

# Uncovering Secrets and Mysteries in your Power BI Tenant

Benni De Jagere



Slides





# Benni De Jagere

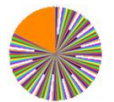
Senior Program Manager | Fabric Customer Advisory Team ( FabricCAT )



dataMinds



sessionize



Fabric CAT

.be Member

@BenniDeJagere

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#SayNoToPieCharts



# Session Objectives



# Session Objectives

- Emphasize role of auditing and logging
  - And *actually* doing something with that goldmine..
- Stimulate to **ACT** and **COMMUNICATE**
- Spark ideas for useful guidelines
- Look at free techniques to implement

# What sparked this?

<https://www.realdolmen.com/en/blog/port-of-antwerp-coaches-employees-on-improved-data-use-microsoft-power-bi>

**THE MOST POPULAR POWER BI REPORT**



**JOE FROM ACCOUNTING  
UPDATING AN EXCEL FILE**

**A lot of things were changing, but they took a moment to ..**

***Stop, collaborate, and listen.***

***They came back with a brand new invention***

Vanilla Ice, 1990

# The Situation



# The Customer

- DI (IT) is the main supplier of data
  - Source System data is captured to ODS
  - SQL Server, with multiple Databases
- SQL Views available for reporting needs
- Data is at the centre of their decisions
- DIY Attitude, External Partners for PoC / 2nd opinion

# The Customer

- Prior to 2018, focus on Operational Reporting
- Finance created SSAS Multidimensional Cubes
- SharePoint BI + Excel Pivot as main reporting tools

# Power BI in Motion

- EA Licensing changed in 2019
- Moved to Power BI Premium P1 (and then some)
- Wanted External Guidance on Governing and Managing Power BI
- Currently:
  - 180 Content Creators
  - 1700 Content Consumers

# Power BI as a Strategic Choice

- Strategic tool for corporate reporting needs  
(excluding Data Analytics/Science experiments)
- FI/CO has migrated SSAS MultiDim to:
  - SSAS Tabular Models (then to Power BI semantic models)
  - Power BI Apps
    - Power BI Reports & Dashboards
    - Paginated Reports
    - Excel Online

# The Experiment

# DESIGN A COCKPIT

**FACILITATE  
CONVERSATIONS**

**ENABLE HIGH  
QUALITY WORK**

**INTRODUCED EARLY  
IN TRAINING**

**STIMULATE, NOT  
ENFORCE**

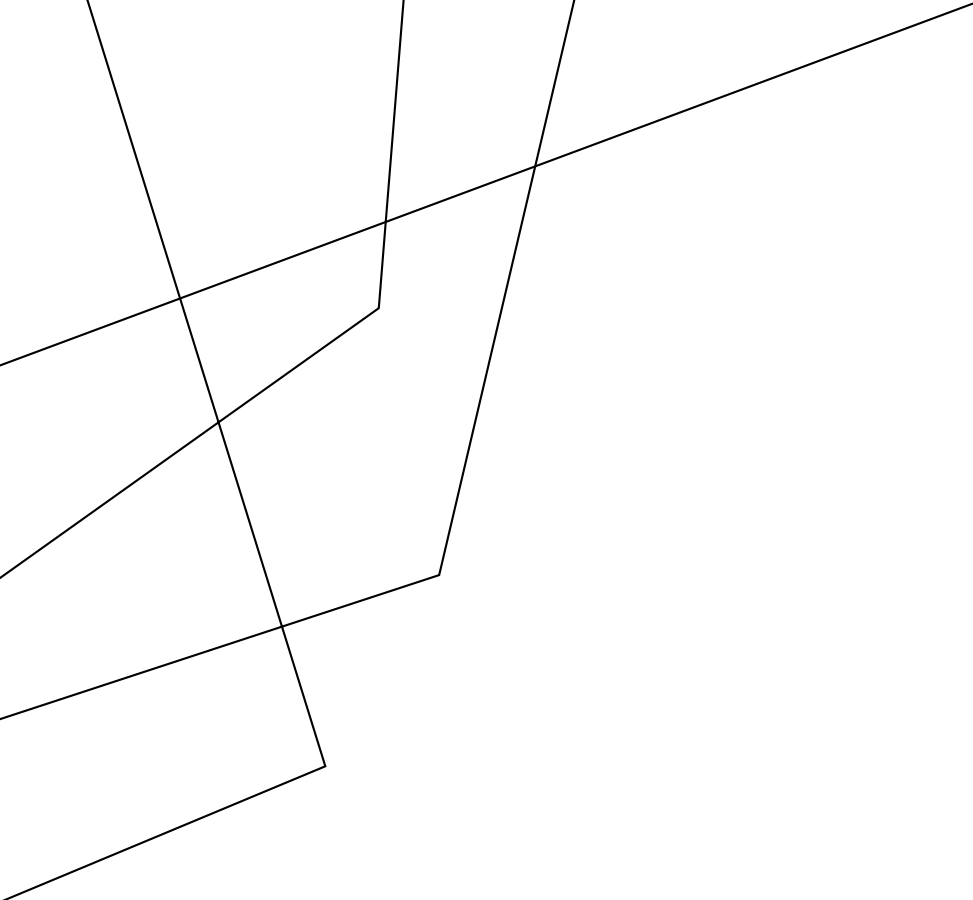


# TARGET AUDIENCE

**DATA  
STEWARDS**

**FUNCTIONAL  
BUSINESS OWNERS**

**DATA ANALYTICS  
TEAM**



**INITIAL  
BRAINSTORM**

**GET DATA**

**TRANSFORM DATA**

**MODEL DATA**

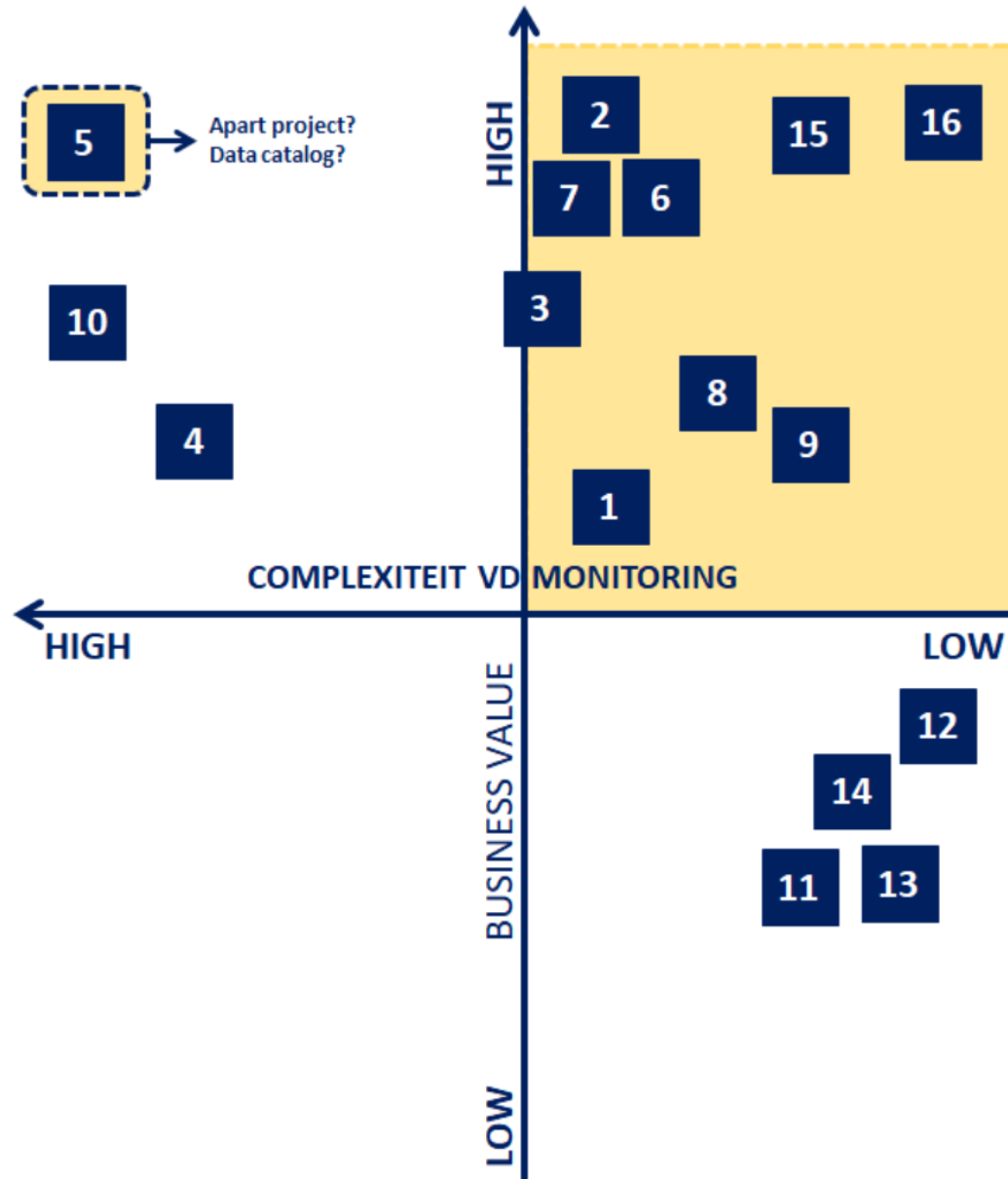
**BUILD REPORTS**

**PUBLISH AND SHARE**



# Outcome

## Priority / Complexity Quadrant



ID	Guideline
1	Each .pbix file is checked in to the appropriate local folder
2	Reuse datasets as much as possible
3	Shared reports in a production context use ODS Reporting as a data source
4	Import & Live Connection are the preferred methods of connectivity
5	A report should always have an 'About' section
6	DAX Calculated Columns should be avoided
7	Do not use Auto Date/Time
8	Each workspace owner uses resources sensibly
9	Clean up unused artefacts
10	Minimalise a dataset to the tables/columns/measures that are actually used
11	Use Personal Workspaces only for exploration
12	Avoid manual report sharing, rather publish to a workspace/app
13	Avoid 'Export to Excel/CSV', use 'Analyze in Excel'
14	Only use certified custom visuals
15	Every Report uses the PoA Template
16	Every content creator takes the Power BI Training

## PHASE 1 (5 DAYS)

Extract data through PowerShell

Setup Generic Model

Build v1 for Power BI dataset & Report

## PHASE 2 (2 DAYS)

Automate extraction of Scanner APIs

Extend Model, Dataset & Report

## PHASE 3 (..)

Automate extract of Tabular Editor Best Practice Analyzer

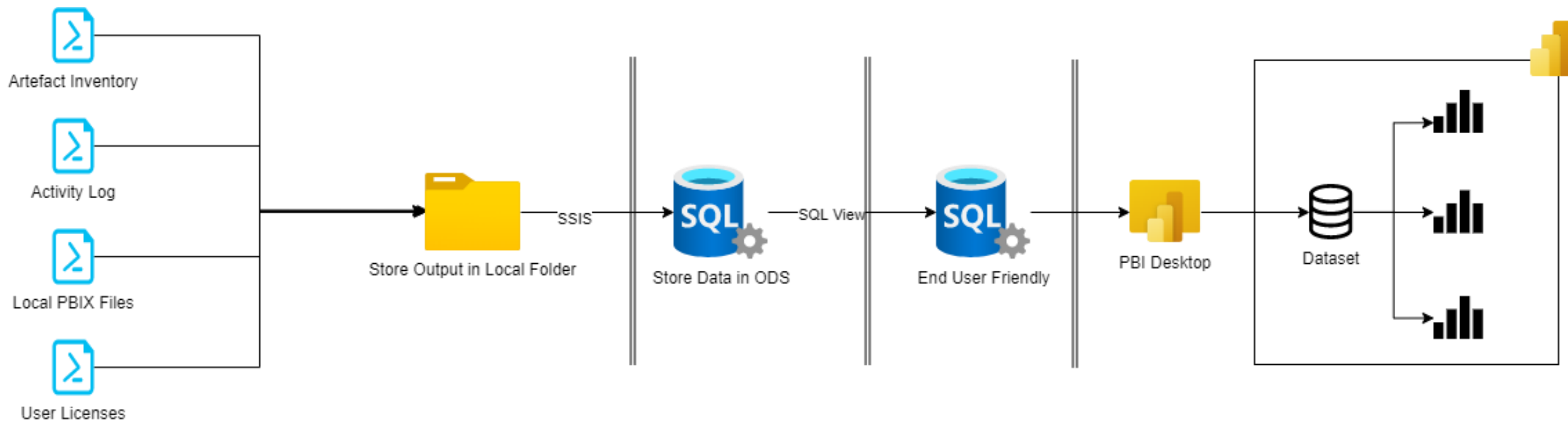
Extend Model, Dataset & Report

## PHASE ..

Incorporate new developments in Admin APIs

- Tap into Capacity Usage Metrics
- Artefact Access, Subscriptions
- Oversharing / Information Protection
- Pipelines
- ..

# PLANNED APPROACH



# SOLUTION ARCHITECTURE

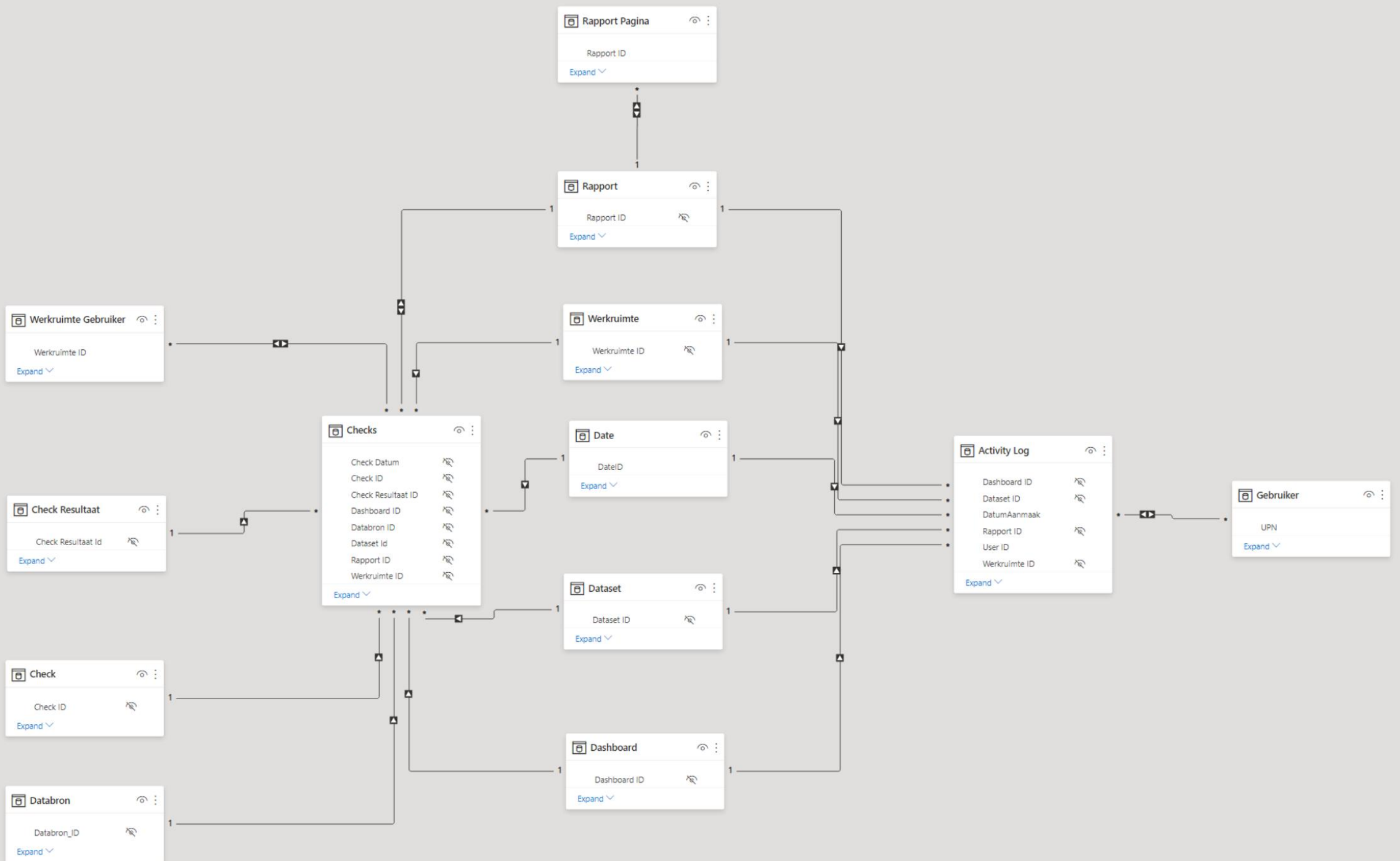
# Power BI as a Strategic Choice

- PowerShell scripts
  - Authenticate through Service Principal + App Registration
  - Use Read-Only Admin APIs
  - Scheduled through Windows Task Scheduler
  - Output CSV Files to a file share location
    - User Licenses
    - AD Groups
    - Activity Log
    - Artefacts
    - Local File Information

# Solution Architecture

- SQL Server Integration Services
  - Lands CSV Data in ODS (Staging and Consumption)
  - Executes the SQL Scripts for the actual Checks

```
, 4 AS 'CHECK_ID'
, CASE
    WHEN dso.DATASOURCE_TYPE = ('Sql')
        AND ds.CONTENT_PROVIDER_TYPE IN ('PbixInImportMode' , 'Unknown')
        THEN 1 -- SUCCESS
    WHEN dso.DATASOURCE_TYPE NOT IN ( 'Sql', 'AnalysisServices' )
        AND ds.CONTENT_PROVIDER_TYPE = 'PbixInImportMode'
        THEN 1 -- SUCCESS
    WHEN dso.DATASOURCE_TYPE = ('AnalysisServices')
        AND ds.CONTENT_PROVIDER_TYPE = 'PbixInLiveConnectionMode'
        THEN 1 -- SUCCESS
    WHEN dso.DATASOURCE_TYPE = ('Sql')
        AND ds.CONTENT_PROVIDER_TYPE = 'PbixInDirectQueryMode'
        THEN 2 -- FAILED
    WHEN dso.DATASOURCE_TYPE = ('AnalysisServices')
        AND ds.CONTENT_PROVIDER_TYPE IN ('PbixInImportMode' , 'Unknown')
        THEN 2 -- FAILED
    WHEN dso.DATASOURCE_TYPE NOT IN ( 'Sql', 'AnalysisServices' )
        AND ds.CONTENT_PROVIDER_TYPE = 'PbixInDirectQueryMode'
        THEN 2 -- FAILED
    ELSE 3 -- WARNING
END AS 'CHECK_RESULT_ID'
, CAST(CONVERT(char(8), @CheckDate, 112) as int) AS 'CHECK_DATE'
```

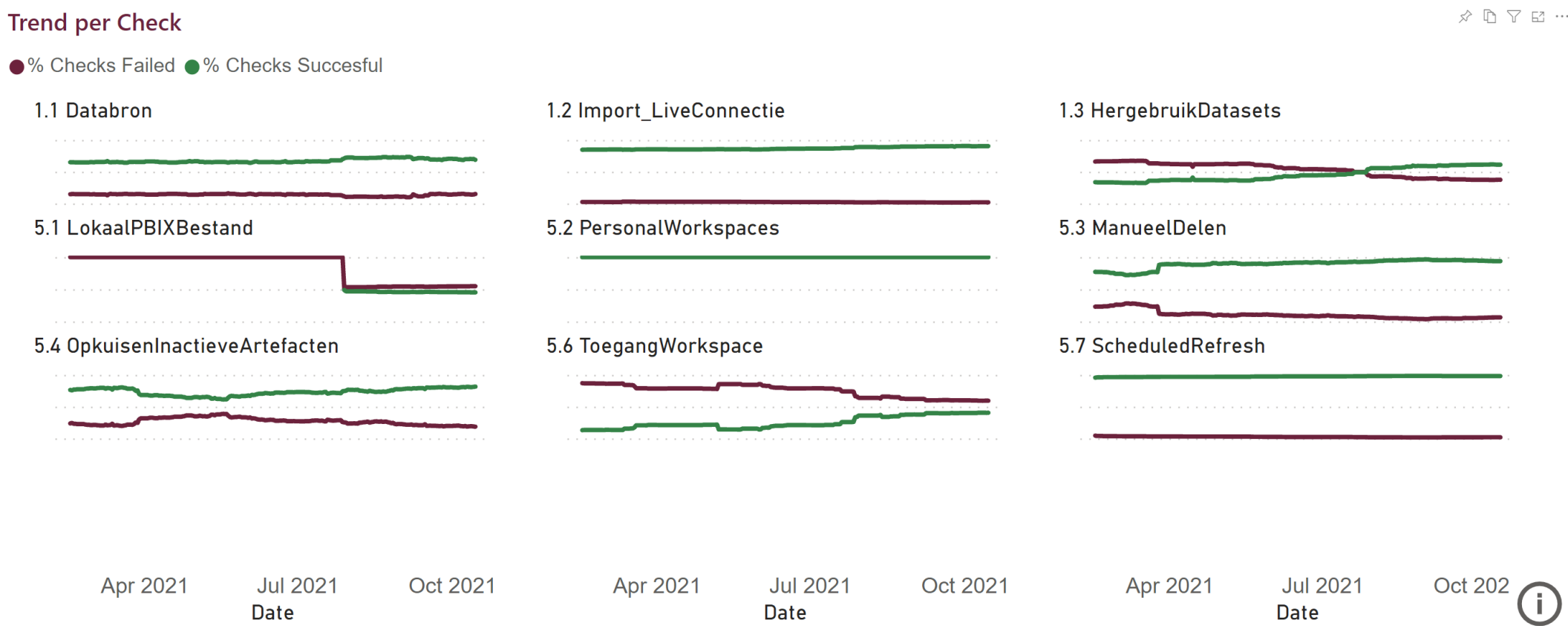
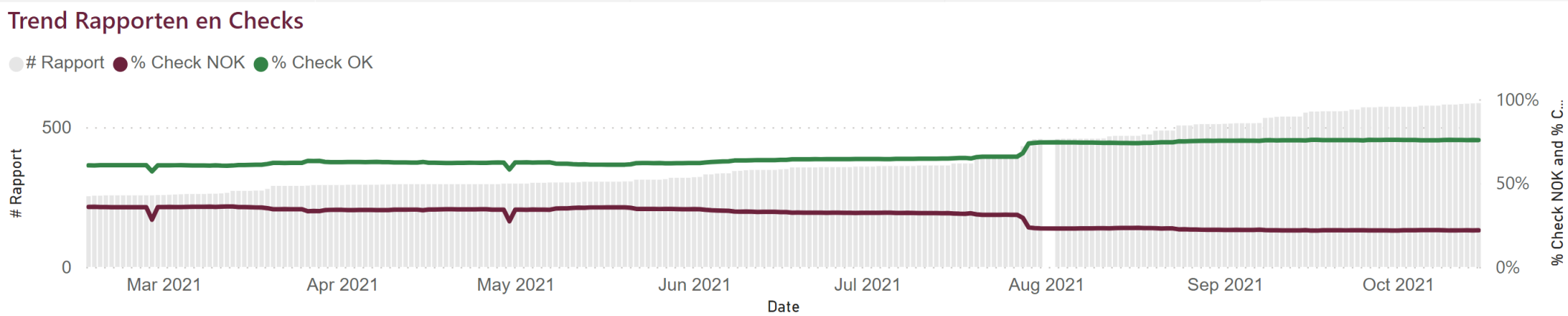


# Solution Architecture

- Power BI (Report)
  - Build an overview page with key metrics (including bookmarks)
  - Build a page per check
    - Key Metrics
    - Trend Graph
    - Detail List
    - Explanation of Guideline
    - Link to Confluence
  - About Page



# Self-Service BI Guidance



Workspace

▼

Werkrumte

All

▼

Dedicated Capacity

All

▼

Dataset

All

▼

Dataset Type

All

▼

Rapport Naam

All

▼

Dashboard

All

▼

Guideline

All

▼

Raw Data

Small Multiple (Per Check)

Small Multiple (Per Werkrumte)

76%

% Check OK

22%

% Check NOK

2%

% Check Aandacht

5133

# Check

9

# Guideline

Datum

This

-

Day

10/15/2021 - 10/15/2021

Werkrumimte Type

Workspace

Werkrumimte

All

Dedicated Capacity

All

Dataset

All

Dataset Type

All

Rapport Naam

All

Dashboard

All

Guideline

All

Raw Data

Small Multiple (Per Check)

Small Multiple (Per Werkrumimte)

Trend Rapporten en Checks

# Rapport

% Check NOK

% Check OK

# Rapport

% Check NOK and % C...

500

100%

0

0%

Mar 2021

Apr 2021

May 2021

Jun 2021

Jul 2021

Aug 2021

Sep 2021

Oct 2021

Date

Onderwerp

# Check

# Check OK

# Check Aandacht

# Check NOK

1. Data Ophalen

1.1 Databron

1.2 Import\_LiveConnectie

1.3 HergebruikDatasets

5. Rapporten Publiceren

5.1 LokaalPBIXBestand

5.2 PersonalWorkspaces

5.3 ManueelDelen

5.4 OpkuisenInactieveArtefacten

5.6 ToegangWorkspace

5.7 ScheduledRefresh

445

306

72

67

586

529

46

11

586

358

9

219

586

265

321

586

586

586

549

37

586

478

108

586

237

1

348

586

575

11

51%

% Hergebruik

586

# Rapport

286

# Dataset

61%

% Check OK

37%

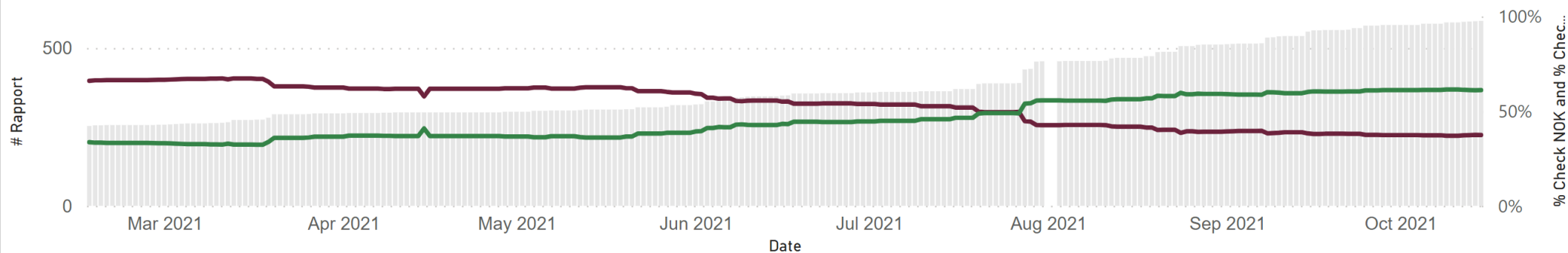
% Check NOK

2%

% Check Aandacht

## Trend Rapporten en Checks

# Rapport ● % Check NOK ● % Check OK



Rapport werkruimte	Rapport Naam	Dataset werkruimte	Dataset Naam	Dataset Opge...
Total				

### 1.3 Datasets hergebruiken overheen werkruimten en rapporten

Shared datasets zorgen voor een hogere beheersbaarheid, en meer herbruikbaarheid over rapporten heen. In gedeelde werkruimten wordt best een splitsing gemaakt tussen een dataset (leeg rapport), en de afhankelijke rapporten. Gedeelde datasets kunnen zelfs gebruikt worden over de werkruimten heen, en kunnen op deze manier nog extra ingezet worden als een mechanisme voor uniformiteit.

Een rapport zal in de lijst weergegeven worden als :

- Er geen afhankelijke rapporten zijn
- OF
- Er geen splitsing is tussen dataset en rapport

Datum

This - Day

10/15/2021 - 10/15/2021

Werkruimte Type

Workspace

Werkruimte

All

Dedicated Capacity

All

Dataset

All

Dataset Type

All

Rapport

All

Dashboard

All

Guideline

All

Guideline Topic

Search

1. Data Ophalen



82%

% Rapport OK

18%

% Rapport NOK

46

# Werkruimte

586

# Rapport

Datum

This

-

Day

10/15/2021 - 10/15/2021

Werkruimte Type

Workspace

Werkruimte

All

Dedicated Capacity

All

Dataset

All

Dataset Type

All

Rapport

All

Dashboard

All

Guideline

All

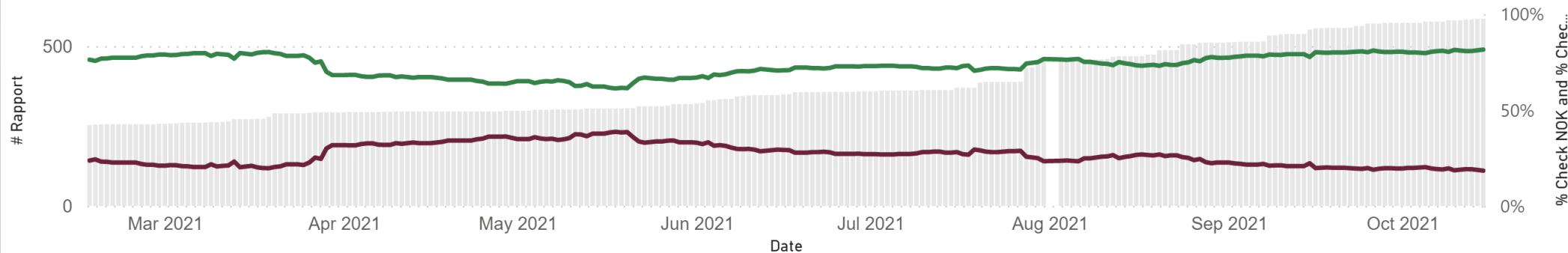
Guideline Topic

Search

5. Rapporten Publiceren

## Trend Rapporten en Checks

# Rapport % Check NOK % Check OK



Rapport Naam	Dataset Naam	Dataset Opgezet Door	Laatst Gebruikt	# Check NOK
				2
				120
				3
				3
				129
				49
				2
				136
Total				1

### 5.4 - Kuis niet meer gebruikte rapporten en datasets op

We rekenen op de verantwoordelijkheid van de rapportage-owners om niet meer gebruikte rapporten & datasets ook opnieuw te verwijderen. Oude - niet meer gebruikte - rapporten kunnen gedateerde en onduidelijke info bevatten. Voor nieuwe gebruikers zal het bovendien ook niet altijd duidelijk zijn welk rapport de juiste info bevat als er meerdere gelijkaardige rapporten bestaan.

Een rapport zal in de lijst weergegeven worden als :

- Het rapport (of bijbehorende dataset) 60 dagen, of langer, voor het laatst gebruikt is



To be done

# To be done

- Operationalize the setup and scripts
- Add a 'whitelist' for artefacts
- Expand User Access Overview (Item Level access)
- Include the automated extraction of
  - Tabular Editor Best Practice Analyzer
  - Azure Monitor (Log Analytics)
  - Whatever other insights may rise up
- Open Source?

# Lessons Learned



# Lessons Learned

- Experiment, gone right!
- Enabling and promoting a strategic Data Culture pays off
- MSFT Docs ~~had~~ has some gaps to fill 😊
- Strategic gaps in APIs continue being filled
- Try it!

If I could start again today ..

# If I could start again today

- Notebooks are the way to go
  - Semantic Link has so many powerful options
- Scanner API now covers a lot of the gaps
  - Where are my App Audiences though?
  - Scalable method for Pages and Visuals would be 🍌
- Run Best Practice Analyzer on all semantic models

**What options do I have to get started?**

# Getting Started - Options

<a href="#">Jordan Kline – Fabric Admin Notebooks</a>	Fabric Notebooks (Python)
<a href="#">Michael Kovalsky – Fabric CAT Tools</a>	Fabric Notebooks (Python)
<a href="#">Microsoft – Fabric Metadata Scanning</a>	.NET App
<a href="#">Just Blindbaek – Power BI Monitor</a>	Azure Data Factory, Serverless SQL
<a href="#">Rui Romano – Power BI Monitor</a>	PowerShell, Blob Storage
<a href="#">Dave Ruijter – Best Practice Analyzer Automation</a>	PowerShell
<a href="#">Argus PBI</a>	Paid tool
<a href="#">Power BI Sentinel</a>	Paid tool



# Slides



[https://github.com/BenniDeJagere/Presentations/{Year}/{YYYYMMDD}\\_{Event}](https://github.com/BenniDeJagere/Presentations/{Year}/{YYYYMMDD}_{Event})





# Thank you

