

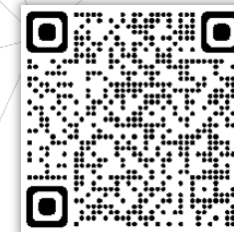
# **Dataset Extraction with REST API**

*„Make your data shine!“*

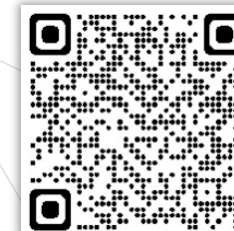
2022

# SPEAKER

LinkedIn Štěpán Rešl



Twitter @tpnRel1



## ŠTĚPÁN REŠL

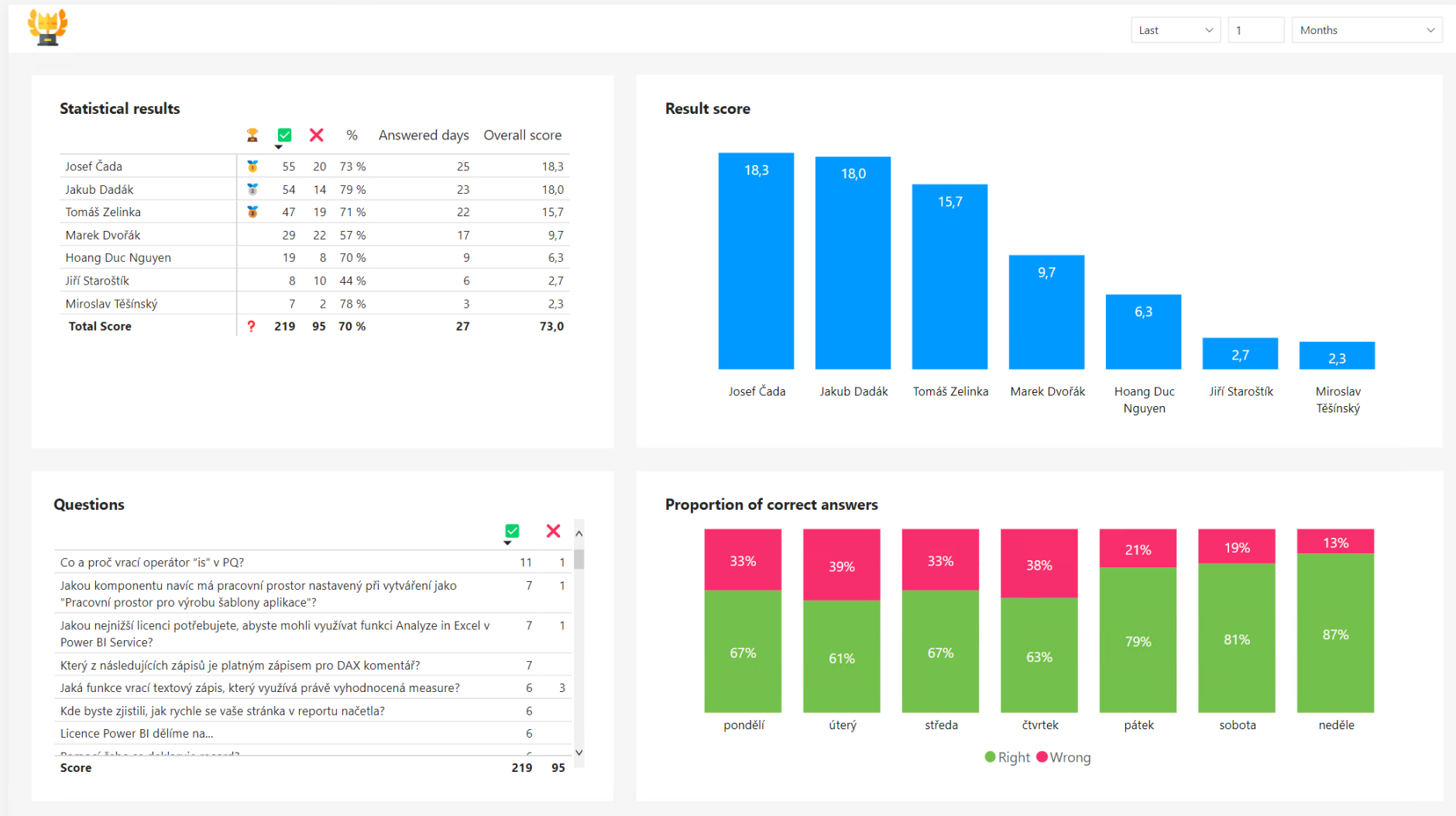


# **AGENDA**


- Quick Demo**
- REST API**
- Purposes**
- Limitations**
- How to call it**
- Working with outputs**
- Demos**


# QUICK DEMO

# So It could look like this




# So It could look like this

 Power Automate



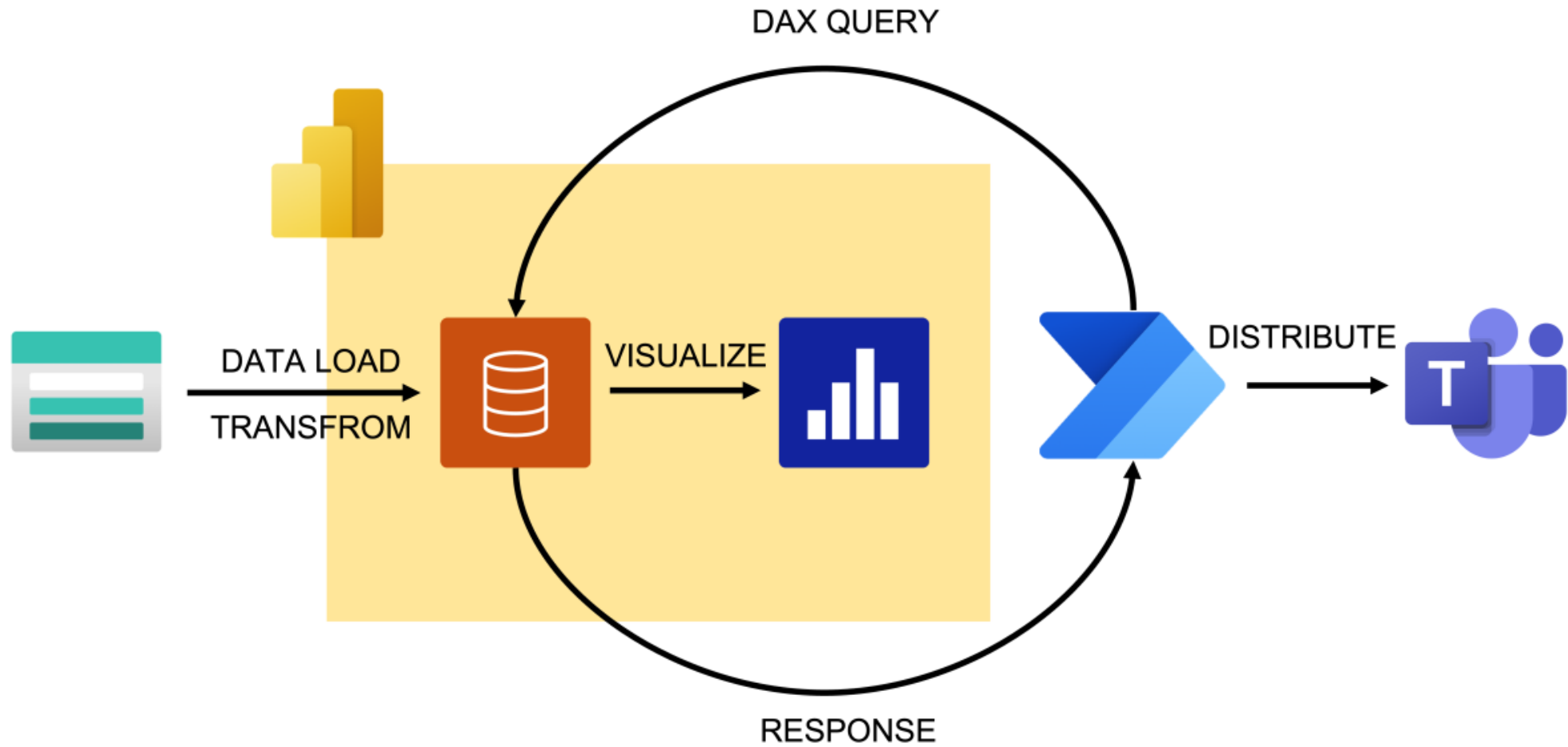
## POWER BI CARDS - WEEKLY RESULTS



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

Let's go practise!

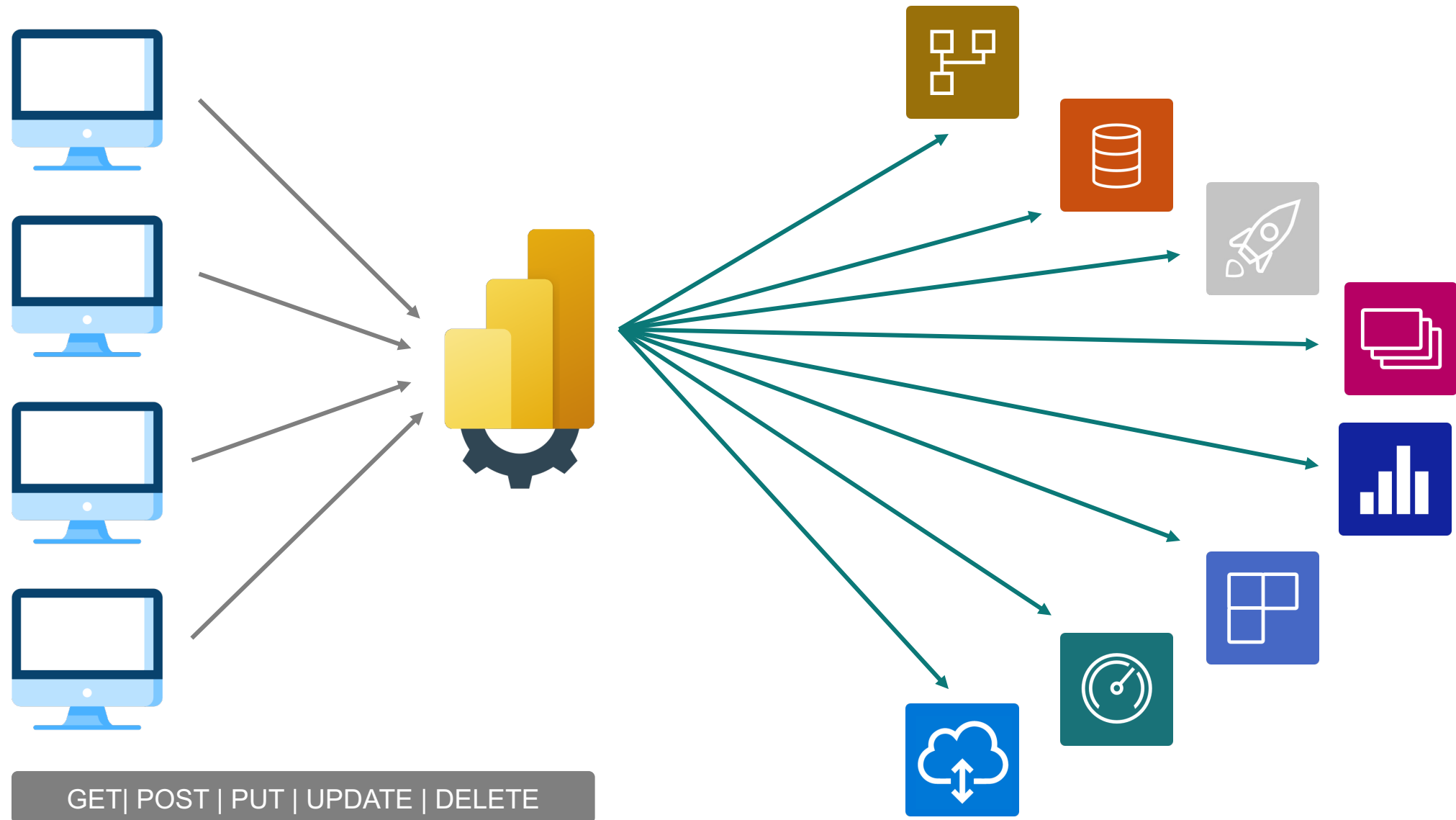
# Schema of Demo



# **WHAT IS POWER BI REST API**



# POWER BI REST API



# PURPOSE

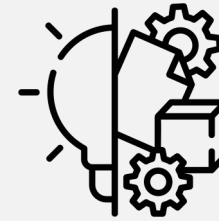
# Purposes



Export  
Data



Testing  
Datasets



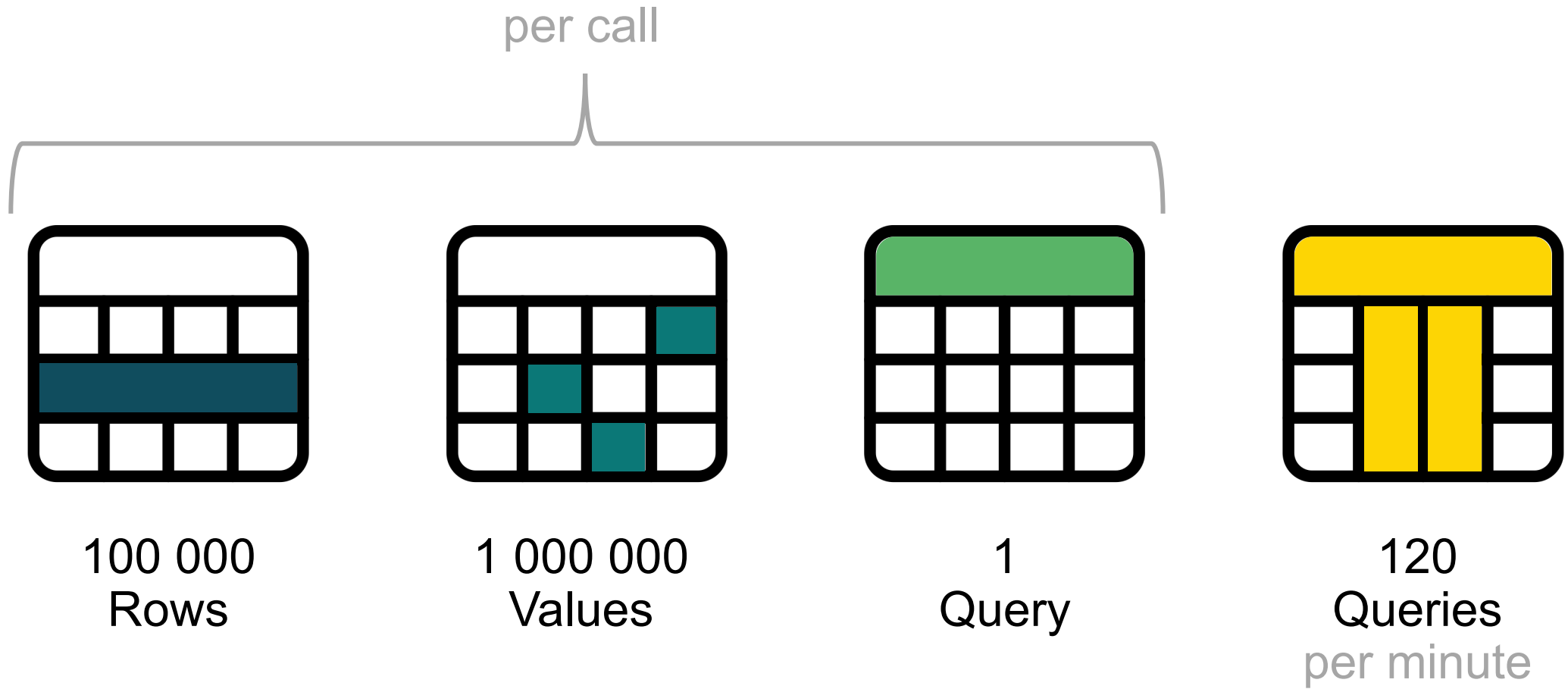
Automize  
Agenda By  
Data



Bring Data  
Closer to  
Users

# **LIMITATIONS**

# Limitations



# HOW TO CALL IT

# Necessary settings

## 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

# Authorization?



**USER**



**SERVICE  
PRINCIPAL**

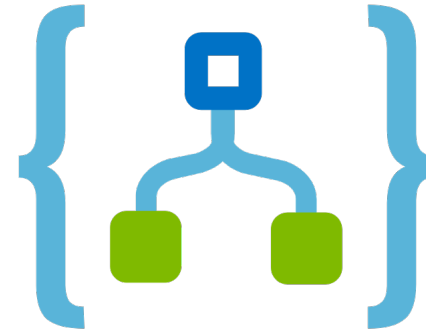
\* DOESN'T SUPPORT DATASETS WITH RLS



# NATIVE CALLERS




Power  
Automate



Logic  
Apps

# HISTORY

 oAuth-token

\* Method

POST

\* URI

https://login.microsoftonline.com/08744604-44f5-451a-81b2-2b47618aee96/oauth2/token

Headers

Content-Type	application/x-www-form-urlencoded	✕	📎
Enter key	Enter value		

Queries

Enter key	Enter value	📎
-----------	-------------	---


Body

grant\_type=client\_credentials&  
client\_id= clientID ✕ &  
client\_secret= clientSecret ✕ &  
resource=https://analysis.windows.net/powerbi/api

Cookie

Enter HTTP cookie

Show advanced options ▾

 daxQuery

\* Method

POST

\* URI

https://api.powerbi.com/v1.0/myorg/datasets/ dataset ✕  
/executeQueries

Headers

Content-Type	application/json	✕	📎
Authorization	fx concat(...) ✕	✕	
Enter key	Enter value		

Queries

Enter key	Enter value	📎
-----------	-------------	---

Body

{  
 "queries": [  
 {  
 "query": "EVALUATE VALUES( table ✕ )"  
 }  
 ],  
 "serializerSettings": {  
 "includeNulls": false  
 }  
}

Cookie

Enter HTTP cookie

Show advanced options ▾

# ACTUAL v1

Run a json query against a dataset


\* Workspace

\* Dataset

\* Specification

```
{
  "queries": [
    {
      "query": "EVALUATE VALUES('Employees')"
    }
  ],
  "serializerSettings": {
    "includeNulls": false
  }
}
```

# ACTUAL v2

 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](#) ^


```
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 )
```

# ACTUAL v2

 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](#) ^

# LOGIC APPS

**Run a json query against a dataset**  
Power BI ⓘ

**Run a query against a dataset**  
Power BI ⓘ

**Run a json query against a dataset** ...

\* Workspace

The unique identifier of the workspace. ▼


\* Dataset

The unique identifier of the dataset. ▼

\* Specification

The json text of the query. Can be multiline text.

Connected to stepan.resl@dataprothers.cz. [Change connection.](#)

**Run a query against a dataset** ...

\* 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

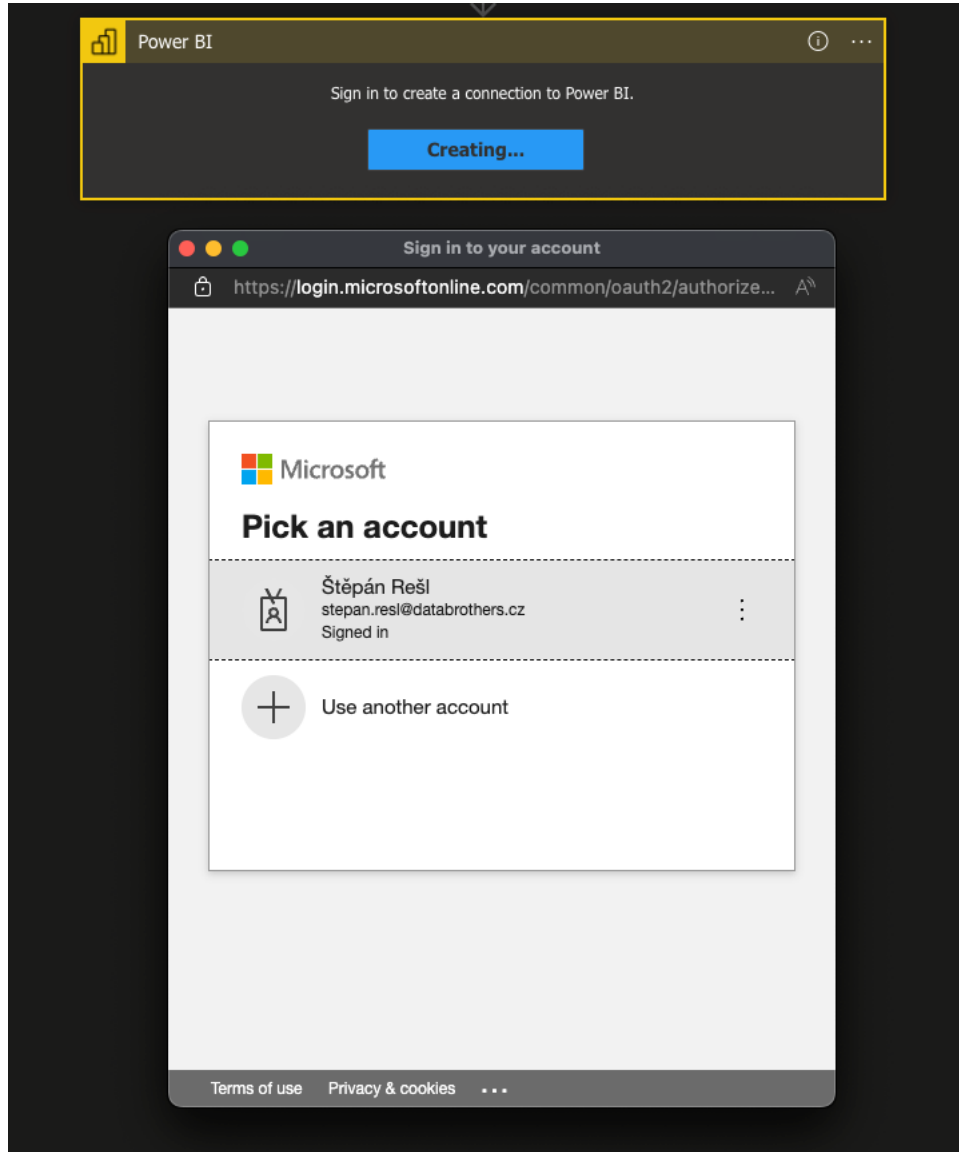
No ▼ ✕

Specification Impersonate user

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

Connected to stepan.resl@dataprothers.cz. [Change connection.](#)

# LOGIC APPS



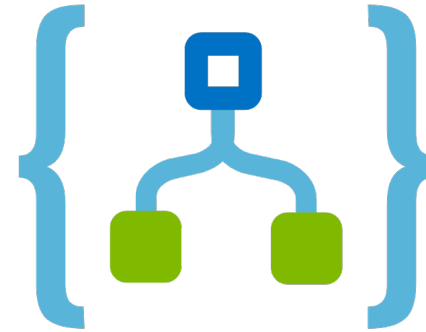
```
{
  "inputs": {
    "host": {
      "connection": {
        "name": "@parameters('$connections')['powerbi']['connectionId']"
      }
    },
    "method": "post",
    "body": {
      "query": "EVALUTATE 'Zaměstnanci'",
      "serializerSettings": {
        "includeNulls": false
      },
      "impersonatedUserName": "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"
    }
  }
}
```

# Same capabilities



Power  
Automate

=






Logic  
Apps




# Working with Outputs


# Working single row output

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

\* Workspace


[P] Produkty 

\* Dataset



Portfolio management report 


\* Query text

```
EVALUATE {  
  COUNTROWS(SUMMARIZE(FILTER('Portfolio','Portfolio'[Assignee]="Unassigned" && 'Portfolio'[Project Overall Status] <> "OK"),  
    'Portfolio'[Project Overall Status],  
    'Portfolio'[Summary],  
    'Portfolio'[Start date],  
    'Portfolio'[End date] ))  
}
```

[Show advanced options](#) 

# Working with Outputs

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


INPUTS 


Workspace

Dataset

Query text


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

[Show more](#) 


OUTPUTS 

First table rows


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


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

# Extract by Apply to each


 Apply to each ...

\*Select an output from previous steps

 First table rows ×

 Parse JSON ⌵ fx


\* Content

 Row ×

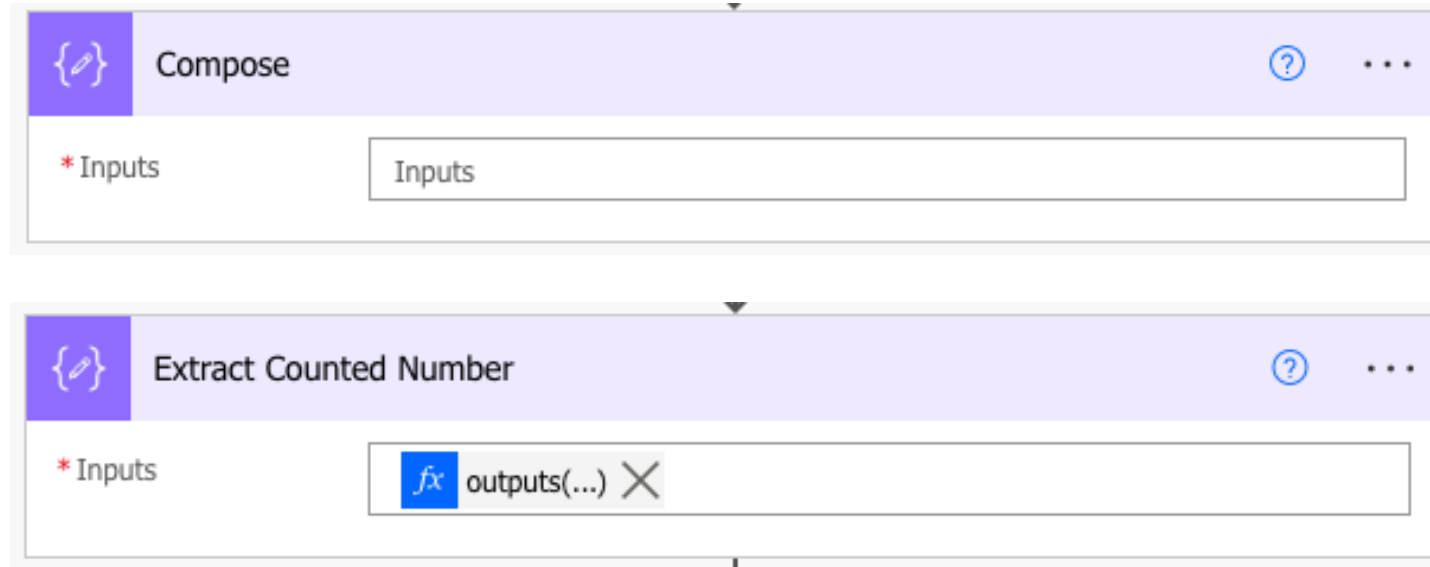
\* Schema

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

Generate from sample

 [Add an action](#)

# Extract by Compose



The image shows a workflow editor with two steps. The first step is 'Compose', which has a single input field labeled 'Inputs'. The second step is 'Extract Counted Number', which has a single 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]']
```

# Extract by Compose

`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

# POWER BI REST API

The screenshot shows the Power BI REST API interface for the 'Extract Counted Number' endpoint. The interface is divided into two main sections: 'INPUTS' and 'OUTPUTS'. Both sections show a single input/output value of '98'.

**Endpoint:** Extract Counted Number




**Inputs:**

Inputs
98


**Outputs:**

Outputs
98


# Working with multiple row output

 Get Projects in Portfolio without Assignee and not in OK Status  

\* Workspace

[P] Produkty 


\* Dataset

Portfolio management report 

\* Query text


```
EVALUATE

ADDCOLUMNS(SUMMARIZE(FILTER('Portfolio','Portfolio'[Assignee]="Unassigned" && 'Portfolio'[Project Overall Status] <> "OK"),
'Portfolio'[Project Overall Status],
'Portfolio'[Summary],
'Portfolio'[Start date],
'Portfolio'[End date] ),
"@Link",
CALCULATE(
CONCATENATE(
MIN('Portfolio'[Key Link]),
MIN('Portfolio'[Key])
)
)
)
```

[Show advanced options](#) 



# Working with multiple row output

 Get Projects in Portfolio without Assignee and not in OK Status ? ...

\* Workspace

[P] Produkty

\* Dataset

Portfolio management report

\* Query text

EVALUATE  
  
ADDCOLUMNS(SUMMARIZE(FILTER('Portfolio','Portfolio'[Assignee]="Unassigned" && 'Portfolio'[Project Overall Status] <> "OK"),  
'Portfolio'[Project Overall Status],  
'Portfolio'[Summary],  
'Portfolio'[Start date],  
'Portfolio'[End date] ),  
"@Link",  
CALCULATE(  
CONCATENATE(  
MIN('Portfolio'[Key Link]),  
MIN('Portfolio'[Key])  
)  
)  
)  
)

Show advanced options

```
[  
  {  
    "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"  
  }  
]
```



**DEMOS**

# Determining project owner assignments

## CURRENT PORTFOLIO STATUS

STATE

All

Risk

Deadline exceeded

Deadline in 2M

Inactive

TOPIC

All



43

N° ITEMS

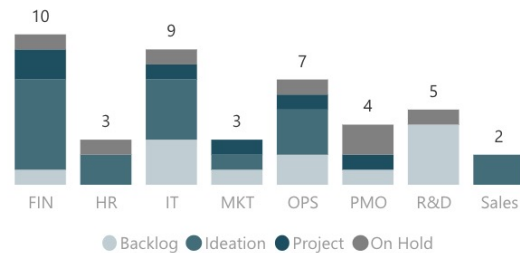
34 %

% ALL ITEMS

126

N° ALL ITEMS

### Portfolio by department



### Portfolio by stage



### Items with ISSUE & RISK status

Stage	Link	Summary	Status	Customer	Assignee	End date
Backlog						
HHH-214		Ecci Av Room Upgrades	RISK	IT	Karolína Farkasová	4/28/2022
HHH-134		Mining Worker Safety Helmet	ISSUE	IT	Unassigned	2/28/2022
HHH-101		Zoom Integration For Teaching	RISK	R&D	Unassigned	
HHH-118		Handwritten Digits Recognition	ISSUE	IT	Unassigned	
HHH-119		Shopify Project	ISSUE	R&D	Unassigned	
HHH-139		Rda Plenary 17	ISSUE	R&D	Unassigned	
HHH-175		Spoiler Blocker Extension	ISSUE	R&D	Růžena Flousková	
HHH-179		Gpu Refresh	RISK	OPS	Unassigned	
HHH-65		Health Monitoring System	RISK	MKT	Brendan Durham	
HHH-66		Stock Price Prediction	ISSUE	PMO	Unassigned	
HHH-67		Process Automation And Process Robotization	RISK	FIN	Vendula Francová	
HHH-9		Application Of Machine Learning Prediction Alg...	ISSUE	OPS	Unassigned	
Initiation						
DDD-2		Bayes Hybrid Meeting Rooms	RISK	MKT	Monika Černá	3/31/2022
DDD-4		Hesa Staff Return - 20/21	RISK	IT	Grayson Beard	2/28/2022
FFF-2		Virtual Visits	ISSUE	FIN	Vendula Francová	2/28/2022
Development						
GGG-2		Expansion Of Appsed	RISK	OPS	Burhan Joyce	2/28/2022
BBB-7		Serengeti Bi-Annual Upgrade	RISK	FIN	René Burda	12/31/2021
Funding						
HHH-69		Self-Driving Car	RISK	OPS	Karolína Farkasová	3/1/2023
HHH-192		Smart Parking System	ISSUE	IT	Miroslav Mládek	2/28/2022
HHH-210		Delegated Access To Grouper	RISK	OPS	Alfie-Lee Doherty	11/30/2021
HHH-125		Moodle Annual Upgrade	ISSUE	FIN	Cassia Marin	
HHH-211		Ct-Dht-Lg.09 Teaching Studio	RISK	OPS	Alfie-Lee Doherty	
HHH-80		Vernon Procurement Review	RISK	MKT	Brendan Durham	
HHH-81		Staff Rdp Mitigation	RISK	IT	Arjan Erickson	
IT Eevaluation						
HHH-243		Chancellors Fu305	RISK	IT	Karolína Farkasová	2/28/2022

# Determining project owner assignments

Hello Andrea,

I am automatically generated an E-mail from a major company brain. But let's go to the point... You have **98** not assigned project in your Portfolio that are not OK!!! You should assign them ASAP!

Here is table with that projects. Lets go to work.

Project Overall Status	Summary	@Link	End date	Start date
ISSUE	Holyrood Room Overflow Project	<a href="https://reportee.cz/cs/HHH-240">https://reportee.cz/cs/HHH-240</a>		
N/A	Holyrood Room Overflow Project	<a href="https://reportee.cz/cs/HHH-240">https://reportee.cz/cs/HHH-240</a>		
RISK	Holyrood Room Overflow Project	<a href="https://reportee.cz/cs/HHH-240">https://reportee.cz/cs/HHH-240</a>		
N/A	Unibuddy Procurement	<a href="https://reportee.cz/cs/HHH-11">https://reportee.cz/cs/HHH-11</a>		
ISSUE	Unibuddy Procurement	<a href="https://reportee.cz/cs/HHH-11">https://reportee.cz/cs/HHH-11</a>		
RISK	Unibuddy Procurement	<a href="https://reportee.cz/cs/HHH-11">https://reportee.cz/cs/HHH-11</a>		
ISSUE	Sebi	<a href="https://reportee.cz/cs/HHH-5">https://reportee.cz/cs/HHH-5</a>		
N/A	Sebi	<a href="https://reportee.cz/cs/HHH-5">https://reportee.cz/cs/HHH-5</a>		
RISK	Sebi	<a href="https://reportee.cz/cs/HHH-5">https://reportee.cz/cs/HHH-5</a>		
N/A	Earth Observations	<a href="https://reportee.cz/cs/HHH-64">https://reportee.cz/cs/HHH-64</a>		
RISK	Earth Observations	<a href="https://reportee.cz/cs/HHH-64">https://reportee.cz/cs/HHH-64</a>		
RISK	Sits Double Software Upgrade	<a href="https://reportee.cz/cs/HHH-113">https://reportee.cz/cs/HHH-113</a>		
ISSUE	Sits Double Software Upgrade	<a href="https://reportee.cz/cs/HHH-113">https://reportee.cz/cs/HHH-113</a>		
N/A	Sits Double Software Upgrade	<a href="https://reportee.cz/cs/HHH-113">https://reportee.cz/cs/HHH-113</a>		
N/A	Pmo Bi Reporting	<a href="https://reportee.cz/cs/HHH-143">https://reportee.cz/cs/HHH-143</a>		
RISK	Wiki: Annual Upgrade	<a href="https://reportee.cz/cs/HHH-156">https://reportee.cz/cs/HHH-156</a>		
ISSUE	Wiki: Annual Upgrade	<a href="https://reportee.cz/cs/HHH-156">https://reportee.cz/cs/HHH-156</a>		
RISK	Security Improvements	<a href="https://reportee.cz/cs/HHH-90">https://reportee.cz/cs/HHH-90</a>		
ISSUE	Security Improvements	<a href="https://reportee.cz/cs/HHH-90">https://reportee.cz/cs/HHH-90</a>		
RISK	Eventsair - Embed And Optimise	<a href="https://reportee.cz/cs/HHH-99">https://reportee.cz/cs/HHH-99</a>		
N/A	Eventsair - Embed And Optimise	<a href="https://reportee.cz/cs/HHH-99">https://reportee.cz/cs/HHH-99</a>		

# Determining project owner assignments



**THANK YOU FOR THE ATTENTION**