



## The role of government and research organisations in the development of logistics networks as an integral area of physical internet

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## INTRODUCTION



- Digital technologies are fundamentally changing the development of economies and societies, affecting transport and logistics.
- At the same time, the role of government and research organisations in the development of logistics networks as an integral area of the physical internet is not defined from the perspective of digitalisation.
- This investigation has been performed to research:
  - Current limitations of cloud-based big data repositories
  - Business attitudes toward sharing the data
  - Priority areas for collaboration

# INTRODUCTION

## *Current limitations of cloud-based big data repositories*

There are several databases where transportation-related data are available

- Open data Europe, The Cloud-Native Data Catalog, US Department of Transportation, Eurostat, Data Hub, Datarade, Statista, Trading Economics, Supply Chain Logistics Problem Dataset, ICONET datasets

Often, there are no recent data.

Often, the data is fragmented; it is unclear if it will be updated and when.

The number of tasks that can be solved using such sources is limited.

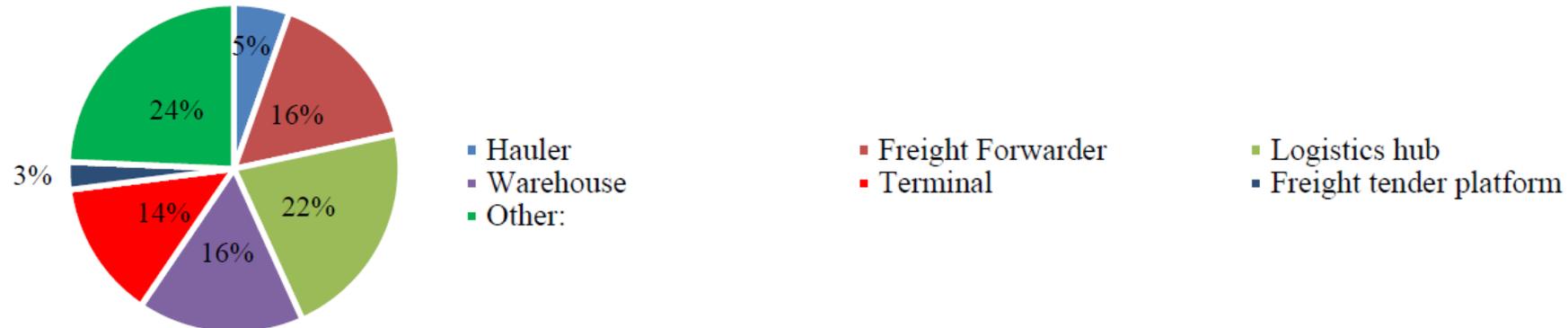
**GAP:** As a result, the academic community focus mainly on tasks that can be solved using available data rather than tasks relevant to the business



# Survey



- The survey was selected as the main investigation tool, and the business representatives were defined as a target group.
- Two groups of experts:
  - 1. Industrial partners involved in the ePicenter project (13)
  - 2. Largest transportation companies that are not project partners, but their role in the global supply chain is important (8)
- Surveys were sent to 40 experts from both groups.
- Totally 28 surveys were collected and 21 were accepted
- Transport mode companies work with: road transport 84%, Railway transport 65%, Air transport 36%; Maritime transport 79%



## Survey and results



Nr	Question
1	Please specify the transport node/company you represent.
2	Please specify your role in the company.
3	List the transport modes your company usually work with. Please specify the frequency.
4	How is BIG DATA used in your company?
5	Are you sharing BIG DATA with GO, authorities, and research institutions?
6	If you are not sharing the data, what are the main reasons? Please specify the importance.
7	If you are sharing (or could share) data with the GO and authorities, please select areas where this data is used (or could be used) in your opinion and score.
8	If you are sharing (or could share) data with the research institutions, please provide the main tasks of how this data is used (or could be used) in your opinion and score.
9	Provide your expectations regarding the tasks on which researchers should focus. Please specify the importance.
10	Provide the terms under which you would share the data with research organisations.
11	Define appropriate pricing mechanisms for data sharing with research institutions. Please specify possibilities.
12	If you want to receive survey results, please provide your email.

## Priority areas for new sources of structured data



- 33% of respondents that they were not sharing the data.
- Main reasons:
  - 1 Lack of trust that data will be used in a proper manner;
  - 2 Do not generate/operate BIG DATA;
  - 3 High costs of data preparation/ administration/ maintenance;
  - 4 Can't see benefits from data sharing;
  - 5 Technical challenges

## Priority areas for new sources of structured data



### Areas where shared data can be used by governmental organisations and authorities

	Data sharing/receiving with different regions all over the world	For economic statistics data generation	For digital tools development	For customs/border crossing services	For end-to-end supply chain connectivity	For taxation	For green supply chain management
Average value	5.9	7.4	7.4	7.0	7.3	6.6	6.6
Standard deviation	2.8	2.7	3.0	3.3	2.7	3.3	2.9
Rank	7	1	2	4	3	6	5

### Areas where the research institutions can use shared data

	For student teaching	For your company staff training	For scientific research without involving your company	For common research involving your company
Average value	7.5	6.8	5.4	7.0
Standard deviation	3.0	2.9	3.3	2.7
Rank	1	3	4	2

## Priority areas for new sources of structured data



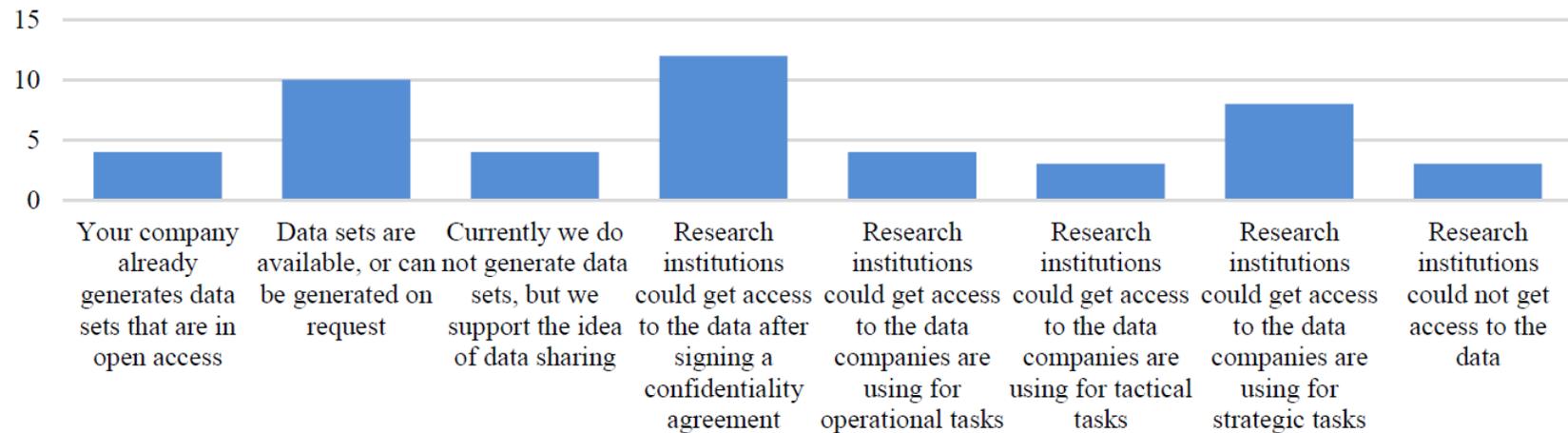
### The tasks on which researchers should focus

Traffic, timetable, mapping, routing	8.0	2.1	6
Tracking, monitoring, determining the availability of transport/warehouse	8.0	1.4	5
Carrier assignment, shipping order, warehouse booking	7.1	2.2	11
Customs procedures, CMR/e-CMR, other documentation	8.0	2.3	7
Coordination loading/unloading and changing transportation node	8.1	2.4	4
Management of assets, goods, clients	7.7	1.9	9
Optimised billing process	7.6	2.6	10
Data exchange with the supply chain actors	8.9	1.4	2
Carbon footprint monitoring, environmental challenges	8.6	1.9	3
Real-time (near real-time) data analytics	8.9	1.1	1
Price and demand forecasting	7.9	2.1	8
Investigate the economical and societal impact of Big Data	6.6	2.6	12
Investigate the economic and societal impact of Physical Internet	6.6	2.3	13

## Priority areas for new sources of structured data



### Terms under which stakeholders would share the data with research organisations



### Pricing mechanisms for data sharing with research institutions

	Data between your company and research institutions could be shared for free	Data could be shared with minimal fees that include only data preparation/ administration/ maintenance and other necessary costs	A one-time fee could be adopted for permanent access	Fixed fee for could be adopted annual access	Different fee planes could be adopted based on data type usage and the number of data needed	A post-paid monthly plan could be adopted, based on the number of issued documents per period
Average value	6.8	6.9	3.5	3.7	3.6	3.3
Standard deviation	2.9	3.1	3.1	2.9	2.9	2.7
Rank	2	1	5	3	4	6

## Summary



- The issue of trust in data sharing is very important for businesses. Transport and logistics companies operate in a highly competitive environment where information management, availability, and exchange are perceived as a potential loss of competitive advantage. In this context, a separate activity area could be formed - a data governance model, including agreements and rules.
- There is a need to highlight and further analyse the priority tasks that researchers could perform, such as real-time data analysis, solutions in the field of data exchange with supply chain actors, and monitoring of carbon footprint and the use of environmental resources.
- Companies can generate datasets; however, the majority of them can only be generated on-demand, so there is no guarantee that the datasets will be systematised appropriately.
- Industrial companies are willing to cooperate and do not see any fundamental problem with charging researchers extra for the data submission process.



*Thank you!*



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