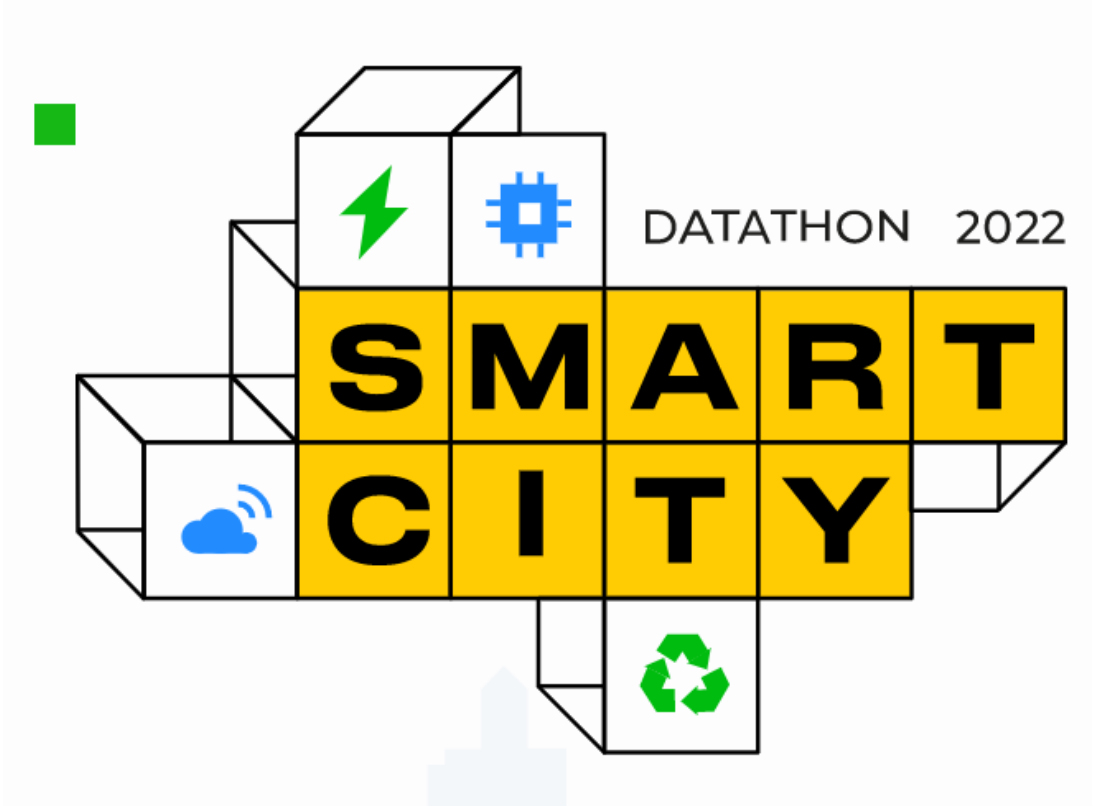
SAFETY-INCIDENT PREDICTION (BASED ON REPORTS IN 19115 SERVICE)



Maciej Max

Paweł Sierszeń

Warsaw City Contact Center – not only 19115

Miejskie Centrum Kontaktu Warszawa 19115

5,4 tys. obserwujący • 66 obserwowanych

Warsaw Information 19 115

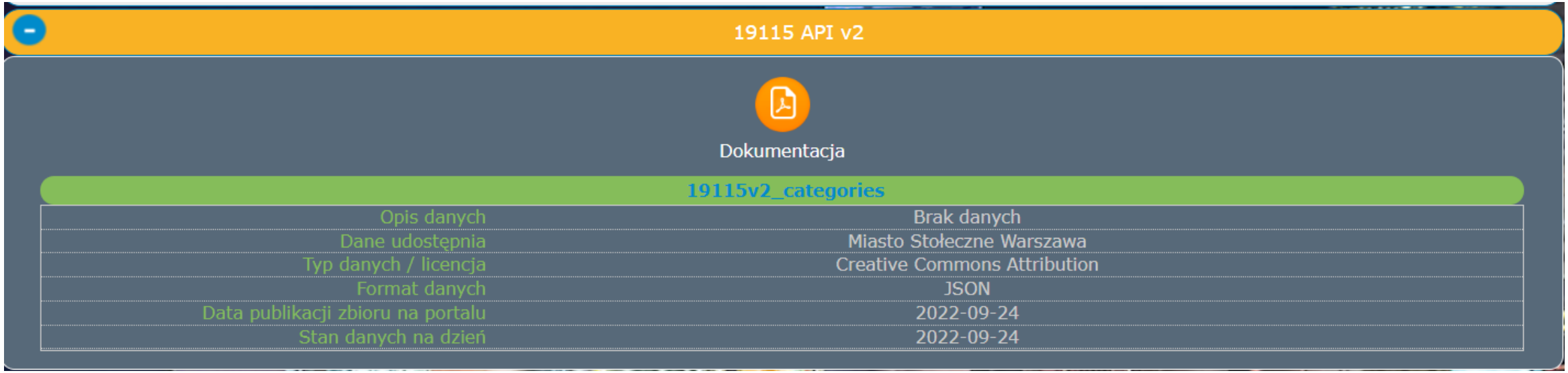
19115 – Remember this number!

It is a number to the 19 115 Contact Center for the inhabitants of Warsaw which is a joint contact center of the Office of the city of Warsaw, district offices and municipal units. The number facilitates and simplifies communication between the inhabitants and the Warsaw authorities. Dialing this number allows you to gain all information connected with the operation of the Warsaw public transport.

People who use the center, may contact it in the following ways: phone number (22) 19115, web self-service, mobile application, e-mail, text message, fax or via chat. **The Center is available 24/7.**

Data source – Open data for city of Warsaw

https://api.um.warszawa.pl/#



Interesting data, but super hard to use

- Hour-by-hour
- 500 mins elapsed
- and less than 2 months of data fetched!
- ≈ 2% API failures??


```
{
  "result": {
    "result": "false",
    "error": "B\u0142\u0119dna metoda lub parametry wywo\u0142ania"
  }
}
```


```
from datetime import datetime, timedelta

start = datetime(2021, 1, 1, 00, 0, 0)
end = datetime(2022, 9, 24, 0, 0, 0)
interval = timedelta(hours=1)

while start < end:
    print(start, start + interval)
    start_str = start.strftime("%Y-%m-%dT%H:%M:%SZ")
    end_str = (start + interval).strftime("%Y-%m-%dT%H:%M:%SZ")
    fetch_file(start_str, end_str)

    start += int  (constant) REQUEST_DELAY_SEC: Literal[0]
    await sleep(REQUEST_DELAY_SEC)
```

[8] 500m 25.7s

Question: Does the API make the data open?

Open Data is data that is:

- openly accessible,
- exploitable,
- editable
- and shared by anyone for any purpose.

Open Data gives citizen the raw materials they need to:

- engage their governments
- and contribute to the improvement of public services.

Goal - redefinition

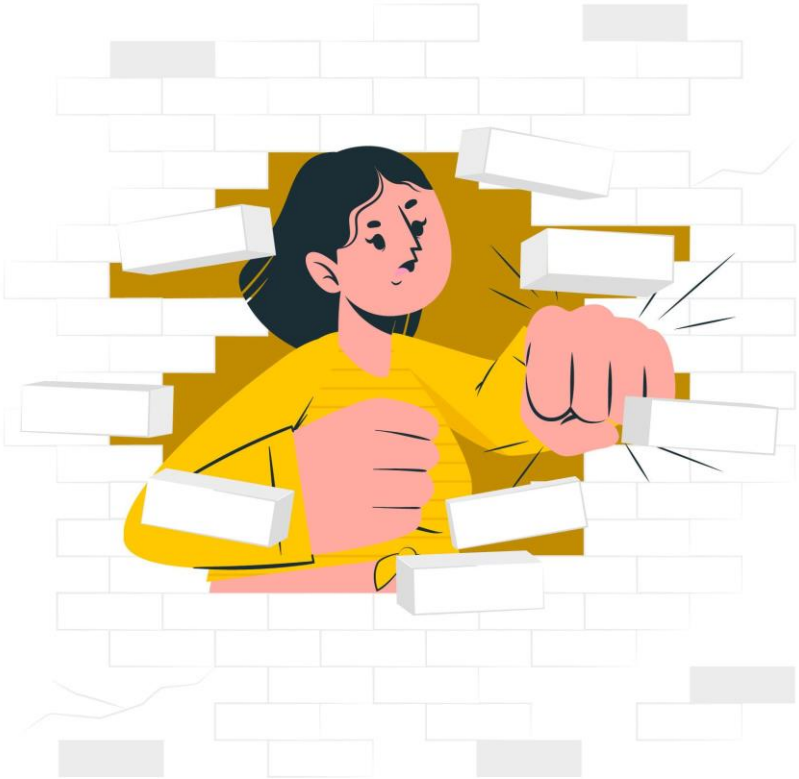


image by Storyset - Freepik.com

A solution that helps city government

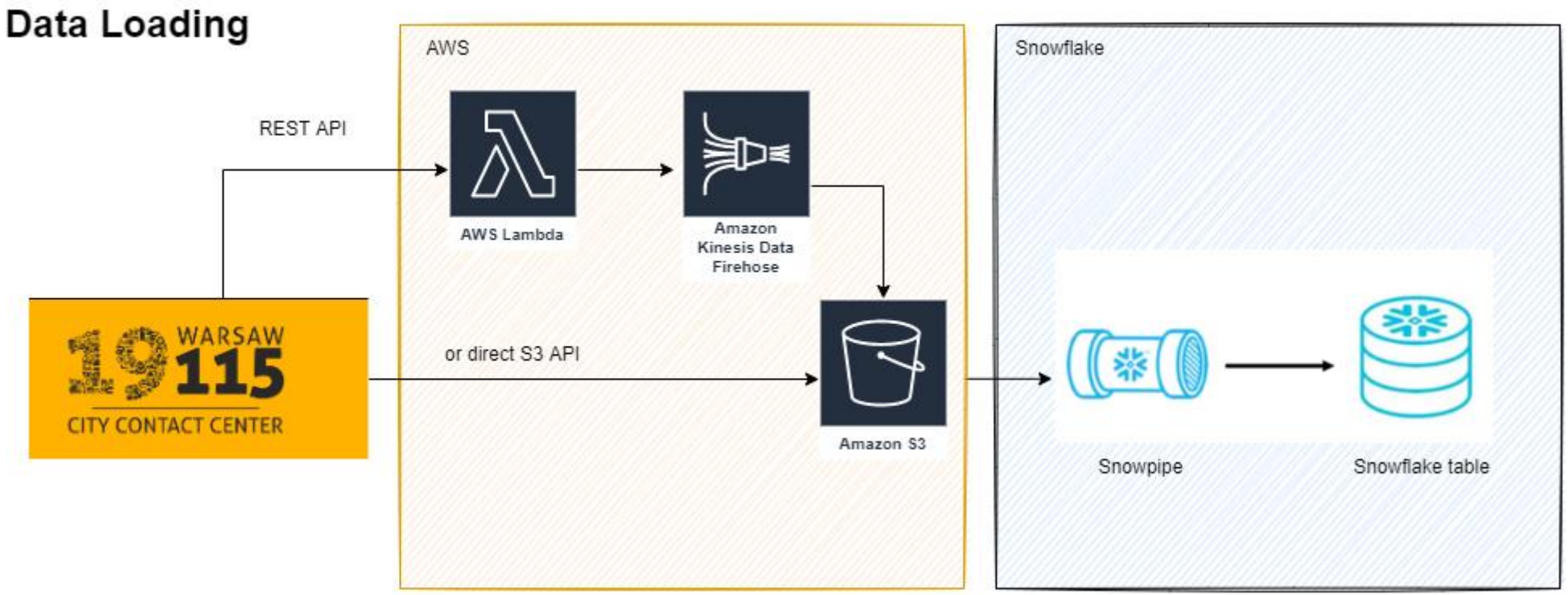
*to **answer Warsaw citizens needs** by*

** easing access to the data*

** and showing examples of usage,*

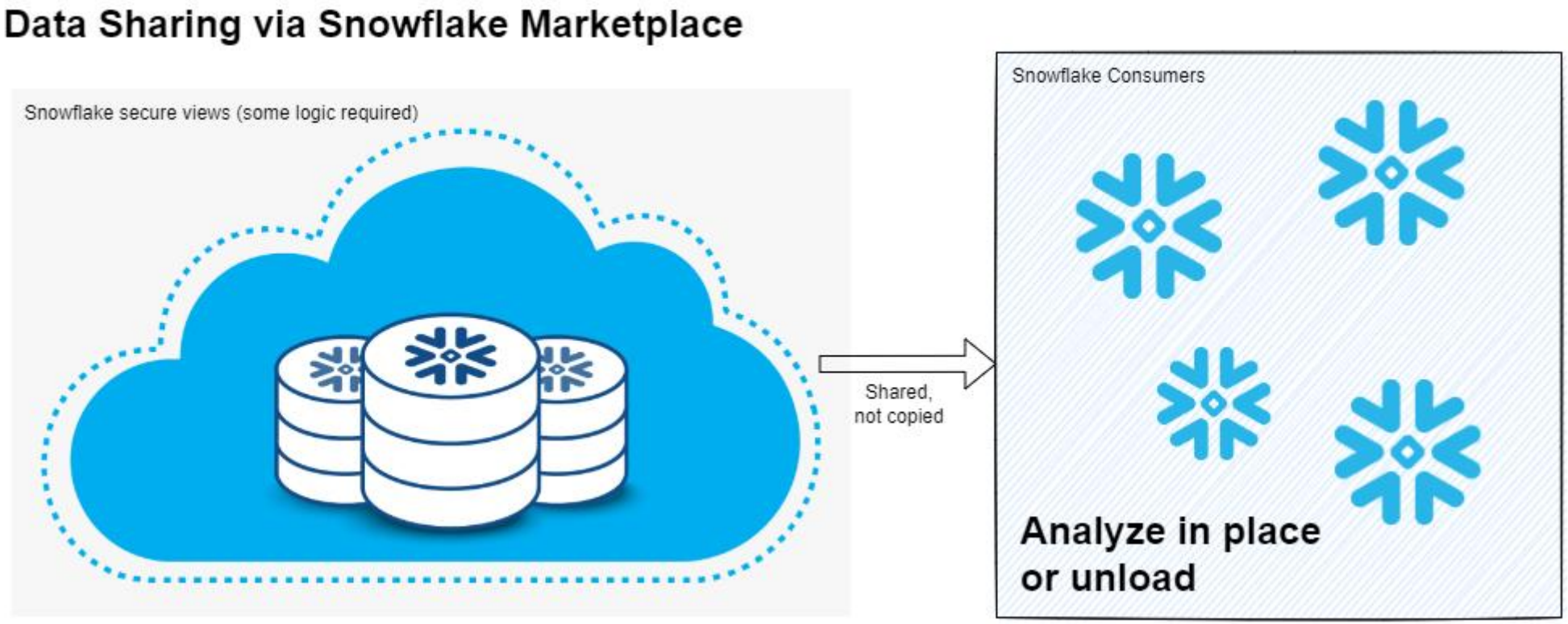
*which will allow to **take smart actions**.*

Architecture concept – continuous loading

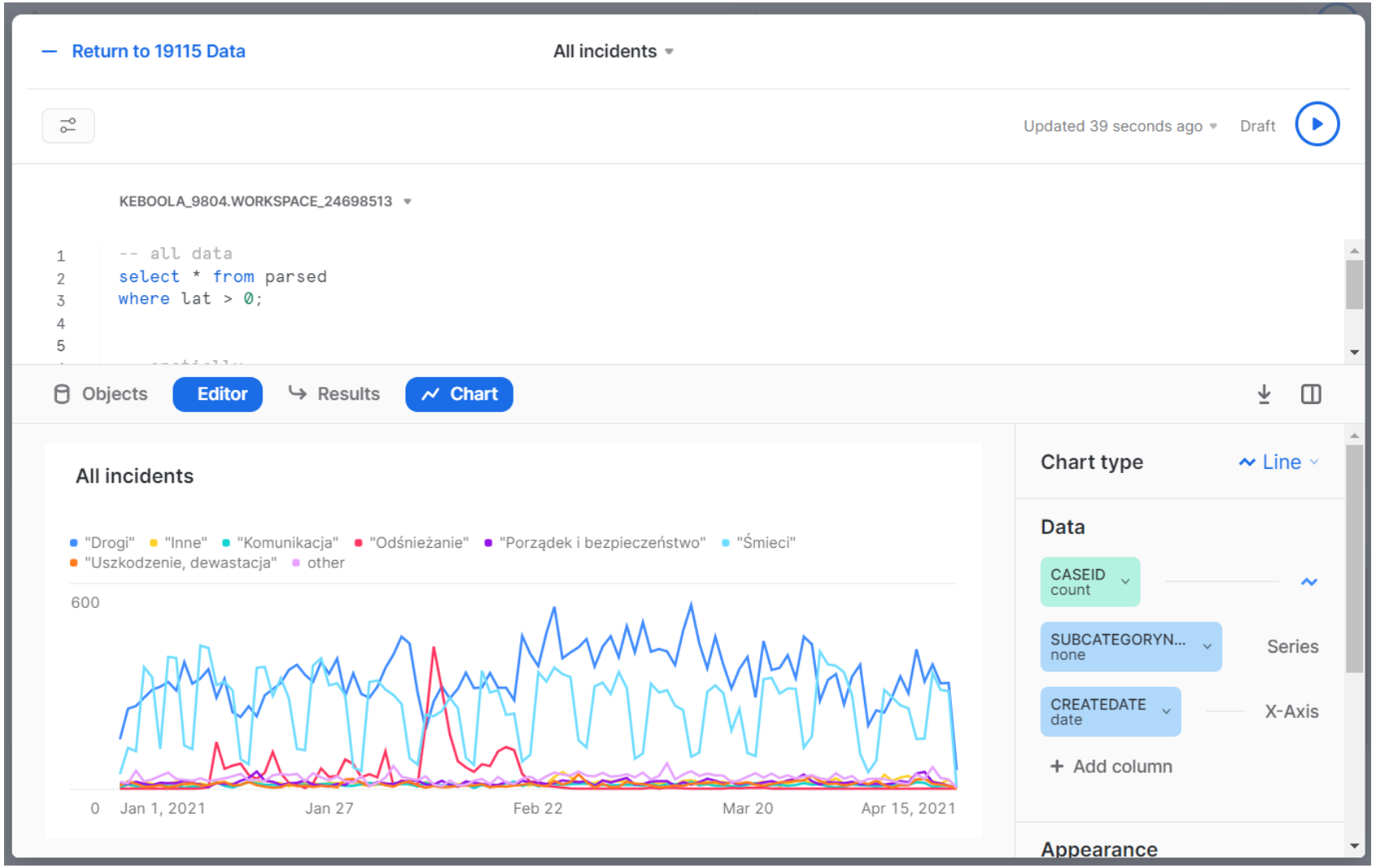


- Azure works too!
- Data can be shared from S3 directly
- Also 19115 can share monthly exports on WWW

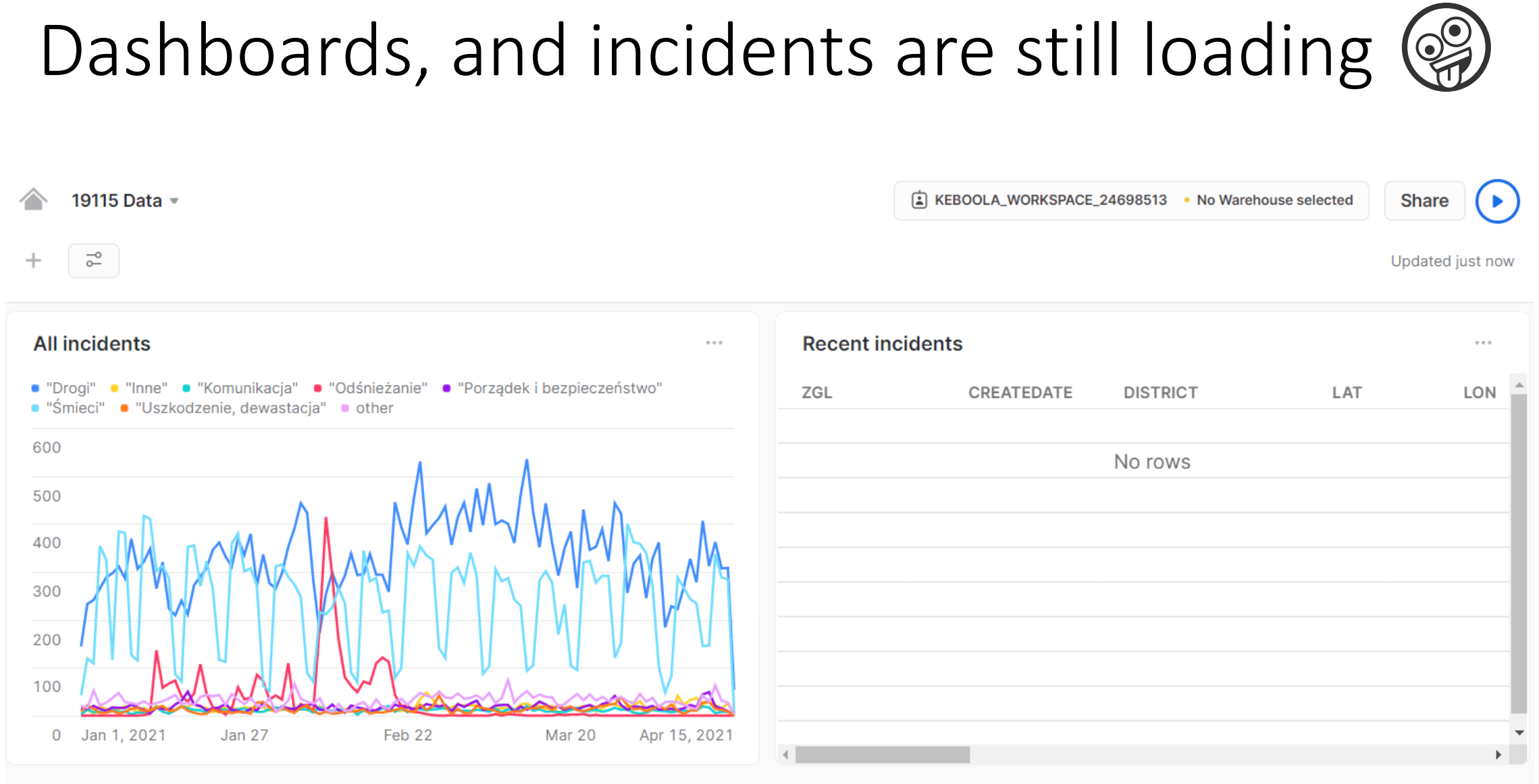
Architecture concept – generic pattern



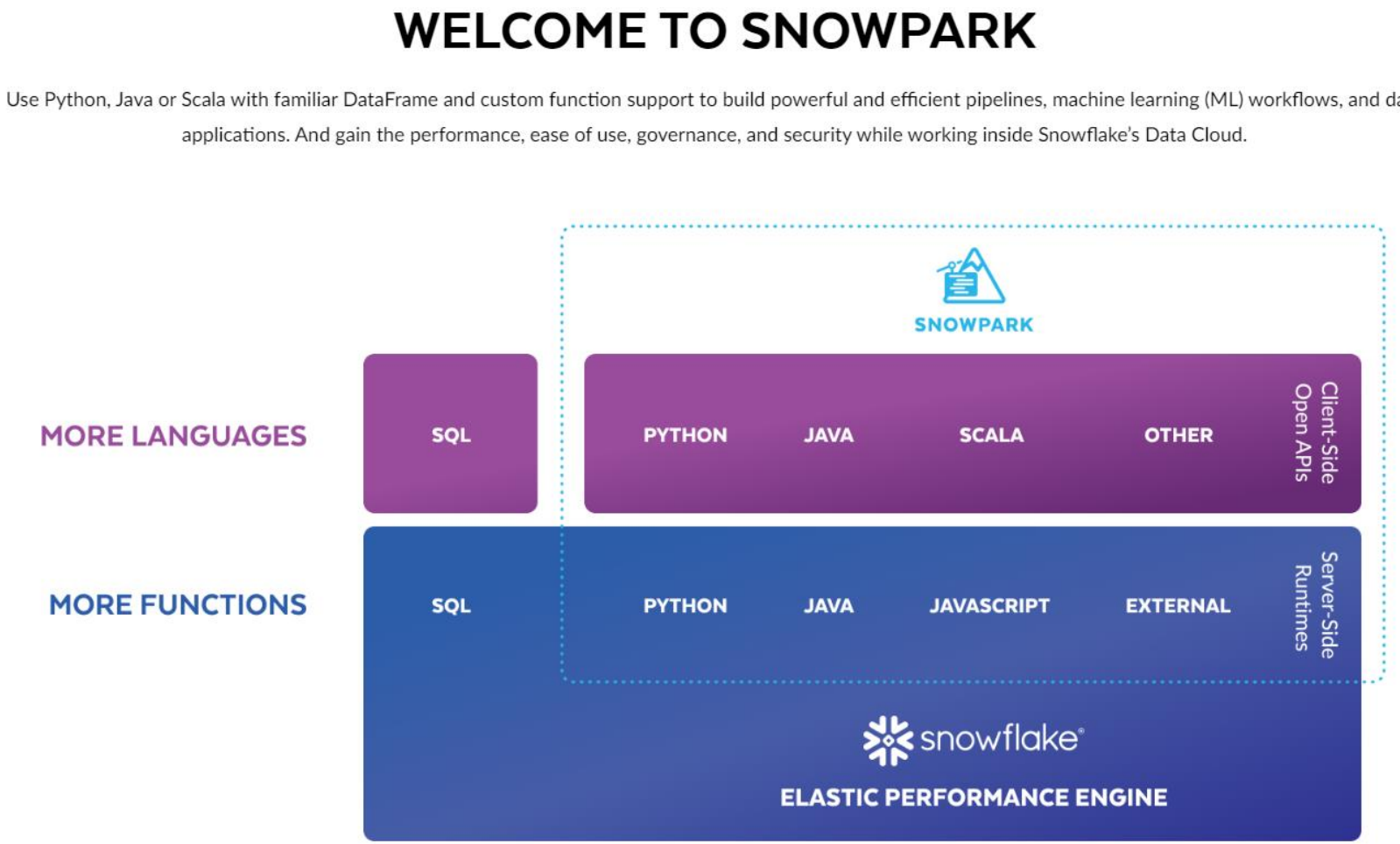
Snowsight app, in place analysis; own apps



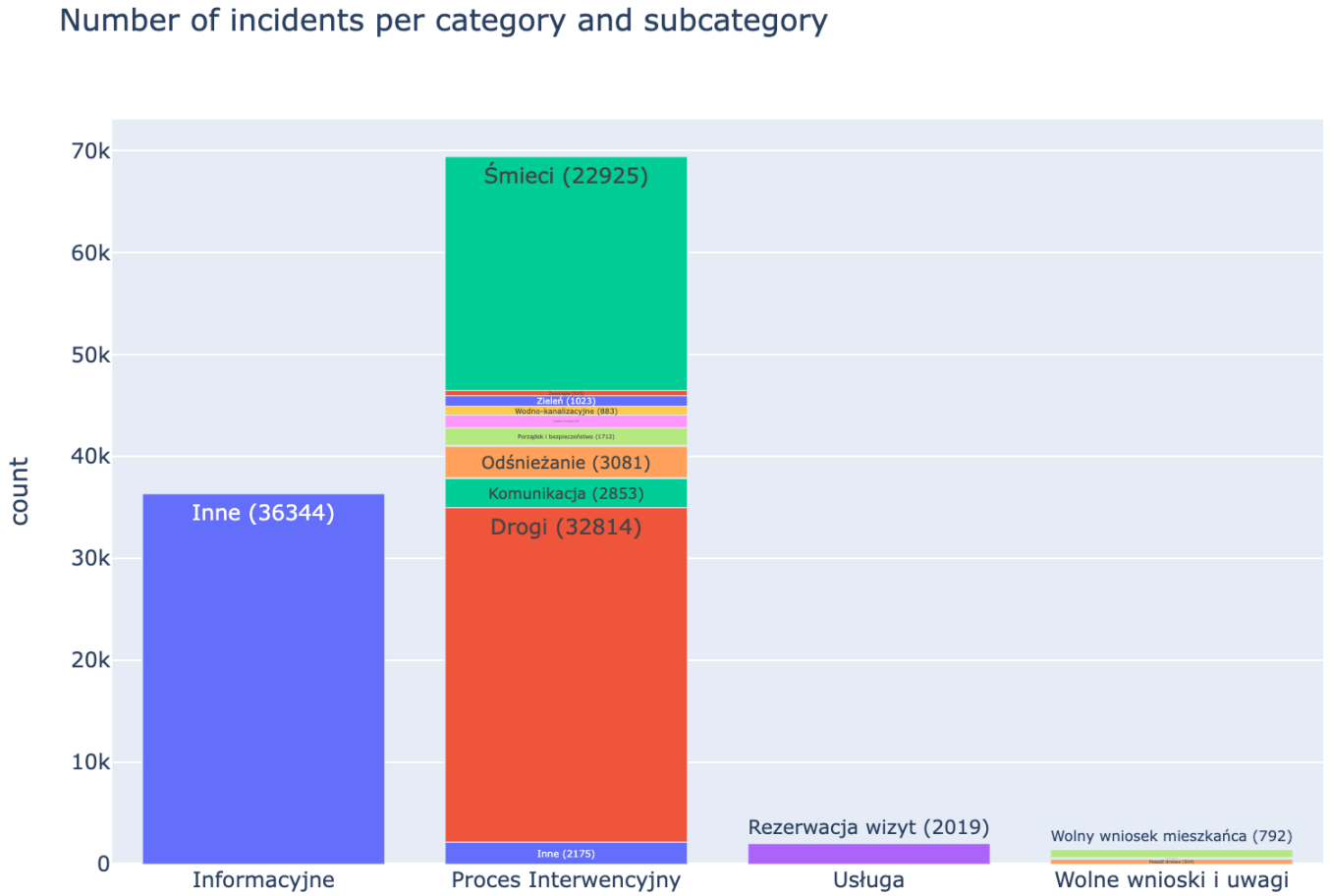
Dashboards, and incidents are still loading



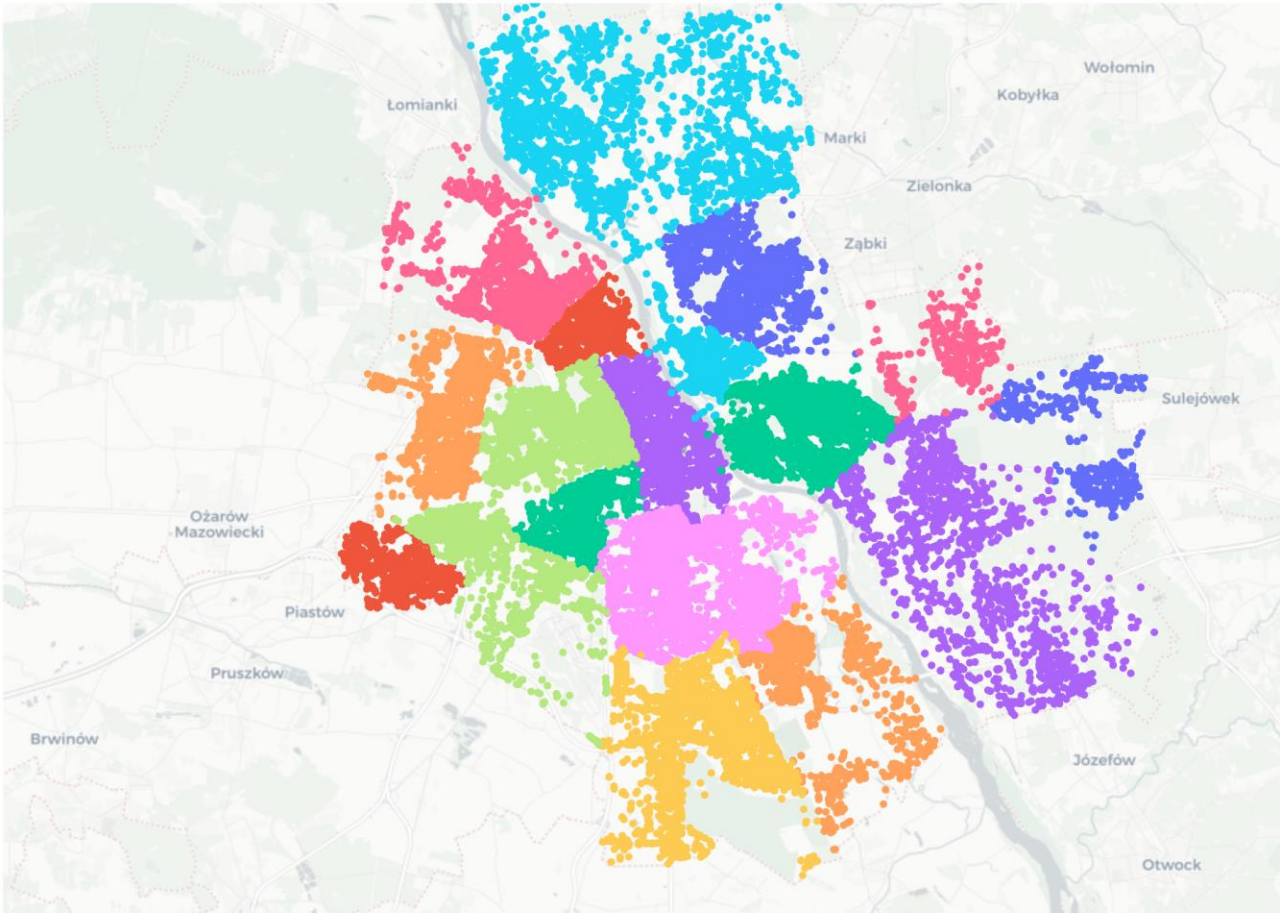
Unload the data and use any BI/ML/… tool, or **…use Snowpark** – processing close to the data



Most frequent reports – roads and trash (rarely safety-related)



We can report (predict?) data per district

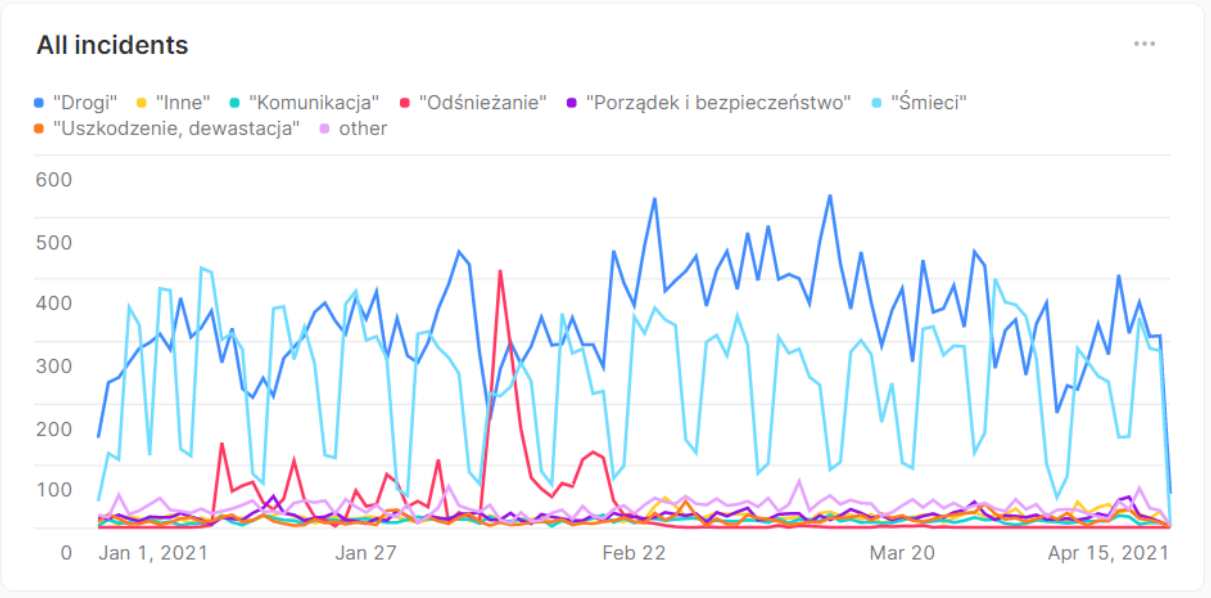


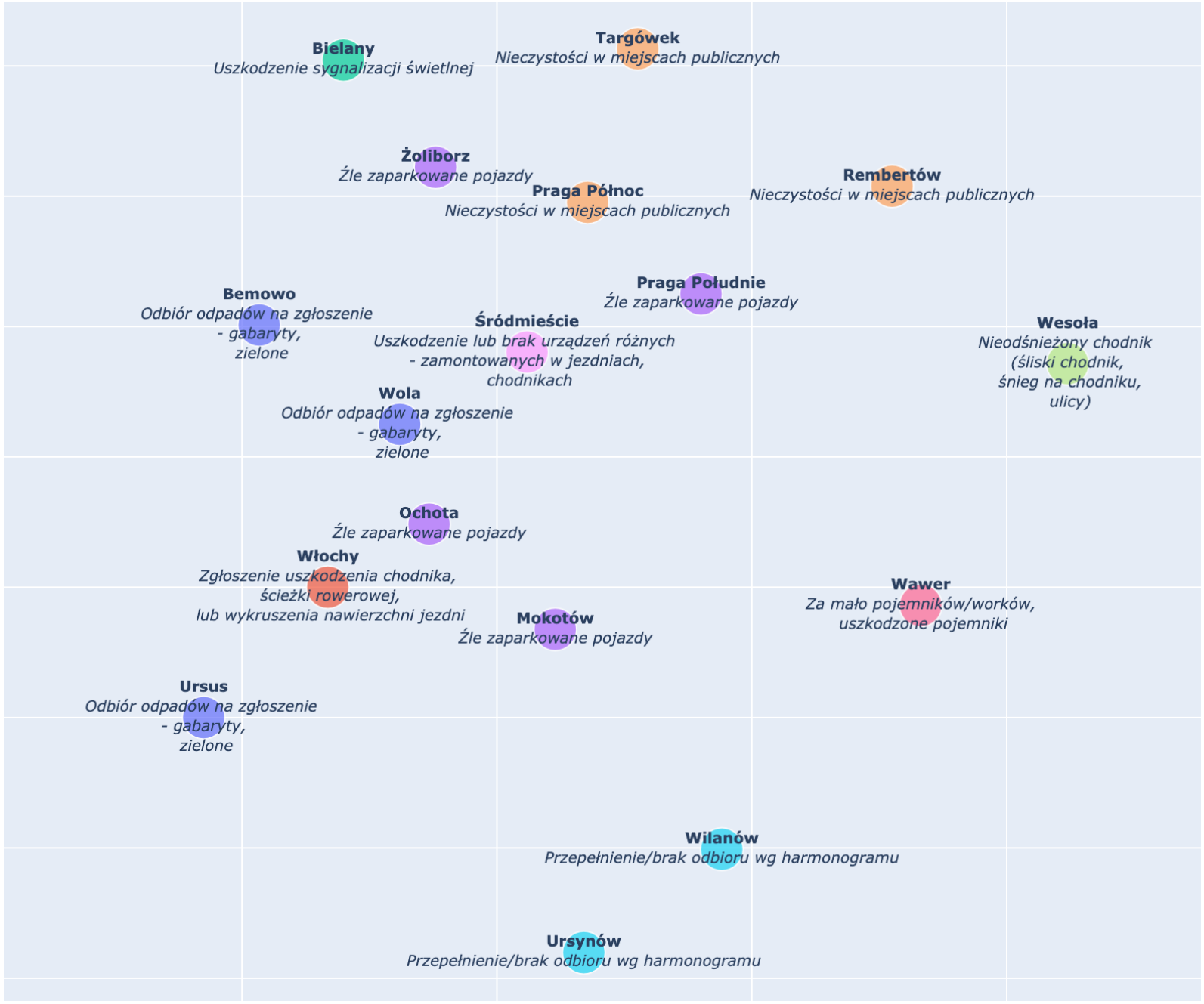
Why is it important?

- Effective incident handling and prevention
- Efficient budget management
- Communication with citizens

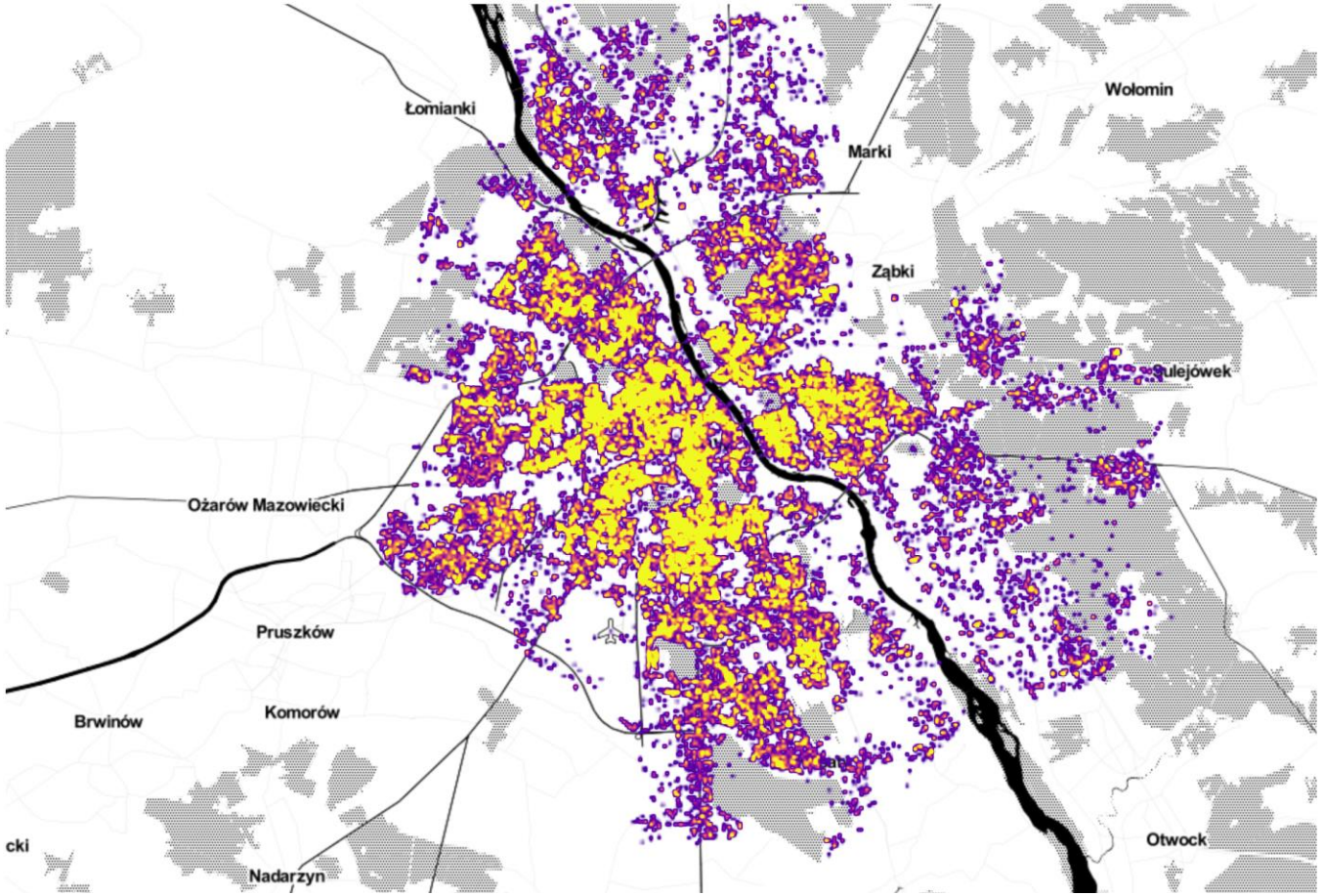
For instance:

- Where and how often roads break?
- On which days are the most issues with trash?
- How to plan snow removal to avoid being surprised by winter?




Bielany
Uszkodzenie sygnalizacji świetlnej
Targówek
Nieczystości w miejscach publicznych
Żoliborz
Źle zaparkowane pojazdy
Praga Północ
Nieczystości w miejscach publicznych
Rembertów
Nieczystości w miejscach publicznych
Bemowo
Odbiór odpadów na zgłoszenie - gabaryty, zielone
Praga Południe
Źle zaparkowane pojazdy
Śródmieście
Uszkodzenie lub brak urządzeń różnych - zamontowanych w jezdniach, chodnikach
Wesoła
Nieodśnieżony chodnik (śliski chodnik, śnieg na chodniku, ulicy)
Wola
Odbiór odpadów na zgłoszenie - gabaryty, zielone
Ochota
Źle zaparkowane pojazdy
Włochy
Zgłoszenie uszkodzenia chodnika, ścieżki rowerowej, lub wykruszenia nawierzchni jezdni
Wawer
Za mało pojemników/worków, uszkodzone pojemniki
Mokotów
Źle zaparkowane pojazdy
Ursus
Odbiór odpadów na zgłoszenie - gabaryty, zielone
Wilanów
Przepełnienie/brak odbioru wg harmonogramu
Ursynów
Przepełnienie/brak odbioru wg harmonogramu

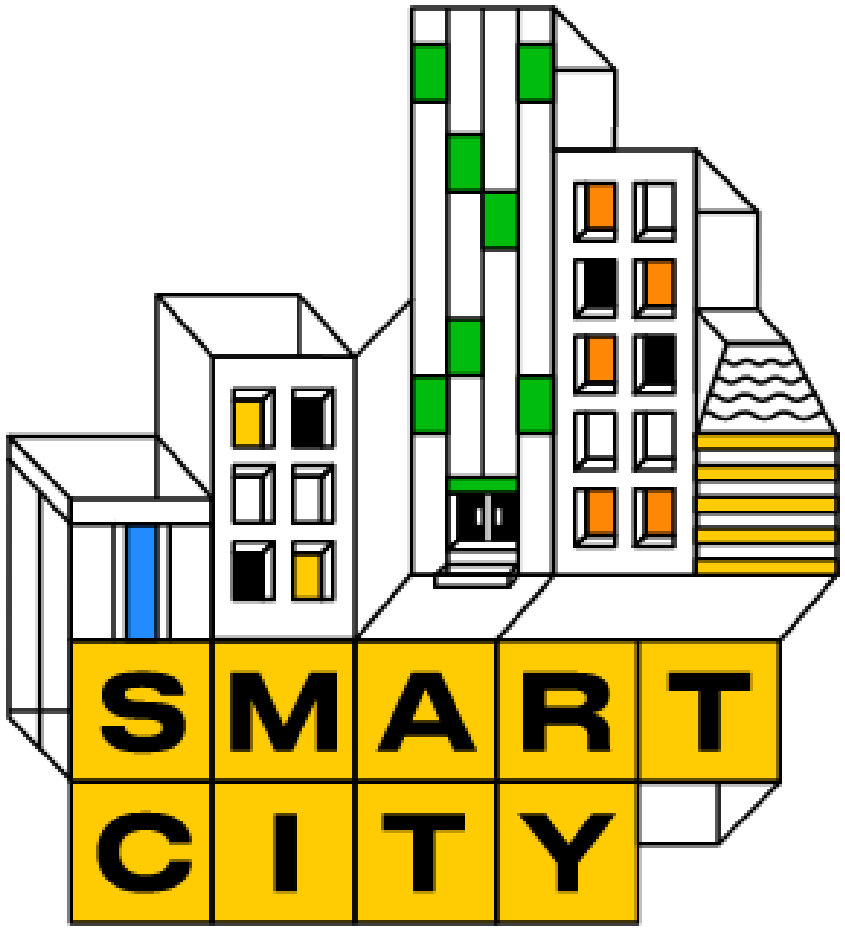
Potential for detecting specific hotspots where incidents happen



Thank you ALL!

SCAN ME

Maciej Max



SCAN ME

Paweł Sierszeń