

Introduction (Background)



Marc Carter

IT Specialist (APPSW)
Lead, Power Platform Dev Team
Corpus Christi Army Depot (CCAD)

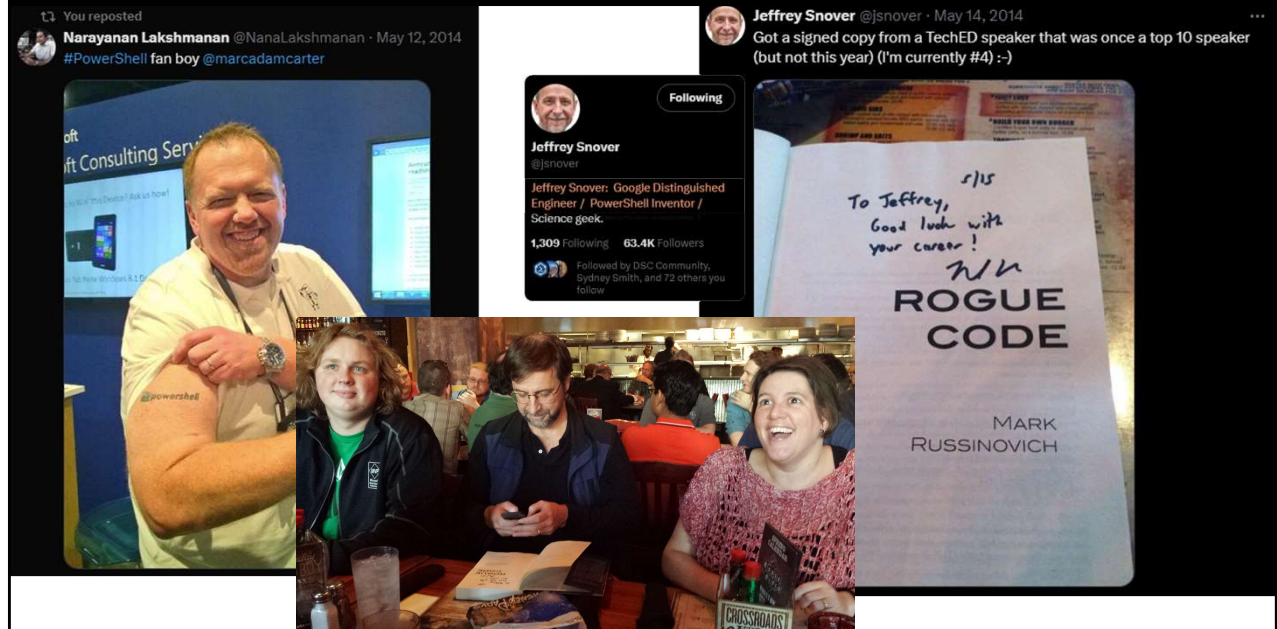
PBI Premium Capacity Admin
A365 Power BI Champion



Scan to Add Contact

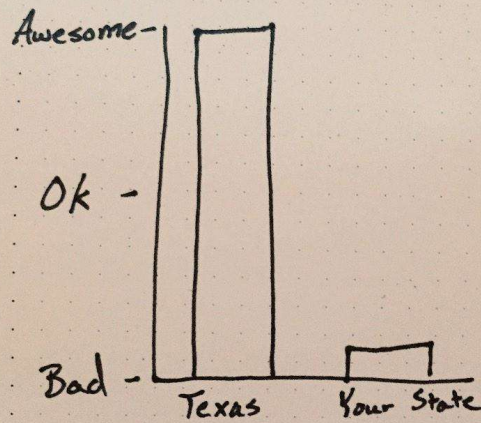
- Appreciate invite from AMC and Enterprise Services Branch team
- Trying to boost my BI street-cred to justify getting another geek tattoo

Introduction (Background)



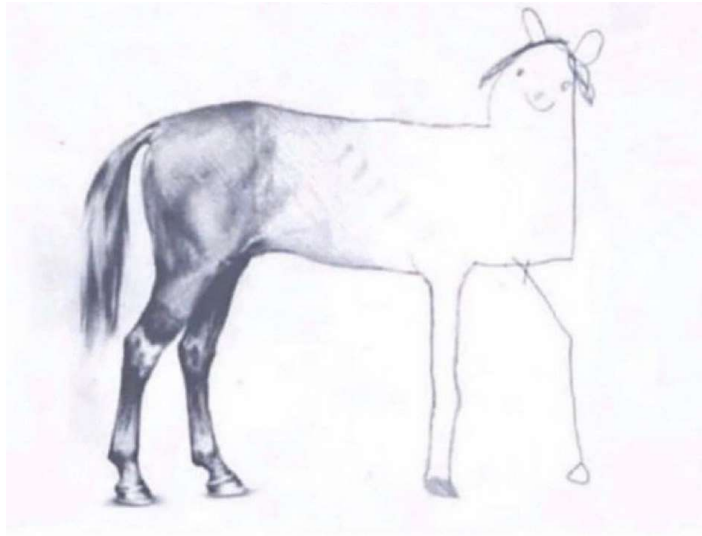
Justify getting a Power BI tattoo

Random High-Trust Chart



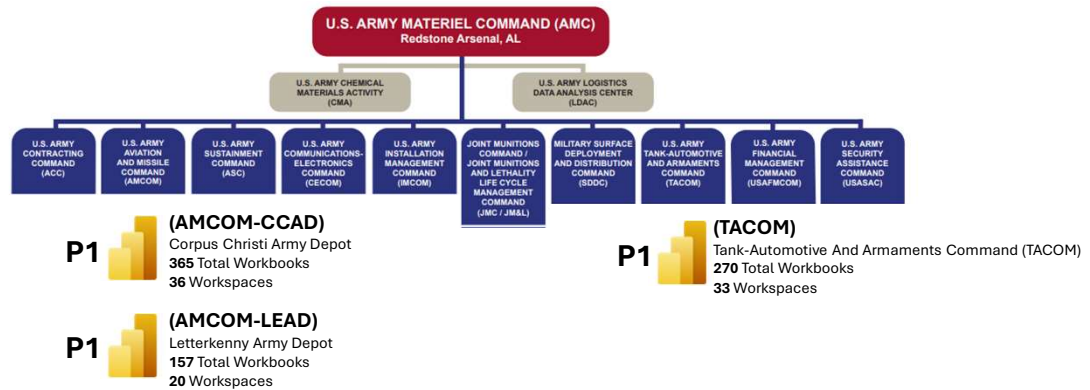
You can't argue with graphs and facts and stuff.

Documenting the DAX in your semantic model



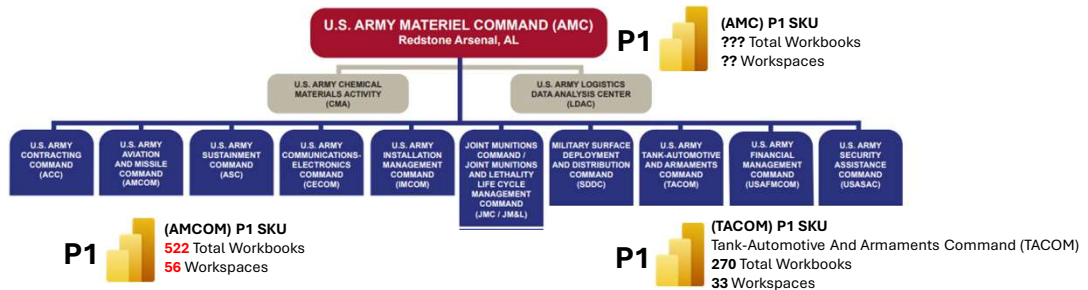
← 1st week of the project 2nd week of the project Night before pushing to PROD Last minute changes in PROD →

Current PBI Premium Capacity Footprint



P1 = 8 v-cores **\$70k (estimate)**
P2 = 16 v-cores **\$140k = (2) P1s**
P3 = 32 v-cores **\$280k = (4) P1s**

Scenario – Decentralize (*as needed*)



Option 1)

Keep **same number of capacities** but
manage at **MACOM & MSC** level.

(3) P1 = Total Cost **\$210k**

- Would require current CCAD & LEAD to consolidate & prune workspaces
- Reasons for additional MSC-level capacities
 - Although NETCOM has P2, it's mainly hosting high-concurrency reports (centrally) for the tenant, not many subordinate units or MSCs
 - Potentially difficult to effectively manage (large numbers of workspaces) at MACOM-level
 - Prevents Single point of failure – throttling caused by single report/data instances
 - Segregate content

Scenario – AMC Centralized



Option 2)

Consolidate into single P3 capacity managed at HQAMC

(1) P3 = Total Cost **\$280k**

(1) P2 = Total Cost **\$140k**

- CONS
 - Single point of failure – over utilization & throttling
 - Potentially limits flexibility due to need for formal request process through chain-of-command
 - Potentially compounds issues/problems with overseeing more content in one location
 - Visibility of workspaces/data – when you manage the capacity closer to the reporting, capacity admins more intimate with data/content
 - *Possibly* increase overall cost
- PROS
 - Reduces overall management
 - Consolidates data into single capacity
 - *Possibly* reduce overall cost

A365 Premium Capacities

\$1,330,000
Total All Capacities

Only P2

Name	Workspaces	Workbooks
TRADOC	64	589
USARPAC	53	576
AFC	48	415
ATEC	46	242
FORSCOM	39	276
PEO EIS Miltech	39	168
AMCOM-CCAD	36	365
USARC	36	175
NETCOM	33	291
TACOM	33	270
DACID	27	125
USAREUR-AF	25	207
HQDA G9	23	212
AMCOM-LEAD	20	145
HRC	14	135
PEO EIS IPPS-A	14	66
PEO Soldier	8	60
CHRA	3	10
USFK	2	46
19	563	4,373
3	89	780
15.8%	15.8%	17.8%

Workspace & Workbook Distribution

Sorted by Workspaces (DESC)

47% of (total) AMC Workbooks

35% of (total) AMC Workbooks

19% of (total) AMC Workbooks

Army 365 Tenant

AMC

AMC % of Tenant

P2 = (2)P1 - \$140k
P3 = (4)P1 - \$280k
P4 = (8)P1 - \$560k
P5 = (16)P1 - \$1.12m

Premium Features

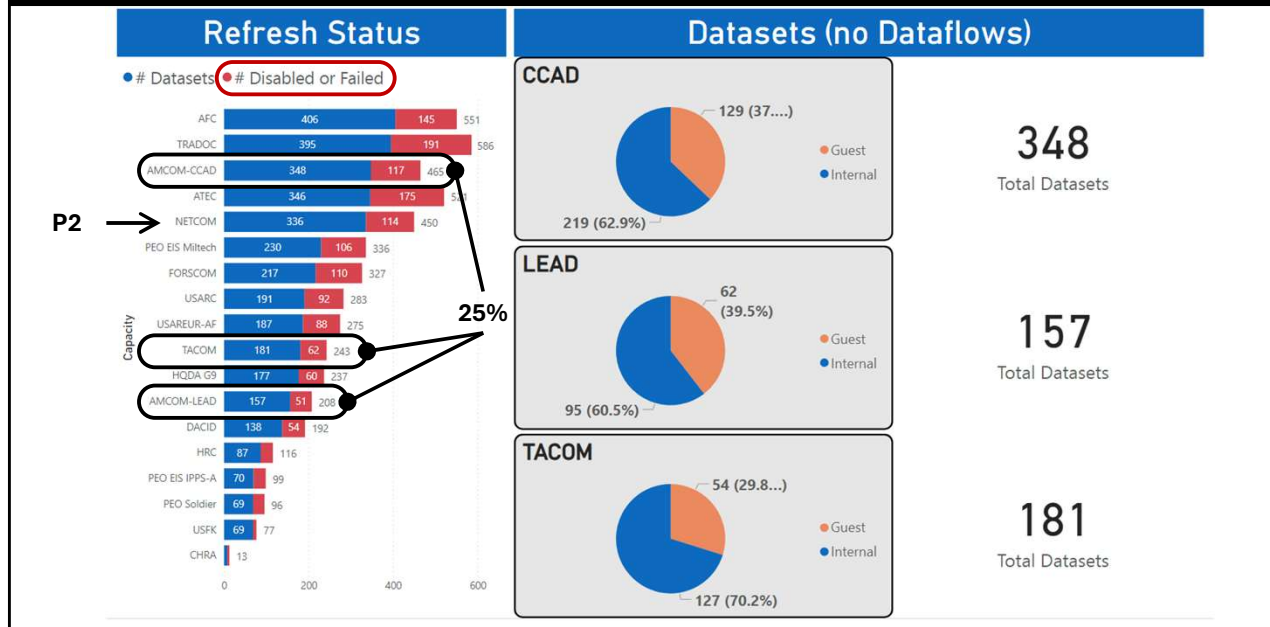
Primary reason for hosting content in Premium Workspace should be based on requirements for Premium Features.

Premium Capacity Features:

- Advanced AI
- Dataflows (*with one of the following*) -
 - Enhanced compute engine
 - DirectQuery
 - Computed entities
 - Linked Entities
 - Incremental refresh
- Data Refresh > 8 times/day (max 48/day in premium)
- Deployment pipelines
- Model size limit – (PBI semantic model > 2GB...*not data source*)
- Query caching
- XMLA read/write

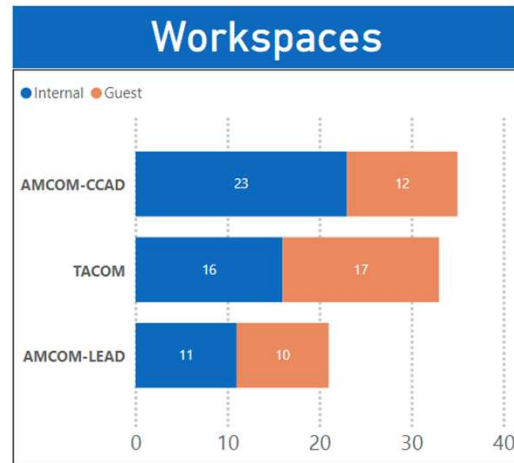
A365 running in outdated environment (PBI Premium, not Fabric)

Capacity Governance (Datasets)



- On average, across the tenant, **one quarter of data content is disabled or failed to refresh** in our premium capacities
- NETCOM only P2
 - 336 Total Workbooks (Reports)
 - 37 Workspaces (approx. 12 managed by subordinate brigades)
 - Almost identical numbers to AMCOM-CCAD capacity (365/36)

Capacity Governance (Workspaces)



Distribution of Workspaces (internal to guest)

Capacity Governance

Power BI REST API

Operation group	Description
Admin	Operations for working with administrative tasks.
Apps	Operations for working with Apps.
Capacities	Operations for working with capacities.
Dashboards	Operations for working with dashboards.
Dataflow Storage Accounts	Operations for working with dataflow storage accounts.
Dataflows	Operations for working with dataflows.
Datasets	Operations for working with datasets.
Gateways	Operations for working with gateways.
Groups	Operations for working with groups.
Imports	Operations for working with imports.
Pipelines	Operations for working with deployment pipelines.
Push Datasets	Operations for working with push datasets.
Reports	Operations for working with reports.
Users	Operations for working with users.

The Power BI REST APIs provide service endpoints for embedding, administration, governance and user resources.

With Power BI REST APIs you can do the following:

- **Manage Power BI content**
- **Perform admin operations**
- **Embed Power BI Content**

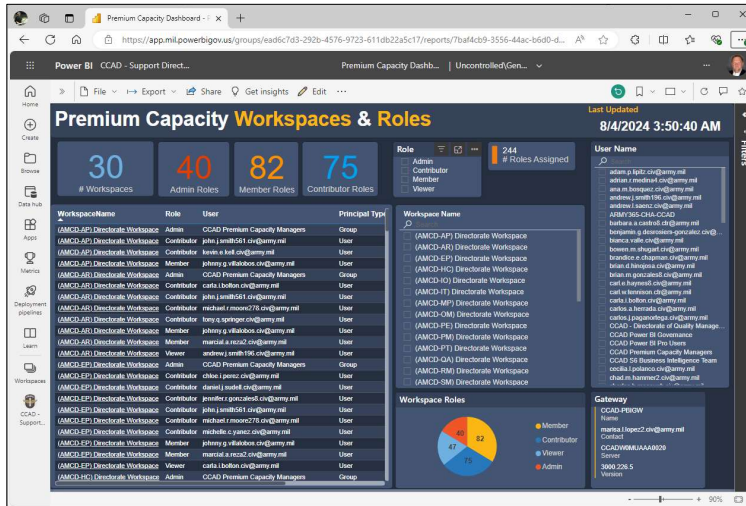
Caveat – Permissions

The user must have [tenant] administrator rights (such as Global Administrator or Power BI Service Administrator).

- Options for managing our capacities
- Power BI REST API
 - Manage Content
 - Perform admin operations
 - Embed PBI content
- Caveat – tenant admin rights needed for any workspace user doesn't have rights to

Capacity Dashboard

Proof of Concept (POC) – PBI REST-driven Report



- Provides overview of Workspaces and Roles
- Partnership with Microsoft to develop necessary capacity reports

CONS

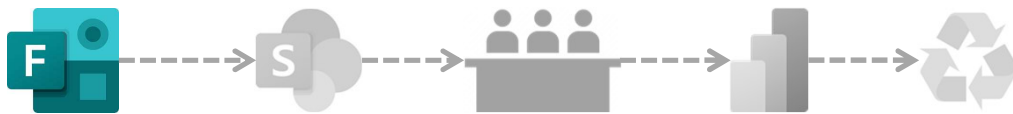
- (by default) Non-Tenant Admin – queries limited to only those workspaces they have rights to
- [Premium Capacity Dashboard - Power BI \(powerbigov.us\)](#)
- Previous Capacity Manager Forum discussions – who should have access to capacity dashboards?

Workspace Governance (Process)

Managing How & When Workspaces Promoted to Premium

Establish Consistent Request Process (MSForm)

- Workspace Naming Convention
- Identify
 - Premium Feature Requirements
 - Proponent (Owning) Organization
 - Data Characteristics



CCAD's current capacity governance board process

Microsoft Form

CONs

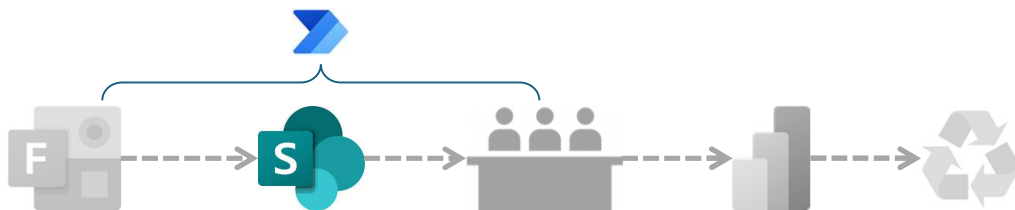
- Intake is an opportunity to document data characteristics
- Does not guarantee use after workspace promoted to premium

Workspace Governance (Process)

Managing How & When Workspaces Promoted to Premium

Automate Requests (Power Automate + SPO List)

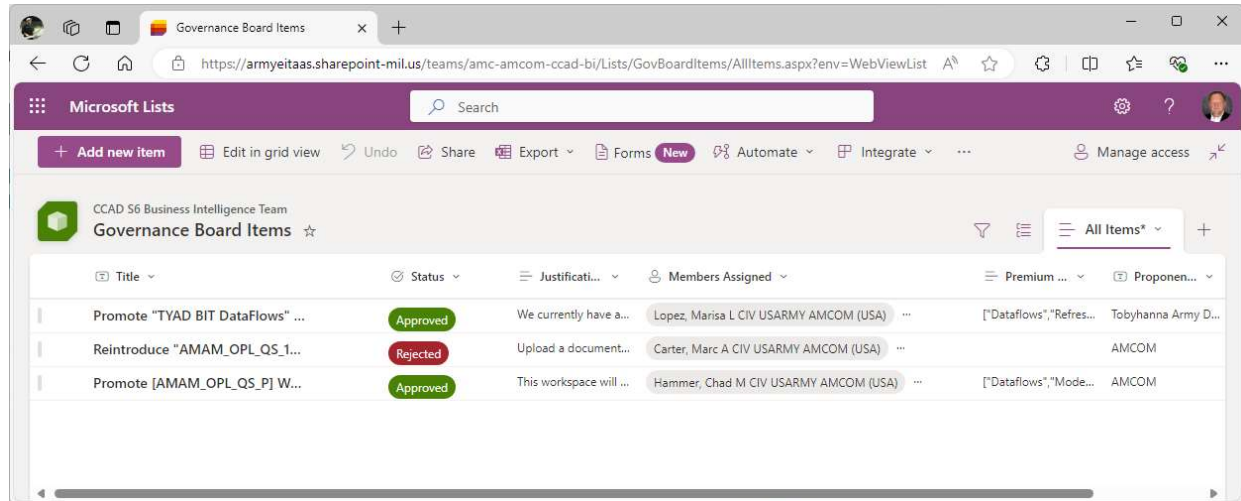
- Workspace Registry
- Assign Governance Board Approval Actions
- Provide Member Notifications



Example:

- Governance Approvers List - [CCAD S6 Business Intelligence Team \(sharepoint-mil.us\)](#)
- Governance Items - [CCAD S6 Business Intelligence Team \(sharepoint-mil.us\)](#)

Governance Action Items



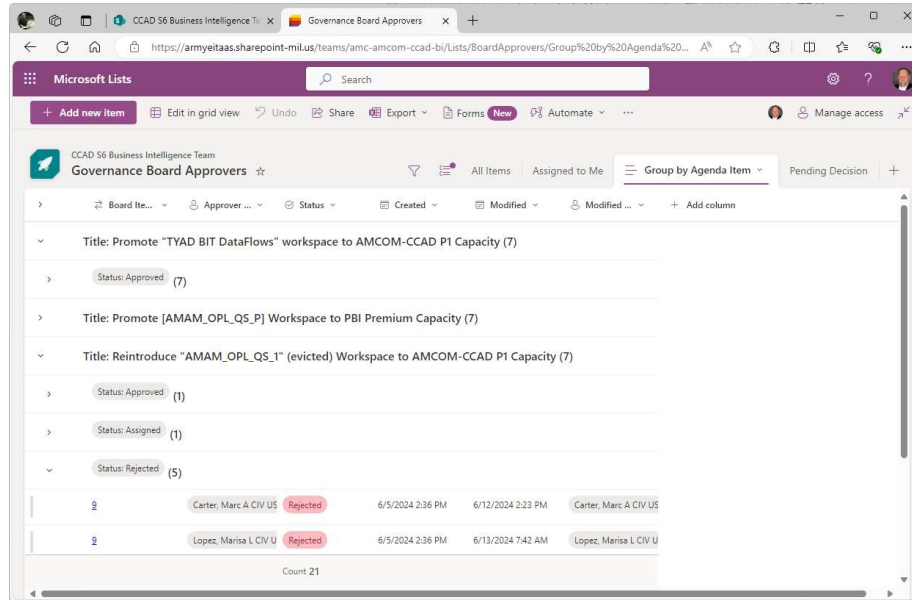
Title	Status	Justification	Members Assigned	Premium	Proponent
Promote "TYAD BIT DataFlows" ...	Approved	We currently have a...	Lopez, Marisa L CIV USARMY AMCOM (USA)	["Dataflows", "Refres...	Tobyhanna Army D...
Reintroduce "AMAM_OPL_QS_1...	Rejected	Upload a document...	Carter, Marc A CIV USARMY AMCOM (USA)		AMCOM
Promote [AMAM_OPL_QS_P] W...	Approved	This workspace will ...	Hammer, Chad M CIV USARMY AMCOM (USA)	["Dataflows", "Mode...	AMCOM

Lack of visibility at workspace-level = **high reliance** on workspace admins to **accurately identify premium requirements**

After workspace promoted to premium

- Workspace admins have a huge responsibility to control workspace content & impact on capacity
- Prevent non-premium content operations

Governance Member Votes



The screenshot shows a Microsoft Lists interface for a team named 'CCAD S6 Business Intelligence Team'. The list is titled 'Governance Board Approvers' and is grouped by 'Agenda Item'. The list contains three main items, each with a title and a status. The first item is 'Promote "TYAD BIT DataFlows" workspace to AMCOM-CCAD P1 Capacity (7)' with a status of 'Approved (7)'. The second item is 'Promote [AMAM_OPL_QS_P] Workspace to PBI Premium Capacity (7)' with a status of 'Approved (7)'. The third item is 'Reintroduce "AMAM_OPL_QS_1" (evicted) Workspace to AMCOM-CCAD P1 Capacity (7)' with a status of 'Approved (1)'. Below the third item, there are two rows of 'Rejected' items, each with a status of 'Rejected (5)'. The first rejected item is by 'Carter, Marc A CIV US' and the second is by 'Lopez, Marisa L CIV U'. The interface includes a search bar, a filter icon, and a 'Count 21' indicator at the bottom.

Board Item	Approver	Status	Created	Modified	Modified By
Title: Promote "TYAD BIT DataFlows" workspace to AMCOM-CCAD P1 Capacity (7)					
Status: Approved (7)					
Title: Promote [AMAM_OPL_QS_P] Workspace to PBI Premium Capacity (7)					
Status: Approved (7)					
Title: Reintroduce "AMAM_OPL_QS_1" (evicted) Workspace to AMCOM-CCAD P1 Capacity (7)					
Status: Approved (1)					
Status: Assigned (1)					
Status: Rejected (5)					
2	Carter, Marc A CIV US	Rejected	6/5/2024 2:36 PM	6/12/2024 2:23 PM	Carter, Marc A CIV US
2	Lopez, Marisa L CIV U	Rejected	6/5/2024 2:36 PM	6/13/2024 7:42 AM	Lopez, Marisa L CIV U

Count 21

- Track member decisions
- Central location to comment on submission requests

Workspace Governance (Process)

Managing How & When Workspaces Promoted to Premium

Simplify (Governance Board) Decision Process

1. Approve/Deny Promoting Workspace
2. Rejoin Evicted Workspace

Establish Expectations of Board

- Voting Response Time
- Communication



Decisions

1. Approve/Deny Promoting Workspace
2. Rejoin Evicted Workspace

Workspace Governance (Process)

Workspace Promoted to Premium...now what?

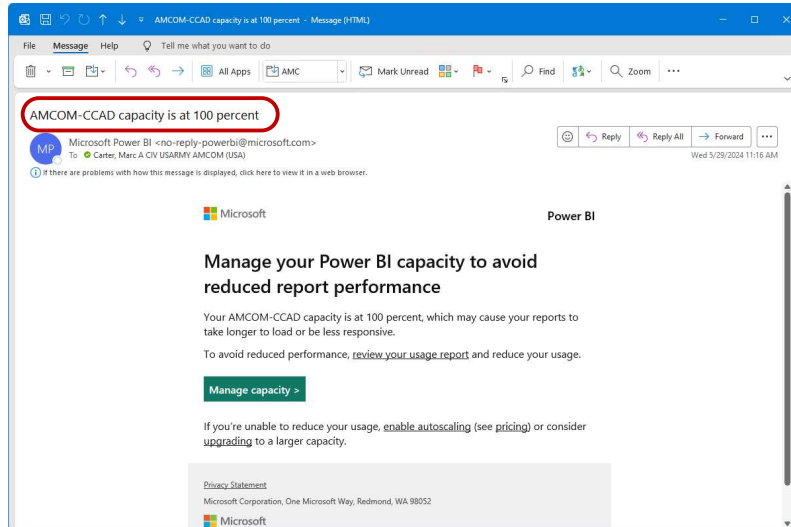
Monitor Capacity

- High Utilization (%CUs of Base Capacity)
- Throttling due to Interactive or Background Operations



Mostly hands-off, except during periods of throttling

Workspace Throttling



“review your usage report and reduce your usage.”

- Notifications do not pinpoint problems
- Only capacity admins notified
 - Workspace admins unaware until after capacity admin has identified culprit
- Throttling impacts **all reports**.

Data and Report Governance

Actions you can take to recover from overload situations

When your capacity is throttled to the point it's frozen, users receive an error if their action requires compute resources. Example error: Cannot load model due to reaching capacity limits.

- ~~Wait until the overload state is over before issuing new requests.~~
- Upgrade the SKU of capacity.
- ~~Pause/resume an F capacity.~~
- Autoscale a P capacity.
- **Move lower priority or overconsuming workspaces out of the capacity.**

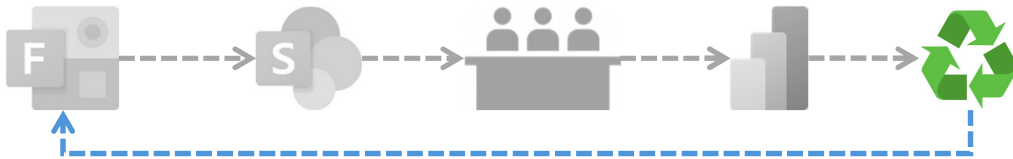
- “Wait” not practical – impossible to implement
- Pause – we don’t have Fabric in DoD Sovereign Cloud yet

Workspace Governance (Process)

Managing How & When Workspaces Promoted to Premium

Review & Renewal Period


- Adjust timeframe based on capacity utilization
 - Higher utilization = Quarterly Renewal Period
 - Lower utilization = Yearly Renewal Period
- **Evict** Workspaces without Premium Feature requirements



Lessons Learned

- Need for Renewal Period
- Like Premium DEV environments, we should evict Workspaces w/o requirements for premium features

Workspace Governance (Review)



Rodriguez, David CIV USARMY CHRA-ACOMA (USA)
Program Analyst - USARMY CHRA-ACOMA
[Send email](#) [Start chat](#)

Workbook "Owner"

Power BI | Microsoft Fabric PBI Capacity Metrics | WorkbookOwners | Data updated 7/19/24

Capacity	Name	Owner	Workspace
AMCOM-CCAD	CCAD Operations	david.rodriguez735.civ@army.mil	(AMCD-PM) Directorate Workspace
AMCOM-CCAD	Report Usage Metrics Model	david.rodriguez735.civ@army.mil	(AMCD-PM) Directorate Workspace
AMCOM-CCAD	WIP Tracker	david.rodriguez735.civ@army.mil	(AMCD-PM) Directorate Workspace
AMCOM-CCAD	Depot Capacity Final	david.rodriguez735.civ@army.mil	CCAD - Business Operations
AMCOM-CCAD	Report Usage Metrics Model	david.rodriguez735.civ@army.mil	CCAD - Depot Production Operations
AMCOM-CCAD	Usage Metrics Report	david.rodriguez735.civ@army.mil	CCAD - Depot Production Operations
AMCOM-CCAD	PO De-Ob Tracker	david.rodriguez735.civ@army.mil	CCAD - IT Leadership
AMCOM-CCAD	CCAD Operations	david.rodriguez735.civ@army.mil	CCAD - LMP Office
AMCOM-CCAD	Depot Capacity Final	david.rodriguez735.civ@army.mil	CCAD - LMP Office
AMCOM-CCAD	Depot WIP_MRP	david.rodriguez735.civ@army.mil	CCAD - LMP Office
AMCOM-CCAD	Usage Metrics Report	david.rodriguez735.civ@army.mil	CCAD - LMP Office

11 Reports

5 Workspaces

Filters

Search

Filters on this visual

Capacity is AMCOM-CCAD

Name is (All)

Owner is david.rodriguez735.civ@ar...

Filter type

Basic filtering

david.

☐ david.b.ross42.civ@... 18

☐ david.j.cancelleri.ctr... 1

☒ david.rodriguez735... 11

Checklist for reviews & renewals

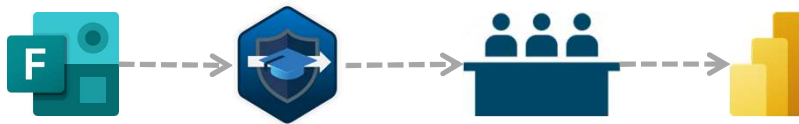
- Are Report & Data POCs up-to-date?
- Review & update workspace and apps permissions
 - Who can edit workspace or data sources?

User Governance (Process)

Managing Who can Manage Premium Workspaces

Premium Workspaces = Enterprise Service

- Admin & Member Roles can add others to workspace
- Required Training
 - Custom Microsoft Learn Plans
 - DAU Analyst Certifications
 - PL-300 Certification



CCAD's current capacity governance board process

Microsoft Form

CONs

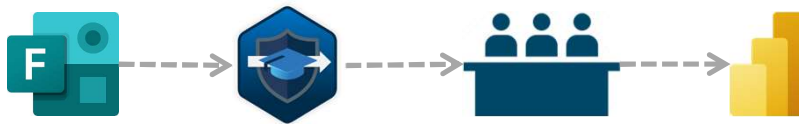
- Intake is an opportunity to document data characteristics
- Does not guarantee use after workspace promoted to premium

User Governance (Process)

Contributor Role on a CCAD Power BI Premium Workspace:

- Requestor must complete all modules of the following Microsoft Learning Path prior to role assignment.
- Learning Plan: [Power BI Workspace Contributor \(Role\)](#)
 - Once completed, **submit the Microsoft Learn Achievement link** back to CCAD Power BI Governance Board

Note: An Enterprise Skills Initiative (ESI) Account is required to share your training achievement once completed. See Instructions - Microsoft Learn (sharepoint-mil.us) for help.



CCAD's current capacity governance board process

Microsoft Form

CONs

- Intake is an opportunity to document data characteristics
- Does not guarantee use after workspace promoted to premium

Data and Report Governance

TYAD Design Standards

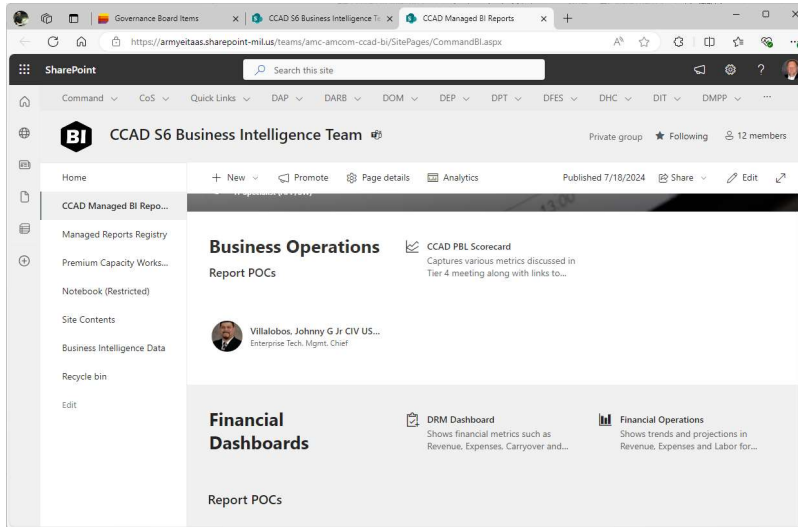
*Data governance should include design standards that both **ensure the security of the data** and **improve the business usability** of the data. Whether someone identifies as a member of the data analytics community or not, they are **required to follow all Army regulations and policies** such as data security and cyber standards...abiding by the data governance framework **reduces risk** of data security issues and **empowers individuals to focus more on the business value** of their data analytic work.*

Design standards: Baseline, Standard, and Premium.



Source: <https://armyeitaas.sharepoint-mil.us/teams/AMC-CECOM-TYAD-BI/SitePages/Governance.aspx>

Data and Report Governance



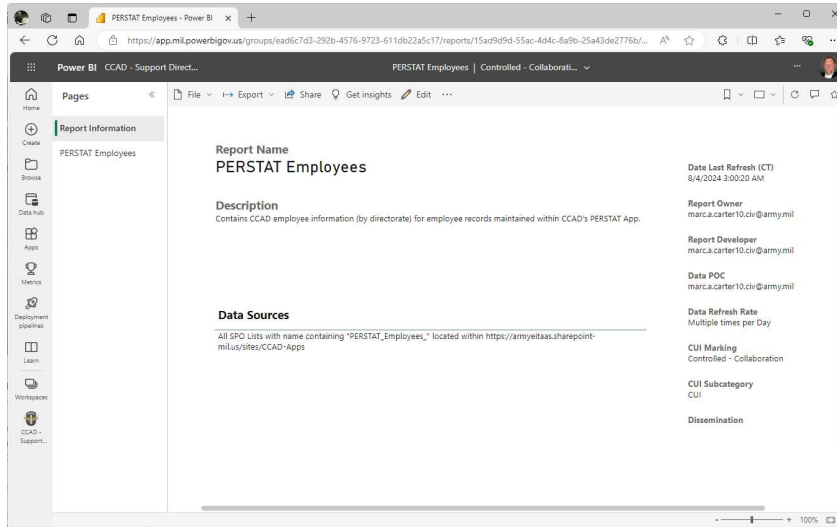
Authoritative Source of Truth

- Reports that impact business decisions
- Identify POCs

Lessons Learned

First request I hear – “*need one-click away*”

Report Templates



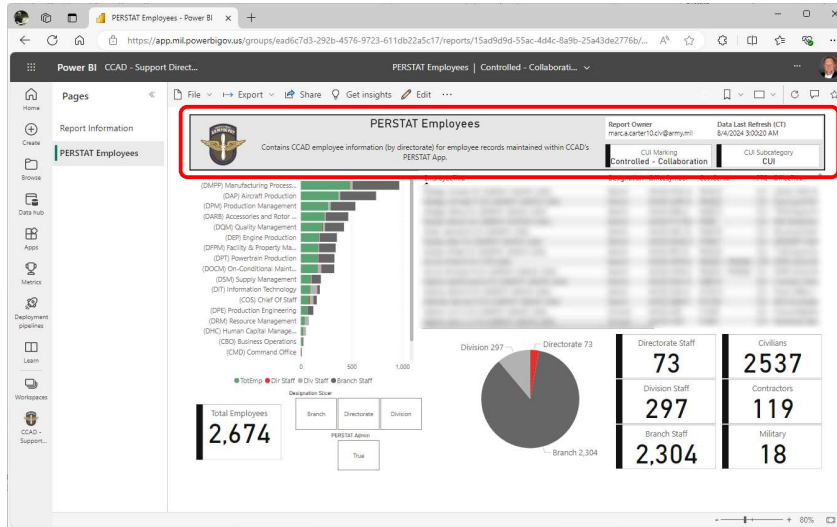
Report Information Page

- Report Name
- Description
- Data Sources
- Last Refresh
- Report Owner
- Report Developer
- Data POC
- Refresh Rate
- CUI Marking
- Dissemination

Lessons Learned

First request I hear – “*need one-click away*”

Report Templates



Standard Report Header

- Report Name
- Description
- Report Owner
- Data Last Refresh
- CUI Marking

Goals

- Provide standardized, easily recognizable header
- Minimal / unintrusive use of report canvas

Report Templates

Report Name	Description	Report URL	Data Source	Data Refresh	Report Owner	Report Data	Data POC
Owning Organization: (AMCD-CB) Business Operations (4)							
Owning Organization: (AMCD-IT) Information Technology (5)							
A365 Disabled User Accounts	The following report reflects CCAD staff whose Army 365 user account is currently disabled while retaining an AMIC E5 license. These accounts should have their E5 licenses recovered (deactivated) as part of Out-Processing to free up available AMIC licenses.	https://app.mil.gov/.../432e3b62-7c1a-473a-8921-9a6d-46c461e3894d-996ea59e71178e0c...	Defense Enterprise Provisioning Online (DEPO)	Once a Day	marc.a.carter10.civ@...	marc.a.carter10.civ@...	marc.a.carter10.civ@...
Non-Compliant CCAD User Accounts	Non-compliant CCAD employee Army 365 user accounts that are in jeopardy of having email mailbox decommissioned due to staff failing to update profile properties within	https://app.mil.gov/.../432e3b62-7c1a-473a-8921-9a6d-46c461e3894d-996ea59e71178e0c...	Defense Enterprise Provisioning Online (DEPO)	Once a Day	marc.a.carter10.civ@...	marc.a.carter10.civ@...	marc.a.carter10.civ@...

Report Registry (SPO List)

- TBD

Goals

- Provide standardized, easily recognizable header
- Minimal / unintrusive use of report canvas

End



Scan to Add Contact

Questions?

Backup Slides

