



Online Analytics Processing Platform

Cluj-Napoca Dataspace Use-Case

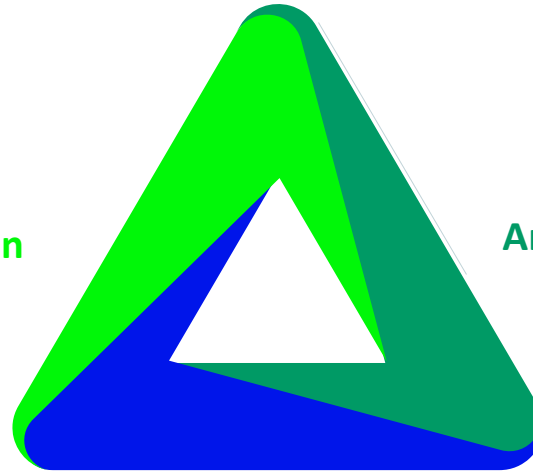
Mihai Hulea

DELPHI concept

DELPHI focuses on the strategic dimension of **integrating passenger and freight transport** in a single system, working towards integrating sectors, harmonizing data, and leveraging advanced methodologies, to transform transportation systems, for a sustainable future.

1st pillar
Governance, Ecosystem specification

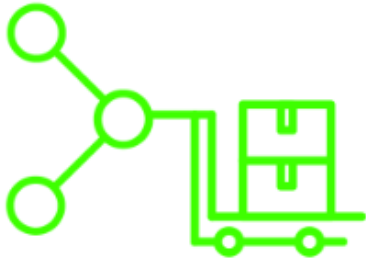
2nd pillar
Architecture, Data, Processing, Optimisation



3rd pillar
DELPHI Validation activities through realistic pilot demonstrations

DELPHI use-cases

DELPHI's federated ecosystem will be extensively evaluated in real life settings through four pilot demonstrations across the participating transportation networks located in Spain (**Madrid**), Greece (**Athens and Mykonos**), and Romania (**Cluj-Napoca**).



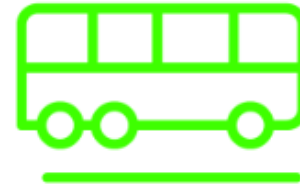
USE CASE #1

Multimodal transport for a Sustainable LMD supported by blockchain **for sharing economy** in the e-commerce Channel (Spain)



USE CASE #2

Integrated freight and passengers' models and **data sharing framework** in the Attica region (Greece)



USE CASE #3

Integrated freight and passengers' models and **data sharing framework** at the island of Mykonos (Greece)



USE CASE #4

Integrated passengers' models and **data sharing governance framework** in the Cluj-Napoca Metropolitan Area (Romania)

Cluj-Napoca Municipality

Current Status & Issues

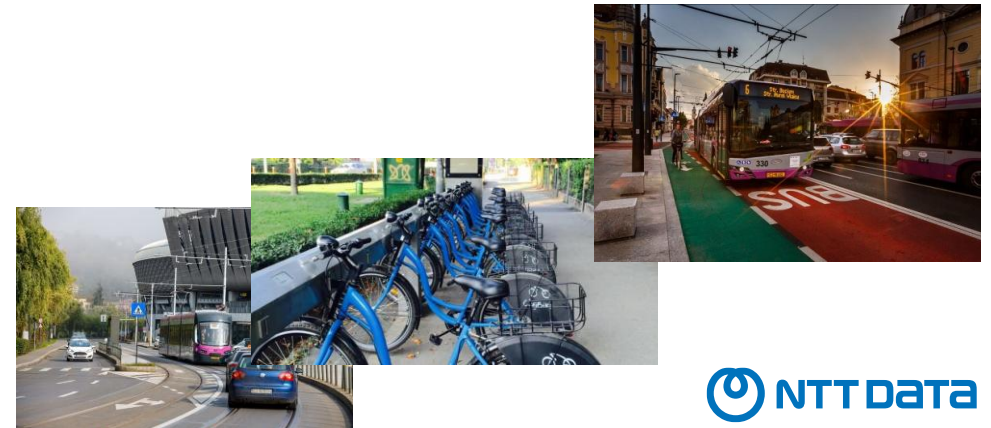
- **Fragmented IT Systems:** Data silos across transportation services (bus, tram, bike-sharing, parking).
- **Limited Integration:** Difficulty accessing and analyzing multimodal transport data or build new services on top of the existing ones.

Benefits & Objectives

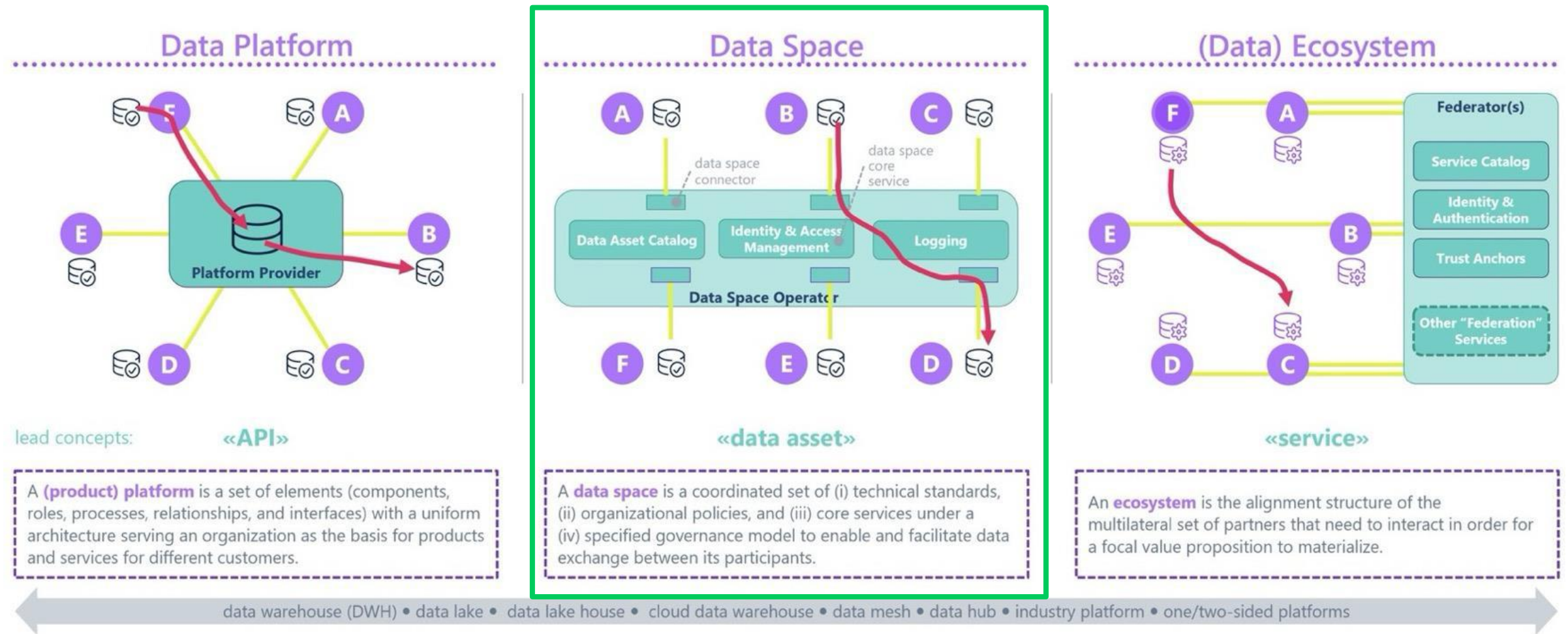
- **Unified Data Integration:** Analytics of multimodal transportation data.
- **Data-Driven Decision Making:** Real-time insights for better urban transport management.
- **Public Transparency:** Open data access and improved citizen engagement.

Cluj-Napoca – Urban Context

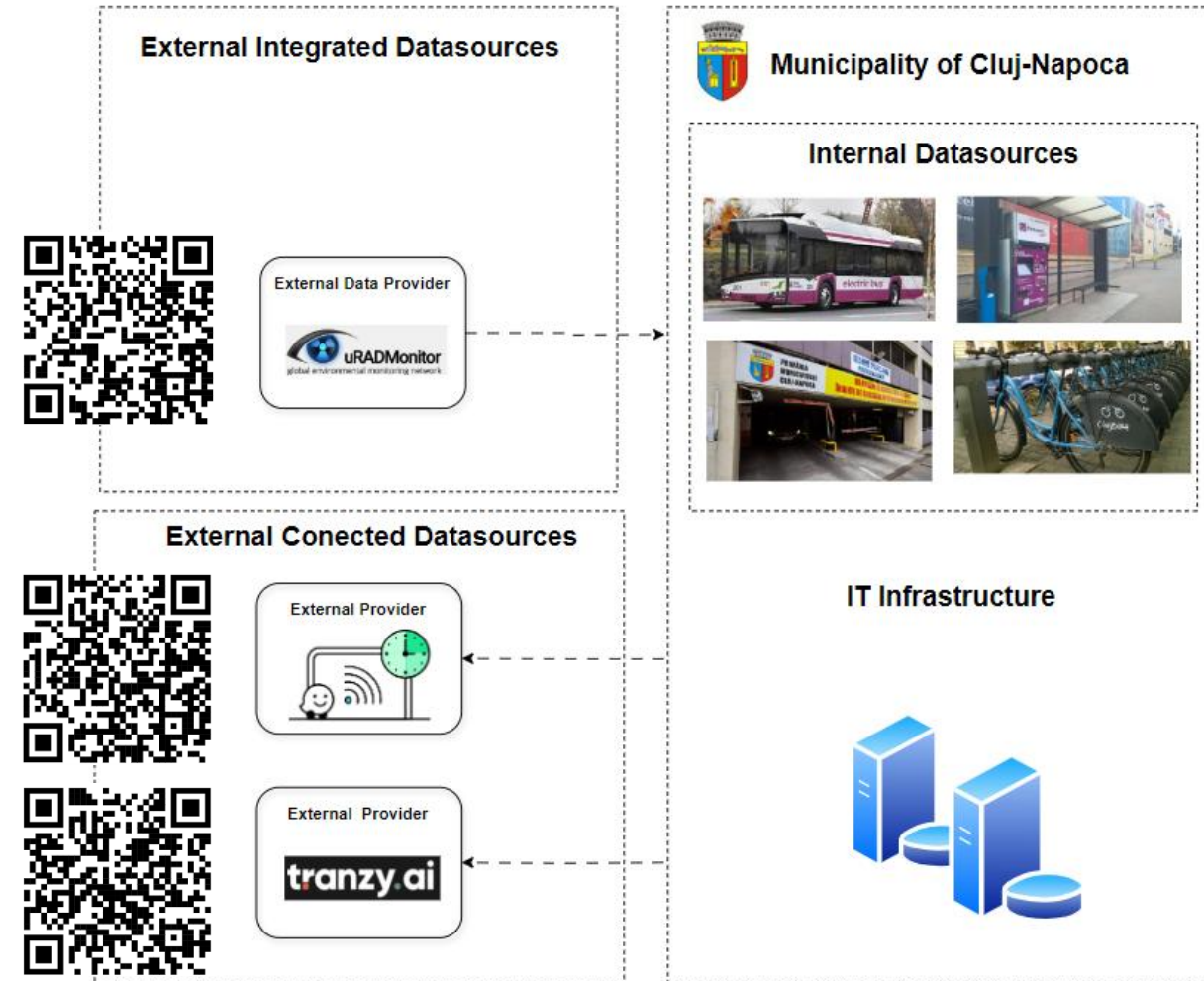
- **Location:** Northwestern Romania; economic and academic hub of Transylvania
- **Population:** ~330,000 residents (metropolitan area: ~400,000+)
- **Area:** ~180 km²
- **Economic Profile:** Major IT, education, healthcare, and services center
- **Transport Infrastructure:**
 - **Public Transport:** Extensive bus, trolleybus, and tram network (CTP Cluj)
 - **Road Network:** High urban traffic; city ring road and highway access (A3)
 - **Rail:** National and regional train connections (CFR)
 - **Air:** Cluj International Airport – second busiest in Romania



Data Sharing Models



Analysis of Datasources and Legacy Systems



Internal Datasources

- Provided by or under control of internal IT systems
- Exposed by internal IT systems

External Integrated Datasources

- Provided by external systems
- Integrated with internal IT systems which can be exposed or provided by these

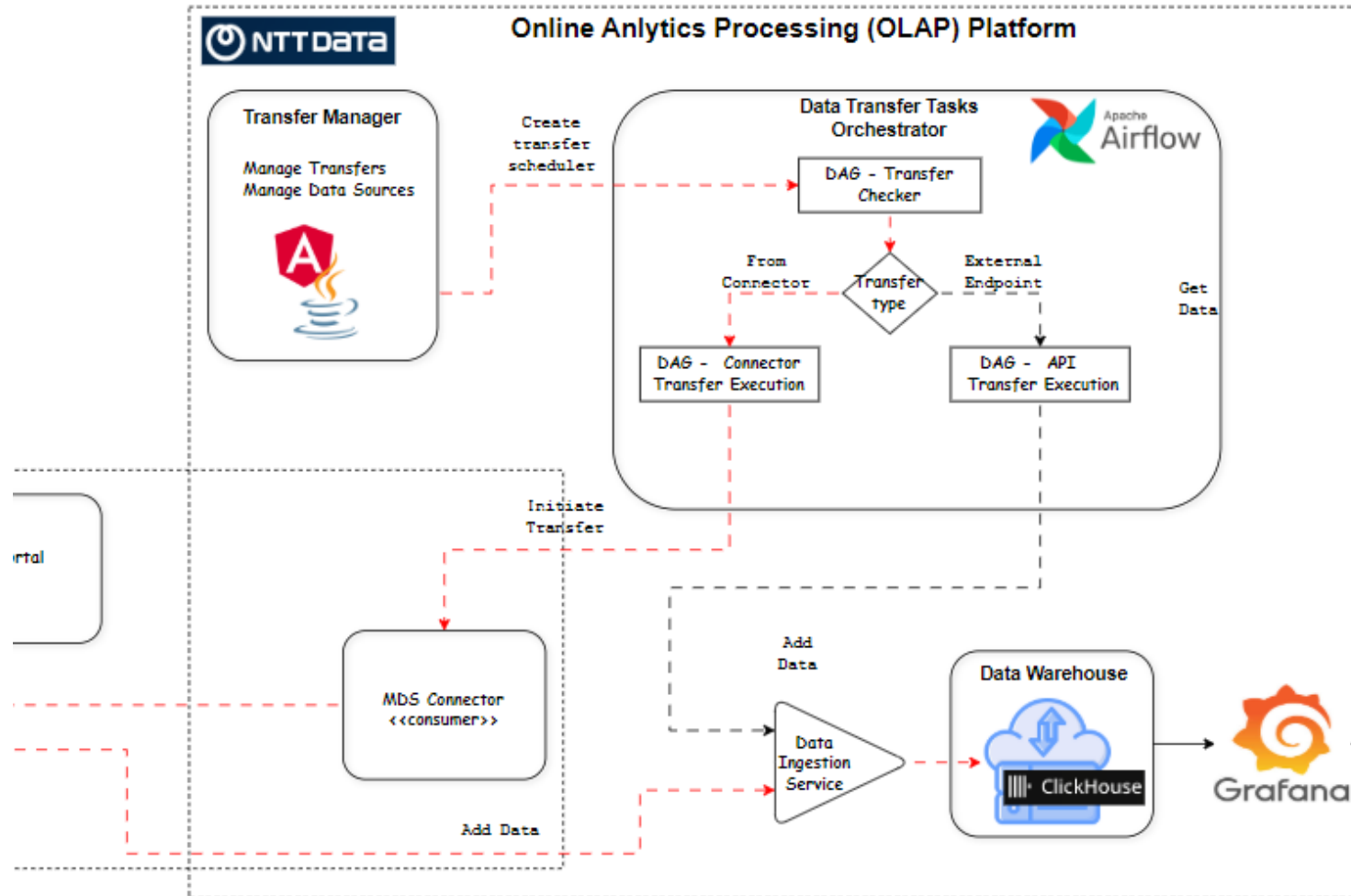
External Connected Datasources

- Provided by external systems
- Some integration exist but data are not exposed by internal IT systems

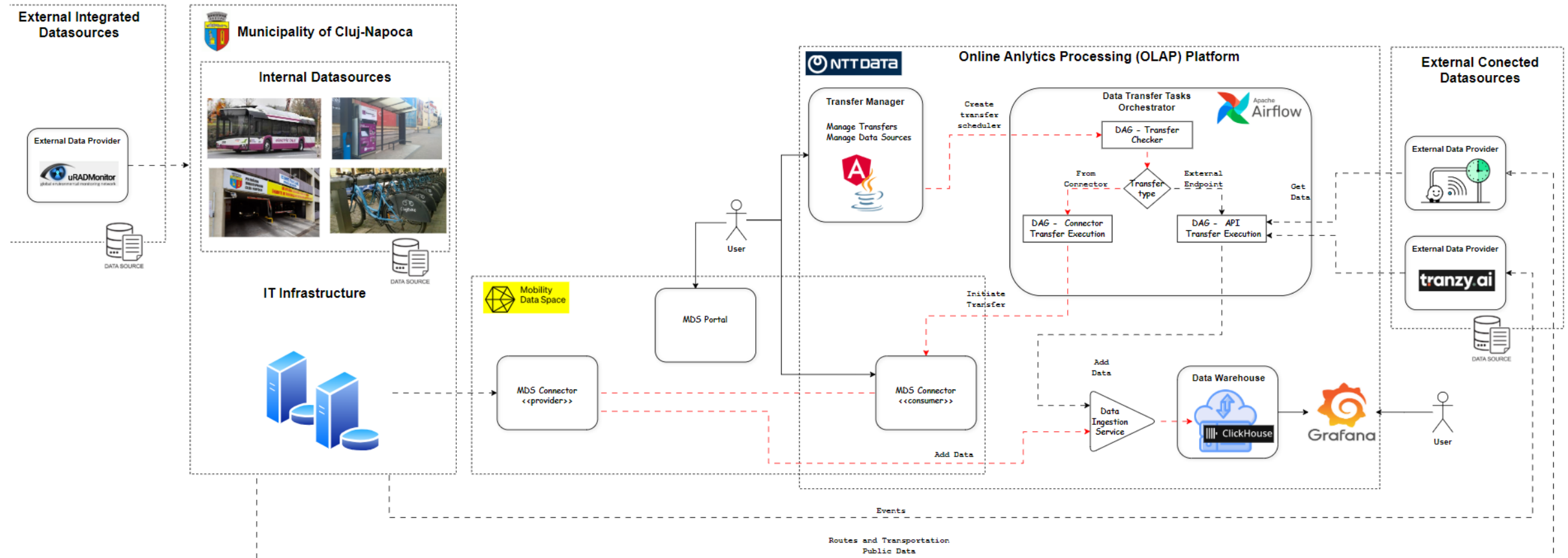
Dataspace Governance



Online Data Analytics Platform



Complete Solution & Demo



Conclusions

•Platform Development Status:

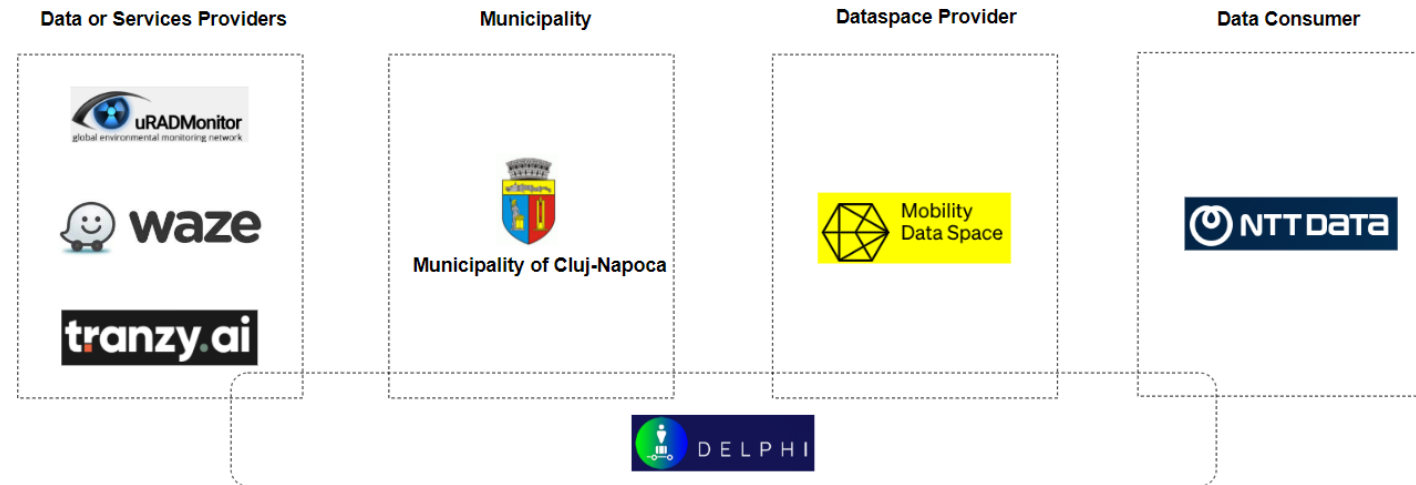
- Currently under development; full evaluation planned as part of DELPHI WP5 demonstration activities.

•Effective Collaboration:

- Successful implementation **through strong partnership with Cluj-Napoca Municipality.**
- Municipality demonstrated openness and **proactive approach towards adopting new technologies.**
 - Join MDS
 - Access Waz Partnership Program

•Technical Integration:

- Close **cooperation with Cluj-Napoca's IT department to analyze legacy systems** and available data sources.
- **Joint execution of administrative and technical procedures** for joining the Mobility Data Space, configuring connectors, and data integration.



THANK YOU