



# **#DataWeekender Data-Driven Alerts**

*„Make your data shine!“*

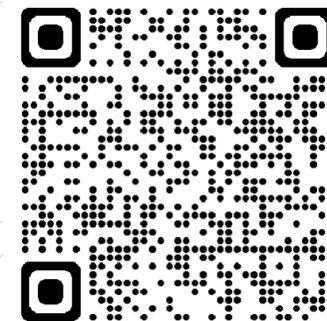
2023

# SPEAKER

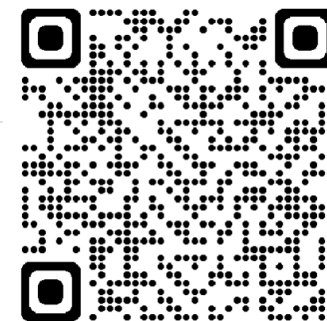


**ŠTĚPÁN REŠL**

**LINKEDIN**



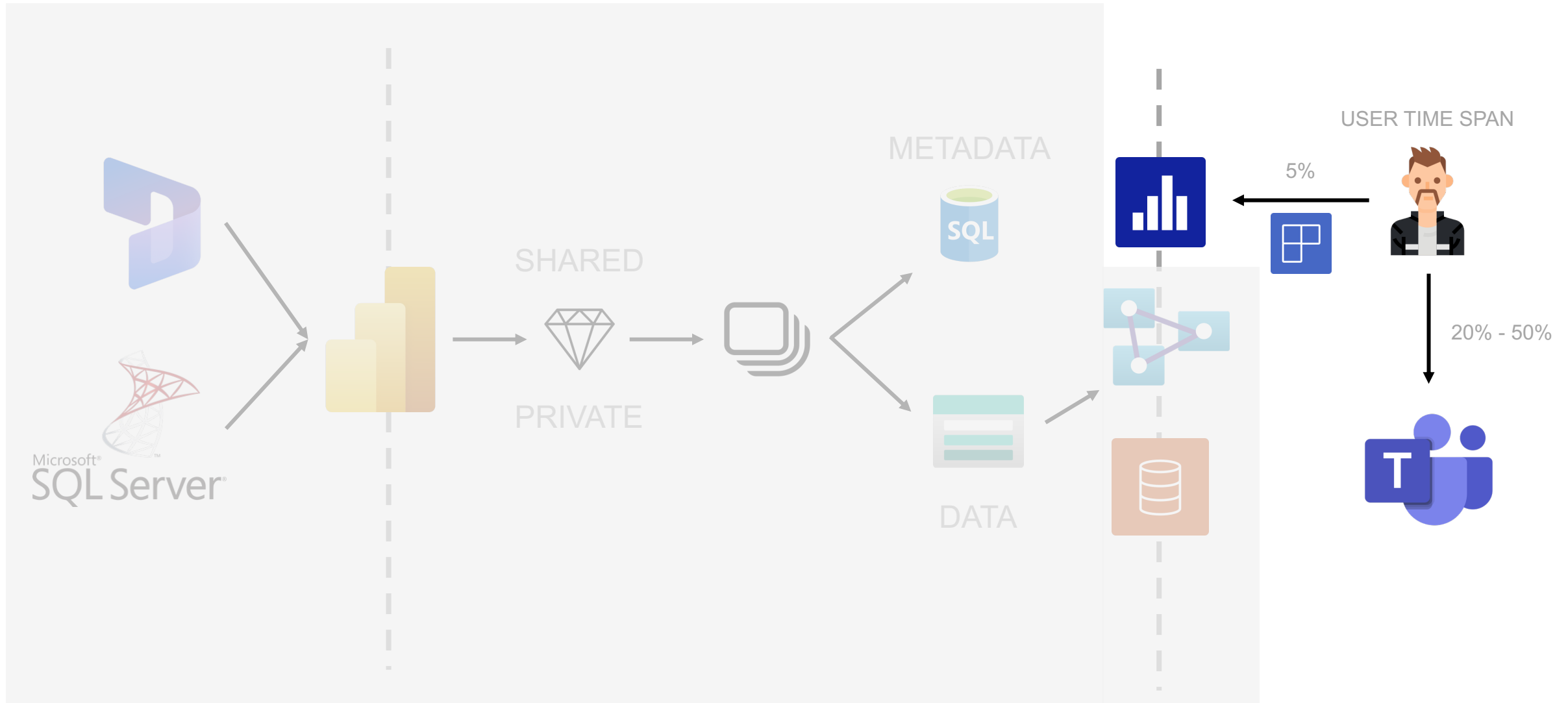
**TWITTER**



**WHY WE SHOULD TALK  
ABOUT IT??**

# Let's tear the system apart

This is the only way to understand the context and how to use it



# All what they need

This is a basic user understanding of relevant sources.

THIS IS A BLACK BOX



AND THIS IS REPORT

SMALLER MEANS LESS RELEVANT... FOR THEM

# ... needs to be served properly

If the content is not served properly, then it loses its meaning



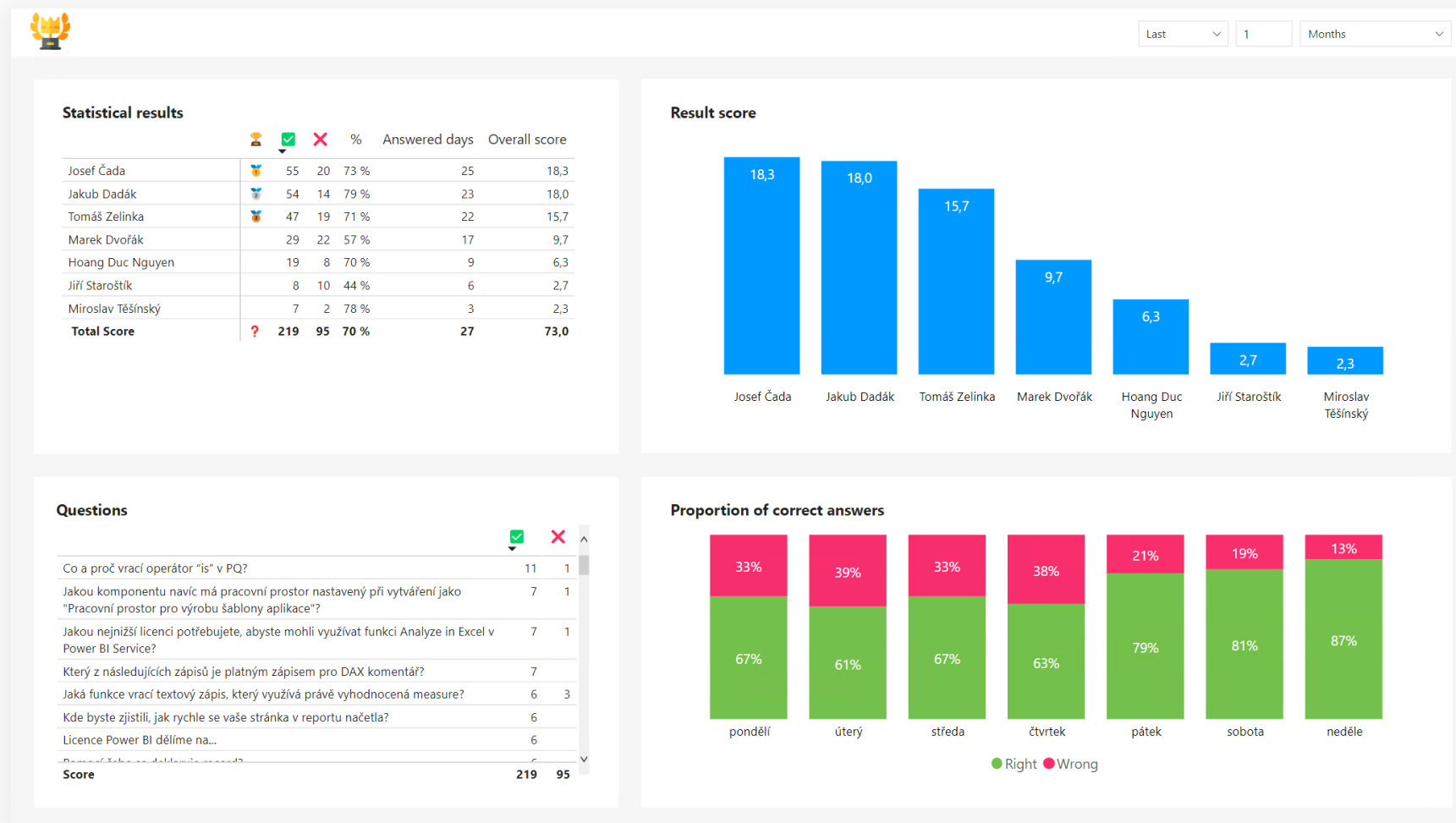
Information presented in a form that is quickly indigestible for the user becomes unpleasant for the user, and even if it has high benefits, it is very difficult to convince the user to use the means that communicate it.



**Story time**

# We have a report...


And it is full of a data. Data that would be better served directly in the hands of users.







# Adaptive Card

Data from the report can reach us, for example, in Teams

 **Power Automate**



### POWER BI CARDS - WEEKLY RESULTS

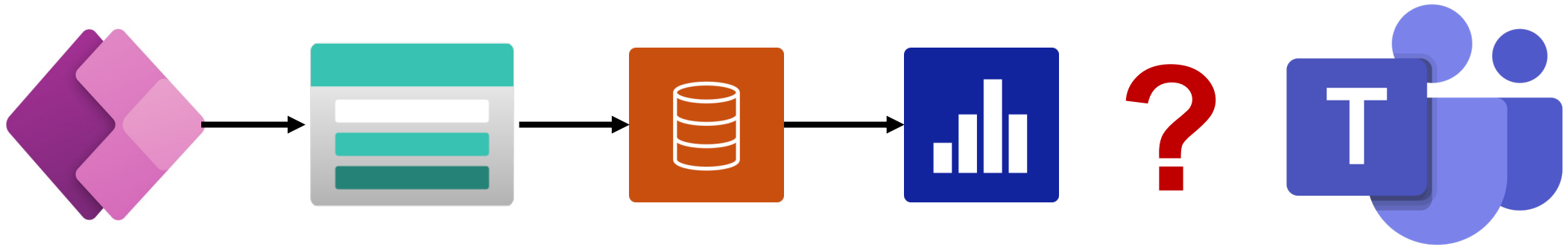


Week - Year	3 - 2022
Rank	1 z 9
Score	3 z 7
Success Rate	42.9%

Let's go practise!

# But how??

What possibilities do we actually have to get the selected information to the users?



# or maybe... HOW!?

There are easier and more difficult paths...

Štěpán Rešl via Power Automate 13:01

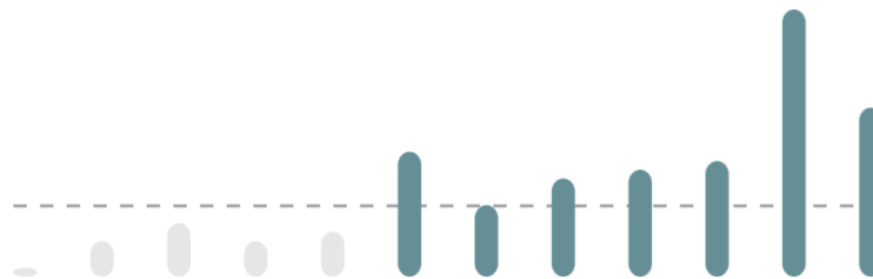


## SVG icon

**Total target is on 133%** ~ missing -31.75

Period target is on **133%** ~ sold 127

**7 of 12 months** were successful





**Our possibilites**

# Type of “Alerts”

When Power BI sends us a message, it is somehow "alerting".



**ALERTS  
/  
OUTAGES**



**SUBSCRIPTION  
/  
FAIL MESSAGES**

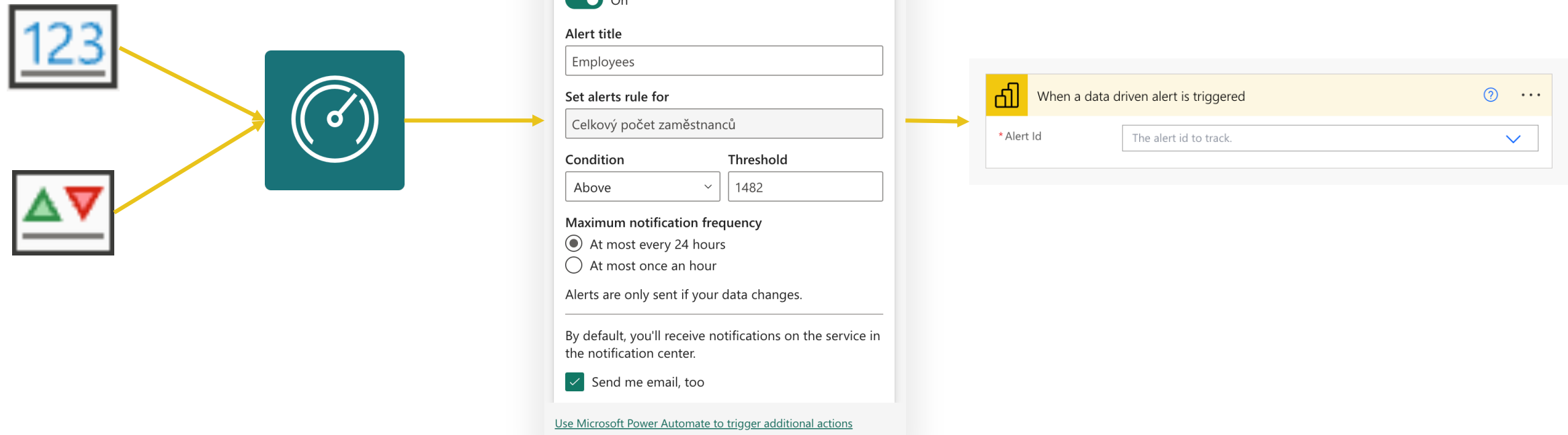
**FULLY NATIVE AND INTEGRATED**



**REST API**

# Alerts from Dashboard

Although these alerts can be used, they are very limited



# Outages...

This notification looks like this...



Power BI

## We're working to fix a problem with data refresh

We've detected an issue with Power BI data refresh scenarios that may affect your tenant's resources. As a result, your tenant may experience datasets not refreshing as expected. Our engineers are investigating the problem, and we'll let you know when it's fixed.

If you have questions, please [visit the Power BI support page](#).

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# Subscription


Email again. Fortunately, RLS also supports this



Power BI


## Learning Point - Úvod

[Go to report >](#)

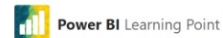


○ Microsoft Power BI <no-reply-powerbi@microsoft.com>

To: ● Štěpán Rešl

 HR - Power BI Learní...  
377.2 KB

[Download](#) • [Preview](#)



[info@databrothers.cz](mailto:info@databrothers.cz) | +420 774 601 702 | ENGLISH  >

Hledáte správné školení pro sebe či pro své kolegy?  
Máme toho pro vás spoustu. Stačí si vybrat.

Vyberte si podle své role

-  **UŽIVATEL**  
Zná základní strukturu Power BI. Umí ovládat svoje reporty, sdílet reporty s kolegy a exportovat data z reportů.
-  **TVŮRCE MODELU**  
Napojuje se na různé zdroje dat a automatizuje načítání. Přípravu datové modely, ovládá jazyk M.
-  **TVŮRCE REPORTŮ**  
Připravuje reporty, publikuje je, nastavuje Power BI Service a zná jeho komponenty. Zná storytelling, používá DAX.
-  **DATOVÝ ANALYTIK**  
Kombinace tvůrce modelů a reportů s mnohem větším přehledem do všech oblastí. Power BI konzultant/vyvojeř.
-  **VYVOJÁŘ PREMIUM**  
Má dostupné Power BI Premium a umí využít všechny jeho funkcionality.
-  **IT A BEZPEČNOST**  
Administrátor Power BI. Nastavuje, sleduje, vyhodnocuje stav celého Power BI ekosystému.

[PRO VŠECHNY ROLE](#)

Vyberte si z našich produktů

Podle úrovně

-  **ZÁKLADNÍ AKADEMIE**  
Základní dovednosti a orientace v Power BI. Tvorba reportů end-to-end (načítání dat, transformace, vizualizace, PBI Service).
-  **POKROČILÁ AKADEMIE I ANALÝZA**  
Power Query (M language) v Power BI. Příprava a transformace dat, ETL, způsoby zabezpečení (RLS, OLS, MS licence, atd).
-  **POKROČILÁ AKADEMIE II REPORTING**  
Vizualizace a reporting v Power BI. Strukturování reportu, data storytelling, pokročilý DAX, PBI Service, atd.

Podle specializace

-  **POWER BI PRO MANAŽERY**  
Business potencial Power BI. Výhody oproti jiným nástrojům, ukázká reportů, integrace, automatizace firemních procesů, atd.
-  **DATA STORYTELLING**  
Umění vyprávět relevantní a jasné příběhy pomocí dat v Power BI. Výužití vizualizací a analýzy ke komunikaci složitých informací.
-  **POWER BI GOVERNANCE**  
Demonstrace Power BI procesů. Zajištění rychlé, bezpečné a dlouhodobé dodávky kvalitního obsahu definovaným uživatelům.

[POROVNAT VŠECHNY PRODUKTY](#)

Vyhledejte téma

- Search 
- Nalezl jsem u nás **338** výsledků na zadané téma.
- Seznam témat**
- Power BI Datamarts
  - Power BI Metrics
  - Power BI Goals - Novinky Q3 - Q4 2022
  - Power BI Goals
  - Zdroje BI
  - Využití Power Apps v Power BI Report
  - Vlastní mapové podklady
  - Synoptic Panel od OKViz
  - Streamované vizuály
  - Scatter Plots
  - Pureviz Infographic
  - Inteligentní rozbor
  - Insights

[ZOBRAZIT](#)



# Type of “Alerts”

When Power BI sends us a message, it is somehow "alerting".



**ALERTS  
/  
OUTAGES**



**SUBSCRIPTION  
/  
FAIL MESSAGES**

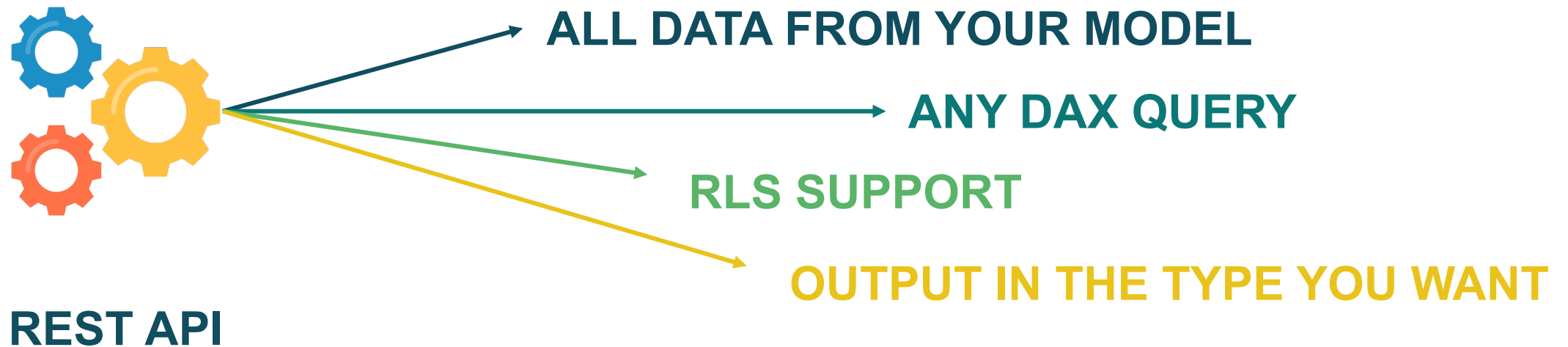
**BUT IMMUTABLE...**



**REST API**

# Let's keep everything under control

When Power BI sends us a message, it is somehow "alerting".



# Don't stop with just Alerts!

REST API can help us with much more!



Export  
Data



Testing  
Datasets

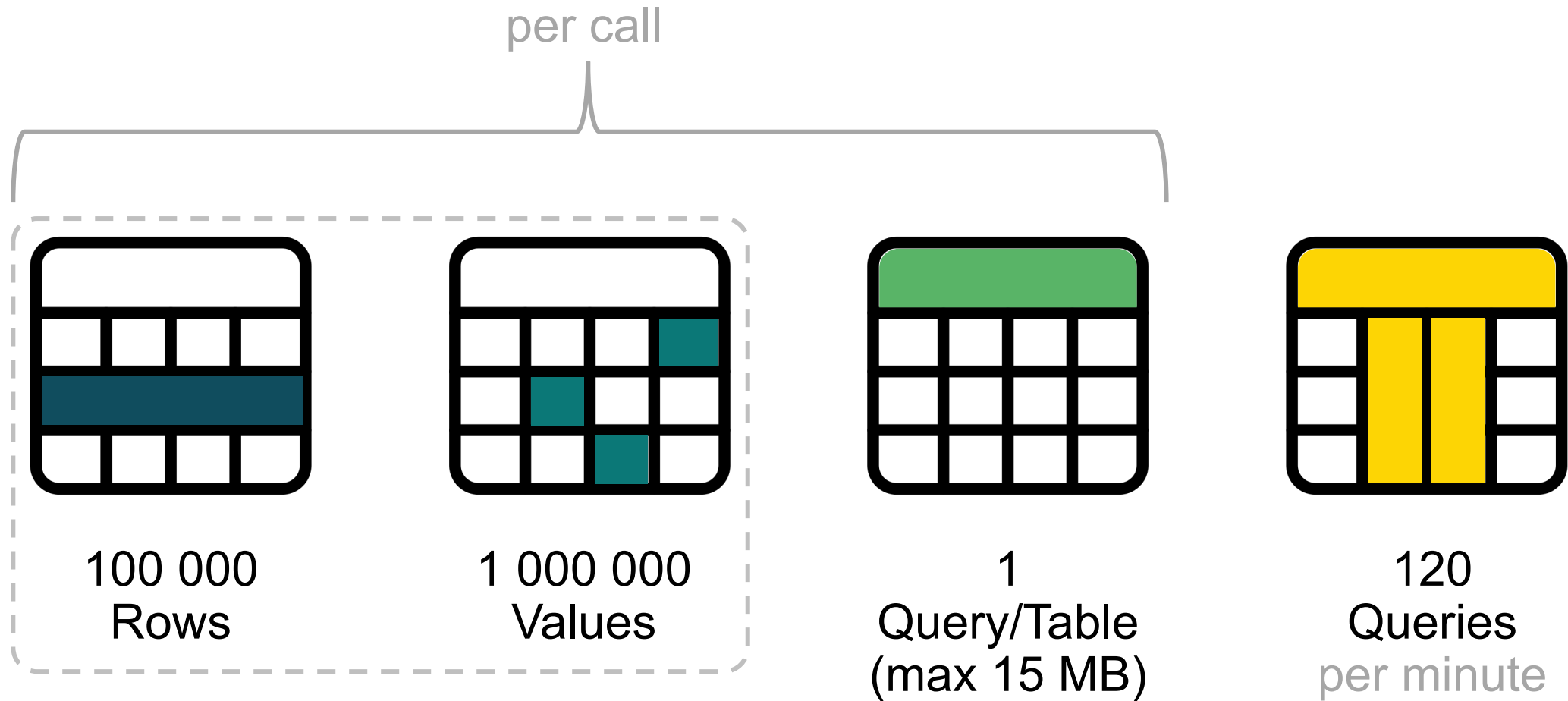


Automize  
Agenda By  
Data

# **LIMITATIONS**

# Endpoint Limitation

Choosing a chart may seem like a chore... but it's not!



THEY CAN BE BYPASSED

# **ENVIROMENT PREPARING**

# Tenant Settings

What needs to be set up to use this API.

## Dataset Execute Queries REST API

*Enabled for the entire organization*

Users in the organization can query datasets by using Data Analysis Expressions (DAX) through Power BI REST APIs.

☒ Enabled

Apply to:

☒ The entire organization

☐ Specific security groups

☐ Except specific security groups

Apply

Cancel

## \* Allow service principals to use Power BI APIs

*Enabled for the entire organization*

Web apps registered in Azure Active Directory (Azure AD) will use an assigned service principal to access Power BI APIs without a signed in user. To allow an app to use service principal authentication its service principal must be included in an allowed security group. [Learn more](#)

☒ Enabled

Service principals can use APIs to access tenant-level features controlled by Power BI service admins and enabled for the entire organization or for security groups they're included in. You can control access of service principals by creating dedicated security groups for them and using these groups in any Power BI tenant level-settings. [Learn more](#)

Apply to:

☒ The entire organization

☐ Specific security groups (Recommended)

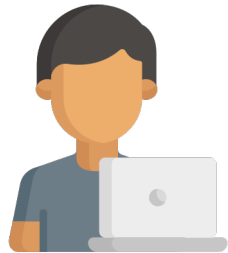
☐ Except specific security groups

Apply

Cancel

# Access Type

Not everything is always the same! So you need to think carefully.



**USER**



**SERVICE  
PRINCIPAL**

\* DOESN'T SUPPORT DATASETS WITH RLS

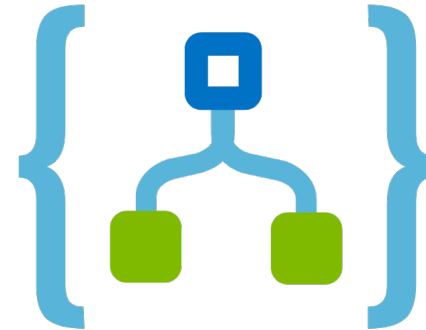


# Native callers

Let's look for something that can work directly with this endpoint.



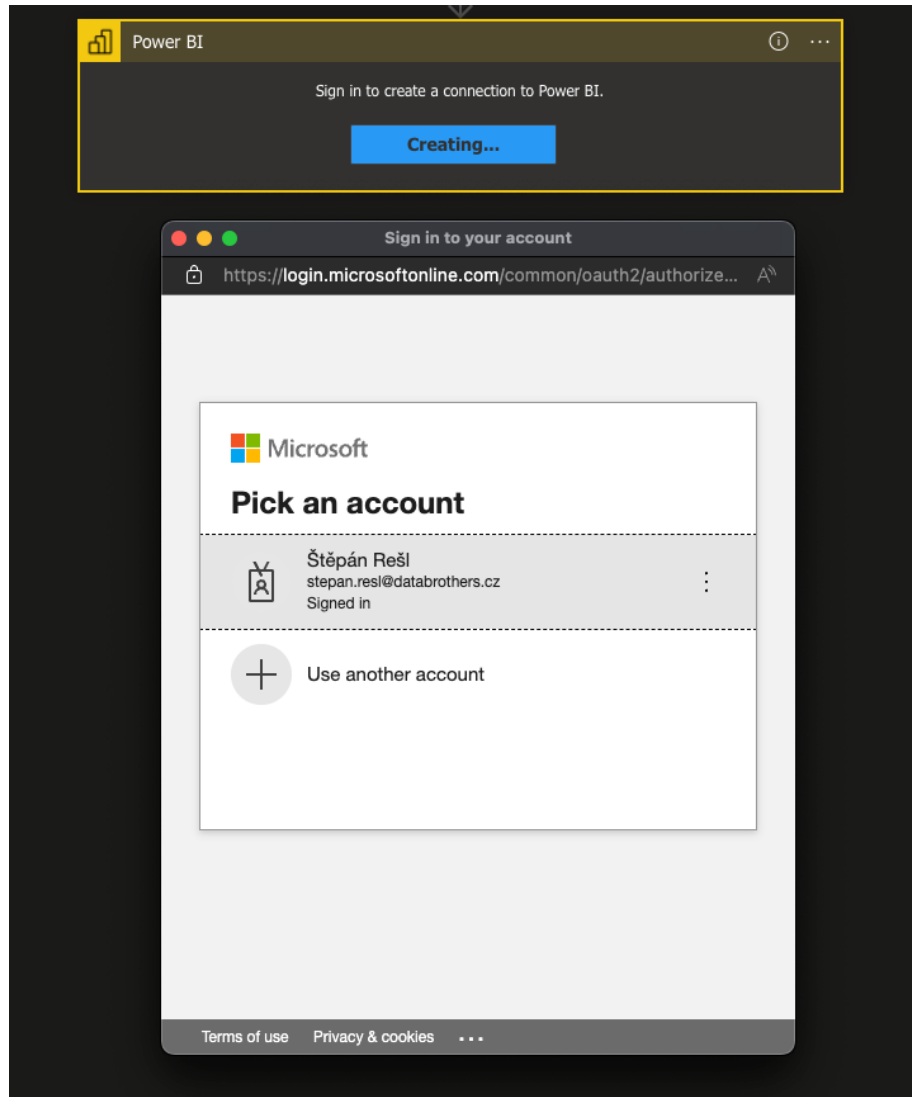
Power  
Automate



Logic  
Apps

# Simple login

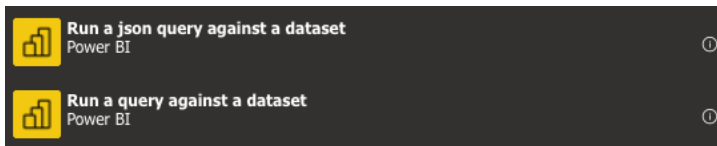
A very straight forward way to log in.



```
{
  "inputs": {
    "host": {
      "connection": {
        "name": "@parameters('$connections')['powerbi']['connectionId']"
      }
    },
    "method": "post",
    "body": {
      "query": "EVALUTATE 'Employees'",
      "serializerSettings": {
        "includeNulls": false
      },
      "impersonatedUserName": "josef.cada@dataprothers.cz"
    },
    "path": "/v1.0/myorg/groups/{encodeURIComponent('c88c00e0-a353-45c3-83b8-db68685e0046')}/datasets/{encodeURIComponent('71850a1e-ae97-41b0-85e1-02b1e9fead29')}/executeQueries",
    "queries": {
      "pbi_source": "powerAutomate"
    }
  }
}
```

# A better way to query this endpoint!

It is part of the licenses for tools of the O365 family. (So free)




A dialog box titled 'Run a json query against a dataset' with a yellow icon of a bar chart. It contains three required fields: 'Workspace' (The unique identifier of the workspace.), 'Dataset' (The unique identifier of the dataset.), and 'Specification' (The json text of the query. Can be multiline text.). At the bottom, it shows 'Connected to stepan.resl@dataprothers.cz.' with a 'Change connection.' link.

A dialog box titled 'Run a query against a dataset' with a yellow icon of a bar chart. It contains five fields: 'Workspace' (The unique identifier of the workspace.), 'Dataset' (The unique identifier of the dataset.), 'Specification Query text' (The text of the query. Can be multiline text.), 'Specification Nulls included' (No), and 'Specification Impersonate user' (A user identity in UPN format to run the query as another user.). Each of the last three fields has a dropdown arrow and a close button (X). At the bottom, it shows 'Connected to stepan.resl@dataprothers.cz.' with a 'Change connection.' link.

# A simple option to get answers

Just click on the options and complete the DAX query

 Run a query against a dataset ? ...

\* Workspace

Select an item ▼

'Workspace' is required.

\* Dataset

Select an item ▼

'Dataset' is required.

\* Query text

The text of the query. Can be multiline text.

'Query text' is required.

Nulls included

Should null values be included in the results. Default is No. ✓

Impersonate user

A user identity in UPN format to run the query as another user.

[Hide advanced options](#) ^

```
EVALUATE  
lastWeek
```




```
EVALUATE  
ADDCOLUMNS (   
    lastWeek,  
    "@forename", RELATED ( 'Employees'[Forname] )  
 )
```


```
DEFINE  
VAR _t =  
    ADDCOLUMNS (   
        SUMMARIZE ( 'Employees', [Forname] ),  
        "@counter", CALCULATE ( COUNTROWS ( pbiCardResults ) )  
    )  
VAR _sum =  
    SUMX ( _t, [@counter] )  
  
EVALUATE  
{ _sum }
```


```
EVALUATE  
TOPNSKIP ( 2, 3, lastWeek, lastWeek[Index], ASC )
```

# Including RSL


But watch out! It's not like you can impersonate someone else with READ rights. Only if you have WRITE rights


 Run a query against a dataset  


\* Workspace    
*'Workspace' is required.*

\* Dataset    
*'Dataset' is required.*

\* Query text   
*'Query text' is required.*

Nulls included  

**!!** Impersonate user  



[Hide advanced options](#) 



**LETS TRY SOME CALLS!**

# **HOW TO WORK WITH RESPONSES?**

# Response

 Get Count of Projects in Portfolio without Assignee and not in OK Status 0s 

INPUTS [Show raw inputs >](#)

Workspace

[P] Produkty

Dataset

Portfolio management report

Query text


EVALUATE {COUNTROWS(SUMMARIZE(FILTER('Portfolio','Portfolio'[Assignee]='Portfolio'[Project Overall Status],  
'Portfolio'[Summary],  
'Portfolio'[Start date],  
'Portfolio'[End date] )))}

[Show more >](#)

OUTPUTS [Show raw outputs >](#)

First table rows

```
[
  {
    "[Value]": 98
  }
]
```

Connection: [stepan.resl@dataprothers.cz](#) 



# Browsing records in response

Power Automate passes each ARRAY through the "Apply to each" method. Even if it contains only one record.

The screenshot shows the 'Apply to each' loop configuration in Power Automate. The loop is set to process 'First table rows'. Inside the loop, the 'Parse JSON' action is configured with the following details:

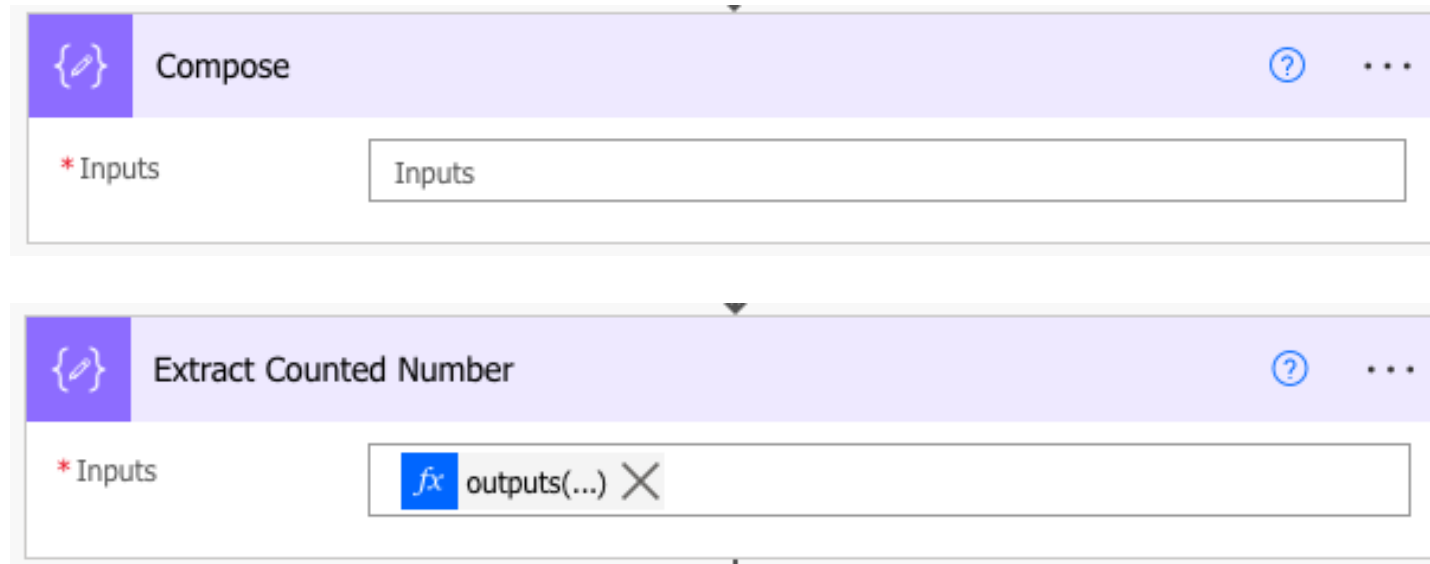
- Content:** Row
- Schema:**

```
{  "type": "object",  "properties": {    "[Value]": {      "type": "integer"    }  }}
```

A 'Generate from sample' button is located below the schema editor. At the bottom of the loop, there is an 'Add an action' button.

# How to eliminate an unnecessary cycle?

You can query directly to the first entry inside the answer.

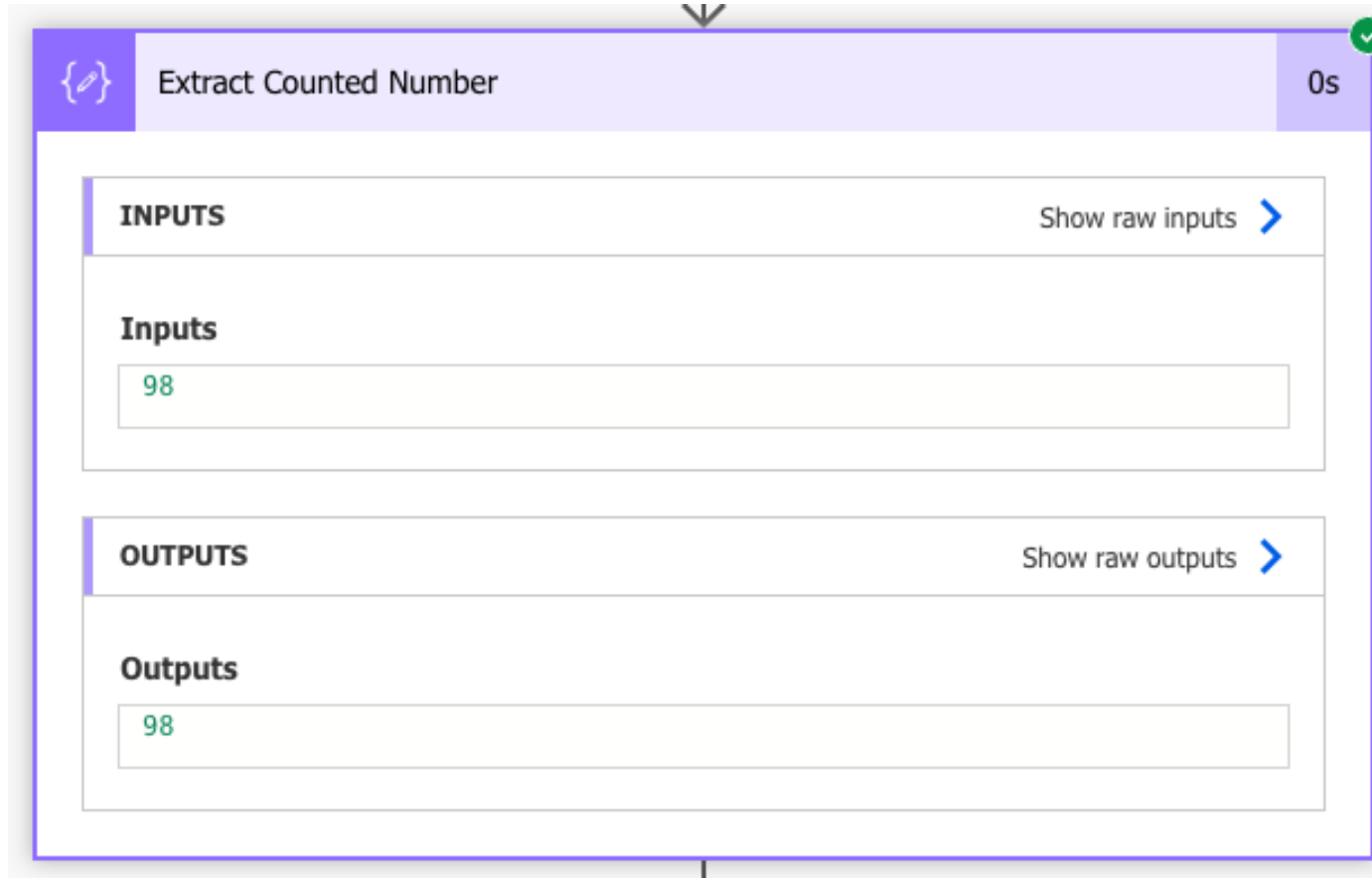


The image shows a workflow editor with two steps. The first step is 'Compose', which has an input field labeled 'Inputs'. The second step is 'Extract Counted Number', which has an input field containing the formula `outputs(...)` with a blue 'fx' icon and a close button.

```
outputs('Get_Count_of_Projects_in_Portfolio_without_Assignee_and_not_in_OK_Status')?['body/firstTableRows']?[0]?['[Value]']
```

# Response

You can verify that this repair procedure works by running a test.



The screenshot shows a testing interface for a function named "Extract Counted Number". The interface has a purple header bar with a code icon on the left, the function name in the center, and a "0s" timer on the right with a green checkmark. Below the header, there are two main sections: "INPUTS" and "OUTPUTS". Each section has a "Show raw" link with a blue arrow. The "INPUTS" section shows a single input field with the value "98". The "OUTPUTS" section shows a single output field with the value "98".

Extract Counted Number		0s
<b>INPUTS</b> <a href="#">Show raw inputs</a>		
Inputs	98	
<b>OUTPUTS</b> <a href="#">Show raw outputs</a>		
Outputs	98	

# Power Automate ways to extract a response

Simple instructions on how to get a specific type of answer

`outputs(...)` ← Returns entire response of API

`outputs(...)?['body/firstTableRows']` ← Returns all rows from extracted table

`outputs(...)?['body/firstTableRows']?[0]` ← Returns first row from extracted table

`outputs(...)?['body/firstTableRows']?[0]?['Value']` ← Returns exact value from first row from extracted table

# Results can be little bit strange

The query returned from the model is subject to certain rules

```
[
  {
    "Portfolio[Project Overall Status]": "N/A",
    "Portfolio[Summary]": "Application Of Machine Learning Prediction Algorithm",
    "Portfolio[Start date]": "2019-07-17T00:00:00",
    "[@Link]": "https://reportee.cz/cs/HHH-9"
  },
  {
    "Portfolio[Project Overall Status]": "ISSUE",
    "Portfolio[Summary]": "Application Of Azure Synapse",
    "Portfolio[Start date]": "2019-07-17T00:00:00",
    "[@Link]": "https://reportee.cz/cs/HHH-9"
  },
  {
    "Portfolio[Project Overall Status]": "RISK",
    "Portfolio[Summary]": "Mining Worker Safety Helmet",
    "Portfolio[Start date]": "2021-01-01T00:00:00",
    "Portfolio[End date]": "2022-02-28T00:00:00",
    "[@Link]": "https://reportee.cz/cs/HHH-134"
  }
]
```

# How it works?

Depends on what you are asking for! Stored attributes or new ones.

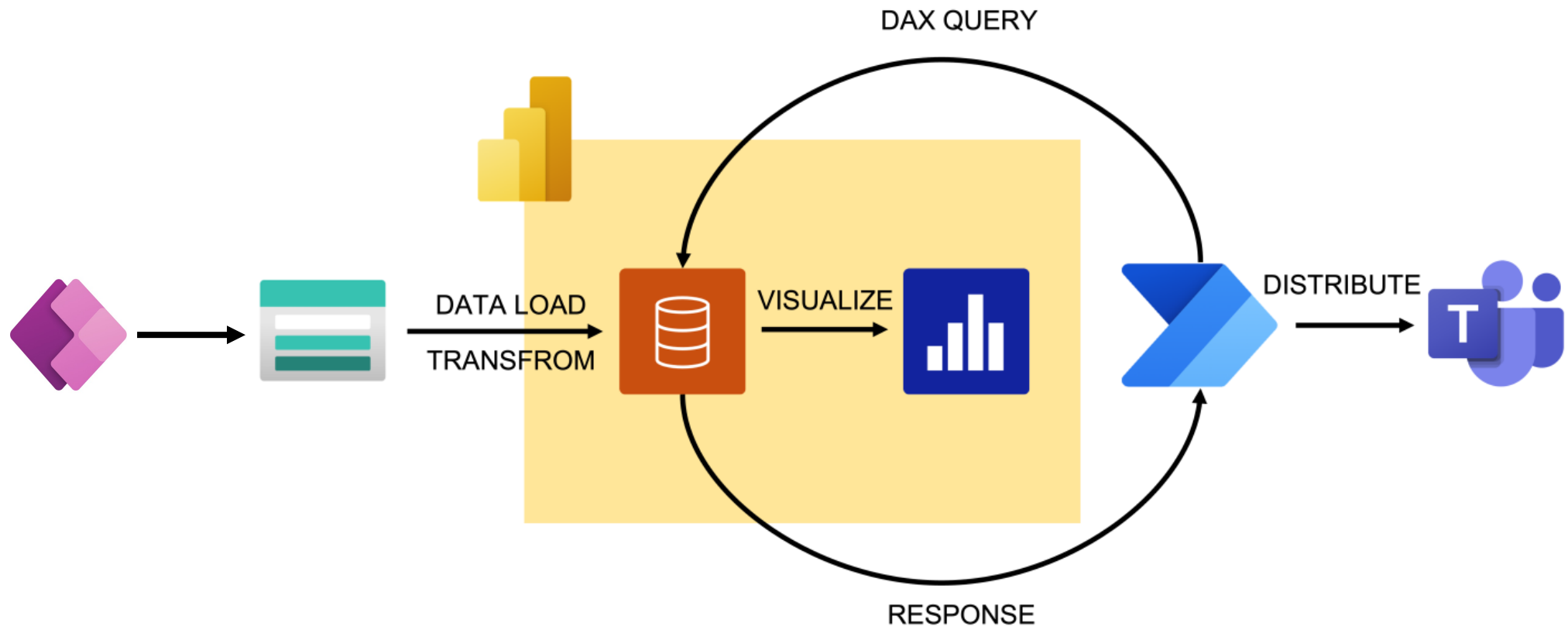
Table[Column] →  
EVALUATE 'Table'  
EVALUATE SUMMARIZE('Table', [Column], [Column1],...)

```
{  
  "Portfolio[Project Overall Status]": "N/A",  
  "Portfolio[Summary]": "Application Of Machine Learning Prediction Algorithm",  
  "Portfolio[Start date]": "2019-07-17T00:00:00",  
  "[@Link]": "https://reportee.cz/cs/HHH-9"  
}
```

[Column] →  
EVALUATE SELECTCOLUMNS('Table', "Column", [Column])  
EVALUATE ADDCOLUMNS('Table', "NEWColumn", [Column])

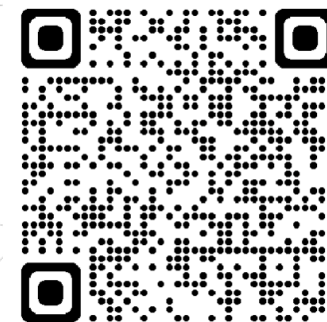
# Full story

If I expand the original story with what we just learned, then we're done!

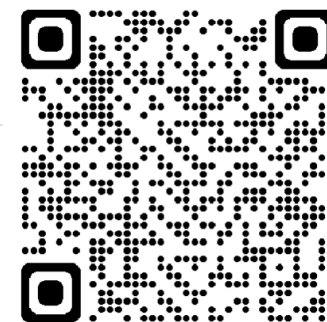


# THANK YOU FOR THE ATTENTION

LINKEDIN



TWITTER



**ŠTĚPÁN REŠL**

