



Choosing the Right Analytics Tool

Grant Duncan's Guide to Tableau vs. Power BI

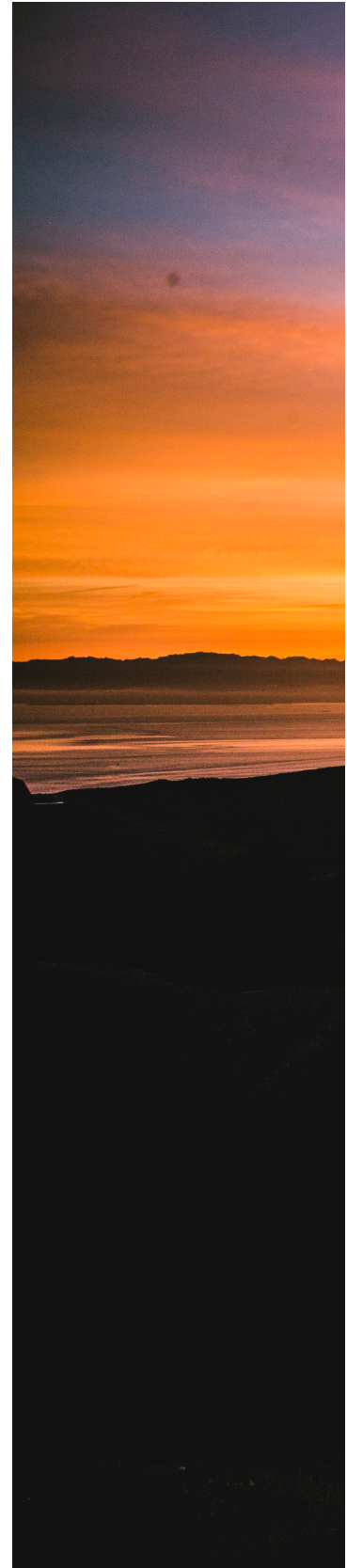
Summary:

Analytics is an incredibly important part of business today. There is an ever-increasing amount of data, and businesses need to be able to collect and analyze it to make actionable decisions. Using a data visualization tool is a powerful way for organizations to understand their data and their business. According to Gartner and from my experience, there are two top analytics and data visualization vendors that dominate the enterprise sector: Tableau and Power BI. Tableau has been seen as the market leader for years and years. However, Power BI has proven to be a strong challenger – Power BI and Tableau were positioned as the top leaders in Gartner’s latest magic quadrant. The verdict as to which is the best tool is... it depends. Their capabilities are becoming more and more similar so making the right choice depends on your particular organization and your biggest needs are. Read on to find out in more details.

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Overview of Analytics and Data Visualization

Business analytics is a set of theories, methodologies, architectures, and technologies that transform raw data into meaningful and useful information for business purposes. Simply put, analytics take data and turns it into actionable information and insights that businesses can make decisions upon.

Older versions of business intelligence and analytics displayed information in ways where it was hard for stakeholders to understand and consume the data. In today's world, you need to focus on telling a story with your data so that it is more impactful and consumable. Otherwise, the important insights you want to share will get lost in unnecessary complexity.

Your analytics teams are experts at the data, but your stakeholders are not. You need your audience to understand and consume the data in ways they understand and can act upon. That's where analytics solutions come into play – they make it visually appealing and help people understand the data better.



Analytics is the bridge to communicating your data insights effectively.

In today's world, it is becoming increasingly important to analyze data and do it in a consumable manner.

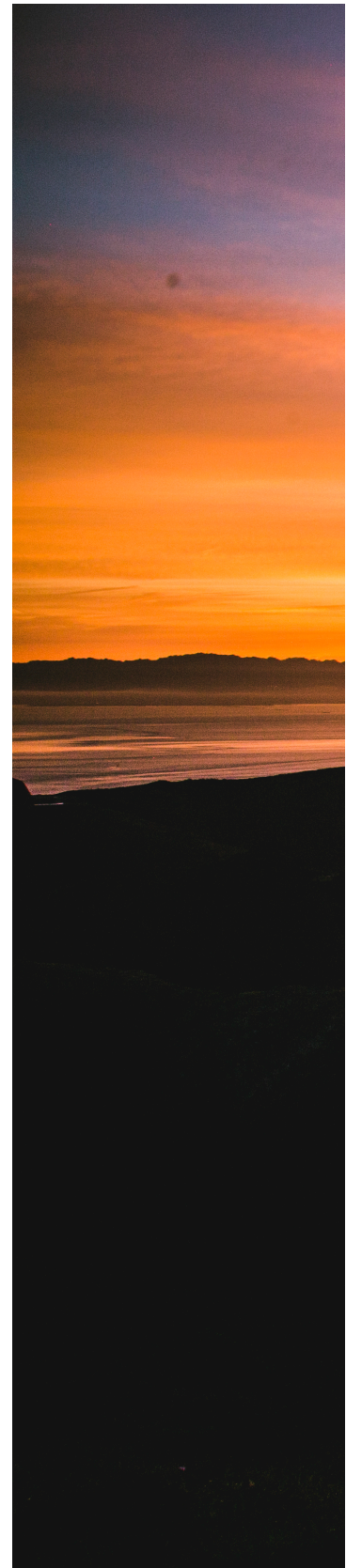
- The amount of information in the world doubles every 18 months.¹
- The average attention span is 8 seconds.
 - It used to be 12 seconds in 2000.
 - As comparison, a goldfish's attention span is 9 seconds.²

How do we overcome this? By using visuals to communicate and increase comprehension. Your brain interprets visuals 60,000x faster than words.³ Visuals are the way to help people understand data much quicker than just giving them a cross-tab of data to digest.

¹ Source: Digital Spark Marketing

² Source: Digital Spark Marketing

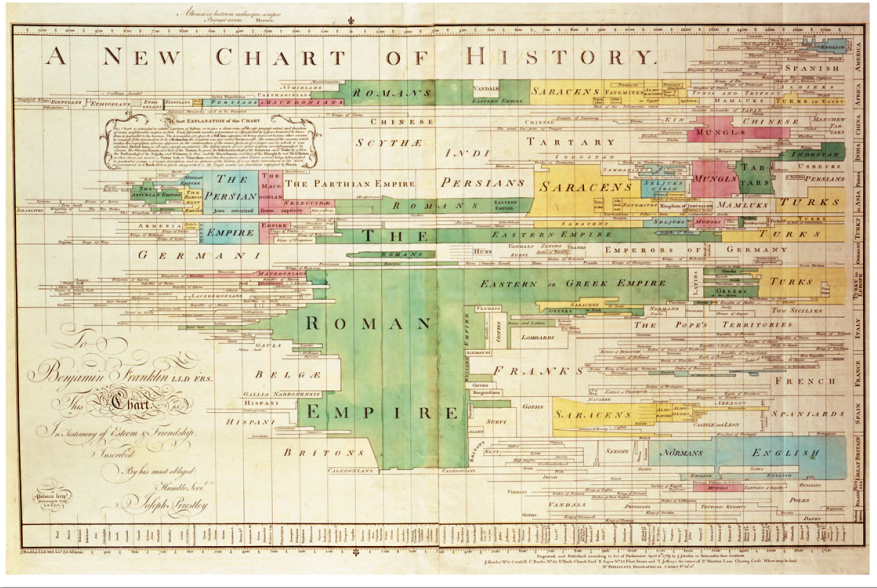
³ Visual Teaching Alliance



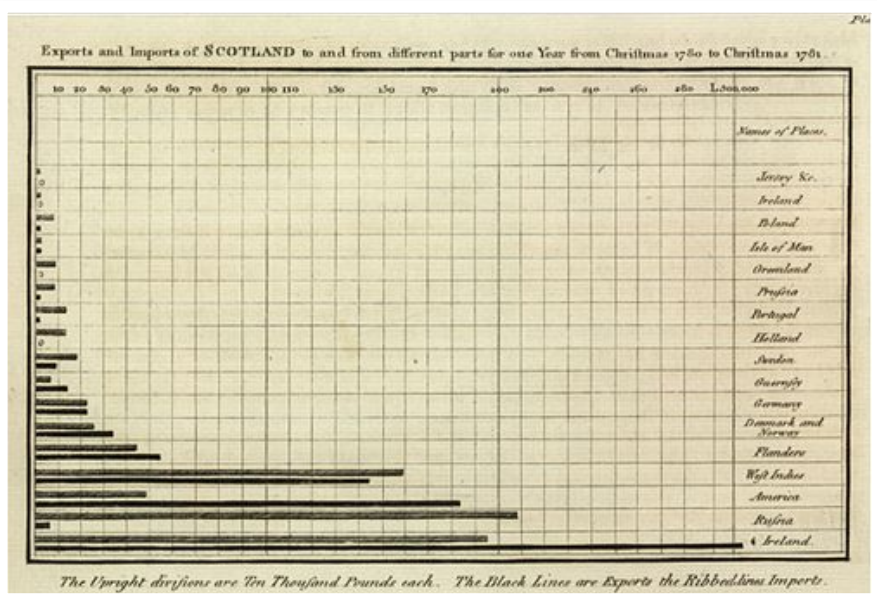
History of Analytics and Data Visualization:

Communicating information in a more visual manner is not something that is new to the 21st century. Humans have been using visuals to communicate data for a long time.

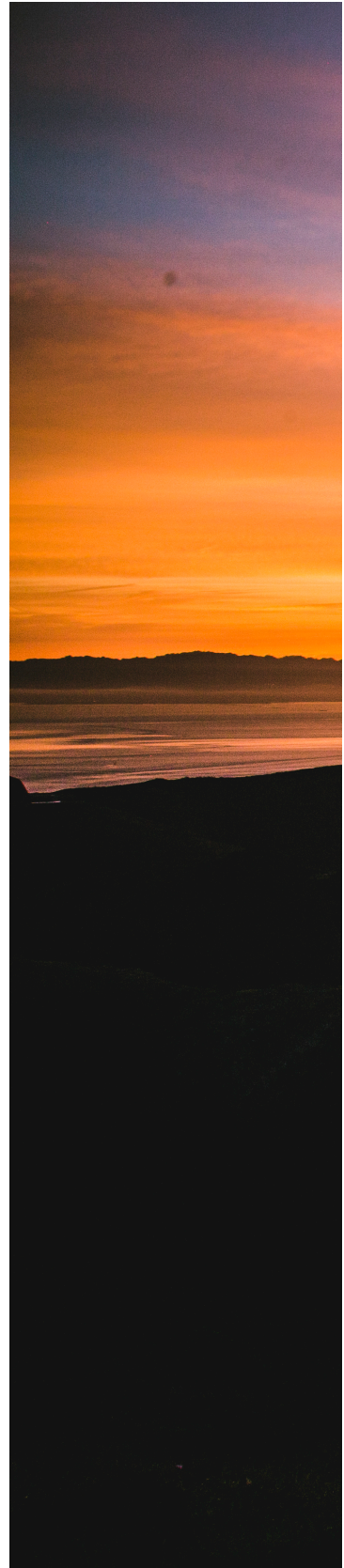
A few examples from the past:

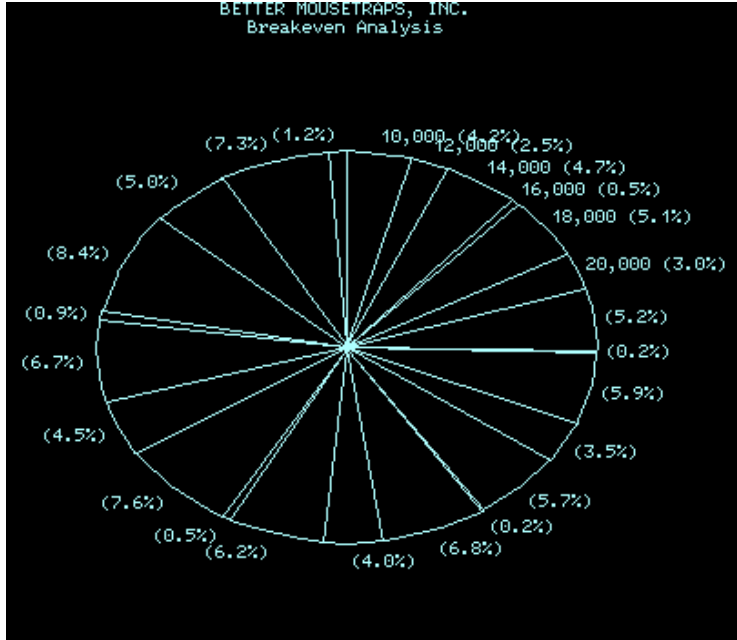


In 1765, Joseph Priestley created “A New Chart of History”. This shows the history of major civilizations over the same time period. This illustrates the passing of power over time. Over 1,000 years is covered in this by using color, shapes, and relative volume.

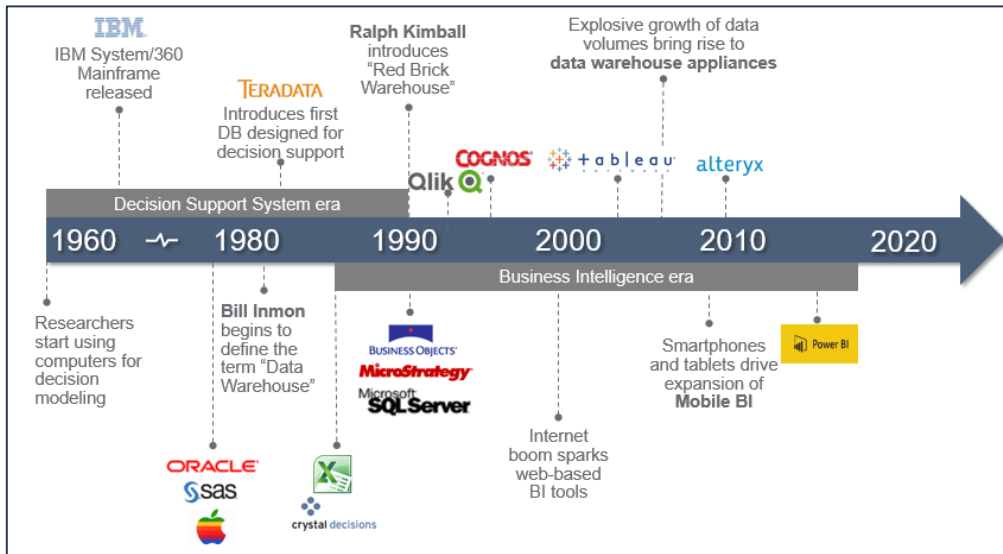


William Playfair created this bar chart in 1786. It shows the trade surpluses and deficits with various countries.



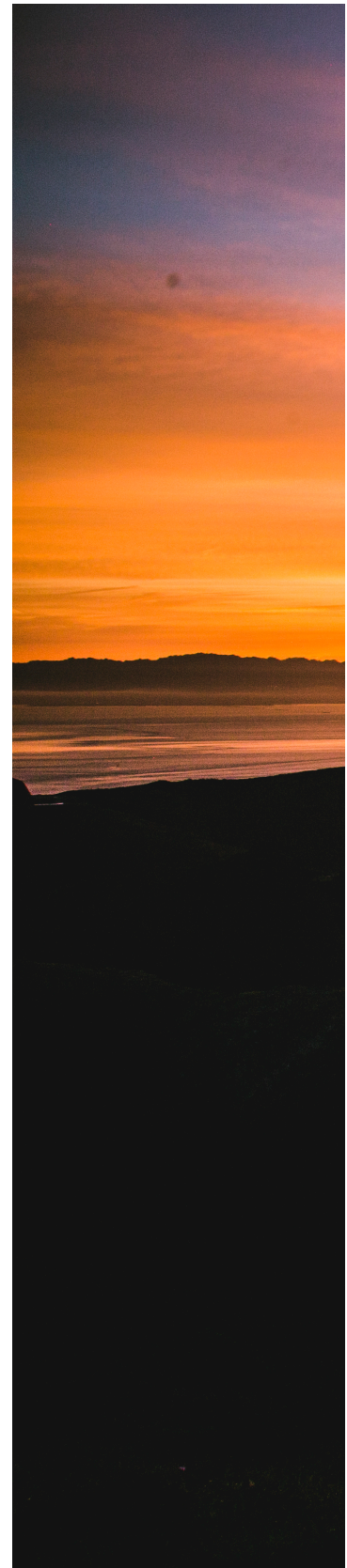


Fast forward into the dawn of personal computing – Lotus Software created Lotus 1-2-3, a spreadsheet program named because it could handle spreadsheet calculations, database functionality, and graphical charts. Microsoft Excel later overtook Lotus 1-2-3 as the de facto spreadsheet program.



Fast forward even more and we get into the age of business intelligence as well as more modern BI and analytics solutions.⁴

⁴ There are many companies not included in the above timeline. This is intended to be a representative sample of companies and trends.



Today's Top Players

Today, there are many different visualization tools. Some are developed for many use cases while some products focus on specialty niches. Gartner produces an annual Magic Quadrant for business intelligence and analytics platforms, and Power BI and Tableau are positioned as the top leaders.

Figure 1. Magic Quadrant for Business Intelligence and Analytics Platforms

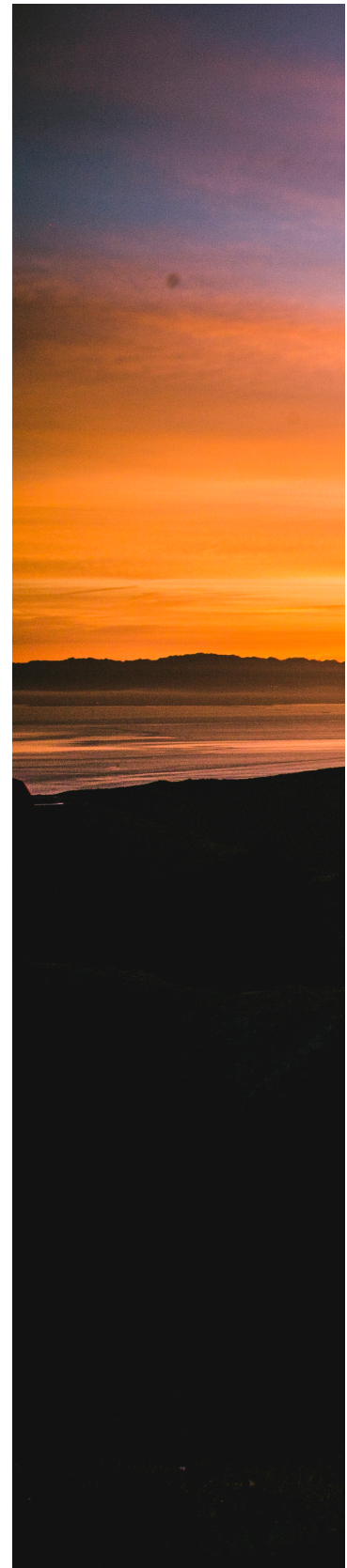


Many enterprises these days are shifting to focusing on Tableau or Power BI for their enterprise-wide analytics tool. Because of this trend, I have compared just Power BI and Tableau in this white paper.

How to Choose the Right Tool

While the subsequent section focuses on Tableau and Power BI, there may another tool that is a better fit for your organization. Each organization is different in their needs and priorities. Because of this, there isn't one tool that will always be the best solution. You must evaluate each tool based on the capabilities your teams will need the most to analyze, visualize, and consume data. Capability categories typically considered by enterprises when choosing an analytics tool include:

- Overall capabilities and alignment to business goals



- Data management capabilities
- Capabilities for building dashboards
- Visuals
- Formatting & Functionality
- Capabilities for consuming dashboards
- Advanced analytics
- Technical architecture
- Exporting and integrations
- Mobility
- Cost structure
- Support and maintenance

Tableau vs. Power BI – The Showdown

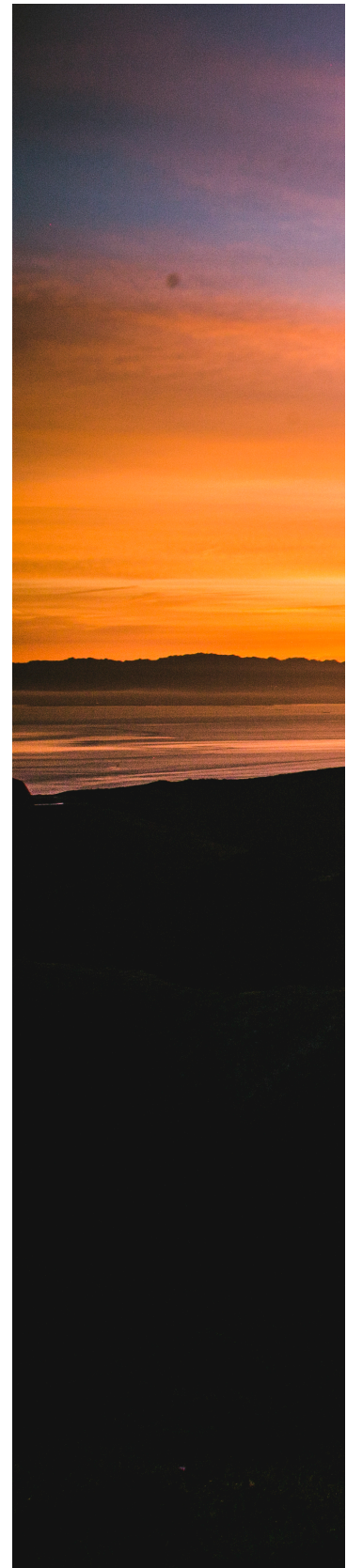
Let's take a deep dive on the capabilities for Power BI and Tableau. Note this white paper represents the comparison as of October 2017 (Power BI version: 2.51.4885.543; Tableau version: 10.4).

Legend for Rating:

- ✓ means tool has this capability
- ✓+ means tool has this capability and is much better than the other tool
- ✗ means tool does not have this capability

Overall	Power BI	Tableau
Drag and Drop Interface	✓+	✓
Self Service	✓	✓
Dashboards	✓	✓
Ad-hoc / Canned Reports	✓	✓
Semantic Layer	✓	✓
Aesthetic Abilities	✓	✓+
Communication / Collaboration	✓	✓
Scalability	✓	✓

Data Management	Power BI	Tableau
Cross Database Joins	✓	✓
Connectivity to Various DBMS / Data Sources	73+	75+
Load Data In-Memory or Direct Query	✓	✓
Data Extraction, Transform & Load	✓+	✓
Data Quality & Matching	✓	✓
Data Profiling	✓	✓

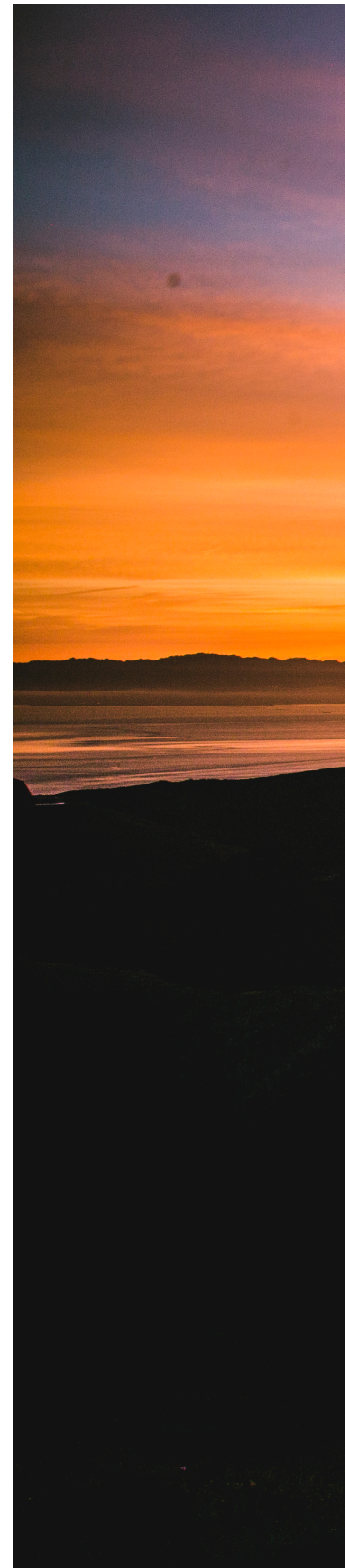


Dashboard Building	Power BI	Tableau
Visual Drilldown	✓	✓
Filter and Drill Through to Other Dashboard / Report Page	✓	✓+
Customizable parameters for what-if analysis by user	✓	✓+

Visuals	Power BI	Tableau
Advanced Mapping Capabilities	✓	✓
Built in map layers for demographic info	✗	✓
Conditional Formatting Highlight Tables	✓	✓
Custom heat maps	✓+	✓
Open source visualization store	✓	✗
Custom shapes as visuals	✓	✓+
Detailed line and multi-bar charts	✓+	✓
Filter visuals auto-adjust dropdown width to fit text inside	✗	✓
Data points limitations on scatter plots	10,000	Unlimited

Formatting & Functionality	Power BI	Tableau
Customizable formatting	✓	✓+
Free floating dashboard layouts	✓	✓
Containerized dashboard layouts	✗	✓
Floating legends	✗	✓
Customizable mouse-over tooltips	✓	✓+
Hyperlink by clicking an image	✗	✓

Consuming Dashboards	Power BI	Tableau
Natural Query Language	✓	✗
Alerting	✓	✓
Pin visuals from multiple reports to create custom dashboards	✓	✗
Storyboarding capability	✗	✓
Scheduling / Distribution	✓	✓
Customize / bookmark view	✓	✓

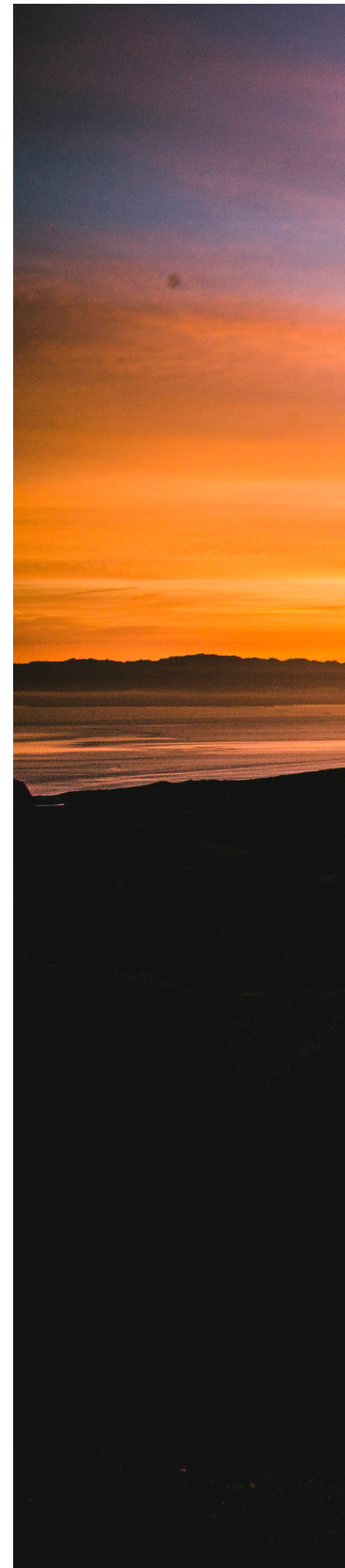


Advanced Analytics	Power BI	Tableau
Built-In Statistical Capabilities	✓	✓ +
R Statistical Model Integration	✓	✓
Python Statistical Model Integration	✗	✓
MATLAB Statistical Model Integration	✗	✓

Technical Architecture	Power BI	Tableau
Rich API for Further Development	✓	✓
Client-Server Architecture	✓	✓
Security Architecture	Cloud or On-Prem, Row-Level Security, SSO	Cloud or On-Prem, Row-Level Security, SSO, Data Source Login Prompt

Exporting and Integrations	Power BI	Tableau
Windows 10 Cortana Q&A Integration	✓	✗
Ability to create an Excel Pivot directly from the cloud based data model	✓	✗
Export Capabilities (without 3 rd party or customization)	Excel, CSV, PDF, PPT, PBIX	Excel, CSV, Access, PDF, TWBX, Image

Mobility	Power BI	Tableau
iPad app	✓	✓
Edit visuals and dashboards on iPad app	✗	✓
iPhone app	✓	✓
Apple Watch app	✓	✗
Android app	✓	✓
Windows Phone app	✓	✗



Cost Structure	Power BI	Tableau
Free Trial Available	✓	✓
Licensing Costs	Per User, Server	Per User, Server
Server vs. Client Licenses	Server, Desktop	Server, Desktop
License Types and Options	Annual Subscription	Annual Subscription

Support & Maintenance	Power BI	Tableau
Online Documentation	✓	✓
Online Training Videos	✓	✓
In Person Training	✓	✓
Enterprise Support	✓	✓
User Community Forum Support	✓	✓ +

Conclusion

Analytics is a powerful method to become data-driven. Instead of relying on gut feeling, using data to make decisions enables you to make decisions based in reality. Data visualization tools are an increasingly popular avenue for enterprises to create and share insights from their data. Tableau and Power BI are the most used data viz tools. Both have strengths and weaknesses. Choosing the right tool must be done in accordance with the top priorities of your organization. If you're interested in getting help with determining the correct solution for you or anything related to your data, please reach out – [Slalom](#) is a top partner of Tableau and Microsoft and would love to help you.

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