Hello and welcome to our Tableau to Power BI training slash refresher course. The goal of this training is to familiarize Tableau users with the features and capacities that we have at NAVWAR with the Navy’s investment in M365. I know there are strong opinions on which data viz software is better, but I think that the good that we get with Power BI outweighs the cons and will be a good move overall. There will still be uses for Tableau in Jupiter/Advana as well so it won’t only be Power BI completely.

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The agenda and schedule for today will start with a overview and description of the capabilities of the Power BI Report Server. We will talk about the process in creating automated data pipelines as well as how to present and share finished products. After that I will outline some of the challenges we will likely face with migrating these dashboards over. Then we will go through a demo dashboard build using some sample data to show you some ways to use Power BI to add some additional functionality that may not have been possible with Tableau. Finally we will have Darren Adams who has Power BI expertise will give a presentation on some data visualization best practices. I would assume that we will likely wrap up around noon and maybe a little earlier. Any remaining time will be used as an informal office hours where if anyone has any questions about a concept, or blocker with something they’ve built we can try and work thru it during that time.

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As you may have heard Power BI is no longer available on NMCI due to security concerns. Like Tableau had been for a long time the version of Power BI Desktop that was available on NMCI was many versions behind the current production release. With this being the case, I personally had always used the Power BI Desktop version available on NVD which is as close to the current production build as possible. I don’t know if any of you have not setup NVD on your system yet, but you will need to use it in order to be able to go ahead with work on this migration effort. You can create dashboards in the Power BI Web Server, but most of the features needed to make high quality work are not available and I would not recommend trying it. Especially, because it is very easy to get NVD access.

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So the M365 E5 License is the level of access that all Navy DoD personnel have with their flankspeed account. This means that they have a Power BI Pro Account. The way Power BI Licensing works is fundamentally different than Tableau. Tableau requires you to have a reader license on any machine in order to even view dashboards as you all know by now. As such we are expected to create a product that can then be screenshotted and added to a powerpoint to make viewing possible on any machine. The Navy’s investment in Power BI means we should try to push people in our organization to access these dashboards from the Power BI Server itself and this will allow us to build better products and hopefully make the org a little more modernized. This was possible with the Tableau server as well, but allowing users to access your Power BI server that houses your dashboards is much simpler. Some features, the biggest being copilot AI are turned off which is apparently coming to DoD as well, but there is not any date set for that yet as far as I know.

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In the Power BI Service, workspaces are the way to organize and manage content. A workspace is essentially a container for reports, dashboards, datasets, and other BI content, which can be shared and collaborated on within a team or across the organization.

Workspaces can be created by admins or users with sufficient permissions (depending on license level).

Modern Workspaces (also known as App Workspaces): These are more advanced and are the recommended model, offering richer features like apps, better collaboration, and integration with other Microsoft 365 tools. These workspaces can be used for organizing content, collaborating with other users, and controlling access and permissions.

In modern workspaces, the concept of Apps has been introduced, which allows users to bundle a set of related content (e.g., reports, dashboards) into a single package that can be shared with a broader audience. Users can access these apps based on their permissions and view the content from a central location.

Workspaces in the Power BI Service have role-based access control (RBAC), which determines who can access, view, and edit the content inside the workspace. Permissions are assigned at the workspace level and include the following roles:

Admin: Full control over workspace content and settings.

Member: Can publish and edit content within the workspace.

Contributor: Can contribute content but cannot modify settings or manage permissions.

Viewer: Can only view content, such as reports or dashboards, without any editing capabilities.

These roles help manage and control who can perform which actions on the workspace content. Additionally, Power BI integrates with Azure Active Directory (AAD) for identity management and access control.

Power BI Reports:

A report is a collection of one or more visualizations that display insights derived from the data. These reports are typically created using Power BI Desktop, a free application that provides a wide range of tools for data transformation, modeling, and visual design.

After creating the report in Power BI Desktop, it is published to the Power BI Service (into a workspace). Reports in the service can then be shared, collaborated on, or embedded into other applications.

Visualizations:

Visualizations (such as bar charts, line graphs, scatter plots, etc.) are created by dragging fields onto the report canvas and customizing them. Power BI supports a rich library of standard and custom visualizations.

Themes and Customization:

Users can also customize the appearance of reports through themes and by using custom visuals from the Power BI marketplace.

C. Dashboards

A dashboard in Power BI is a single-page, interactive view that brings together multiple visualizations from different reports or datasets. Dashboards are pinned from reports and provide a high-level overview of key metrics.

Dashboards are often used for tracking KPIs (key performance indicators) or other important metrics across different areas of the business.

Tiles: Each element on a dashboard (whether it's a chart, map, or KPI) is called a tile, and each tile links to a specific report or data source.

Dashboards can be shared with other users, and access to specific dashboards can be controlled based on user roles.

Dataflows in Power BI are used for transforming and preparing data before it is used in reports or dashboards. A dataflow is essentially a collection of data transformation steps (e.g., filtering, merging, cleaning) performed in the cloud using Power Query.

Dataflows can be shared across multiple reports and workspaces, promoting data reuse.

These are particularly useful in environments where data is complex and needs significant preprocessing before being loaded into a dataset.

A. Sharing and Collaboration

The Power BI Service is designed for collaboration and sharing:

Sharing Reports and Dashboards: Users can share individual reports or dashboards with others, either within the organization or with external users (for users with appropriate licenses).

Publish to Web: Power BI allows users to publish public-facing reports and dashboards via a web link, though this option is restricted for sensitive or private data.

Apps allow for the packaging of multiple reports and dashboards into a single, shareable unit. Once an app is created in a workspace, it can be distributed to other users (either within the organization or externally).

Power BI provides the ability to schedule data refreshes for datasets, ensuring that reports and dashboards reflect the most current data. Refresh schedules can be set daily, weekly, or as needed.

Row-Level Security (RLS) is a feature that allows report creators to restrict data access for specific users based on their identity. This is particularly useful in scenarios where users from different departments or teams should only see data relevant to them.

Users can set alerts on KPIs or metrics in dashboards. For instance, if a metric surpasses a certain threshold (like sales dropping below a set level), Power BI can notify users via email or a mobile push notification.

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So Power BI has a lot of good things, but it isn’t the perfect solution more than Tableau is. Tableau is really great at letting you do pretty much whatever you want in creating visuals. Power BI is less so that way. As we will see in the demo there is a bit of a workaround to this. The way you create and interact with visuals is a little different in Power BI. Rather than choosing data and building the visual around it you instead choose the visual and plugin the data. This can cause issues when you have a need from a visual that is not possible with the structure it has by default. There are options to bring in custom visuals from appsource. These apps are largely third party and in many cases run on a freemium model where publishing a report with these visuals present is not possible without paying a fee. With that being said let’s begin our demo dashboard build. I will provide the resources if you want to follow along

Demo

1. Import excel file
2. Build Relationships
3. Build Measures
4. Change Theme to City Park
5. Build Front Page Visuals
6. Gantt goes last talk about limitations
7. Add drillthrough and tooltip
8. Import background and set to back
9. Add menu icon
10. Build Filter Pane
11. Hide extra tabs and filter tab
12. Publish to FRD
13. Show App Features

DENEB Demo

Show RIPTIDE Automation (Dataflows and semantic model)

Pass off to Darren