Power BI – Visualizations

April 2018

Insights & Data

Capgemini

AGENDA

Advanced Features

- What-if Analysis
- Dynamic Measures
- Timeline Story Teller
- Power BI Embedded
- Power BI REST API
- Power BI for IoT with Azure Stream Analytics

Power BI Advanced Features

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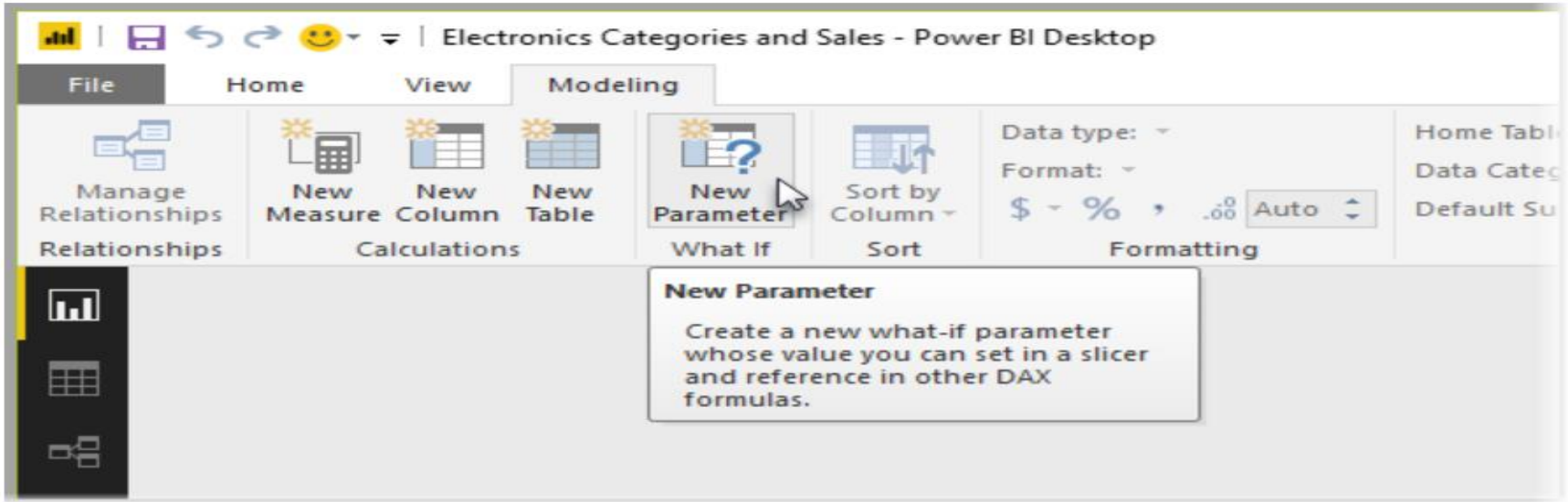
What-if Analysis

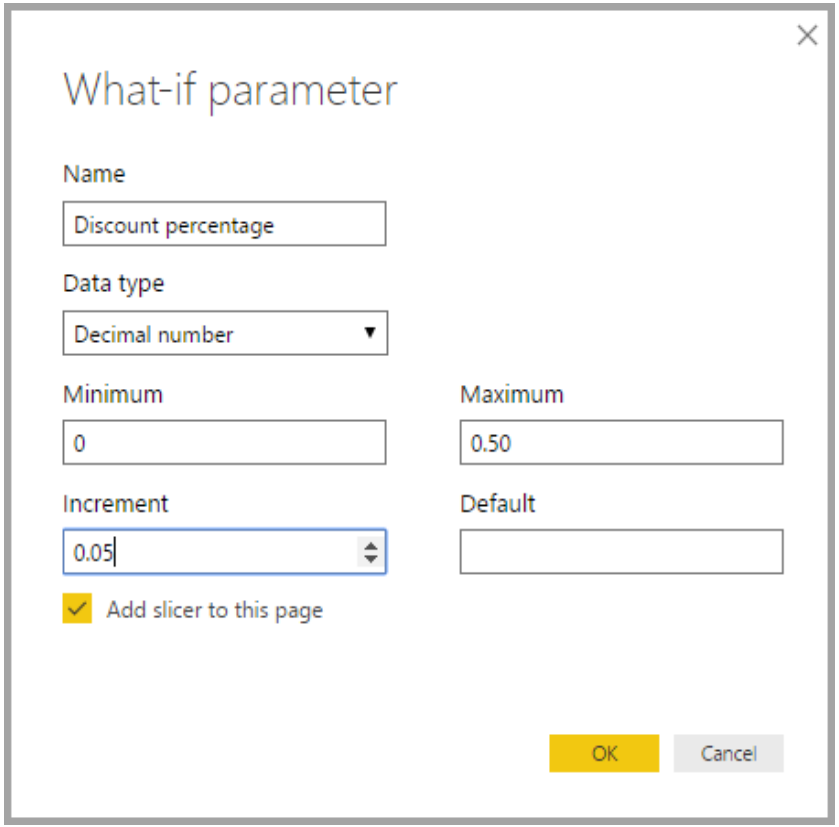
Using ***What If Parameter*** feature in Power BI you can dynamically perform what-if type analysis by using a slider bar to visualize changes to a calculation. This provides a very flexible way to perform all kinds of different "what if" type scenarios.



What-if Analysis (Continued)

Fields for What-if

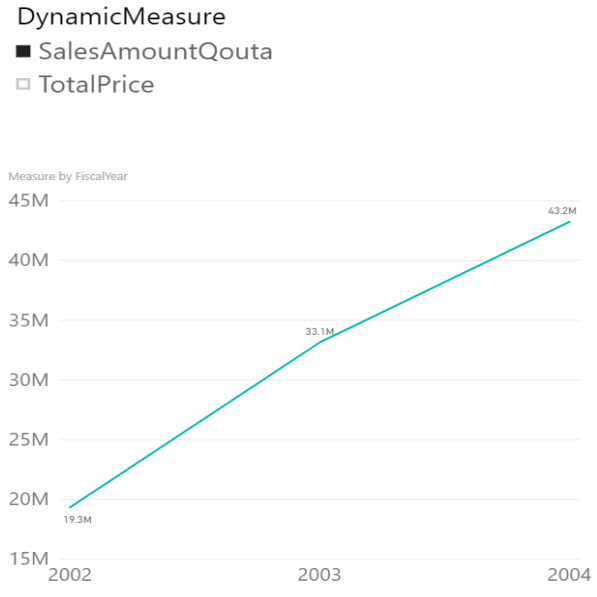
- **Name**: Name of the parameter
- **Data Type**: Data type of the Parameter. There are three options to choose from i.e. Whole number, decimal number, fixed decimal number.
- **Minimum:** The least value for the parameter. By default it is set as 0.
- **Increment:** The value at which you wish to get the parameter incremented at. By default it is set to 1.
- **Maximum:** The maximum value for the parameter. By default it is set to 20.
- **Default:** We can also set a default value for the parameter.

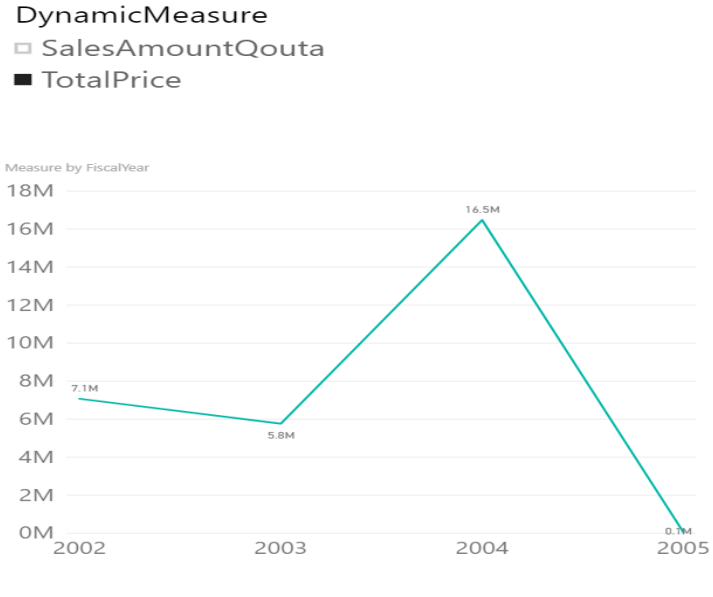


Dynamic Measures

With Dynamic Measure, you can use Slicer to select the measure you want to see in the visualizations

Instead of creating separate pages/visualizations for each measure, you can dynamically populate each chart with a chosen measure which can be accessed via a filter/slicer.





Storytelling- Overview

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Storytelling Overview

- What is a Data story?
- History of data stories
- Importance of data stories

Steps to achieve data story

- Identifying your story
- Compared to what?
- Presenting your story

Custom Visuals Available

- Timeline Storyteller
- Enlighten Acquarium
- Enlighten Data Story
- Pulse Chart

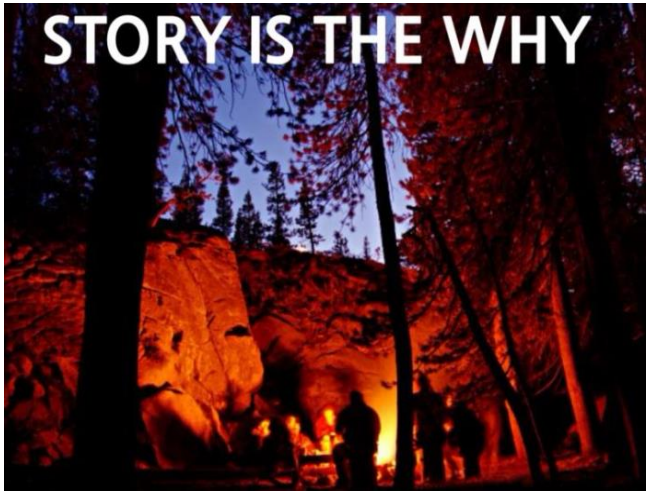
Conclusion

- Conclusion

What is a Data story?

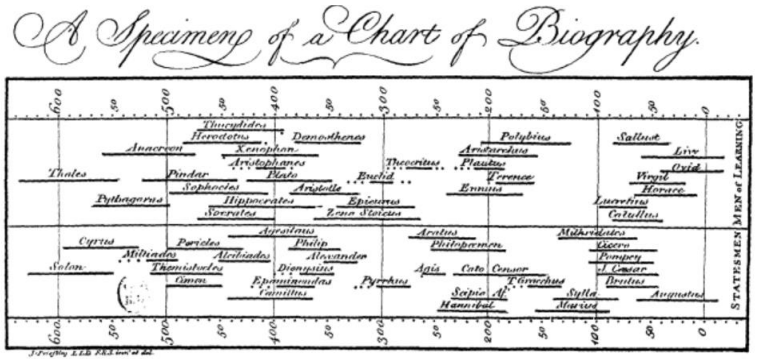
Storytelling with data is more like writing a comic book

- It's creating an ordered way of viewing the data in a way that one thing leads to another thing, so the user gets the context and the rationale of why things happen.
- Data Stories are the best way to communicate effectively and motivate others to take actions you want them to take.



History of Data Stories

- Humans have been using data stories in the form of timelines for centuries to visually communicate stories about sequences of events, from historical and biographical data, to project plans and medical records. From hand-drawn illustrations to contemporary infographics, storytellers have employed a wide range of visual forms for communicating with timelines.
- In recent years, there has been an emergence of interactive timeline visualization tools used for data-rich presentations and storytelling, especially within the data journalism community.



Importance of data stories

- Data is big, it’s complicated, and we humans detest complexity – our brains are wired to search for the simplest answer.
- Facts don’t persuade, feelings do. And stories are the best way to get at those feelings.
- Humans are pattern-seeking story-telling animals, and we are quite adept at telling stories about patterns, whether they exist or not.
- Data stories teach and explain, they create emotion and entertain us. Stories are just data with a soul.

Steps to achieve data stories

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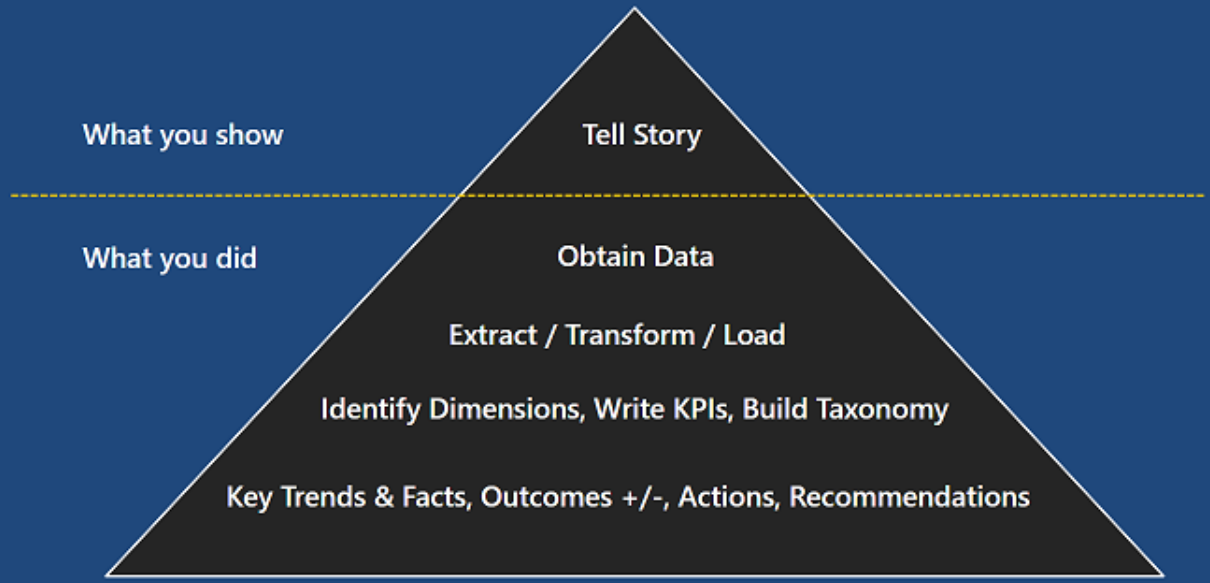
TO COME UP WITH A GOOD STORY, THINK LIKE AN **INFORMATION DESIGNER**



Identifying your story

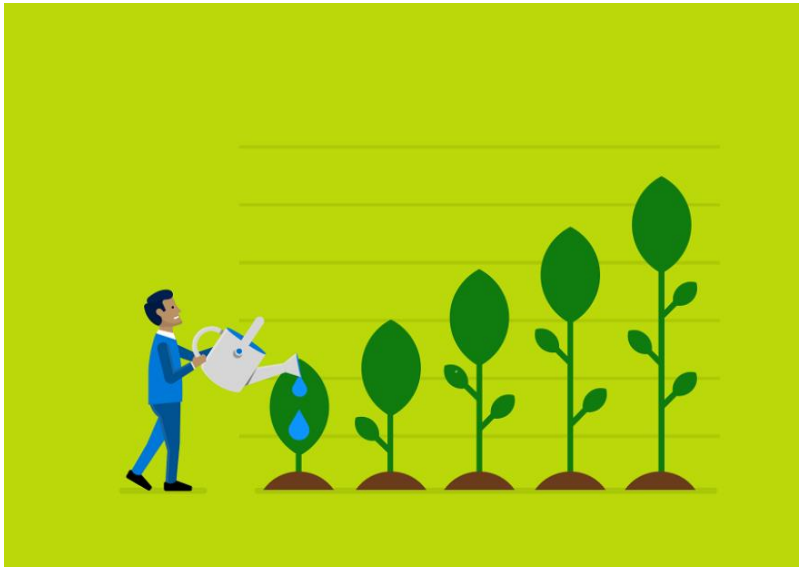
- Visualizing your data in Power BI is a great first step in identifying the truth in your data.
- Once you understand what your data is telling you, you can begin to plan your story arc.
- Identifying what you want the reader to take away from your story when interacting with your data visualization will set the stage for an effective story.

Compared to what?

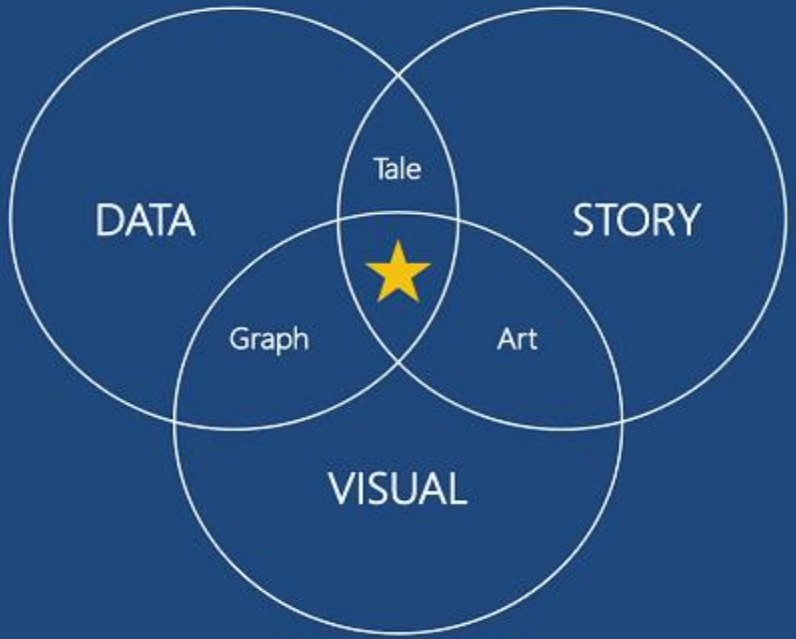
- After identifying key insights in your data, a great question to ask is “compared to what?”
- Providing context to the reader helps a data story feel more honest and unbiased. It shows the reader how the data being highlighted fits into the bigger picture.

Presenting your story

- Once a data story has been created, finding an effective way to present it has historically been a challenge.
- Power BI has always been to enable users everywhere to experience data in the best way possible. This goes for authors as well as the audience of the reports. Features like Power BI publish to web allows users to tell compelling stories with interactive data visualizations in minutes. You can use “Publish to web” to embed Power BI visualizations in your blog, website, emails, or even social media accounts.



THE FOCUS IS TO COMBINE **THREE AREAS** EFFECTIVELY



Custom Visuals Available

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Timeline Storyteller

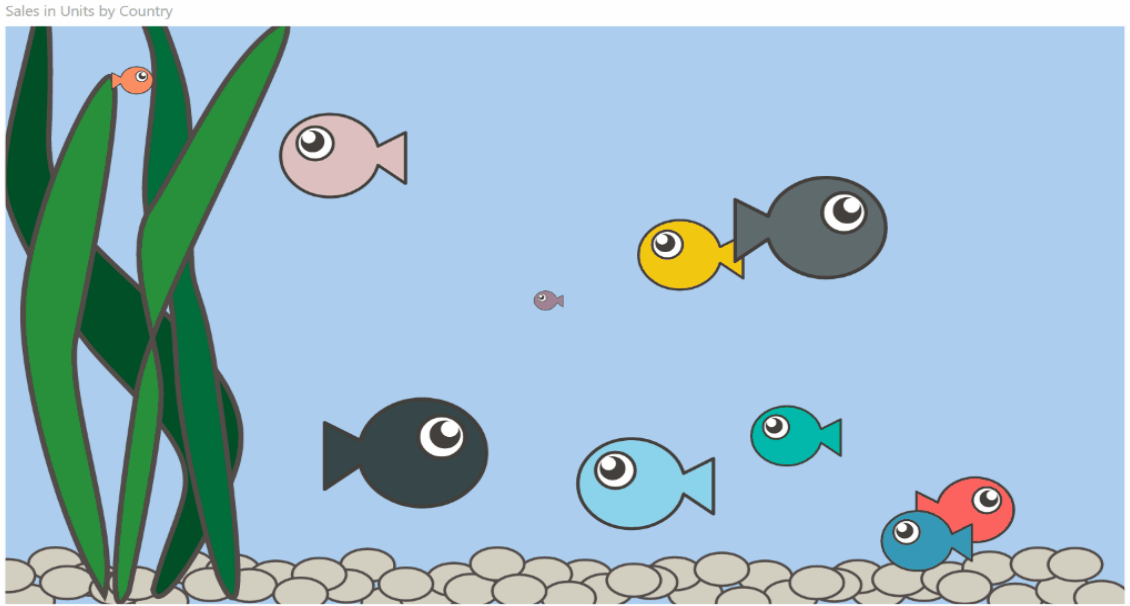
- Timeline Storyteller is an open-source expressive visual storytelling environment for presenting timelines in the browser or in Microsoft Power BI.

- One can use it to present different aspects of timeline data using a palette of timeline representations, scales, and layouts, as well as controls for filtering, highlighting, and annotation.

Enlighten Acquarium

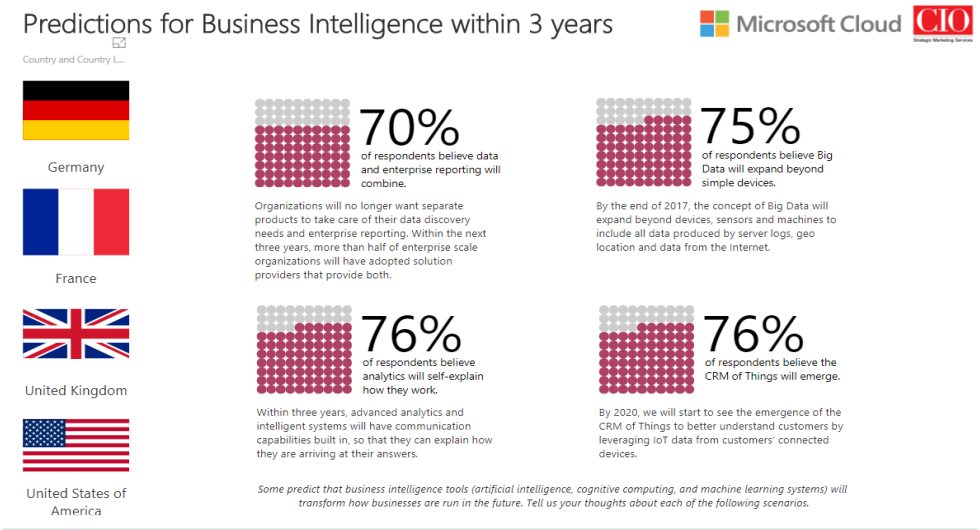
- Data should be FUN! Enlighten aquarium tells a story through making your data simple, fun and engaging.

- It can be used in various situations like a dashboard screen in a room where everyone can see it and notice changes day to day and empathize with the data to rally efforts.



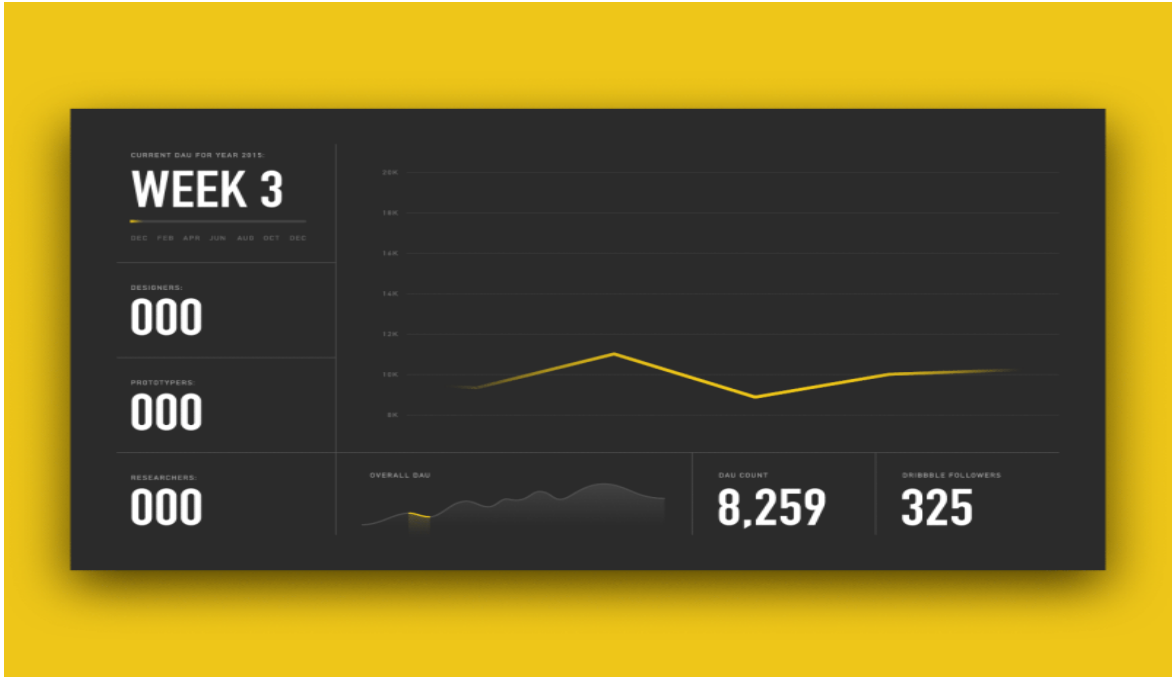
Enlighten Data Story

- Tell a clear and simple story with your data.
- This visual displays text with stand-out dynamic data values which allows you to present your story in a simple to understand and impactful way. You can control the font size, color and style of both the text and the data values.



Pulse Chart

- The Pulse chart shows key events on a timeline, and lets you play back the events to reveal insights.



Conclusion

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Conclusion

- Storytelling is very powerful and combined with modern visualization tools as the ones in Microsoft Power BI you can provide even better insight into your data.

- We are still humans with a complex brain, which loves to understand context and try to relive the stories. So with that in mind, remember that stories needs data, but the data also needs the stories.

Power BI Embedded

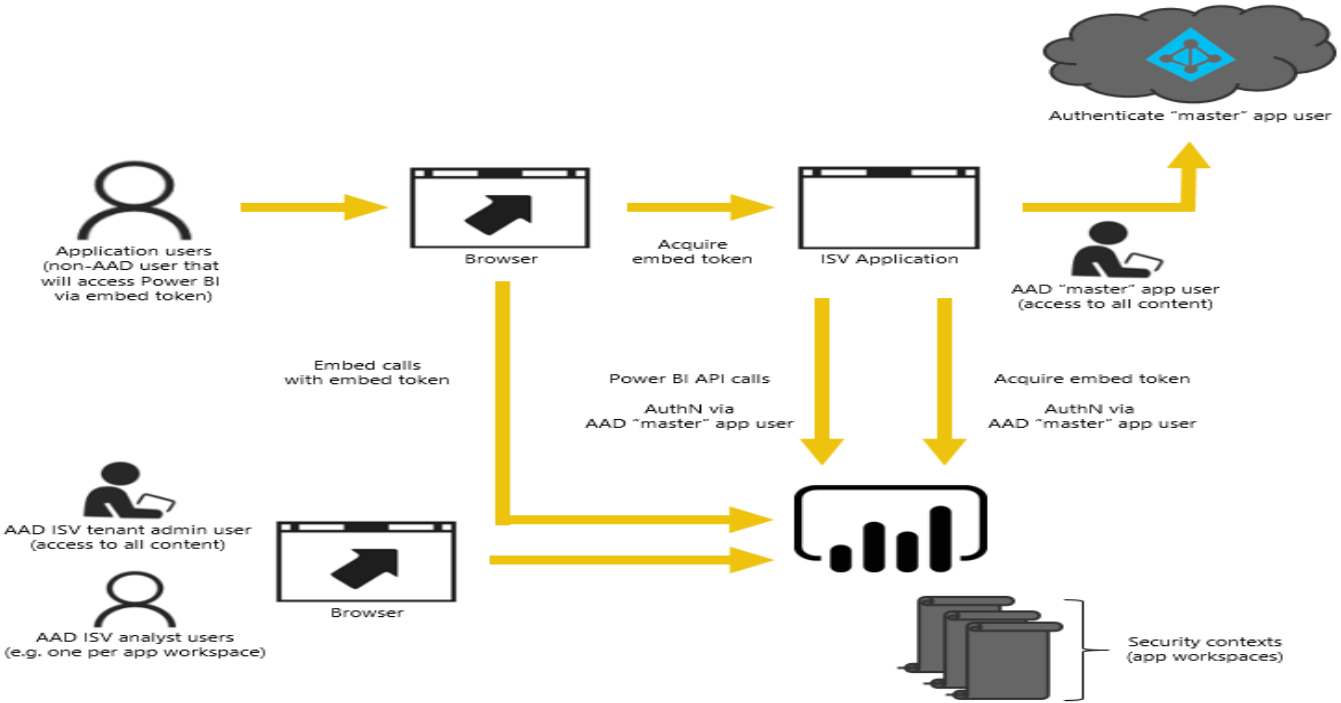
Power BI offers APIs for embedding your dashboards and reports into applications. The Power BI APIs offer a consistent set of capabilities and access to the latest Power BI features – such as dashboards, gateways and app workspaces – when embedding content.

There are two main scenarios when embedding Power BI content:

- Embedding for users in your organization (who have licenses for Power BI)
- Embedding for your users and customers without requiring them to have Power BI licenses. The Power BI REST API allows for both scenarios.

Power BI Embedded (Continued)

An example of embedding for your customers is an ISV application being sold to other companies.



Power BI for IoT with Azure Stream Analytics

Power BI allows users to perform ***real-time stream analytics*** on data in motion, and then output the results to Power BI for visualization and analysis.

- By integrating Power BI, Microsoft's business intelligence and analytics product, and Microsoft's Azure Stream Analytics, it is now possible to create interactive, live dashboards that offers users an up to the minute overview to their IoT device deployments.

- Azure Stream Analytics as a service enables organizations to perform real-time analytics on data from IoT devices using a simple SQL like language. Azure Stream Analytics is capable of handling millions of events and when used in conjuction with its two other cloud-based IoT services- Azure Event Hubs and IoT Hubs, it can enable customers to aggregate and filter streaming data for further analysis.

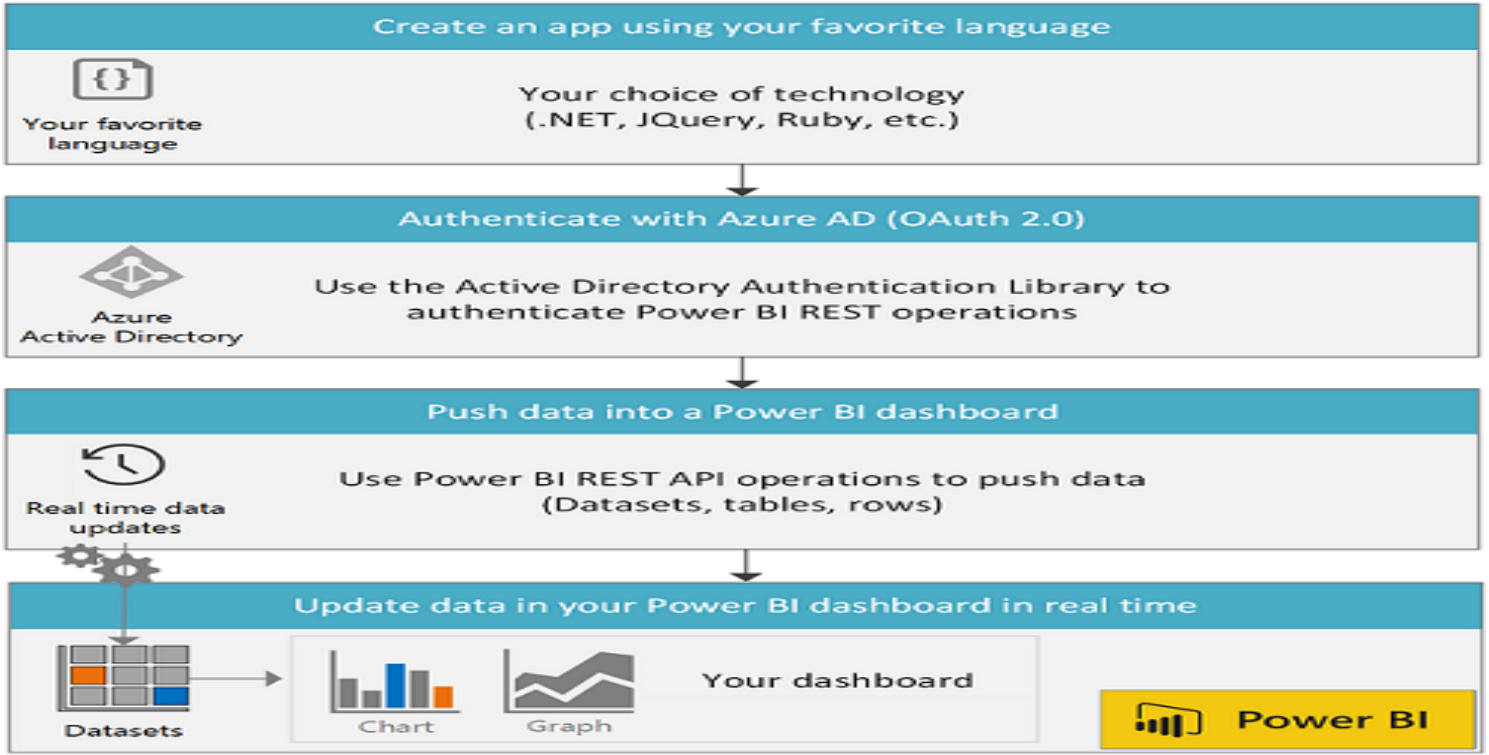
Power BI REST API

What is REST API?

- REST or RESTful API design (Representational State Transfer) is designed to take advantage of existing protocols. While REST can be used over nearly any protocol, it usually takes advantage of HTTP when used for Web APIs. This means that developers do not need to install libraries or additional software in order to take advantage of a REST API design.
- REST API Design was defined by Dr. Roy Fielding in his 2000 doctorate dissertation. It is notable for its incredible layer of flexibility.
- Since data is not tied to methods and resources, REST has the ability to handle multiple types of calls, return different data formats and even change structurally with the correct implementation of hypermedia.

Power BI REST API (Continued)

Here's an overall flow for a Power BI app created using the REST API.



Thank You!

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