Fintraffic

Impact of the Traffic Data Ecosystem – 2024 Update

Executive summary and extended report

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Impact of the Traffic Data Ecosystem – 2024 Update

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Executive summary

Fintraffic's Contribution and Economic Impact

Based on the top-down estimate derived from the European Data Market Study, **we estimate Fintraffic's overall contribution to have increased from 4% to 6% between the 2023 report and the 2024 report**, thanks to more data sharing and new end-user services such as the Fintraffic mobile app.

The direct benefits from the traffic data economy in 2023 are estimated to be €260,000,000, of which **Fintraffic's contribution is €16,000,000 (€6,000,000 higher than the previous contribution estimate of 4%).**

The wider societal benefits are estimated to be between €100,000,000 and €650,000,000, with **Fintraffic's contribution ranging from €6,000,000 to €39,000,000 (€2,000,000 to €13,000,000 higher than the previous contribution estimate of 4%).**

Stakeholder Insights and Identified Impacts

In interviews, ecosystem stakeholders identified impacts ranging from €30,000,000 to €40,000,000, with Fintraffic's contribution estimated to be between €2,400,000 and €5,200,000 (6% to 13%). These impacts are dominated by a few high-impact use cases, such as winter road maintenance and disruption notices in passenger rail services, where real-time data plays a crucial role. Many financial and socio-economic impacts (such as safety) were identified but not quantified in the interviews. Other impacts include opex savings (mostly working time) in marketing, learning the market, following the regulation and having a dialogue with the transport agencies.

Interviewees also identified significant untapped potential in many areas of traffic infrastructure maintenance and logistics, where improvements in data coverage, quality, and use-case examples are needed to kick-start the realization of benefits.

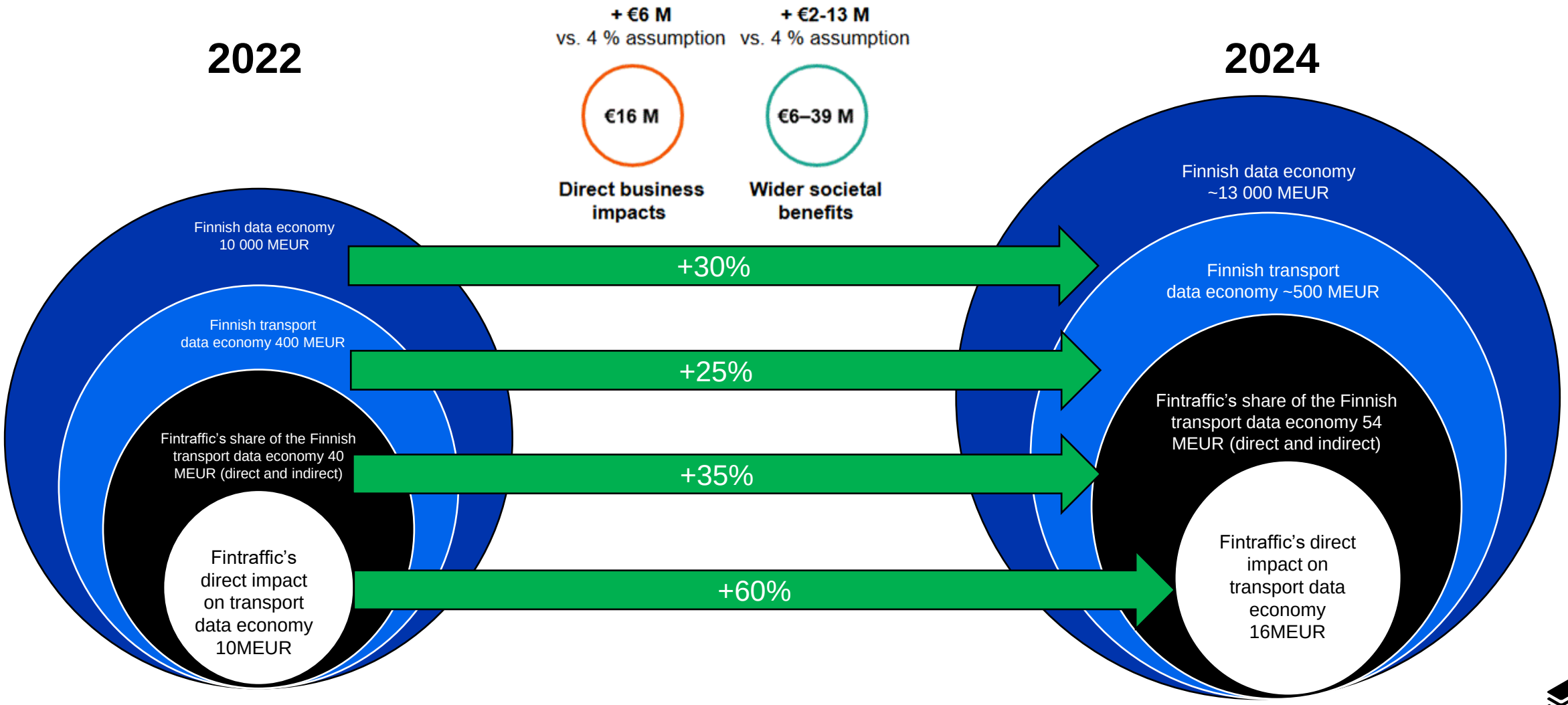
It should be noted that the coverage of the interviews was limited, and not all users or use cases of Fintraffic's data ecosystem were covered. However, together with the previous report and its findings, the evaluations highlight the realistic range of impacts.

Data and Collaboration as Key Drivers

Data as the main driver: Data is the most significant driver, producing the largest socio-economic savings. Monitoring pipelines is challenging and incomplete. The amount of data has increased, and there is still much that can be done. Combining multiple data sources would improve usability, such as city traffic information. Direct impacts are moderate, with savings in work time amounting to tens or hundreds of thousands of euros when data is consolidated. However, production control savings are in the millions (though only for a few large operators), and end-user/societal savings are in the tens of millions, but these have not been properly mapped by the stakeholders.

Collaboration in the Data Ecosystem: Collaboration within the data ecosystem is the second most significant driver, generating benefits of hundreds of thousands or millions of euros annually at the ecosystem level. Stakeholders cannot fully articulate their contributions or benefits because they do not track them. Most are satisfied based on interviews and surveys, even though the verification or realization of direct financial benefits is still lacking.

Fintraffic’s impact on Finnish transport data economy has increased significantly



Fintraffic’s rapid growth in data sharing and ecosystem membership outpaces European transport data economy

Fintraffic’s contribution multiplier has increased from 4 % to 6 %

In the 2023 report, we estimated Fintraffic’s contribution to the Traffic Data Economy to be 4%. Based on the increase in data sharing volumes (+30% for H1/2024 vs H1/2023) and new services such as the Fintraffic Mobiili app, we now estimate the contribution to be 6%.

Data ecosystem’s growth has outpaced European average

According to the European Data Market Study, the European transport data economy grew by 2% p.a. between 2022 and 2023, with a CAGR of 6% p.a. expected between 2023–2025. Fintraffic’s traffic data ecosystem growth has been much faster: data sharing volumes grew by 11% between 2022 and 2023, and by 30% between H1/2024 and H1/2023. The number of data ecosystem members grew from 170 in H1/2023 to 212 in H1/2024 (+25%).

Significant positive change in impact value

Based on the European Data Market Study, we estimate the Finnish traffic data economy to generate €260,000,000 in direct benefits and between €100,000,000 to €650,000,000 in wider societal benefits. Fintraffic’s contribution is €16,000,000 in direct business impacts and between €6,000,000 to €39,000,000 in wider societal benefits. Compared to the previous assumption of a 4% contribution, the overall impact attributed to Fintraffic is €6,000,000 plus an additional €2,000,000 to €13,000,000.

Impact awarded to Fintraffic through ecosystem activity and providing open data in 2023/2024 based on the Finnish traffic data economy estimate derived from European Data Market Study 2021–2023

+ €6 M
vs. 4 % assumption

€16 M

Direct business impacts

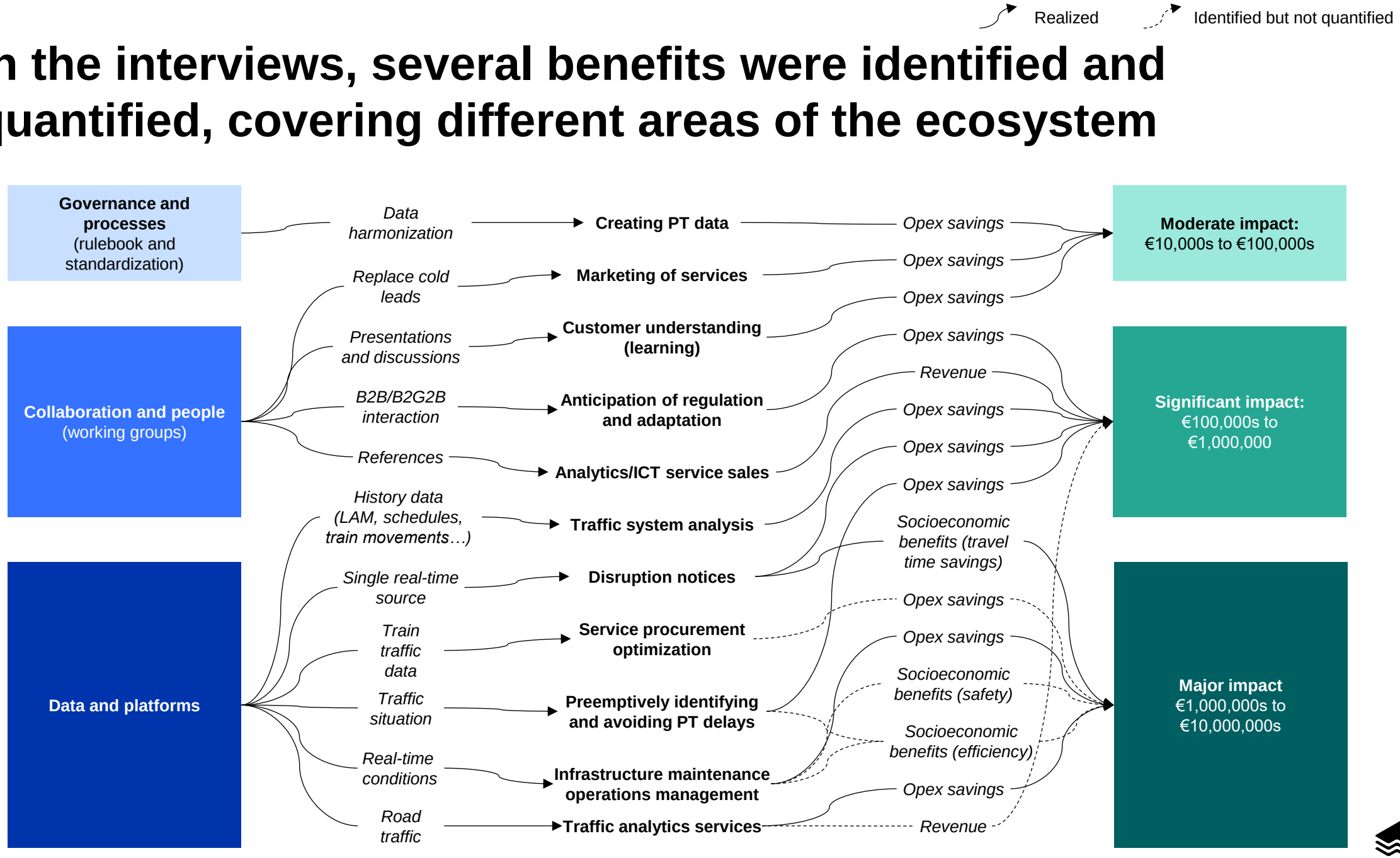
+ €2-13 M
vs. 4 % assumption

€6–39 M

Wider societal benefits

Sources: European Data Market Study 2021–2023, FLOU analysis

In the interviews, several benefits were identified and quantified, covering different areas of the ecosystem



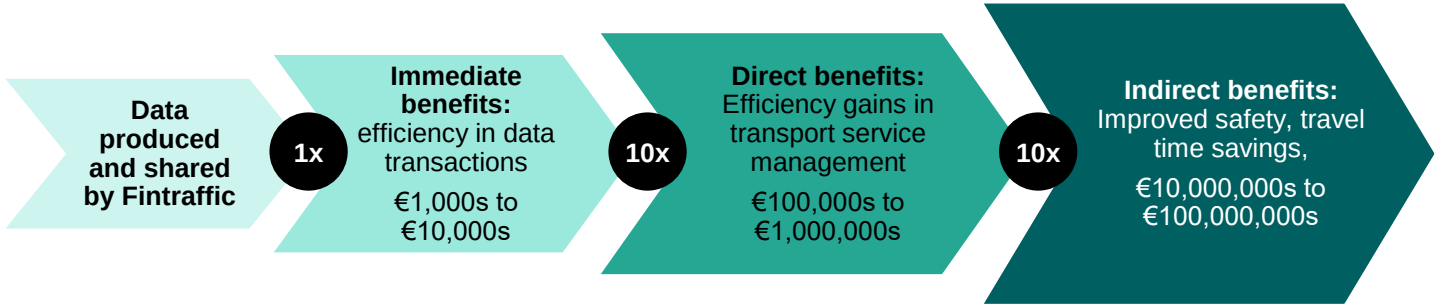
Note: Based on interviews, estimates are described in more detail in extended report.

Why data matters: While ecosystem collaboration currently generates linear benefits, the data usage has exponential scaling of benefits

★★★

Data & platforms

Based on the interviews, the benefits of utilizing traffic data multiply throughout the value chain, especially in larger organizations directly related to critical transport services, such as maintenance and public transport. Even if only 1% of data produces business cases that result in real-world impact, the ecosystem input-output ratio is 1, which is better than the cost-benefit ratio of many transport infrastructure projects.



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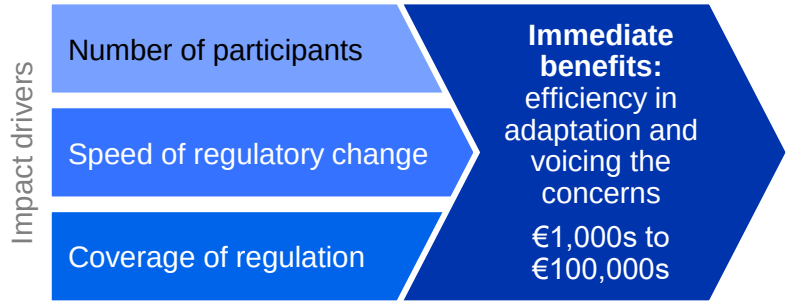
Collaboration and people (Working groups)

Based on the interviews, the benefits of utilizing traffic data multiply throughout the value chain. Currently the ecosystem collaboration produces linear benefits, as the maturity of big data services is still low. Moderate growth is expected in upcoming years.



1. According to Digibarometer, only 1 % of companies have created big data business models
Note: The impact value chain is based on the interviews to visualize the order of magnitudes identified.

Fintraffic’s contribution to the impacts identified in the interviews ranges from €2,000,000 to €5,000,000 annually (6–13%)

Fintraffic’s contribution estimated to have increased

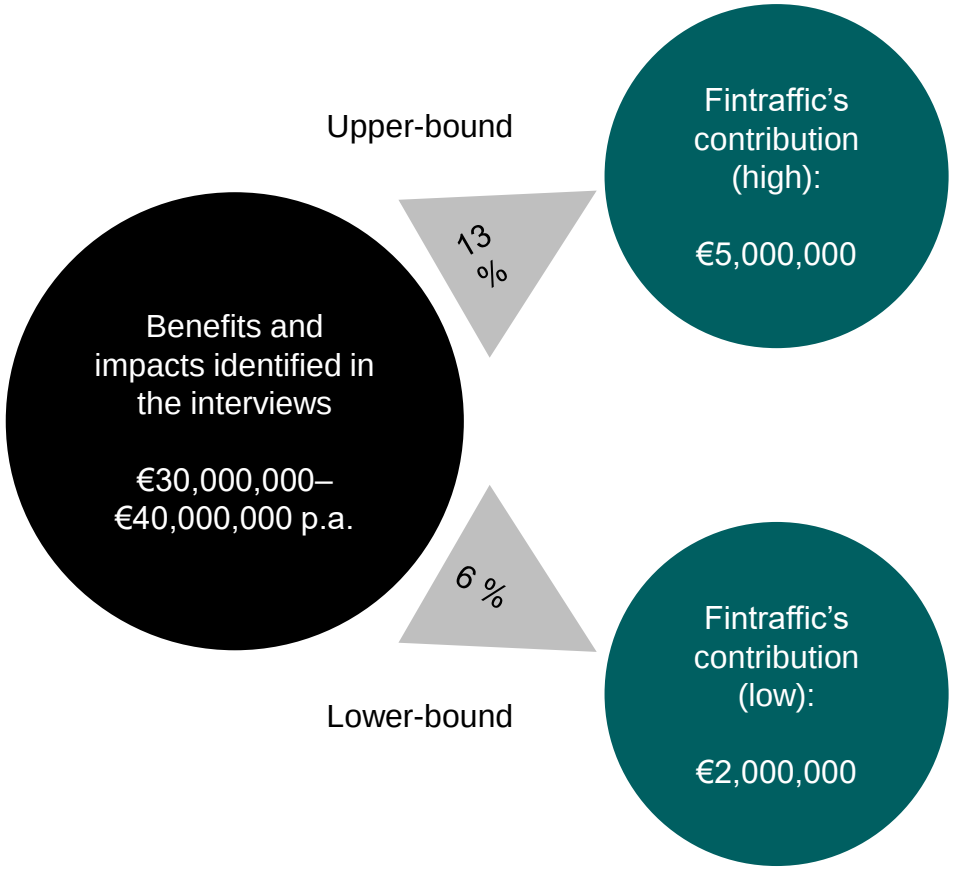
While we have used 6 % estimate for contribution to extract Fintraffic’s contribution from European Data Market Study’s data, Fintraffic’s contribution in data creation is expected to be higher at the examples we have identified. If we assume that in the impacts identified by the interviewees Fintraffic’s “market share” of the data production is 50 %, 13 % of the data sharing and refining and 0 % at the value add, the overall contribution is 13 %. Thus, the estimate is rathe conservative.

Interview cover only limited number of impacts

The impacts identified in this report do not cover all benefits. Ecosystem stakeholders do not actively monitor their contributions or benefits and thus lack visibility into the benefits they receive. Many benefits are not monetized by the service providers, and all the benefits are collected by the end-users, who have a low willingness to pay. Consequently, most benefits translate into socioeconomic advantages.

Wider societal benefits of data are not monitored by any stakeholder

In comparison, we have now identified mostly direct benefits for the organizations, along with some broader socioeconomic estimates. Many wider benefits have not been listed, as the interviews had a limited scope and most of the benefits are not monitored by any organization, especially the indirect ones. From transport sector perspective, we only covered road, rail and public transport but not aviation or maritime logistics.



Sources: FLOU analysis based on Interviews. Numbers are rounded. Details in extended report.

Fintraffic’s open data reaches millions of Finns every week through several channels – all services building on same database

VR Matkalla app	**500 000** active app users, who receive real-time information of their journey and disruptions.
Fintraffic Mobiili app	**50 000** active app users.
HSL journey planner app	**1 361 000 (86 %)** of Helsinki region residents regularly use the journey planner.
Juliadata.fi and Bussitutka.fi websites	**50 000** monthly users, including railway maintenance workers and transport planning professional.
YLE RDS-TA and Bauer Media’s AI powered localized TAs	**1 500 000 + 1 500 000** daily listeners, reaching majority of road users. Bauer Media distributes notices 24/7 to serve logistics sector.
Oikotie and Etuovi rental and sales listings	**1 000 000 + 800 000** weekly visitors, all listings include travel time to different services based on Digitransit.

All service have the same data base: end users receive the same information in every channel, in real time and reliably.

Sources: Interviews, VR annual report 2023, Finnpanel 2024, Bauer Media website 2023, Oikotie 2024, Etuovi 2024, FLOU analysis

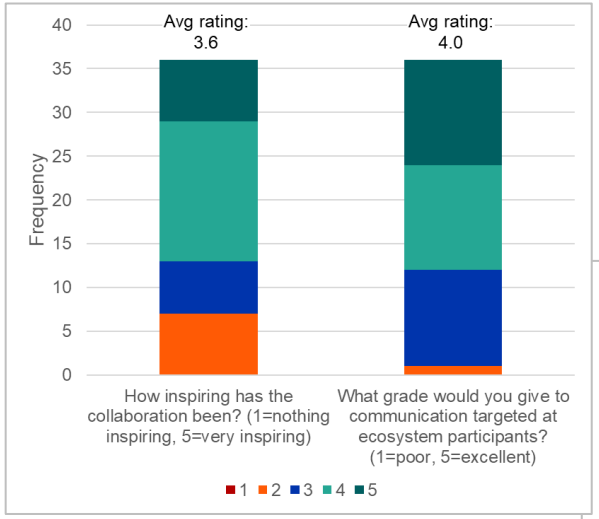
Survey results show high stakeholder inspiration and excellent communication satisfaction, helping service development – identifying benefits still lacking

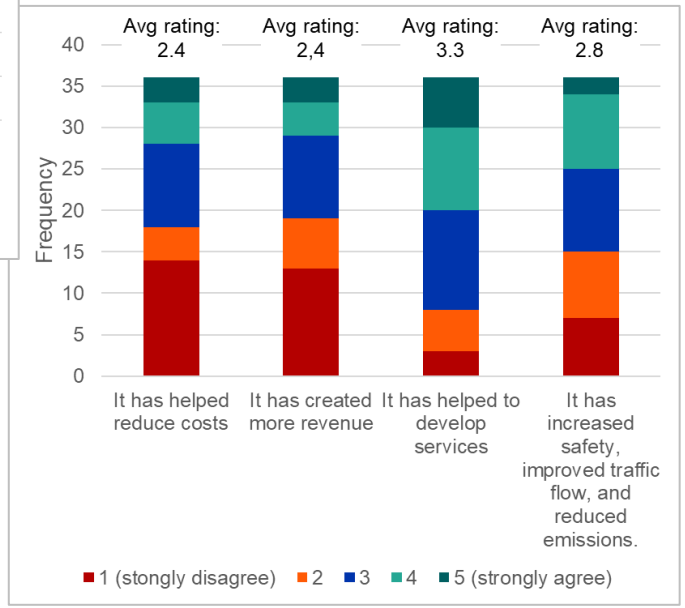
Fintraffic's data ecosystem stakeholder survey was sent to all ecosystem members. A total of 36 replies were received.

- The most satisfied ones found discussions and collaboration on regulation and bringing public and private sector together inspirational.
- The dissatisfied stakeholders expect more collaboration with actionable results, driving real-life impact on transport operations and revenue growth.

Separate questions were asked for different types of benefits from the participation to ecosystem:

- About half of the respondents agreed with the statement that data ecosystem activities have helped in the development of services.
- One fifth of the respondents agreed with the statements that the data ecosystem has reduced costs or increased revenue, while about half disagreed with these statements.
- About one third agreed with the statement regarding improvements in traffic safety or flow, or reductions in emissions, while about 40% disagreed with this statement.





Sources: Survey data from Fintraffic's "Ecosystem Survey 2024", FLOU analysis

Insights from the Fintraffic Annual Survey: Urbanization of Finland increases the demands for high quality public transport and road traffic information services

Fintraffic's "Suuri liikennekysely 2024":

Drivers highly value the available free information services, especially in larger cities and/or if public transport is not an option.

Drivers value processed data more than "raw" data e.g. road weather cameras.

Public transport services rely on Digitransit data and app jointly developed by Fintraffic and regional transport authorities.

Importance of public transport information services is ranked high in larger cities of Finland and among the younger population.

"Megatrends" increasing the demand for reliable, real-time traffic information services

As the urbanization of Finland continues, the demand for high-quality real-time road traffic information along with the impacts.

The demand for passenger information in public transport will become more important, when more and more people choose public transport.

Single source for all traffic information greatly reduces the cost of developing end-user solutions.

Sources: Survey data from Fintraffic's "Suuri liikennekysely 2024", FLOU analysis

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Impact of the Traffic Data Ecosystem – 2024 Update

Extended report

1. EDMS update for 2024

Impact Potential of the Traffic Data Ecosystem

European transport data economy: slow growth with signs of moderate acceleration

Moderate growth for Transport Data Economy in 2022/2023

According to the European Data Market Study (2024)**, the transport sector data economy grew +2 % between 2022 and 2023** in Europe. Fastest growing sectors were Retail and Wholesale (+14 %), Information & Communication (+14 %), and Finance (+11 %)

Estimated Impact Potential of Transport Data Economy in Finland, 2023

There has been no major change in the estimate for the transport data economy impact potential in Finland, **the estimate for direct benefits is between €200–300 M.**

Expected growth in near-term

The expected growth for European Transport Data Economy is 6 % p.a. until 2025.

While the growth accelerates, the transport sector still underperforms; the average growth rate is 9–10 % p.a.

Estimated Impact Potential of Transport Data Economy in Finland, 2030

The estimated direct economic benefit from Finnish Transport Data Economy is between €300–400 M

Sources: European Data Market Study 2024.

Update on Fintraffic's contribution: data sharing volumes growing rapidly, much faster than the transport sector data economy growth

Background figures for the update half-year reports January-June 2024:

- Digitraffic data transferred 328.01 TB (+31% vs. H1/2023, in 2023 +11 % vs. 2022)
- 3 billion interface queries (+29% vs. H1/2023)
- Digitransit API-calls 8.54 billion (+43% vs. H1/2023)
- Data ecosystem organisations 212 (170 in H1/2023)
- New mobile app with 50 000 active users (vs. 500 active users in the old app).

Based on the data available, we can assume Fintraffic's contribution has grown as shown in the calculations on the right.

The estimate on the value add/end-user services is highly indicative and we have used a conservative estimate. In the 2023 report, in many use cases Fintraffic's overall contribution was higher, up to 19 %, but only some use cases were reviewed, mostly ones where Fintraffic contribution is clear and thus the impact contribution is higher.

Framework used for impact assessment in 2023 report.

2022/2023	10 %	10 %	0 %	**4 %**
Growth in 2022/2023 to 2024	*+ 30 %*	*+ 30%*	*+ 1 %-point*	*+2 %-point*
2023/2024	13 %	13 %	1 %	**6 %**

Sources: Fintraffic H1/2024 report, Fintraffic 2023

Stable traffic data economy with increased contribution from Fintraffic in 2023

Traffic data economy in Finland, 2023

€260 M

Direct business impacts

€100-650 M

Wider societal benefits

The overall impact potential is challenging to gauge, the wider societal benefits are likely somewhere in-between the range presented

Currently, majority of data in the Traffic Data Ecosystem is produced, quality controller. Fintraffic currently hosts many end-user services, such as train schedules, multimodal journey planner (in cooperation with PTAs) and road conditions.

Based on the value stream above and current role, a realistic estimate of Fintraffic's market share is 13% of data creation, distribution and redefining and 1% of the end-user services, **the overall contribution of Fintraffic is estimated to be approximately 6%** (compared to 4 % in previous report).

Impact awarded to Fintraffic through ecosystem activity and providing open data in 2023/2024

+ €6 M
vs. 4 % assumption

€16 M

Direct business impacts

+ €2-13 M
vs. 4 % assumption

€6-39 M

Wider societal benefits

Sources: European Data Market Study 2024, FLOU analysis

Despite the slow growth, the overall value and impact of traffic data impact is expected to grow significantly

Traffic data economy in Finland, 2030

€390 M

Direct business impacts

€160-970 M

Wider societal benefits

The overall impact potential is challenging to gauge, the wider societal benefits are likely somewhere in-between the range presented

Currently, majority of data in the Traffic Data Ecosystem is produced, quality controller. Fintraffic currently hosts many end-user services, such as train schedules, multimodal journey planner (in cooperation with PTAs) and road conditions.

Based on the value stream above and current role, a realistic estimate of Fintraffic's market share is 13% of data creation, distribution and redefining and 1% of the end-user services, **the overall contribution of Fintraffic is estimated to be approximately 6%** (compared to 4 % in previous report).

Impact awarded to Fintraffic through ecosystem activity and providing open data

+ €7 M
vs. 4 % assumption

€23 M

Direct business impacts

+ €4-19 M
vs. 4 % assumption

€10-58 M

Wider societal benefits

Sources: European Data Market Study 2024, FLOU analysis

2. Fintraffic annual survey through data ecosystem lens

Suuri liikennekysely 2024

Urbanization of Finland increases the demands for high quality public transport and road traffic information services

Fintraffic's road user survey (Suuri liikennekysely 2024):

- Drivers highly value the available free information services, especially in larger cities and/or if public transport is not an option
- Drivers value processed data more than "raw" data e.g. road weather cameras
- Public transport services rely on Digitransit data and app jointly developed by Fintraffic and regional transport authorities
- Importance of public transport information services is ranked high in larger cities of Finland and among the younger population

"Megatrends" increasing the demand

- As the urbanization of Finland continues, the demand for high-quality real-time road traffic information along with the impacts.
- The demand for passenger information in public transport will become more important, when more and more people choose public transport.
- Single source for all traffic information greatly reduces the cost of developing end-user solutions.

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis

1a. How important would it be for you, as a motorist, to easily find the following traffic and condition information via a free online or mobile service? Driving conditions along your route

- Drivers highly value the importance of free information services.
- Especially women appreciate the availability of free information services of driving conditions.
- There has been no major change in the importance of free information of driving conditions along your route year-on-year.

Response	2024	2023
5 Very important	23 %	23 %
4	31 %	32 %
3	27 %	28 %
2	12 %	9 %
1 Not important at all	6 %	7 %
I don't know	1 %	1 %
Avg	3.54	3.57

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

1b. How important would it be for you, as a motorist, to easily find the following traffic and condition information via a free online or mobile service? Photos of road conditions along your route

- Photos along the route are less important for drivers compared to more processed information.
- There has been no major change in the importance of free information of driving conditions along your route year-on-year.

Response	2024	2023
5 Very important	10 %	10 %
4	23 %	22 %
3	30 %	32 %
2	21 %	22 %
1 Not important at all	14 %	13 %
I don't know	2 %	2 %
Avg	2.94	2.94

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

1c. How important would it be for you, as a motorist, to easily find the following traffic and condition information via a free online or mobile service? Traffic volumes along your route

- Drivers highly value the importance of free information services of traffic volumes.
- Drivers in larger cities such as Espoo, Vantaa, Kauniainen, and Tampere rate the importance of traffic volume information services higher.
- There has been no major change in the importance of free information of driving conditions along your route year-on-year.

Response	2024	2023
5 Very important	12 %	11 %
4	29 %	30 %
3	34 %	35 %
2	17 %	16 %
1 Not important at all	7 %	7 %
I don't know	1 %	1 %
Avg	3.21	3.21

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

1d. How important would it be for you, as a motorist, to easily find the following traffic and condition information via a free online or mobile service? Information on whether there are traffic jams or other traffic disturbances on your route

- Drivers highly value the importance of free information services of traffic disturbances.
- Drivers in larger cities such as Espoo, Vantaa, Kauniainen, and Tampere rate the importance of traffic volume information services higher than drivers in smaller cities.
- There has been no major change in the importance of free information of driving conditions along your route year-on-year.

Response	2024	2023
5 Very important	21 %	23 %
4	40 %	38 %
3	25 %	25 %
2	9 %	8 %
1 Not important at all	4 %	5 %
I don't know	1 %	1 %
Avg	3.66	3.67

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

2. Which services do you use to find information about driving conditions or the traffic situation before you travel? Select all that fit.

- Services where Fintraffic is one of the main information providers (radio, navigation apps) or service provider (Fintraffic Mobile and Liikennetilanne) are widely used.
- No major changes in information services used. Longer time-series would be needed for conclusions.

Service	2024	2023
Fintraffic Mobile app	6 %	6 %
Fintraffic's Traffic Situation website	15 %	17 %
Navigation apps and websites like Google Maps, Apple Maps, TomTom, HERE	48 %	50 %
Other internet services	34 %	33 %
Other applications	11 %	9 %
Vehicle navigator	15 %	19 %
Radio	42 %	42 %
TV, Teletext	15 %	14 %
Other	8 %	8 %

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

3. Which sat nav do you use for driving?

- Most drivers use sat nav regularly.
- Navigation apps on the phone and car’s own navigator services are the future mediums for information services. Dedicated sat nav devices on the decline.

Service	2024	2023
The car's own navigator	27 %	27 %
Separate navigation device in the car	10 %	12 %
Google Maps	64 %	61 %
Waze	5 %	5 %
Something else on your phone	11 %	11 %
Nothing	10 %	9 %

Sources: Fintraffic’s ”Suuri liikennekysely 2024”, FLOU analysis. Original survey in Finnish.

4. If you connect your phone to a car radio or information system while driving, which app do you use in your car?

- Most drivers do not use tethering/mirroring systems.

Service	2024	2023
Android Auto	25 %	22 %
Apple CarPlay	11 %	9 %
Neither	64 %	69 %

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

5a. How important are the following to you when using public transport? Journey planner for my mobile phone, which allows me to choose the best modes of transport from point A to point B

- Especially younger population rates the importance high.
- There is a clear trend that journey planner apps are rated more important on large cities, in clear correlation with the availability of public transport services and modal share.

Response	2024	2023
5 Very important	33 %	31 %
4	29 %	28 %
3	17 %	18 %
2	6 %	8 %
1 Not important at all	8 %	9 %
I don't know	5 %	6 %
Avg	3.77	3.68

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

5b. How important are the following to you when using public transport? Real-time access to traffic information on a mobile phone that shows, for example, the actual timetables of buses and trains

- Especially younger population rates the importance of real-time traffic information high.
- There is a clear trend that real-time information access services are rated more important in large cities, in clear correlation with the availability of public transport services and modal share.

Response	2024	2023
5 Very important	29 %	28 %
4	30 %	29 %
3	20 %	22 %
2	7 %	8 %
1 Not important at all	8 %	8 %
I don't know	5 %	6 %
Avg	3.70	3.66

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

6. Which services do you search for information on public transport trips?

- Most used public transport information services are one provided by largest organization such as regional transport authorities, VR and Matkahuolto.
- Share of users reporting the use of general-purpose navigation services (Such as Google Maps or Apple Maps) to find public transport information
- The share of user utilizing public transport information services has grown slightly.
- All of the services utilize data provided by Fintraffic. Regional journey planner websites and apps are jointly developed by public transport authorities and Fintraffic.

Service	2024	2023
National opas.matka.fi Journey Planner	7 %	5 %
Regional journey planners (HSL, Nysse, Föli, Waltti, etc.)	62 %	58 %
VR	69 %	71 %
Matkahuolto	40 %	40 %
Perille.fi	2 %	1 %
Navigation apps like Google Maps or Apple Maps	35 %	31 %
Other	4 %	3 %
None	11 %	13 %

Sources: Fintraffic's "Suuri liikennekysely 2024", FLOU analysis. Original survey in Finnish.

3. Other benchmarks

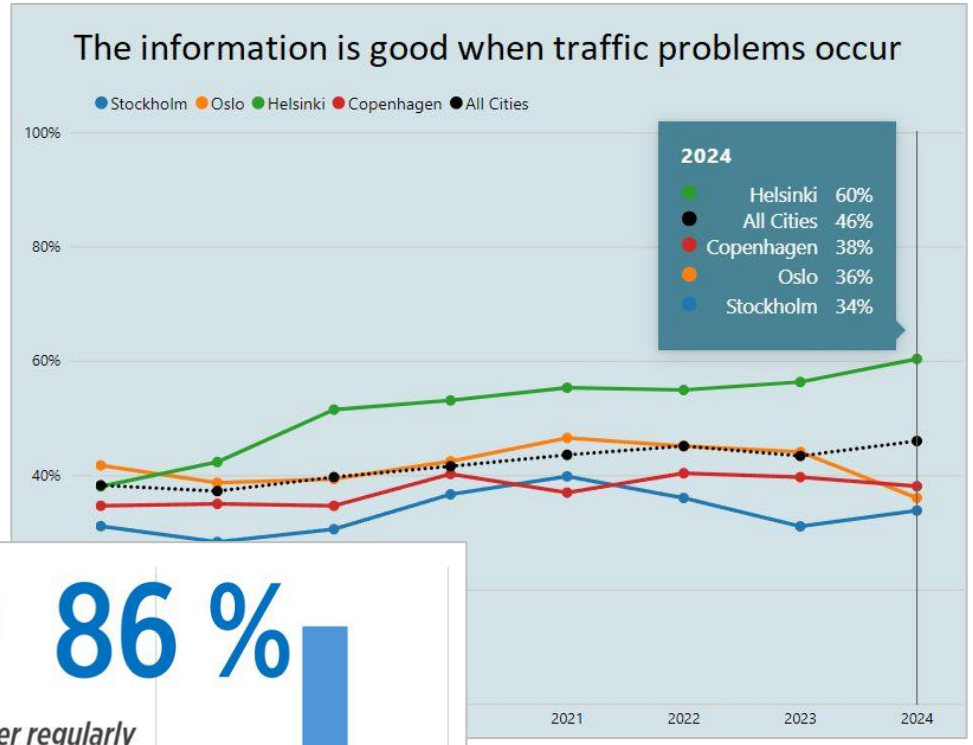
Helsinki Region Transport Authority's traffic information is built on Digitransit data – best passenger information system in Nordics also during major traffic disruptions

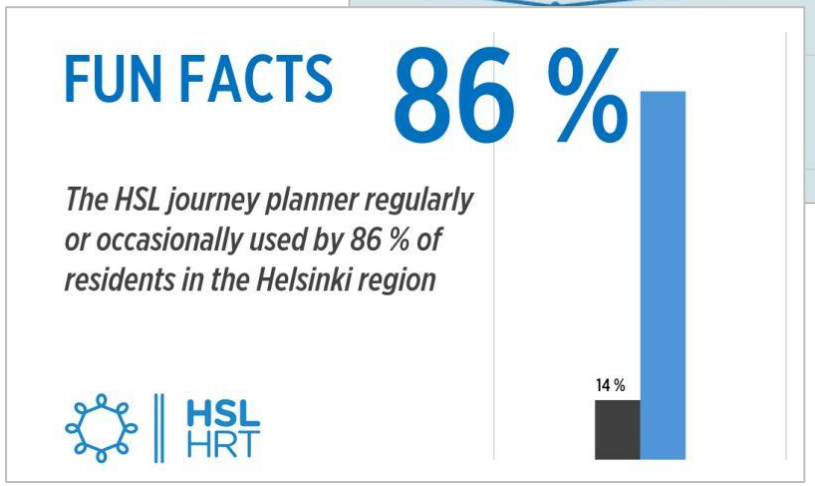
According to HSL, nearly all residents in the Helsinki region use HSL journey planner at least occasionally. The Helsinki region journey planner is built on the Digitransit platform. The public transport information reaches the passengers also during disturbances:

There were several major traffic disruptions in Helsinki in 2024:

- Four metro stations closed during the summer
- Two metro stations partially closed (main entrances)
- Major tramway construction projects on the arterial road to the central business district
- Five-week suspension of railway services on two lines causing reduced service during the summer

Despite all the traffic challenges, the information when traffic problems occur was ranked best in Helsinki of all Nordic capitals by users in Benchmarking European Service of Public Transport report.





Sources: Joona Packalen (HSL) on LinkedIn, HSL

Enriching traffic forecasting and public transport data generates considerable benefits

Impact of open data in public transport ridership

According to a study done in Seattle, US, the use of open transit data had following benefits when integrated into a public transport information service especially focused on providing real-time information on bus arrivals to decrease waiting times:

- 90 % reported higher customer satisfaction
- Commuters made 10 % more trips
- Non-commuters made 20 % more trips

To draw conclusion, the use of open transit data has major impact on public transport ridership especially among irregular users and retain existing users.

Digitransit allows any city to copy features more efficiently and data standardization ensures compatibility

Future smart city needs of traffic forecasting

In road transport, modern machine learning models combined with road weather, incident information, traffic counts, real-time flow data and congestion data can greatly improve the forecasting accuracy of traffic.

With modern forecasting models, forecasting accuracy has improved 10–20 %.

Accurate prediction of road traffic will become more and more important with transport automation and managing vehicle traffic with systems such as adaptive traffic lights, dynamic parking pricing and opening/closing lanes.

Sources: Ferris et al 2010, Nagy & Simon 2021

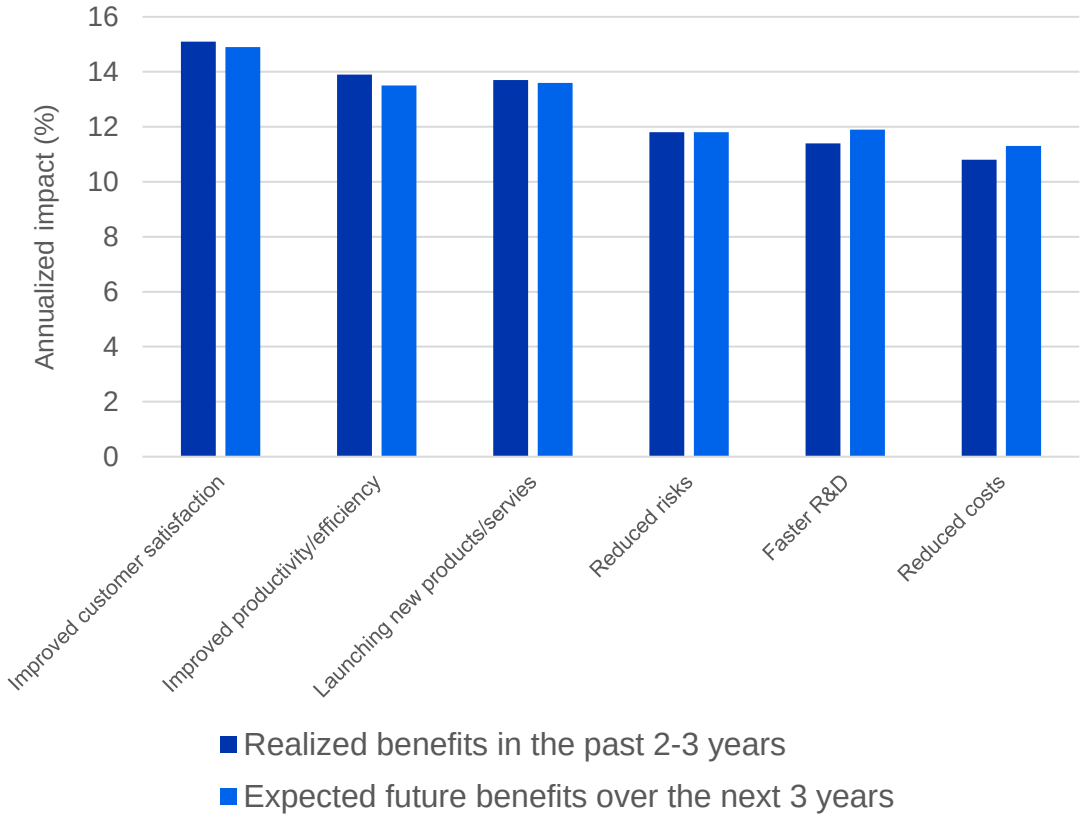
Capgemini report: Investments in data ecosystems can create a variety of different benefits – but most ecosystems are low complexity and low collaboration

The different benefits listed are all sources for significant benefits by themselves. There are numerous example uses of data ecosystems for benefits, for example:

- **Risk reduction**: Data ecosystems that pool accident-data from multiple maritime shipping companies together successfully reduced lifeboat accidents by 72%, engine-room fires by 65% and bunker spills by 25%.
- **Improved customer satisfaction**: Aggregated information from data ecosystems gives mobility-service organizations, such as public transport providers, information about traffic hotspots and popular destinations. This can be used to plan lines and timetables more efficiently for improved customer satisfaction.

The benefits identified are based on a sample of 750 organizations. In the report, a financial gain of 2–9 % of revenue was identified for organization of $10 billion revenue. This might indicate that ecosystem benefits cluster to larger companies and the impact is less significant for smaller companies. Most of the companies only participate in low collaboration – low complexity data sharing ecosystem, limiting the benefits.

The types of impact such as improved customer satisfaction and improved efficiency have been identified as benefits by Fintraffic's ecosystem members.



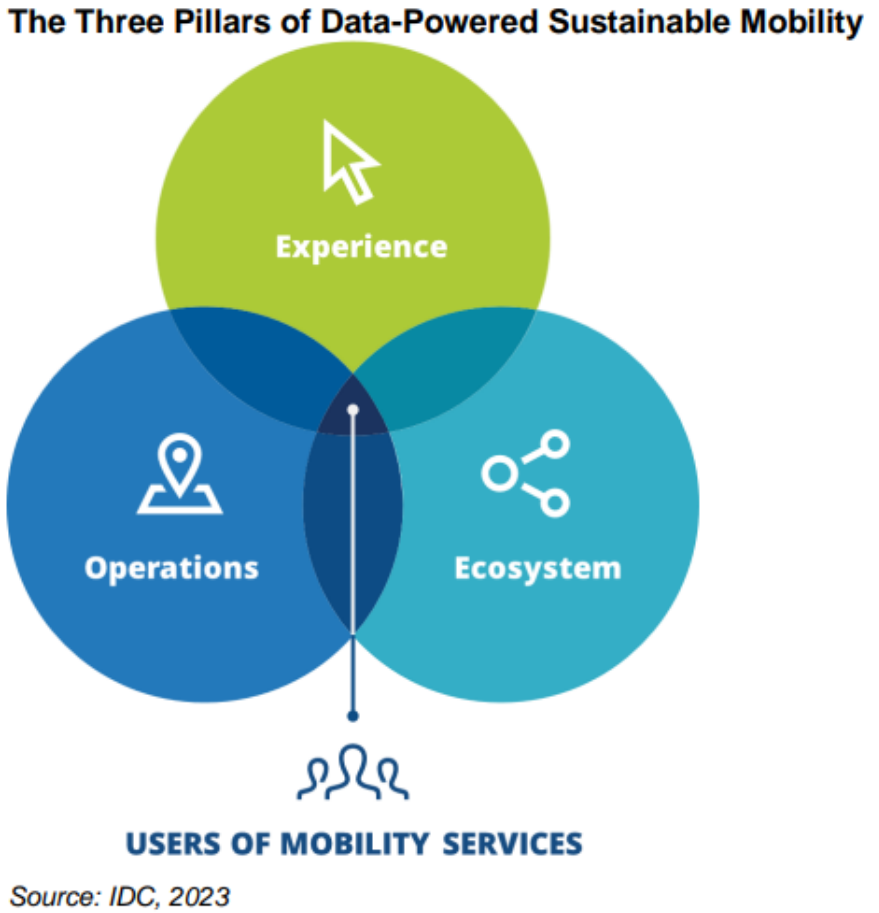
Sources: Capgemini 2021

European Data market study 2021-2023 finds increasing need for effective data utilization for mobility ecosystems (1/2)

1. Customer experience in Data-Powered Sustainable Mobility
Needs: On-the-fly multimodal route planning with integrated and automated payments for operators. Customizable route and mode choices with preferences set by the customers etc.
Solutions: Collaborative ecosystems to share data to develop multimodal mobility-as-a-service digital assistants.

2. Sustainable operations in Data-Powered Sustainable Mobility
Needs: More effcient data-driven traffic management, transport planning, environmental sustainability, road safety etc.
Solutions: Data ecosystems to support advanced analytics, internet of things, AI, process automation and edge computing across different sources of mobility data.

3. Sustainable ecosystems in Data-Powered Sustainable Mobility
Needs: Policies for handling sensitive information, balancing data monetization innovation with fair competition, regulations for functional data sharing
Solutions: Innovation hubs led by goverment agencies to share ideas and innovations between private and public sectors, academia and community organizations. Data aggregation platforms focusing on data aggregation, data exchange and regulation of data compatibility. Government mobility platforms that control the mobility data and aim to increase its accessiblilty for users across multiple channels.



Source: IDC, 2023

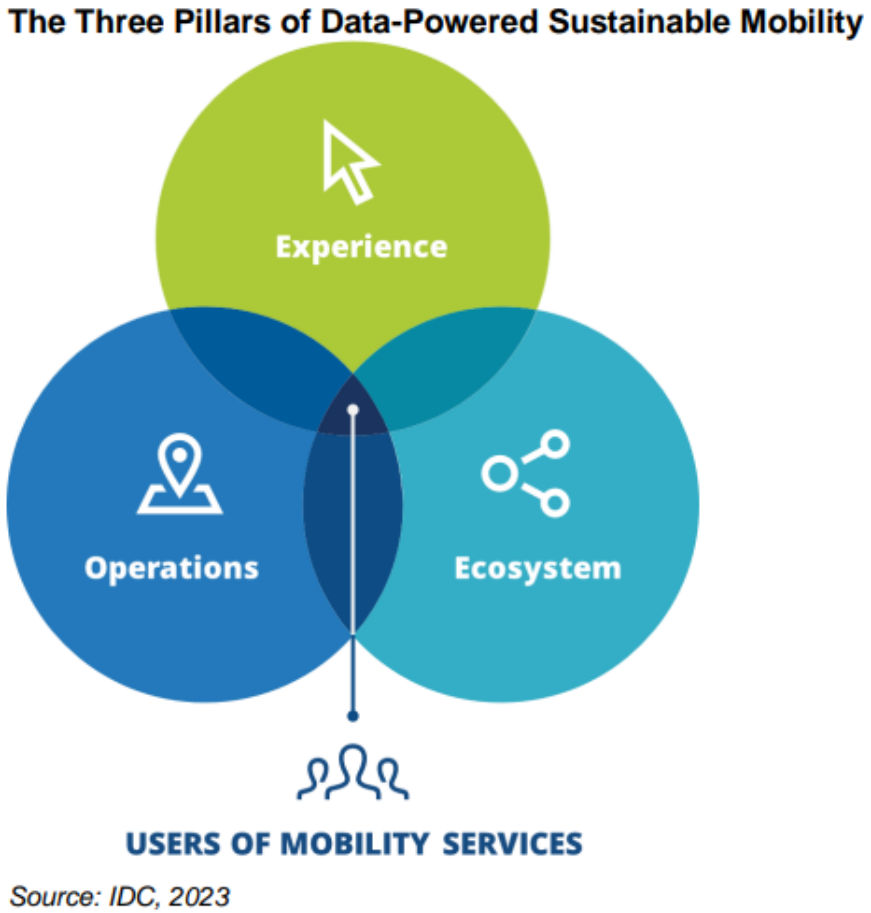
European Data market study 2021-2023 finds increasing need for effective data utilization for mobility ecosystems (1/2)

Data of mobility systems plays an increasingly strategic role to realize the benefits of developing mobility systems.
Transportation companies, governments and other stakeholders in the mobility ecosystem should adjust their data utilization frameworks to benefit from the emerging aspects of data-powered sustainable mobility:

- Re-imagining of customer experiences.
- Increasing operational efficiency and resilience.
- Building and scaling data monetisation models that drive growth and sutainability for the mobility ecosystem.

Policy recommendations to accelerate data-powered sustainable mobility.

Accessibility to good quality data
Accurate data accessibility is necessary to optimize smart mobility planning and service management.
Interoperability of data
Data operability for different data formats for different stakeholders across the mobility data ecosystem will accelerate progress to data-powered sustainable mobility.
Research, innovation and talent
European states should work with academic institutions to innovate state-of-the-art technological advances in smart mobility more efficiently and complement product and service innovations with technological expertise.
Data Spaces
Mobility dataspaces with collections for specific topics of data play a strategic role in realizing benefits of smart mobility.



Source: IDC, 2023

4. Other remarks

Challenges in Ecosystem Development (input from interviews and ecosystem stakeholder survey)

Limited Reach and Engagement

- Some working groups (e.g., logistics) do not reach all stakeholders despite openness.
- Large players dominate, small players cannot make as much noise (more resources to influence).
- The logistics sector only reaches a small portion of operators.
- Decisions' non-binding nature may not be fully understood.

Slow Development and Lack of Revenue

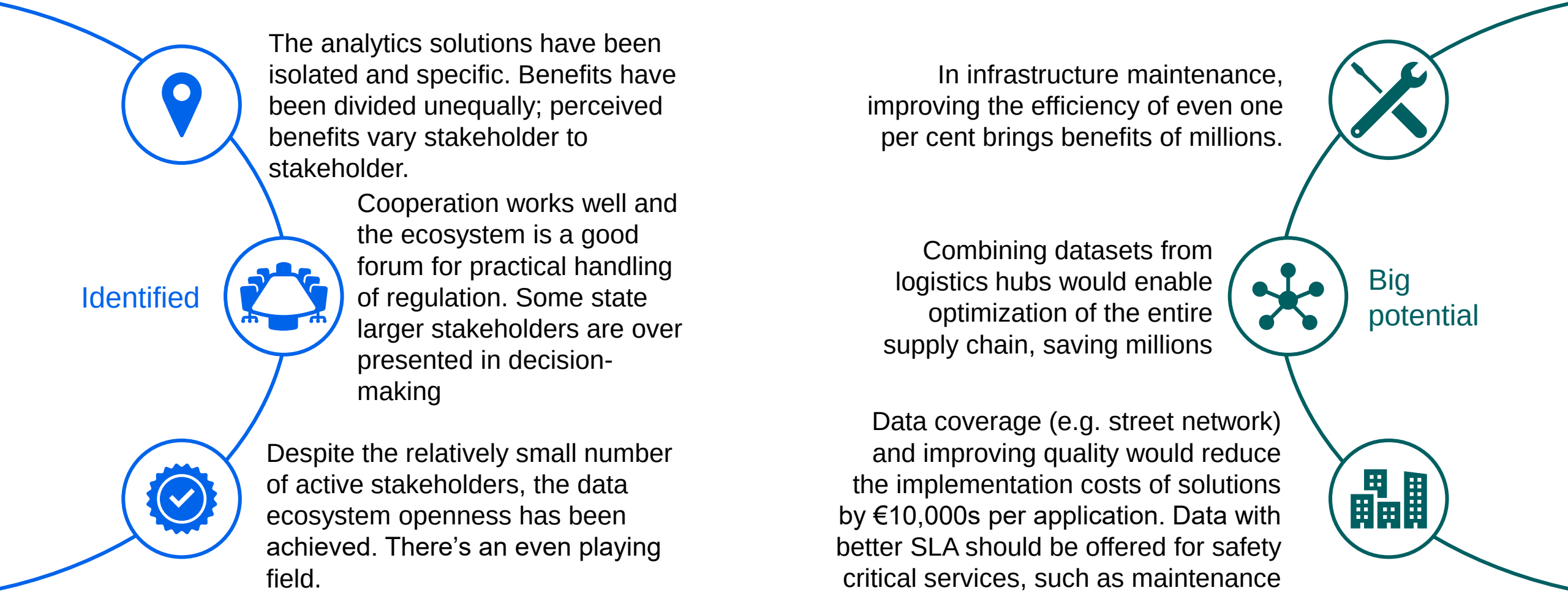
- Slow development – a lot of presentations, little applications that can be scaled or directly benefit transport management in organizations.
- No revenue benefits. Concrete examples of benefits are missing, no "traction" or pull. Lack of willingness to pay (especially in logistics). No funding to develop applications.
- Benefits easily flow to large players (importance of own activity?)
- Development is too Fintraffic-centric.

Data and Infrastructure Issues

- Need for better SLAs, e.g., road maintenance is safety-critical but relies on open data without an SLA.
- Still not a single source of truth; traffic on street network is missing, infrastructure data must be sourced elsewhere. No data from private rail yards, for example.
- Data catalog could be more comprehensive (especially non-open data?).

"Developing an ecosystem is a marathon, not a sprint"
(Marko Forsblom, ITS Finland).

Data remains the primary driver of impact. While ecosystem benefits are moderately realized, the revenue impact is still insufficient



Identified

The analytics solutions have been isolated and specific. Benefits have been divided unequally; perceived benefits vary stakeholder to stakeholder.

Cooperation works well and the ecosystem is a good forum for practical handling of regulation. Some state larger stakeholders are over presented in decision-making

Despite the relatively small number of active stakeholders, the data ecosystem openness has been achieved. There's an even playing field.

Big potential

In infrastructure maintenance, improving the efficiency of even one per cent brings benefits of millions.

Combining datasets from logistics hubs would enable optimization of the entire supply chain, saving millions

Data coverage (e.g. street network) and improving quality would reduce the implementation costs of solutions by €10,000s per application. Data with better SLA should be offered for safety critical services, such as maintenance