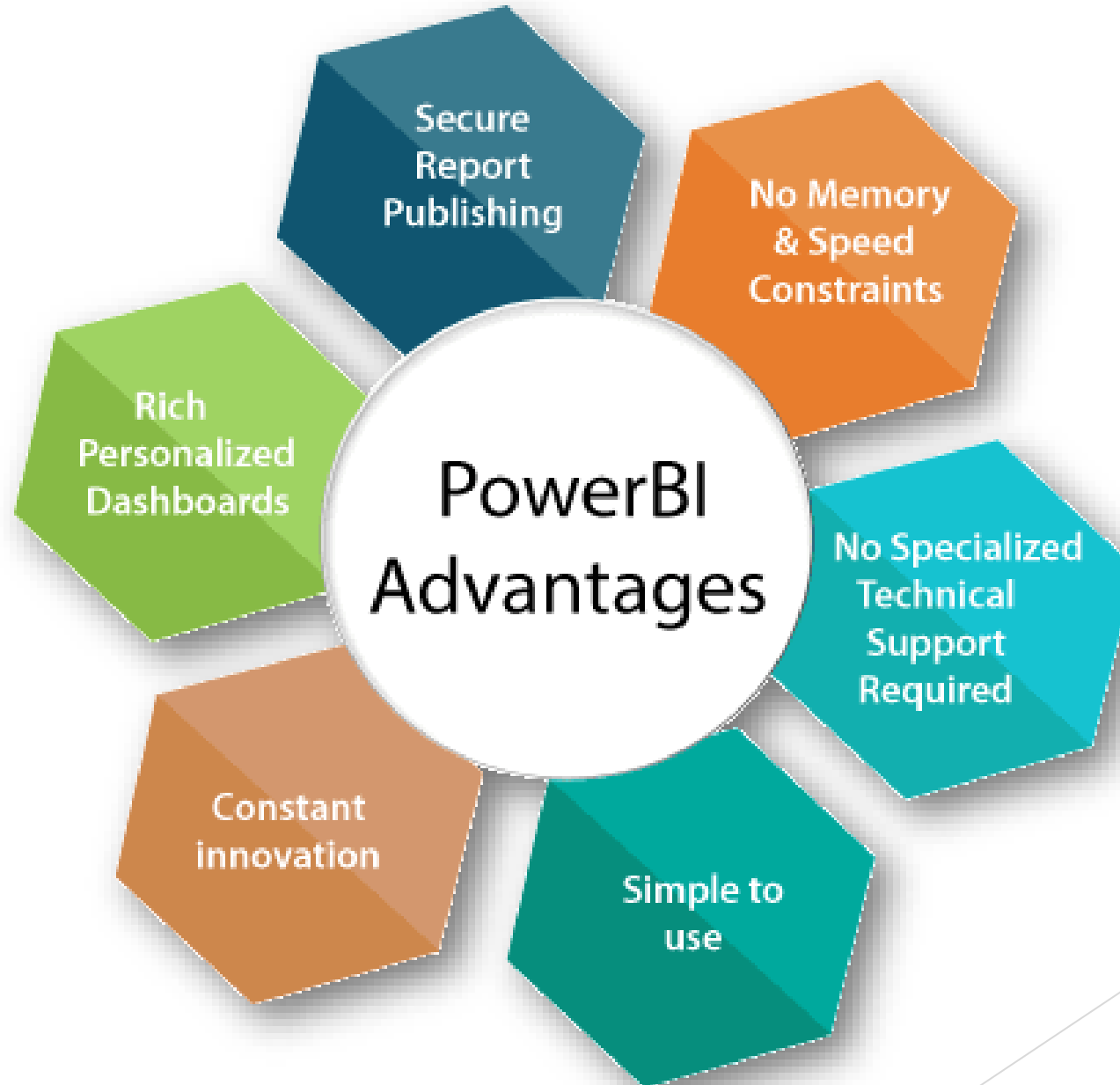
Introduction of Tableau

▶ Tableau is the Fastly growing and powerful data visualization tool. Tableau is a business intelligence tool which helps us to analyze the raw data in the form of the visual manner; it may be a graph, report, etc.

▶ **Example:** - If you have any data like **Big Data, Hadoop, SQL,** or any cloud data and if you want to analyze that given data in the form of pictorial representation of data, you can use Tableau.

▶ Data analysis is very fast with Tableau, and the visualizations created are in the form of worksheets and dashboards. Any professional can understand the data created using Tableau.

▶ Tableau software doesn't require any technical or any programming skills to operate. Tableau is easy and fast for creating visual dashboards.

It is an American interactive data visualization software company focused on business intelligence. It was founded in 2003 in Mountain View, California, and is currently headquartered in Seattle, Washington.

Why use Tableau?

Here are some reasons to use Tableau:

- Ultimate skill for Data Science
- User-Friendly
- Apply to any Business
- Fast and Easy
- You don't need to do any Coding
- Community is Huge
- Hold the power of data
- It makes it easier to understand and explain the Data Reports

What is Data Visualization?

Data visualization is a graphical representation of quantitative information and data by using visual elements like graphs, charts, and maps.

Data visualization convert large and small data sets into visuals, which is easy to understand and process for humans.

Data visualization tools provide accessible ways to understand outliers, patterns, and trends in the data.

In the world of Big Data, the data visualization tools and technologies are required to analyze vast amounts of information.

Features of Tableau

Data Blending: Data blending is the most important feature in Tableau. It is used when we combine related data from multiple data sources, which you want to analyze together in a single view, and represent in the form of a graph.

Example: Assume, we have Sales data in relational database and Sales Target data in an Excel sheet. Now, we have to compare actual sales with target sales, and blend the data based on common dimensions to get access. The two sources which are involved in data blending referred to as primary data and secondary data sources. A left join will be created between the primary data source and the secondary data source with all the data rows from primary and matching data rows from secondary data source to blend the data.

•**Real-time analysis:** Real-Time Analysis makes users able to quickly understand and analyze dynamic data, when the Velocity is high, and real-time analysis of data is complicated. Tableau can help extract valuable information from fast moving data with interactive analytics.

•**The Collaboration of data:** Data analysis is not isolating task. That's why Tableau is built for collaboration. Team members can share data, make follow up queries, and forward easy-to-digest visualizations to others who could gain value from the data. Making sure everyone understands the data and can make informed decisions is critical to success.

MICROSOFT EXCEL
1985-1990

Microsoft
1990-1994

1994-1995

1995-1999

1999-2003

2003-2007

2007-2010

2010-2013

2013-2019

2019-Present

Introduction of Excel

Microsoft Excel was released in the year 1985 and essentially is a tool that has features like calculation, graphing tools, pivot tables, and a macros programming language. It can be used on several operating systems such as Windows, Mac, Android, iOS, etc.

Uses

MS Excel is known and used all over the world for organizing data and doing financial analysis. It is used in all business functions and in small to large companies.

The main uses of Excel are:

1. data entry
2. data management
3. Accounting
4. financial analysis
5. financial modelling
6. graphing and charting
7. Programming
8. Customer Relationship Management (CRM)
9. time management
10. task management

Advantages of MS Excel

Because it is simple to preserve data and add and remove information both easily and quickly, MS Excel is used for a variety of functions.

Using MS Excel has several significant benefits, including:
1.**Easy data input:** MS Excel is frequently used for data entry or analysis since there is no limit to the quantity of information that can be saved in a spreadsheet, making it simple to enter as much data as you wish. Is. In Excel, filtering data is simple and highly useful.
2.**Data retrieval is easier:** Finding information printed on paper may take longer; however, this is not the case with an Excel spreadsheet. Data can be located and retrieved with ease.
3.**Mathematical formulae that are Simple to Use:** MS Excel's formula feature has made calculations simpler and faster.
4.**More reliable:** These spreadsheets, which may be password-protected on a laptop or desktop computer, are significantly less likely to be lost than records or pieces of paper with data that have been written down.
5.**One location for all data:** When the paperwork was completed in the past, data was housed in separate files and registers. Now that several worksheets may be added to a single MS Excel file, it has become more practical.

Power BI vs Tableau

Tableau Vs. Power BI

Tableau and Power BI both are excellent visualization tools in recent time. Tableau has established itself as the market leader for data analytics and BI tools.

Power BI is the closest competitor for the Tableau. Both the visualization tools have their strengths and specialties, and each will used in business as per requirements.

Parameters	Tableau	Power BI
Meaning	Tableau is the data analytics and business intelligence tool for generating reports and data visualization tool with high flexibility.	Power BI is the business analytics tool to analyze the business and derive insight from it.
Year	Tableau was established in 2003.	Power BI was established in 2013.
Cost	Tableau is more expensive when it comes to large enterprise, and it paid more when connected to third party application.	Power BI is less expensive when compared to the Tableau.
Data visualization	Tableau is a more preferred tool when it comes to data visualization.	Power BI focused on predictive modeling and reporting.
Data source	Tableau has access to many database sources and servers. **Ex:** Text file, Excel, JSON file, Access, PDF file, Statistical file, Spatial file, etc.	Power BI has limited access to other database and servers. **Ex:** Access database, SQL server database, SQL server analysis services database, IBM DB2 database, Oracle database, etc.
Deployment	Tableau have more flexible deployment. It available on-premises and cloud both model options.	Power BI is available as SaaS model options only.

User interface	Tableau has a slick user interface that enables the user to create a customized dashboard.	Power BI has a more understandable interface and much simpler to learn. Due to its simplicity and easy to use, that's why business users prefer power BI.
Data capacity	Tableau works on the columnar based structure that stores unique values for each column, making it possible to fetch millions of rows.	Power BI can Handel up to 10 GB of data. For more than 10 GB, data should be in the cloud (Azure). If it is in the local database, then Power BI selects the data from the database but does not import.
Machine learning	Python machine learning capacities is in build with a Tableau that makes it efficient for performing machine learning operation over the datasets.	Power BI is integrated with Microsoft Azure that helps in analyzing the data and understanding the pattern of the business.
Performance	Tableau can handle huge data with better performance.	Power BI can handle limited data only.
Users	Tableau required analysts users for their analytics purpose.	Power BI required both technical and non-technical users.
Infrastructure	Tableau provides flexible infrastructure.	Power BI provides software as a service infrastructure.
Overall functionality	Tableau has excellent functionality.	Power BI has good functionality.
Support level	Tableau has a high support level in comparison to power BI.	Power BI has a low support level.

Best Features in Power BI

Power BI is a robust business intelligence tool with a wide range of features that empower users to analyze data, create interactive reports, and make data-driven decisions. Here are 10 highly valuable features that many users find essential:

1. Data Connectivity: Power BI offers extensive data connectivity options, allowing users to connect to various data sources, including databases, spreadsheets, cloud services, web APIs, and more. This feature facilitates the import and transformation of data for analysis.

2. Power Query: Power Query is a powerful data transformation and ETL (Extract, Transform, Load) tool integrated into Power BI. It provides a user-friendly interface to shape and cleanse data from multiple sources, making it suitable for data preparation tasks.

3. Data Modeling: Users can create data models within Power BI to define tables, relationships, calculated columns, and measures. Data modeling helps structure data for analysis, supports complex calculations, and enables users to create meaningful reports and visualizations.

4. DAX (Data Analysis Expressions):DAX is the formula language used in Power BI for creating calculated columns and measures. It allows users to perform advanced calculations, aggregations, and time-based calculations to derive insights from data.

5. Rich Visualizations: Power BI offers a wide range of customizable data visualizations, including charts, tables, maps, and custom visuals. Users can create interactive and compelling reports with options for formatting, theming, and interactivity.

6. Reports and Dashboards: Users can design interactive reports and dashboards by arranging visualizations, text, images, and buttons on pages. Features like bookmarks, drill-through, and the ability to add filters and slicers enhance the user experience and data exploration.

7. Power BI Service: The Power BI cloud service allows users to publish, share, and collaborate on reports and dashboards. It offers features such as automatic data refresh, scheduling, and the ability to create apps and workspaces for team collaboration.

8. Natural Language Queries: Users can use natural language queries and Q&A functionality to ask questions about their data in plain language. Power BI's AI capabilities understand and generate visuals based on these queries.

9. Power BI Mobile: Power BI offers mobile apps for various platforms (iOS, Android, Windows) that allow users to access and interact with reports and dashboards on the go. The mobile app provides a responsive and touch-friendly experience.

Best Features in Tableau

There are three main features of Tableau, such as:

1.Data Blending: Data blending is an essential feature in Tableau. It is used when we combine related data from multiple data sources, which you want to analyze together in a single view, and represent in the form of a graph.

2.Real-time Analysis: Real-Time Analysis makes users able to quickly understand and analyze dynamic data when the Velocity is high, and real-time analysis of data is complicated. Tableau can help extract valuable information from fast-moving data with interactive analytics.

3.The Collaboration of Data: Data analysis is not isolating task. That's why Tableau is built for collaboration. Team members can share data, make follow up queries, and forward easy-to-digest visualizations to others who could gain value from the data. Making sure everyone understands the data and can make informed decisions is critical to success.

Features of Excel

1. **PivotTables** allow you to transform and analyze data in a structure manner. Just select a range of data (data in columns with headers) and select the ROWS, COLUMNS and VALUES for your Pivot Table! You can also create custom columns (based on formulas), summarize data by groups/rows/columns etc. There is almost no limit in the possibilities.

2. **Excel Tables**: If you want your data tables to be neat and structured you need to use Excel Data Tables. What do you get when using Tables in Excel? A consistent structure and formatting of your entire data table, automated copied formulas (across columns), non-repeating column headers and more. It is always good to resort to Excel Data Tables as you will have less work managing your data table and can focus on more interesting work like data transformation/analysis.

3. **VLOOKUP** – search the first column of a range of cells, and then return a value from any cell on the same row of the range

4. **HLOOKUP** – as above but for columns instead of rows

5. **INDEX** – returns the value of an element in a table or an array, selected by provided index

6. **MATCH** – searches for a specified item in a range of cells, and then returns the relative position of that item in the range

7. **VBA And Macros:**

Thanks For Watching My PPT

I have shown the Key Difference Between the Power BI ,Tableau and Excel