

“Comparison between Tableau and Power bi: A Case Study of COVID-19”

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Abstract

Things have come a long way since then, with ever-increasing amounts of data being accessible for modern businesses. As a result of such an influx of data, various organizations have produced software to help businesses make sense of the vast swathes of information. There are now many **excellent BI tools** on the market today.

Tableau first launched in 2004, providing a drag-and-drop way for users to create interactive visuals and dashboards. In reality, Tableau has a variety of products that help businesses store, analyze, and visualize data.

Microsoft Power BI arrived on the scene several years later, first launching to the public in 2011. Again, the focus was to create an easy-touse interface to enable non-programmers to organize and visualize data.. Business intelligence is a practice that pre-dates the digital age. The first usage of the term dates back to the 1860s, referring to an American. banker who gathered and analyzed data to gain actionable insights and get ahead of the competition.

Things have come a long way since then, with ever-increasing amounts of data being accessible for modern businesses. As a result of such an influx of data, various organizations have produced software to help businesses make sense of the vast swathes of information. There are now many excellent power BI tools on the market today.

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INTRODUCTION

TABLEAU : Tableau is an interactive data visualization tool from Tableau Software built in 2003. It was acquired by Salesforce in 2019.

Tableau enables organizations to simplify the process of data analysis. It helps users connect data and create compelling worksheets and dashboards without requiring coding or technical knowledge.

Its intuitive interface and powerful visualization capabilities make Tableau a popular choice among data professionals.

With more than one million members spanning over 500 user groups, active Community Forums, and programs, Tableau has an active community to help users.

POWER BI : Power BI is a business intelligence and data visualization tool by Microsoft. The solution was made publicly available in 2015.

Power BI is a newer technology compared to Tableau, yet a strong competitor in the market.

The data visualization tool empowers users to extract data from a variety of sources, such as Excel, images, tables, etc. Through an intuitive interface, even non-technical users can create insightful reports and dashboards. Power BI can be easily integrated with other Microsoft products such as Excel and SharePoint and improve business performance

OBJECTIVE OF THE STUDY

Tableau:

Tableau has been a pioneer in the field of data visualization since its inception.

The founders of Tableau aimed to develop a tool that would enable people to see and understand their data through interactive and visually appealing visualizations.

Tableau offers a wide range of visualizations, including bar charts, line charts, scatter plots, area charts, tree maps, heat maps, geographic maps, and more.

Users can create dashboards with multiple visualizations and interactive elements, such as filters, parameters, and actions, allowing for dynamic exploration of data. Tableau's drag-and-drop interface makes it easy for users to build visualizations without the need for coding or scripting.

The software provides a rich set of formatting options, allowing users to customize the appearance of visualizations and create engaging and compelling reports and dashboards.

Power BI:

Power BI, developed by Microsoft, emphasizes intuitive and user-friendly data visualization capabilities.

Power BI was initially integrated with Microsoft Excel, leveraging Excel's familiar interface to provide users with powerful data visualization and analysis capabilities.

Over time, Power BI has evolved into a stand-alone analytics and reporting platform with a strong emphasis on interactive visualizations.

Power BI offers a wide range of visualizations, including column charts, line charts, pie charts, scatter plots, funnel charts, maps, and more. • Users can create interactive dashboards and reports by dragging and dropping visual elements onto the canvas.

Power BI provides a set of formatting options for customizing visualizations, including color themes, fonts, and data labels.

The software also supports drill-down, drill-through, and crossfiltering capabilities, enabling users to explore data at different levels of granularity.

METHODOLOGY

Tableau and Power BI follow similar methodologies for data visualization and analysis. In Tableau, the process involves connecting to data sources, preparing the data, creating visualizations, building interactive dashboards and reports, performing analysis, and sharing insights with others. Power BI follows a similar approach, where data is connected and transformed using Power Query, visualizations are created using a variety of chart types, reports and dashboards are designed, data is analyzed using DAX formulas, and insights are shared and collaborated upon. Both

tools prioritize user-friendly interfaces, self-service capabilities, and the ability to connect to various data sources for effective data visualization and analysis.

Literature Review

Tableau:

User-Friendly Data Visualization: Studies highlight Tableau's intuitive and user-friendly interface, making it accessible to users with varying levels of technical expertise.

Visual Analytics Capabilities: The literature emphasizes Tableau's robust visual analytics features, including interactive dashboards, drill-down capabilities, and data storytelling, allowing users to explore and communicate insights effectively.

Data Preparation and Integration: Researchers often discuss Tableau's ability to connect to various data sources and its data preparation capabilities, enabling users to clean, transform, and blend data for analysis.

Performance and Scalability: Some studies delve into the performance aspects of Tableau, examining its ability to handle large datasets and provide real-time visualizations.

Business Impact: Literature also explores the impact of Tableau on organizations, discussing how it enhances decision-making processes, improves data literacy, and fosters a data-driven culture.

Power BI:

Integration with Microsoft Ecosystem: Researchers often highlight the seamless integration of Power BI with other Microsoft products and services, providing organizations with a comprehensive analytics solution.

Self-Service Analytics: The literature emphasizes Power BI's self-service analytics capabilities, allowing business users to create and share visualizations without heavy reliance on IT departments.

Collaboration and Sharing: Studies discuss Power BI's collaborative features, such as shared workspaces, real-time collaboration, and report sharing options, facilitating data-driven collaboration within organizations.

4. Data Connectivity and Transformation: Researchers often highlight Power BI's extensive data connectivity options and its ability to transform and shape data within the tool, enabling users to prepare data for analysis.

5. AI and Advanced Analytics: Some literature explores Power BI's integration with AI and advanced analytics capabilities, such as natural language processing, predictive modeling, and machine learning, to enhance data exploration and forecasting.

DISCUSSIONS

Tableau was one of the first to recognize that data was going to play a central role in helping people see and understand what was happening. Our team went to work right away and developed what was to be the first of a number of tracker dashboards to help visualize the scope of the pandemic. We launched the COVID-19 Data Hub in March 2020 as a free resource for people and organizations to access the tracker dashboard. The Global COVID-19 tracker provided key metrics on where the pandemic was spreading, and impacts, including metrics on mortality and hospitalizations. Within days of launch, the Hub had garnered thousands of visits. Over the course of the next year, millions of visitors to the site accessed the site, seeing critical metrics in near-real time, using the Global Tracker dashboard. The Tracker enabled everyone from business and public sector leaders, to the general public, to get the information necessary to make informed decisions. Visitors could also access and download datasets to perform their own analyses.

The Power BI team has created a COVID-19 tracking sample that enables US state and local governments to publish or customize an interactive report about COVID-19. The Power BI file contains the data model and interactive graphics in a Power BI template file format you can edit in Power BI Desktop. When you open it in Power BI Desktop, you can analyze and visualize COVID-19 data to keep your community informed at the city, county, state, and national/regional levels. A typical customization is to filter the report to a specific state, and then to create your own publish-to-web embed code to share the report publicly and inform citizens.

Conclusion

In conclusion, COVID-19 data visualization using Tableau is a useful method for presenting complex data in a clear and understandable manner. With the help of Tableau's robust visualization tools, analysts can produce a variety of graphs, maps, and charts that can highlight key patterns and insights in the data, including the evolution of the virus over time, regional variations in infection rates, and potential demographic factors influencing the virus' spread.

Track trends: Users can see the initial outbreak, peaks, and succeeding waves of the infection by viewing patterns over time. Understanding the efficacy of therapies and the likelihood of revival is made easier by this.

Geographical Analysis:

Geospatial visualizations highlight the impact on various nations and areas. Users may locate infection hotspots and variants, which helps with resource allocation and focuses actions.

Comparative Analysis:

It is possible to compare the effects of COVID-19 by visualizing data from various locations or nations, which also makes it easier to spot trends, variations in response methods, and likely causes of different results.

Impact of Interventions:

Users can evaluate the efficacy of various strategies in containing the virus's spread by superimposing intervention schedules (lockdowns, mask mandates, etc.) with infection rate data.

Vaccination Progress:

It is easy to understand the significance of vaccination efforts when you can visualize immunization rates and their effect on lowering infection rates and serious outcomes.

Public Awareness:

As they make the data more accessible and simpler to understand, compelling visualizations can increase public awareness and promote adherence to rules.

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