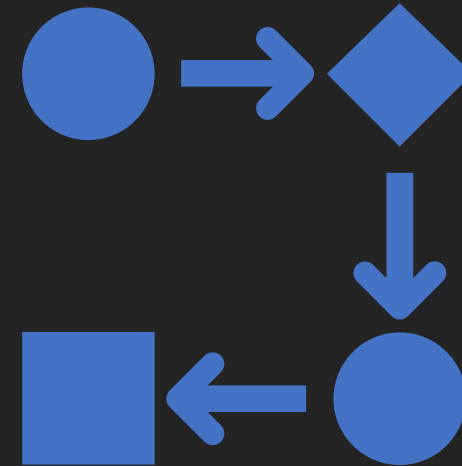# Best Bang for Your Buck Technology

National Capital Region Fire & Emergency Response Analysts Symposium

Fairfax, VA | May 3, 2024
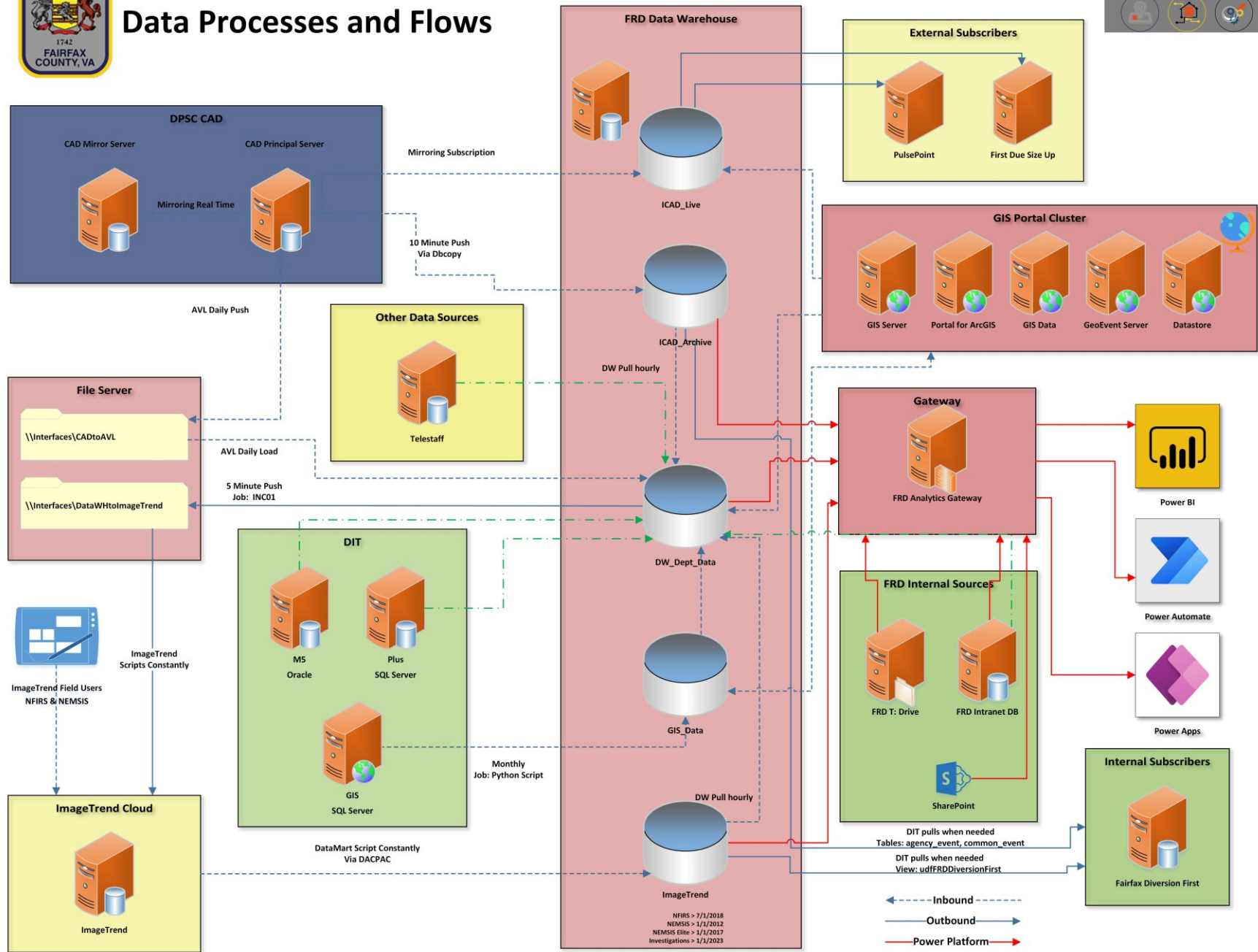
Outline

- Data Collection

- Data Processing

- Data Storage

- Data Visualization

- Project Management

- Your Recommendations

Fairfax County Fire & Rescue Department
Data Processes and Flows

Fairfax County Fire and Rescue Department
Data Analytics Strategy Management Division

FRD Data Warehouse

External Subscribers
- PulsePoint
- First Due Size Up

DPSC CAD
- CAD Mirror Server
- CAD Principal Server

Mirroring Real Time

Mirroring Subscription

10 Minute Push Via Dbcopy

AVL Daily Push

ICAD_Live

ICAD_Archive

GIS Portal Cluster
- GIS Server
- Portal for ArcGIS
- GIS Data
- GeoEvent Server
- Datastore

Other Data Sources
- Telestaff

DW Pull hourly

Gateway
- FRD Analytics Gateway

File Server
- \\Interfaces\CADtoAVL
- \\Interfaces\DataWHtoImageTrend

AVL Daily Load

5 Minute Push Job: INC01

DW_Dept_Data

DIT
- M5 — Oracle
- Plus — SQL Server
- GIS — SQL Server

Monthly Job: Python Script

ImageTrend Scripts Constantly

ImageTrend Field Users NFIRS & NEMSIS

ImageTrend Cloud
- ImageTrend

DataMart Script Constantly Via DACPAC

GIS_Data

FRD Internal Sources
- FRD T: Drive
- FRD Intranet DB
- SharePoint

DW Pull hourly

ImageTrend

NFIRS > 7/1/2018
NEMSIS > 1/1/2012
NEMSIS Elite > 1/1/2017
Investigations > 1/1/2023

DIT pulls when needed
Tables: agency_event, common_event

DIT pulls when needed
View: udfFRDDiversionFirst

Power BI

Power Automate

Power Apps

Internal Subscribers
- Fairfax Diversion First

Legend:
- Inbound
- Outbound
- Power Platform
- Linked Server

January 2024 FRD/DASM/JCM

Data Collection

- RMS
- Microsoft Forms
- Survey123 & QuickCapture
- Power Apps

RMS

- NFIRS shifting to NERIS
- NEMSIS
- Supplemental Questions

Microsoft Forms

- In your personal account
- Within a Microsoft Team
- Can be integrated with Power Automate

Survey123 & QuickCapture

- ▶ ArcGIS Online
- ▶ ArcGIS Enterprise
- ▶ Survey123 – Form Information
- ▶ QuickCapture – Button Press

PowerApps

- Low-code solution
- Licensing costs
- Model-driven vs Canvas

Data Processing

Power Automate

R

Python

ETL / SSIS

Power Automate

- Cloud automation platform
- If this thing happens, then do this, and then do this other thing
- Unites the Microsoft world for you
- Over 1,000 API connectors
- Prebuilt templates for rapid deployment
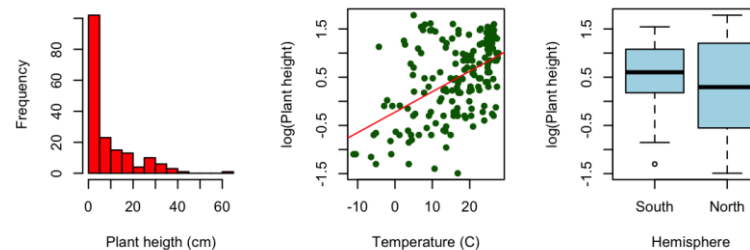- Range from simple to very, very complex

Python and R

Python

- General-purpose programming language
- Python is the 2nd best language for any use case
- Fairly easy to learn with a simple syntax
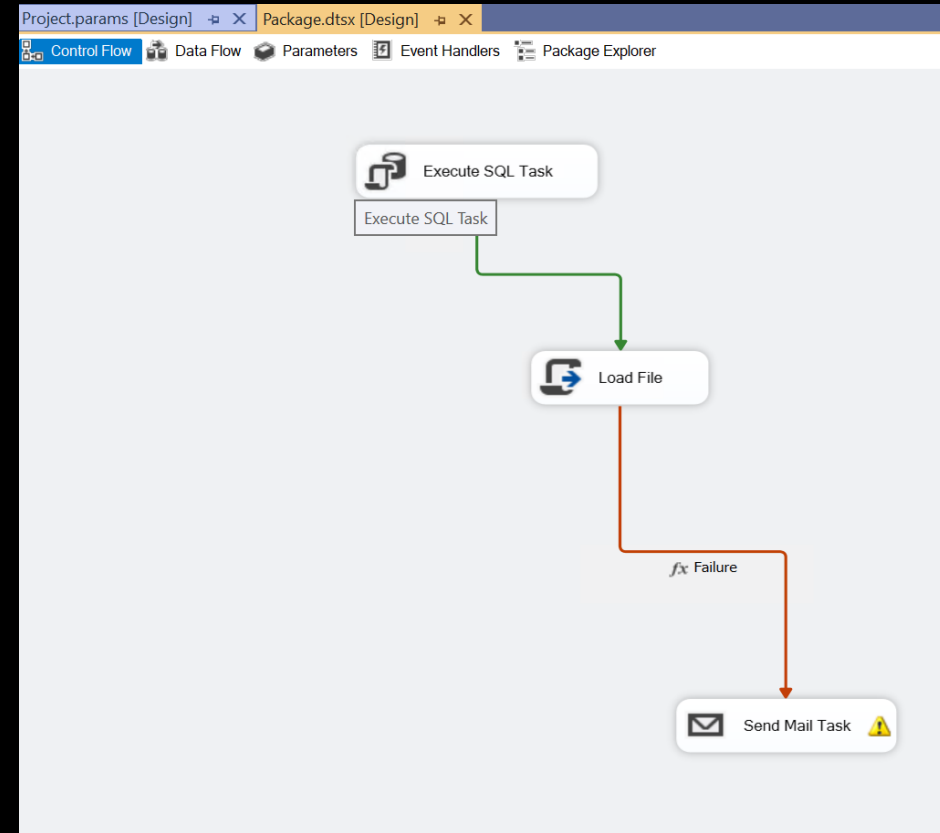- Libraries for graphics and data visualizations

R

- Statistical programming language
- Very sophisticated
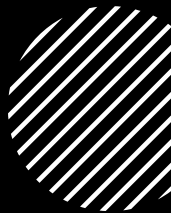- Everything from data manipulation to visualization

ETL / SSIS

- Requires a Microsoft SQL Server
- Uses Visual Studio
- Allows for processing of information for storage in a database
- Can create and read files

Data Storage

Microsoft Excel
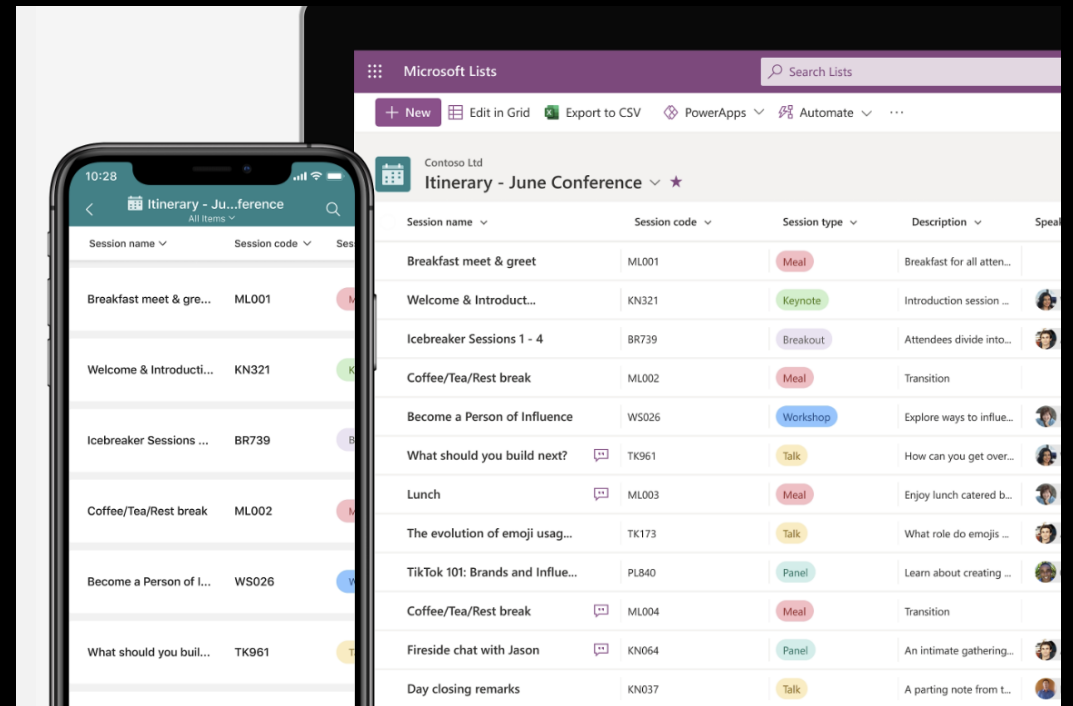
Microsoft Lists

Databases

Microsoft Excel

- Unfortunately, where data storage often starts
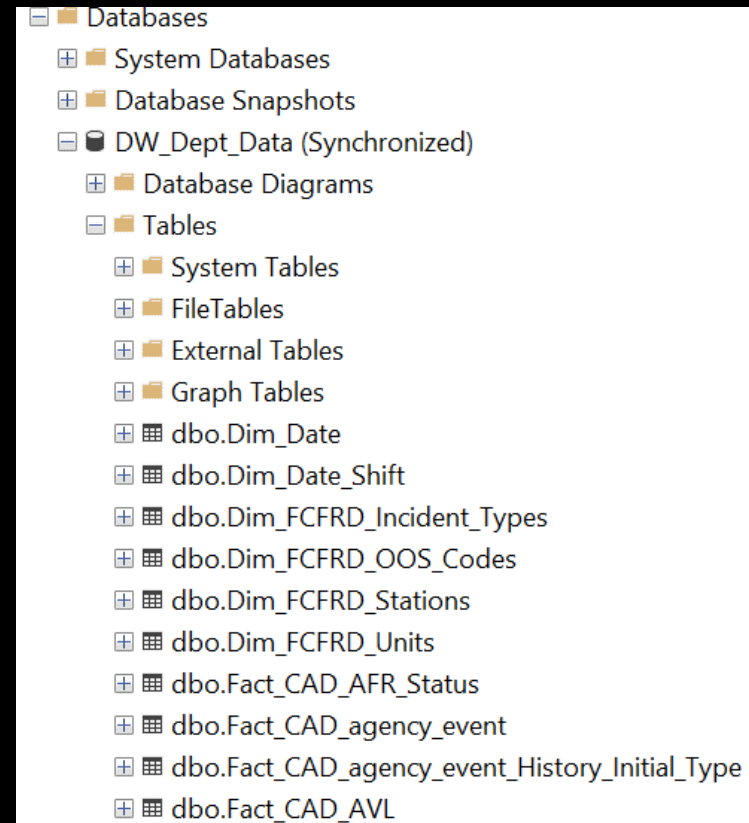- Not scalable
- Two-dimensional

Microsoft Lists

- Resides within SharePoint
- Simple and flexible
- Both app and web-based
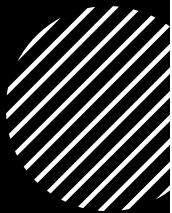- Easily integrated with Power Automate

Databases

- May require staff to maintain
- Very robust and scalable
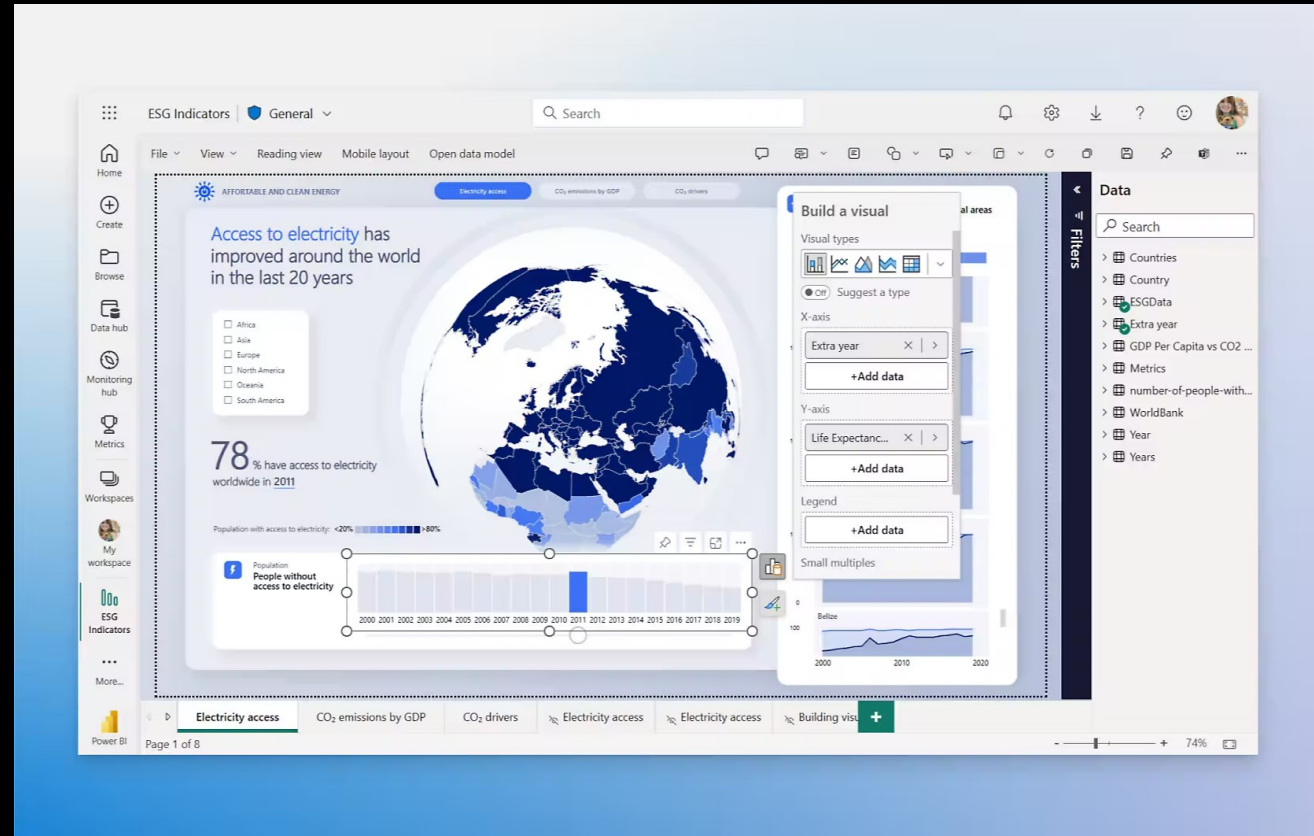- Can be cloud or on-premise
- Infinitely configurable

Data Visualization

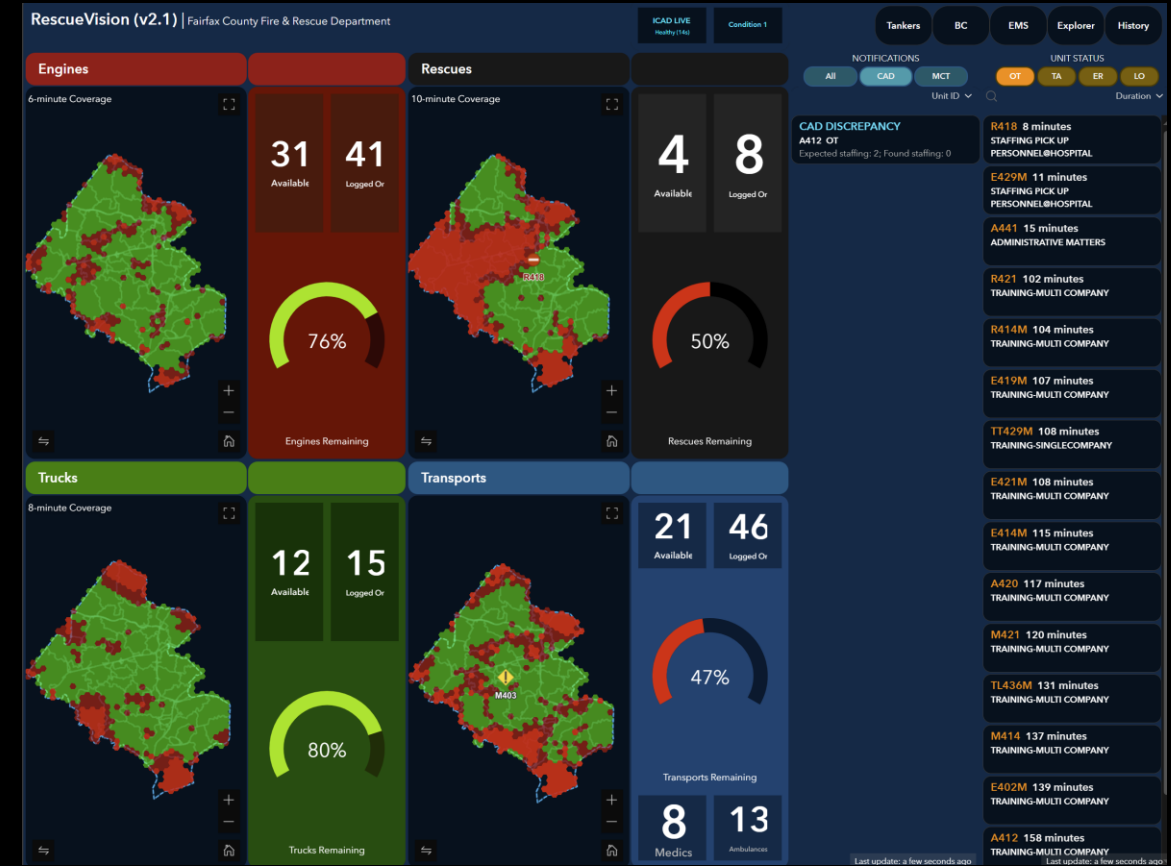## Microsoft Power BI

ArcGIS

Microsoft Power BI

- Data visualization product
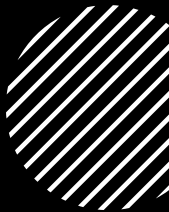- Integrate and transform disparate data sources

ArcGIS Tools

- Range from simple to complex
- ArcGIS Online vs ArcGIS Enterprise
- May require staff to develop and maintain
- Great for visualizing geospatial information
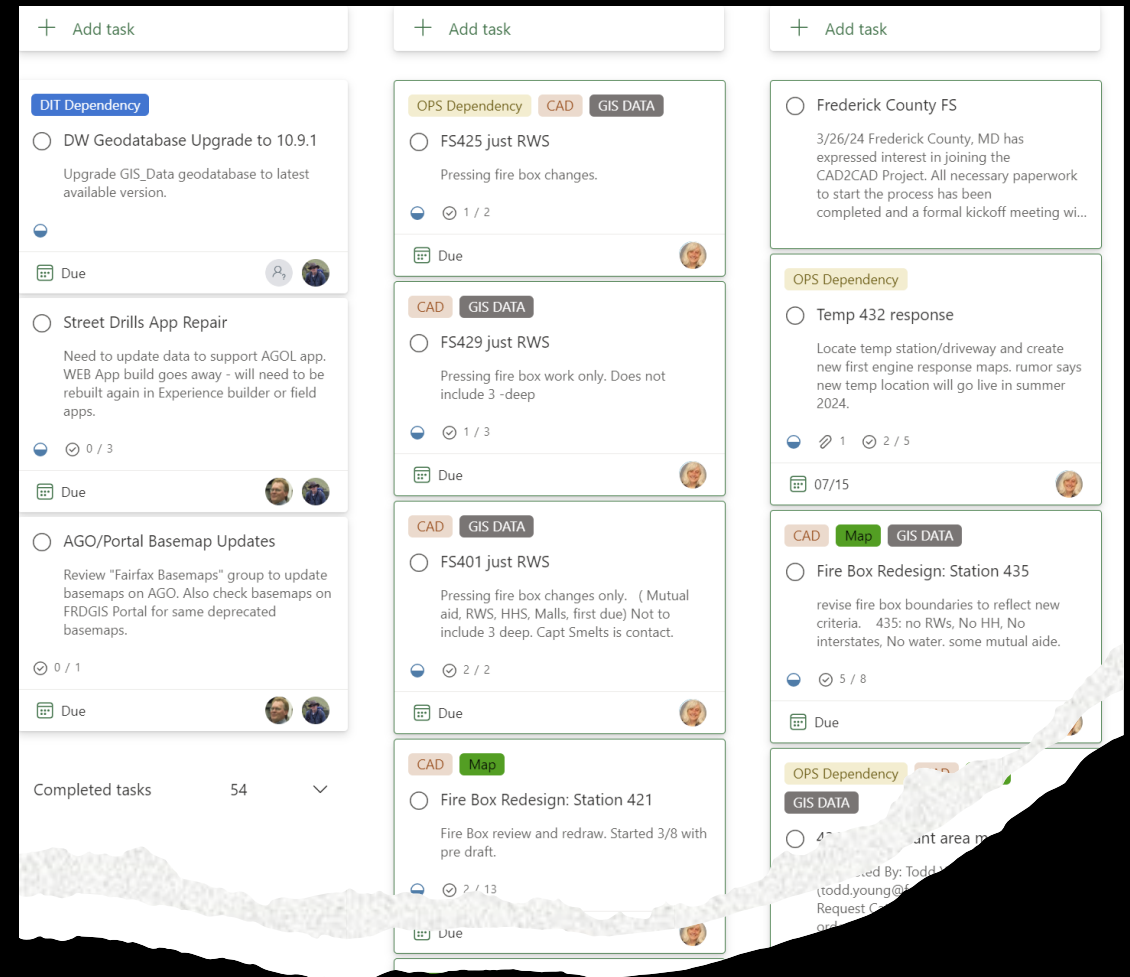
Project Management
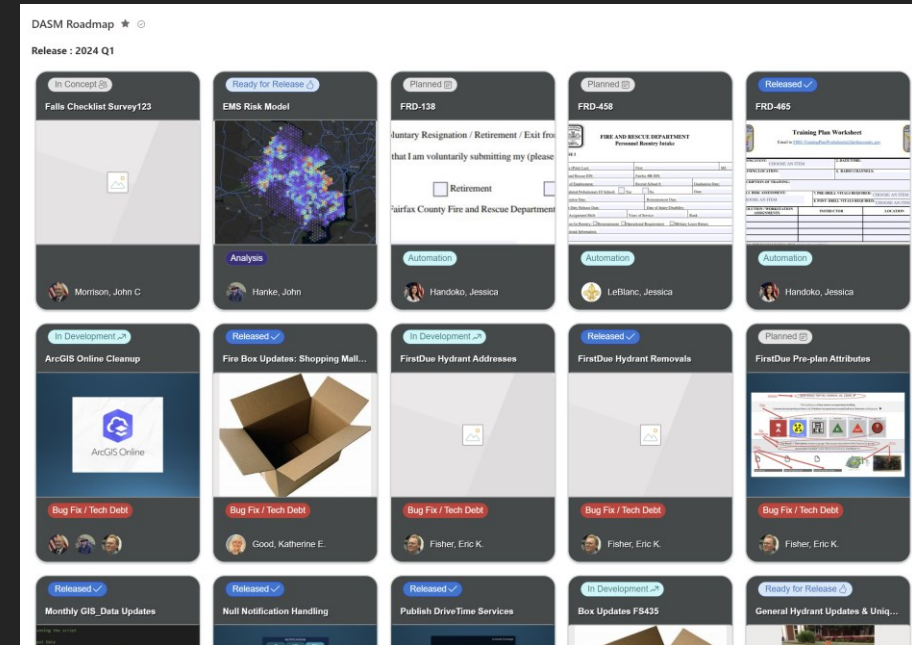
Microsoft Planner

Microsoft Lists

Microsoft Planner

- Can be within a team

- Create buckets of work which contain tasks

- Assign tasks to team members

- Tasks can be tracked as New, In Progress or Completed

Microsoft Lists

- Expandable list of items

- Customizable columns and options

- Views based on pre-selected filters

What Did I Miss?

Questions?

John Morrison

GitHub Resource Repository

Analysts LinkedIn Group