European Commission

JRC SCIENCE FOR POLICY REPORT

EU Transport Research & Innovation status assessment report

An overview based on the Transport Research and Innovation Monitoring and Information System (TRIMIS) database

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2019

Joint Research Centre

EUR 29818 EN

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JRC Science Hub
https://ec.europa.eu/jrc

JRC116930

EUR 29818 EN

PDF	ISBN 978-92-76-09005-2	ISSN 1831-9424	doi:10.2760/6954
Print	ISBN 978-92-76-09006-9	ISSN 1018-5593	doi:10.2760/525582

Luxembourg: Publications Office of the European Union, 2019

How to cite this report: van Balen M., Ortega Hortelano A., Grosso M., Tsakalidis A., Gkoumas K., Haq G., Pekar F., *EU Transport Research & Innovation status assessment report: An overview based on the Transport Research and Innovation Monitoring and Information System (TRIMIS) database*, EUR 29818 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-09005-2, doi:10.2760/6954, JRC116930.

Contents

Abstract

This report provides the second overview of the TRIMIS database, assessing the status of transport R&I in seven thematic areas as defined by the European Commission's Strategic Transport Research and Innovation Agenda (STRIA). Since the last overview, the database includes over 9% more projects, covers information on transport technologies and organisations, while steps are made to include data on patents and publications. These developments bolster TRIMIS' capabilities to monitor the progress of STRIA.

Acknowledgements

The European Commission's Joint Research Centre is in charge of the development of the Transport Research and Innovation Monitoring and Information System (TRIMIS).

The work has been carried out under the supervision of the European Commission's Directorate-General for Mobility and Transport (DG MOVE) and Directorate-General for Research and Innovation (DG RTD) which are co-leading the Strategic Transport Research and Innovation Agenda (STRIA).

The authors would like to acknowledge the support of Ricardo plc for their contributions to the database development.

The views expressed here are purely those of the authors and may not, under any circumstances, be regarded as an official position of the European Commission.

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Executive summary

This report provides a follow up of the previous database assessment report (Tsakalidis et al., 2018). The authors show the main database developments, provide insights into the current status of transport R&I across Europe and, finally, describe the developments that are lined up for next year.

Policy context

In May 2017, the European Commission (EC) adopted the Strategic Transport Research and Innovation Agenda (STRIA) as part of the 'Europe on the Move' package, which highlights main transport Research and Innovation (R&I) areas and priorities for clean, connected and competitive mobility.

Seven STRIA roadmaps were developed covering various thematic areas, namely:

- Cooperative, connected and automated transport;
- Transport electrification;
- Vehicle design and manufacturing;
- Low-emission alternative energy for transport;
- Network and traffic management systems;
- Smart mobility and services; and
- Infrastructure.

TRIMIS is the analytical support tool for the establishment and implementation of STRIA, and is the EC's instrument for mapping transport technology trends and R&I capacities. To this end, information on R&I programmes and projects across Europe is collected.

Key conclusions

Following the recommendations as laid down in the previous database assessment report, additional information on technologies, organisations, and macro-level statistics was integrated into the TRIMIS database. New sources with project information were moreover accessed, leading to a greater coverage. Additionally, steps were taken to create country fact sheets, as provided in this report (Annex C).

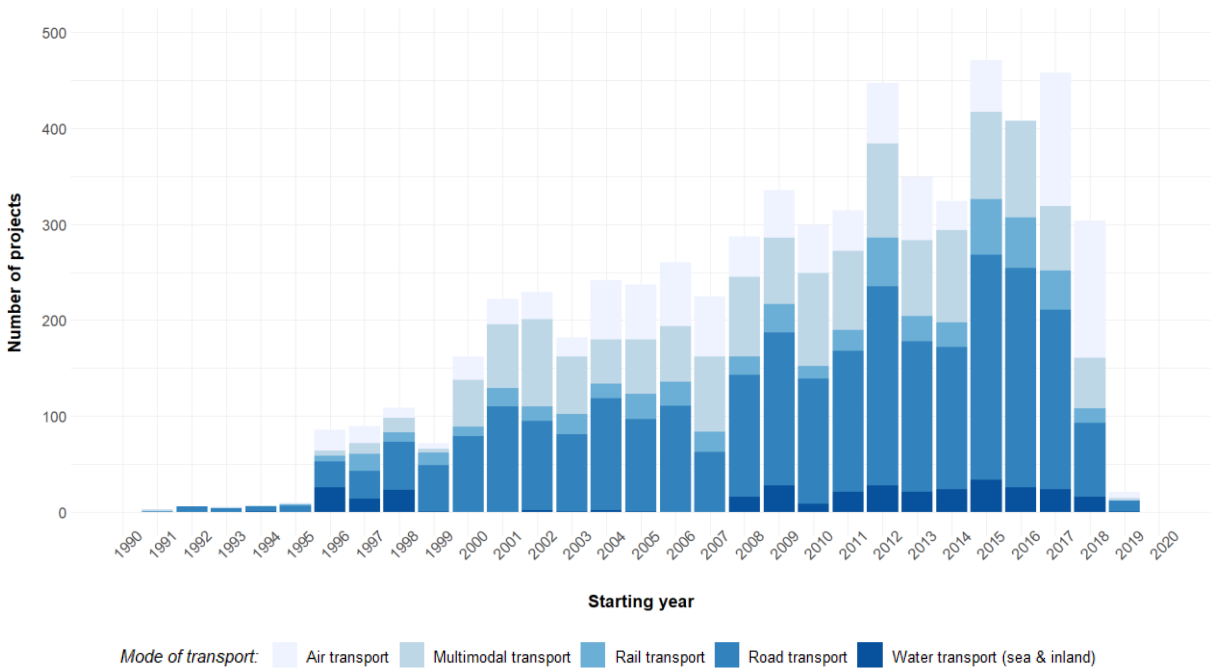
The data quality improved as well thanks to an audit and revision of projects from the legacy database 'TRIP' – Transport Research and Innovation Portal.

These developments make that TRIMIS can continue providing high-quality policy support studies and monitor the evolution of transport R&I.

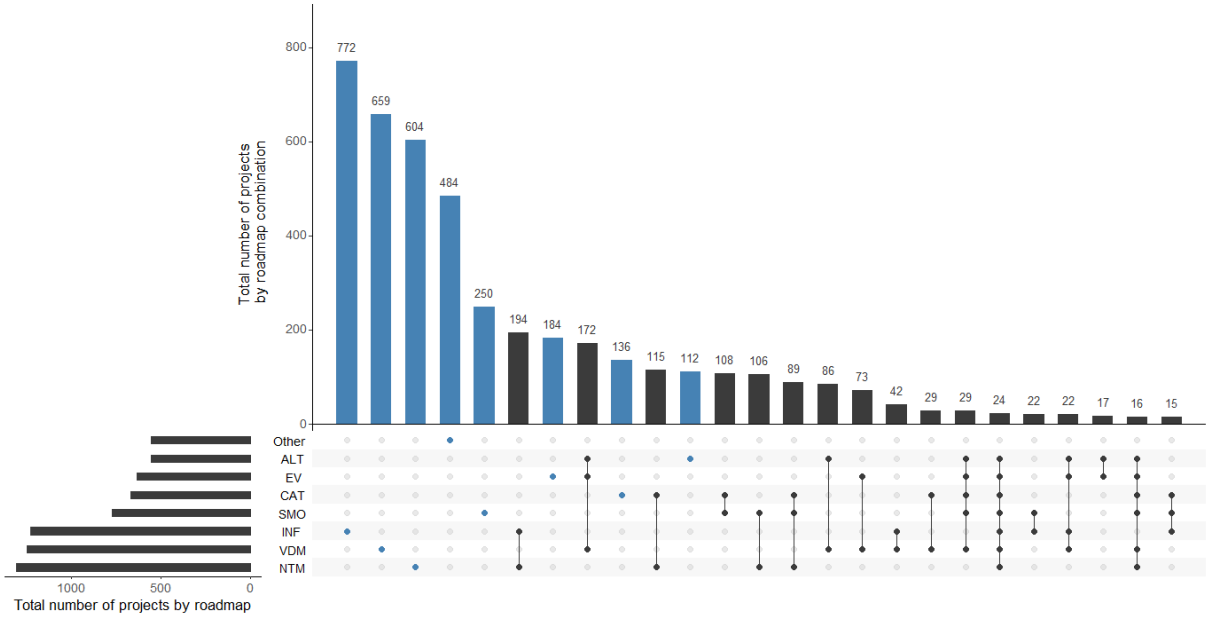
Main findings

The number of programmes in the TRIMIS database increased by 4.6% and the project list by 9.4% since the previous database assessment report in 2018. Renewed data collection efforts contributed to this growth. Most of the projects in the TRIMIS database remain funded by the European Institutions.

A clear rise in the number of projects is observed, as shown in the following figure. Interestingly, an increasingly larger number of aviation research projects is added, while road transport remains the mode on which most research projects are focused.



In addition to the analysis of projects by mode of transport, an analysis was done on the number of projects that are connected to each STRIA roadmap. The blue vertical bars concern projects that relate to one single roadmap, whereas the black vertical bars concern projects that link to two or more roadmaps.



(*) Alternative Energy (ALT); Electrification (EV); Vehicle Design & Manufacturing (VDM); Connected & Automated Transport (CAT); Smart Mobility (SMO), Network & Traffic Management (NTM), Infrastructure (INF).

Beyond projects and programmes, TRIMIS now offers dedicated information on organisations and technologies in the field of transport R&I, which enables a whole range of new analyses. This includes, for example, the identification of top R&I performers and the study of technology value chains.

New sources and data types enable TRIMIS to carry out a range of additional analyses and thus better support the transport R&I priority setting and policy making processes in STRIA. Additions include a systematic horizon scanning exercise and the collection of macro-level transport R&I statistics.

Related and future JRC work

In the upcoming years, the TRIMIS database will cover a larger number of projects, programmes and additional R&I related data. A renewed effort will be undertaken to retrieve information on national projects, while innovation implementation projects, such as those financed by the Connecting Europe Facility (CEF), will also be integrated.

Additionally, new data sources will be added, such as on patents and publications, aiming to improve TRIMIS' capabilities to monitor the progress of the STRIA roadmaps.

Quick guide

After the introduction, the main database developments of last year are discussed. A brief overview on the current status of the TRIMIS database is then provided, including information on projects, programmes, organisations, technologies, and macro-level statistics. Afterwards the upcoming developments are described, followed by the conclusions.

1 Introduction

The Transport Research and Innovation Monitoring and Information System (TRIMIS) was launched in September 2017 with the aim of supporting the implementation and monitoring of the Strategic Transport Research and Innovation Agenda (STRIA).

STRIA consists of seven roadmaps that lay down the current state and envisaged progress of different thematic fields, namely:

- Cooperative, connected and automated transport;
- Transport electrification;
- Vehicle design and manufacturing;
- Low-emission alternative energy for transport;
- Network and traffic management systems;
- Smart mobility and services; and
- Infrastructure.

Since its launch, TRIMIS has been continuously updated with new functionalities that improved its monitoring capabilities. This report looks back at those changes and presents the main developments (Chapter 2).

This report is also the follow-up of the previous database assessment report (Tsakalidis et al., 2018), and provides an updated overview of the status of transport Research and Innovation (R&I) in Europe (Chapter 3). Here it should be noted that several TRIMIS reports detailed the state of transport R&I in several thematic fields have been published over the last year (van Balen et al., 2018a, 2018b, 2019). This publication does not focus on a specific field, but offers instead a transversal view on the state of transport R&I across Europe.

A final contribution of this report is that information is provided on the future developments of the TRIMIS database (Chapter 4). This information puts the current steps into a broader perspective and allows the users of TRIMIS to anticipate on future work.

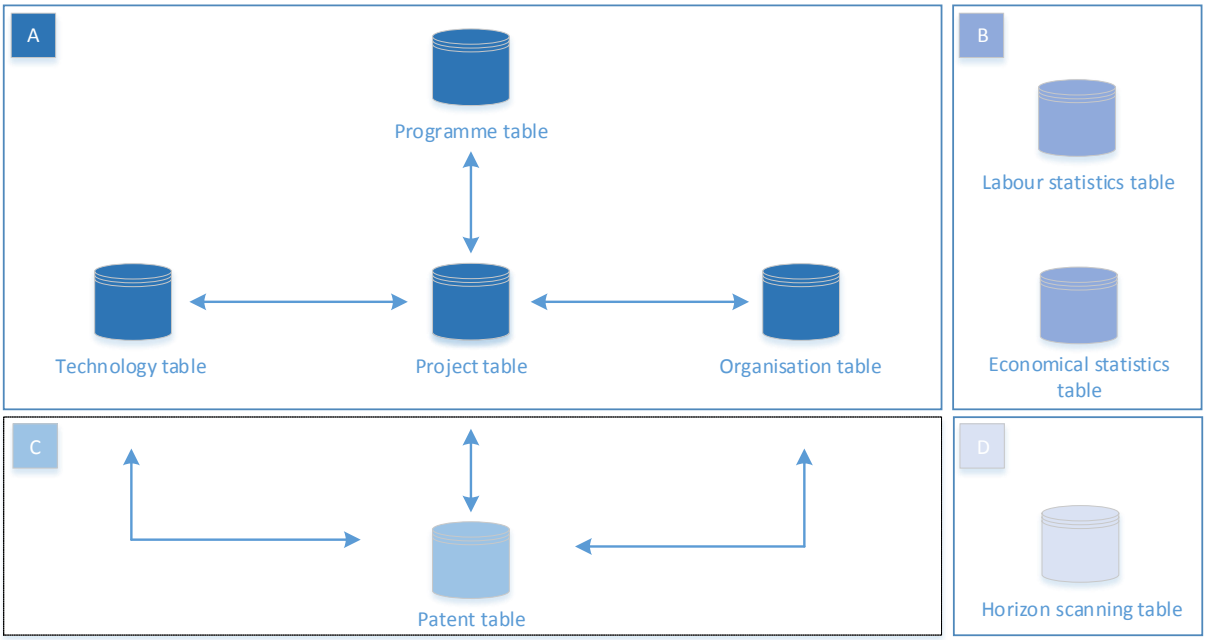
2 TRIMIS database: major updates

In line with the recommendations that were laid down in the previous database assessment report (Tsakalidis et al., 2018), several steps have been taken to improve the data quality of the database and to extent its scope to cover information on transport technologies and research organisations. This chapter expands on a few major developments that occurred over the last year.

2.1 Database structure

Since its launch, the TRIMIS database evolved from a single table with project and programme information into a relational database that incorporates information on several transport R&I dimensions. Figure 1 presents the TRIMIS database structure, highlighting four different fields (A, B, C, D) with eight different tables (project table, programme table, technology table, organisation table, labour statistics table, economical statistics table, patent table, horizon scanning table). The database structure provides an insight into TRIMIS' current and future analytical capabilities.

Figure 1. TRIMIS database structure



Field A covers the main tables with information on transport innovation projects, the programmes they belong to, the organisations that participate in them, and the technologies that are being developed. The tables are linked by the 'project id' key. A detailed description of the new technology and organisation tables is provided in the next chapter (sections 3.3 and 3.4).

Field B includes several data tables that were created for the macro-level innovation assessment reports (Grosso et al., 2019, 2018). They contain information on employment, public and private R&I expenditure, and general socio-economy country statistics. The tables in field B are not linked to any other field or table.

Field C is currently under development and contains patent data from PATSTAT, a worldwide patent statistical database created and maintained by the European Patent Office. The aim is to link patent information to the projects, technologies and organisation tables. Section 4.2 describes this in greater detail.

Field D, finally, contains all information that is gathered in the framework of the horizon scanning process, which aims to forecast developments that shall shape transport R&I. A large number of developments are described (section 3.6), including their impacts and

policy implications. The contents of this database are also described in a recent report (Tsakalidis et al., 2019).

2.2 Data quality improvement

Beyond the update of the database structure, steps were taken to improve the data quality of the existing projects. It was found that a large part of the projects that were migrated from the legacy TRIP (Transport Research and Innovation Portal) database were not properly classified according to the new STRIA roadmap themes.

For that reason, a relabelling exercise was initiated, covering the STRIA roadmap, mode of transport, transport sector and a new variable on the project's geographical orientation. Annex A provides the methodological background of this exercise. The outcome of this work is that the data is considerably more accurate and consistent than before.

2.3 Sources

Beyond extracting project information from dedicated research programmes, such as Horizon 2020 (H2020), TRIMIS also made efforts to include transport research projects funded by instruments that focus on technology implementation, including projects funded by the Connecting Europe Facility (CEF).

For example, 104 CEF projects have been included that focus on alternative energy for transport. These projects predominantly cover investments in new fuelling infrastructure across Europe. Given the novelty of this source in TRIMIS, Annex B is added with information on the scope and type of projects. The annex also provides information on H2020 funded transport energy related projects.

As shall be discussed in chapter 4, in the upcoming year efforts will be undertaken to integrate a larger number of technology implementation projects, financed by individual countries or through European financing instruments.

3 Assessment of transport R&I

The following sections provide insights into the current status of the TRIMIS database, and the lessons it provides on transport R&I. After describing the programmes and projects, information is given on transport R&I organisations and technologies. Subsequently, the macro-level and horizon scanning tables are discussed, together with the country fact-sheets.

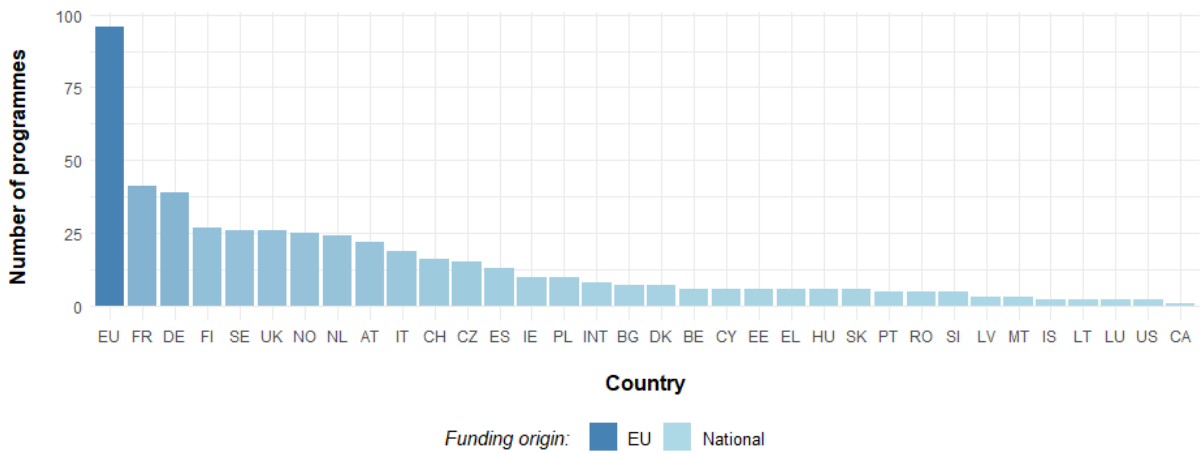
3.1 Programmes

Programmes act as an umbrella for several projects in a specific field of research. The largest programmes, are the European framework programmes (FP) such as H2020. Such programmes are often split into smaller sub programmes, to achieve greater focus.

An overview of all programmes in the TRIMIS database according to their funding origin is found in Figure 2, showing a total of 498 programmes, an increase of 4.6% compared to the previous database assessment report.

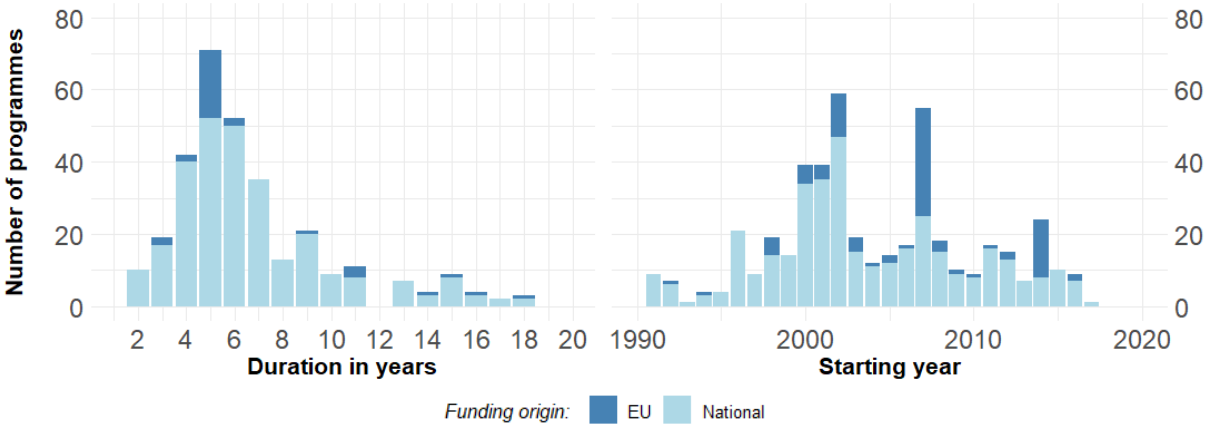
The largest number of programmes is funded by the European Institutions. The reason is twofold. Many programmes are launched each year by the European Institutions to support transport R&I. The high number is a natural reflection of this. At the same time, those programmes are also most easily observed. Programmes that are funded by individual countries are often less visible, partially because of language barriers, so that the numbers shown below are likely to be an underestimation.

Figure 2. Programme count by funding origin



Based on the programmes with complete information on the start and end date, the analysis in Figure 3 could be prepared. Most programmes last for five years, which holds particularly true for European funded programmes. For the starting year we see peaks in 2002, 2007 and 2014. This indeed highlights the starting year of new European framework programmes.

Figure 3. Programme count by duration, starting year and funding origin



It is interesting to see that the number of programmes actually decreased over time. A more focused approach in which more research projects are funded by one larger programme, is a possible explanation for this development.

3.2 Projects

TRIMIS collects a large amount of information on each project. The table below shows the fields in the project table, indicating which variables did not change compared to the previous database report, which variables were scrutinised to improve their quality, and which variables were added. It includes project identifiers (i.e. Nid/Vid/Cordis ID/Cordis RCN) and content related variables.

Table 1. Project table fields

Project table - field list					
#	Variable	status	#	Variable	status
1	Nid	o	25	Related Projects	o
2	Vid	o	26	Organisation	v
3	Cordis ID	~	27	EU Contribution	v
4	Cordis RCN	~	28	Partner Organisations	v
5	Title	o	29	Technologies	v
6	Project Acronym	o	30	Geo-spatial type	v
7	Original Language Title	o	31	Transport modes	~
8	Start date	o	32	Transport policies	0
9	End Date	o	33	Transport sectors	~
10	Website Title	o	34	STRIA Roadmaps	~
11	Website URL	o	35	CAT	~
12	Funding Origin	o	36	ALT	~
13	Funding Source(s)	o	37	EV	~
14	Parent Programmes	o	38	VDM	~
15	Programme Other	o	39	NTM	~
16	Other Countries	o	40	SMO	~
17	Programme (call for proposal)	o	41	INF	~
18	Total project cost (Euro)	o	42	Other	~
19	Total EU Contribution (Euro)	o	43	Published	o
20	Funding scheme	o	44	Created (Post) date	o
21	Background & policy context	o	45	Updated date	o
22	Objectives	o	46	Project Status	o
23	Methodology	o	47	Path	o
24	Key Results	o			

o = unchanged / ~ = data quality improved / v = new variable added

There are 6 782 projects within the TRIMIS database as of May 2019, an increase of 9.4% compared to last year's report. The previously mentioned relabelling exercise, made that a few projects were found to be duplicates or obsolete and were therefore omitted. Contrarily, new projects were continuously added. European projects are mostly retrieved through a data interchange with CORDIS. National projects are added through the national contact points and individual contributors. Projects are then evaluated and labelled on several dimensions, after which they are published.

European funded projects are still the largest group (see Figure 4). Several reasons explain this. For one, and similar to the discussion on programmes, the European Institutions are a major funder of transport R&I, making the results very plausible. Another reason relates to data availability issues. It is considerably more difficult to get a good view on transport R&I projects in 28 Member States, due to language and visibility issues. The TRIMIS database is therefore mostly reliant on the active involvement of national contact points to add project information.

Figure 4. Project count by funding origin

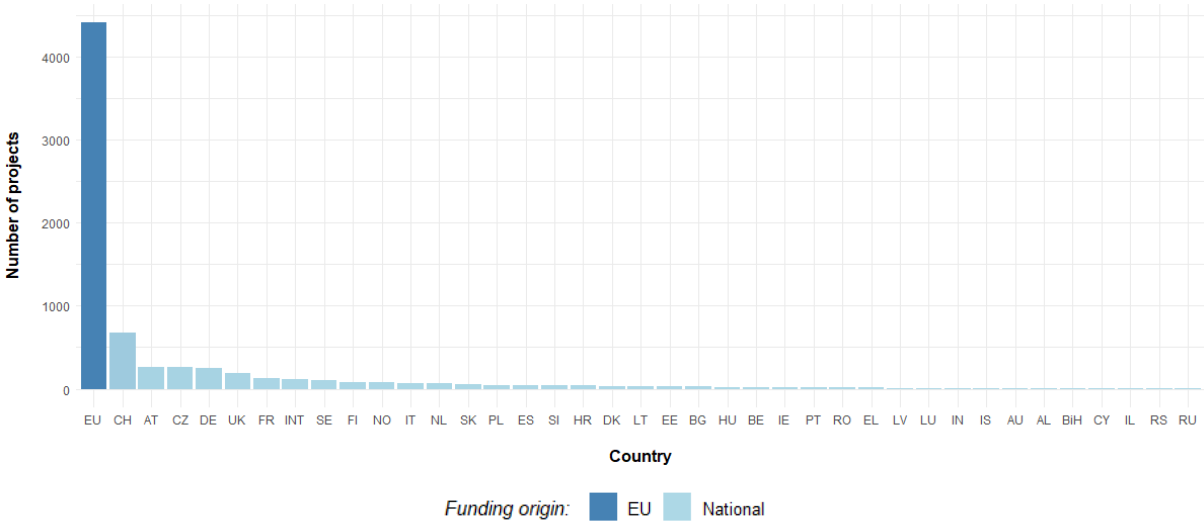
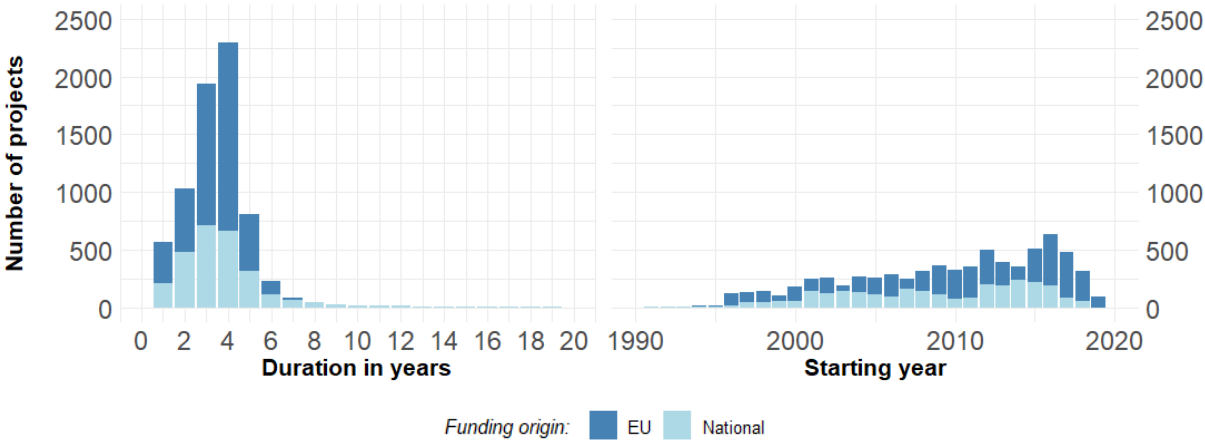


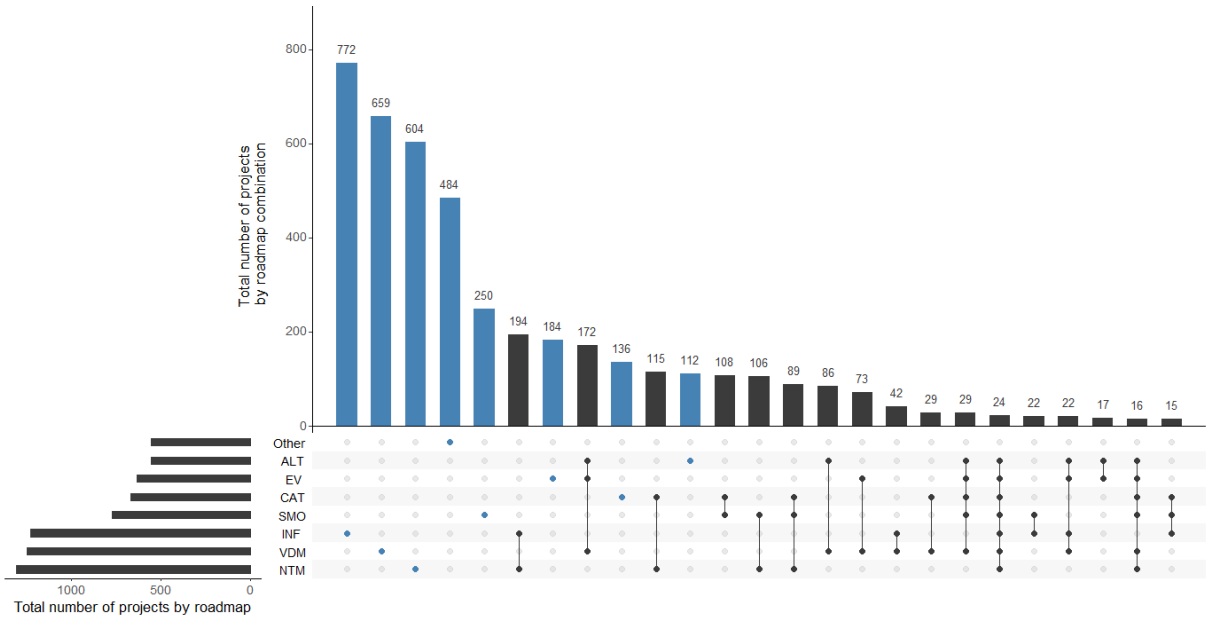
Figure 5 shows that most projects have a duration of 3 to 4 years. Contrarily to programmes, there is no specific starting year in which most projects start. Instead, a gradual increase of the number of projects is observed. This can be indicative both of an increasing number of research projects as it is of a better data coverage by the TRIMIS database over time.

Figure 5. Project duration, starting year and funding origin



All projects in the database are labelled on several variables, including the STRIA roadmap(s) to which the project pertains. Figure 6 shows the distribution of projects by roadmap, indicating the number of projects and to which roadmap/s they relate. The blue vertical bars concern projects that relate to one single roadmap, whereas the black vertical bars concern projects that link to two or more roadmaps.

Figure 6. Project counts by STRIA roadmap (*)

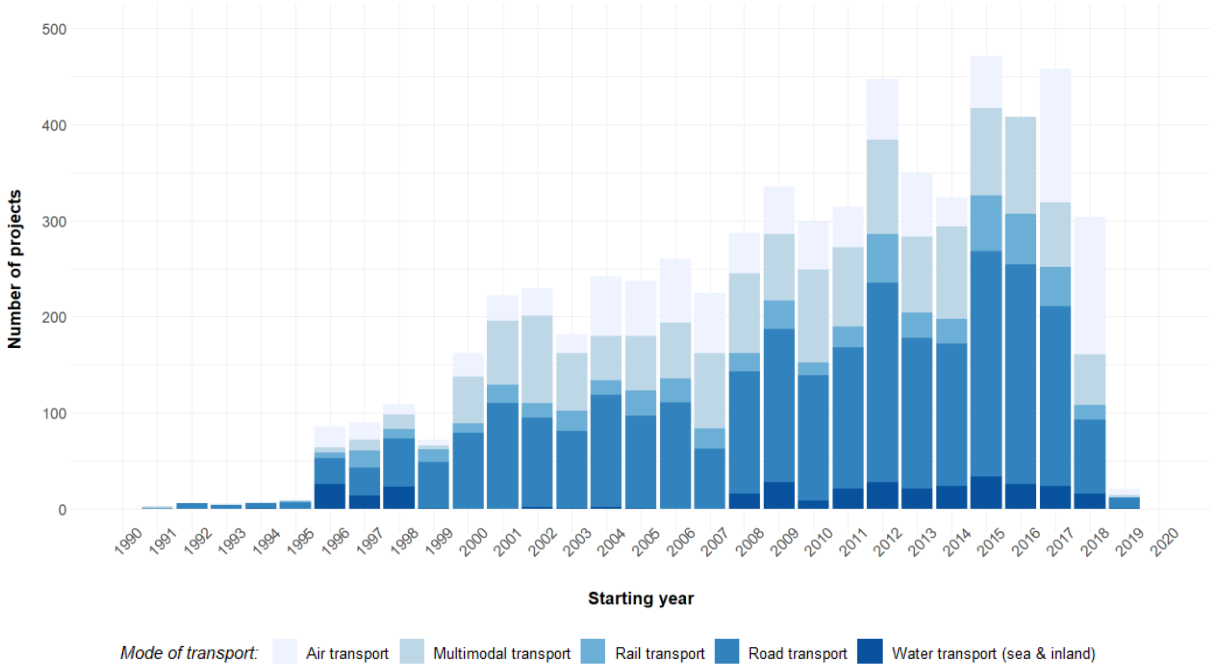


(*) Alternative Energy (ALT); Electrification (EV); Vehicle Design & Manufacturing (VDM); Connected & Automated Transport (CAT); Smart Mobility (SMO), Network & Traffic Management (NTM), Infrastructure (INF).

Most projects relate to the roadmap on Network and Traffic Management, followed by Vehicle Design and Manufacturing and Transport Infrastructure. The latter, actually, is the roadmap with most projects if no overlaps would be taken into account. The fact that the 'other' category is still relatively large relates to legacy projects (i.e. with a start date prior to 2000) that are difficult to label due to limited project information.

A final figure on projects, Figure 7, provides the number of projects by year and the mode of transport the research focuses on. Throughout time, road transport research remains the largest category whereas waterborne transport remains the smallest. Over the last years we also note an uptake in aviation research, which can be partially explained by the launch of the joint undertakings, such as the Single European Sky ATM Research Joint Undertaking, which fund research in this field.

Figure 7. Project count by starting year and mode of transport



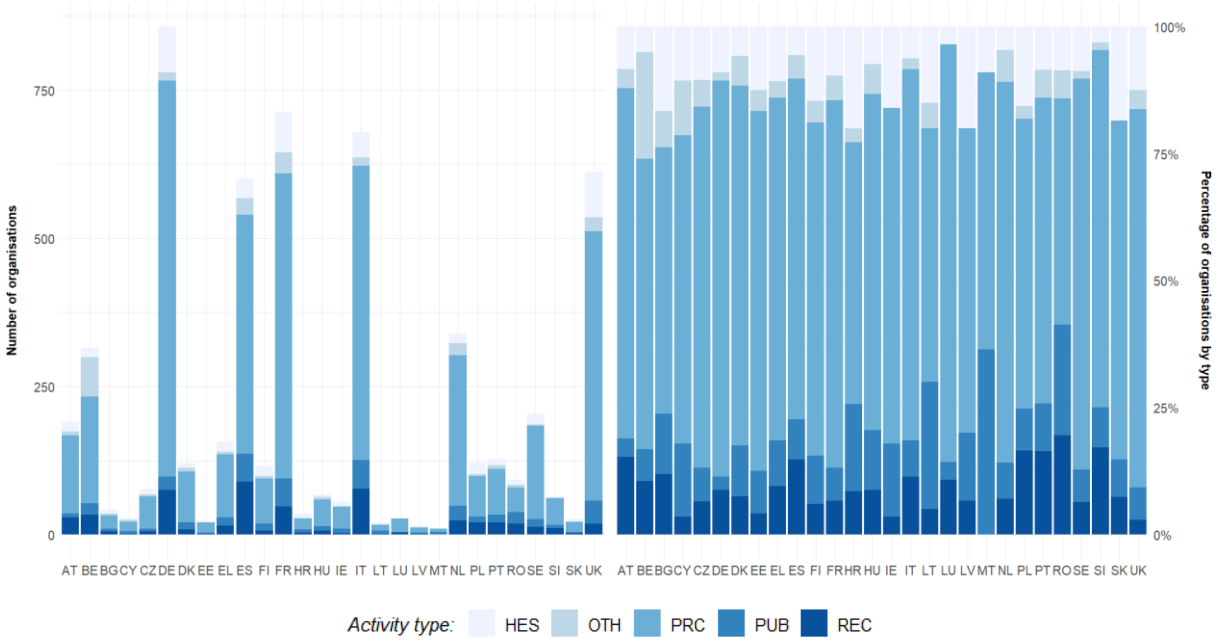
3.3 Organisations

As of this year, the TRIMIS database includes data on the organisations that execute the transport R&I projects. This information is useful for example for analyses on the geographical location of research activity and the characteristics of technology value chains.

The current analysis is limited by the fact that national projects typically do not provide information on participating organisations. Also, work is ongoing to clean this data table, so that potential duplicates and incorrect information will be omitted. The table is however sufficiently mature to share several insights.

Figure 8 provides an overview on the count of organisations by Member State (MS), providing information on the type of organisation as well. In absolute numbers, most organisations are located in Germany, followed by France and Italy. As seen on the right side of the figure, private organisations are the most common type of organisation in transport R&I projects across all countries. The prominence of education establishments, research organisations, and public organisations varies by nation.

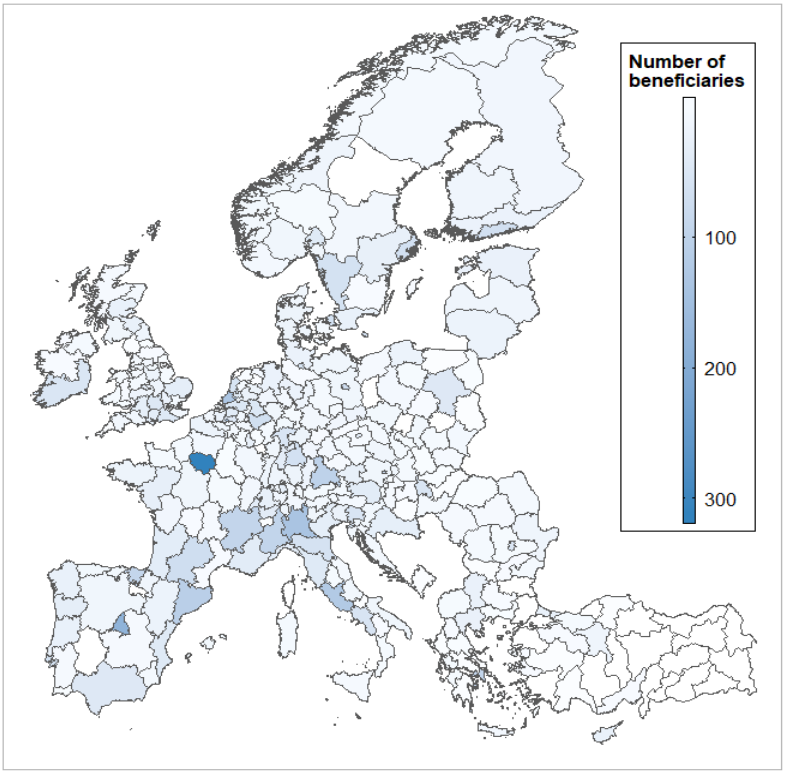
Figure 8. Organisation count by Member State and activity type, in absolute and relative terms



(*) Private companies (PRC); research organisations (REC); higher education establishments (HES); public sector (PUB); other (OTH).

Figure 9 focuses on a subset of organisations, namely those that received European (FP7 or H2020) funding. For those organisations the exact location is known, so that a geographic analysis could be performed on a regional level (i.e. NUTS2). Several observations can be made from the figure below.

Figure 9. Location of the beneficiaries of FP7 and H2020 transport funding

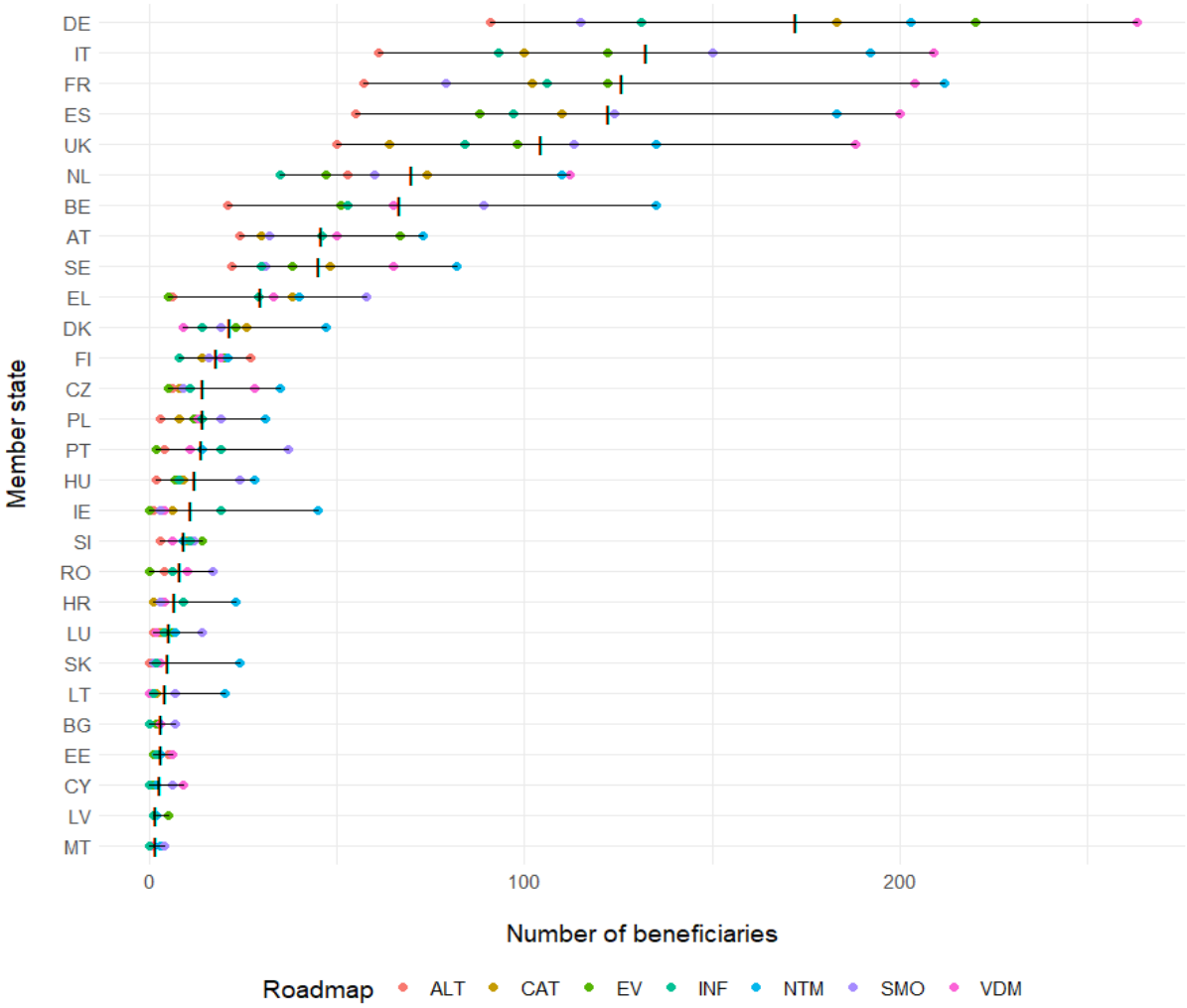


It appears that the Paris region counts most of the research organisations. To some extent, this can be explained because several organisations typically register their fiscal address in that region, while the research activity may be carried out elsewhere. At least

on paper, more research activities are therefore performed in the French capital. No other high outlier is further found. Instead, almost each European region has some organisations that participate in transport R&I.

Figure 10 expands on the above findings, by showing the number of beneficiaries by STRIA roadmap. Each dot represents a different roadmap, and the vertical bar indicates the country average. Beneficiaries are project participants, meaning that if one organisation participates in five different projects, it is counted five times.

Figure 10. Count of beneficiaries by STRIA roadmap (*)



(*) Alternative Energy (ALT); Electrification (EV); Vehicle Design & Manufacturing (VDM); Connected & Automated Transport (CAT); Smart Mobility (SMO), Network & Traffic Management (NTM), Infrastructure (INF).

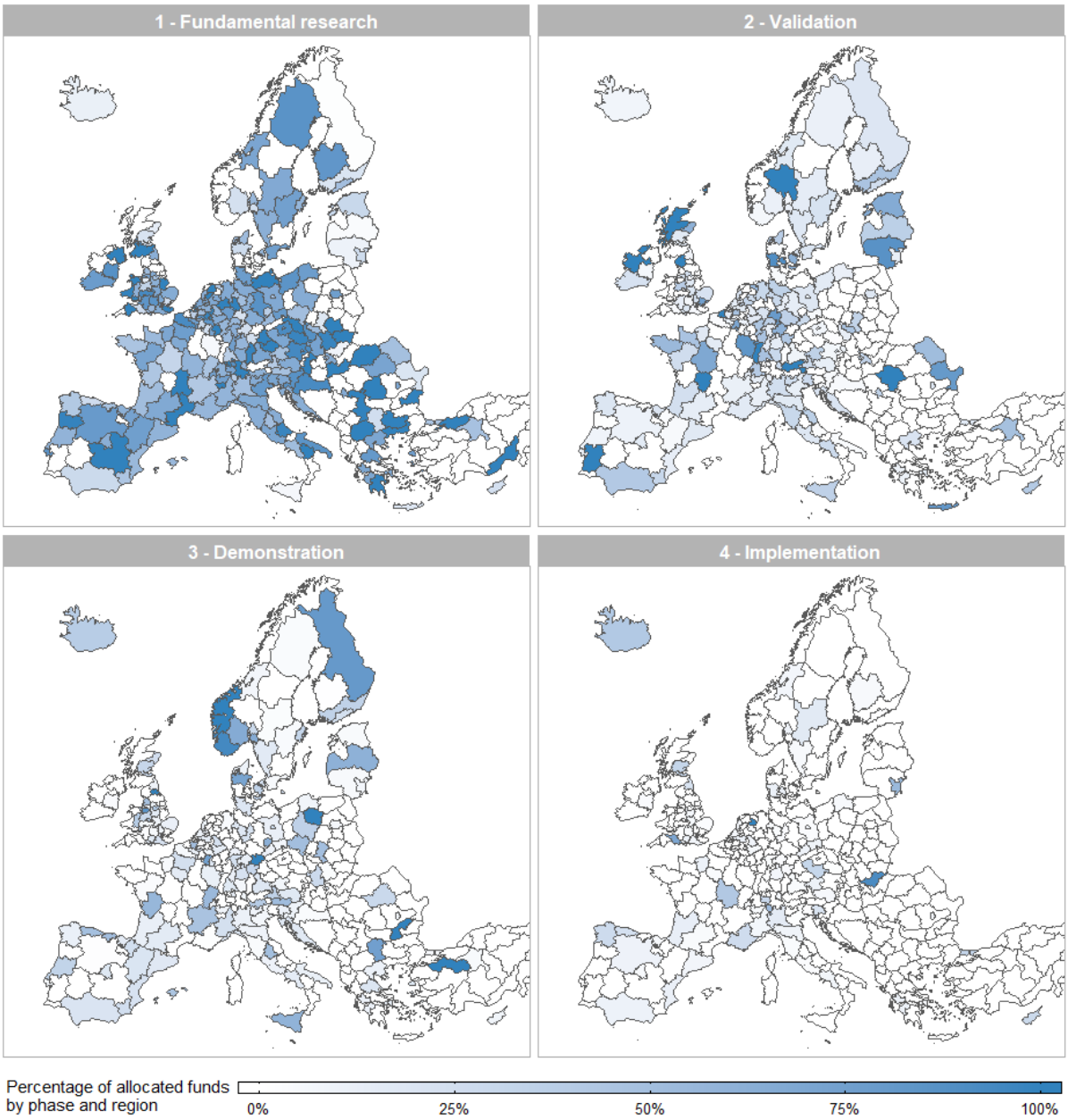
3.4 Technologies

Over the last year, efforts have been made to understand the technologies that are developed by transport R&I projects. A comprehensive methodology has been established, which led to the identification of 798 technologies developed by over 2 000 projects funded under FP7 and H2020. The technologies were assigned to themes, to facilitate the comparison and analysis of various fields of transport innovation (Gkoumas et al., 2019).

Interestingly, a technology development phase has been assigned to each project-technology combination. That way it becomes possible to analyse the progress of specific technologies and facilitate the understanding on how public funds promote innovation.

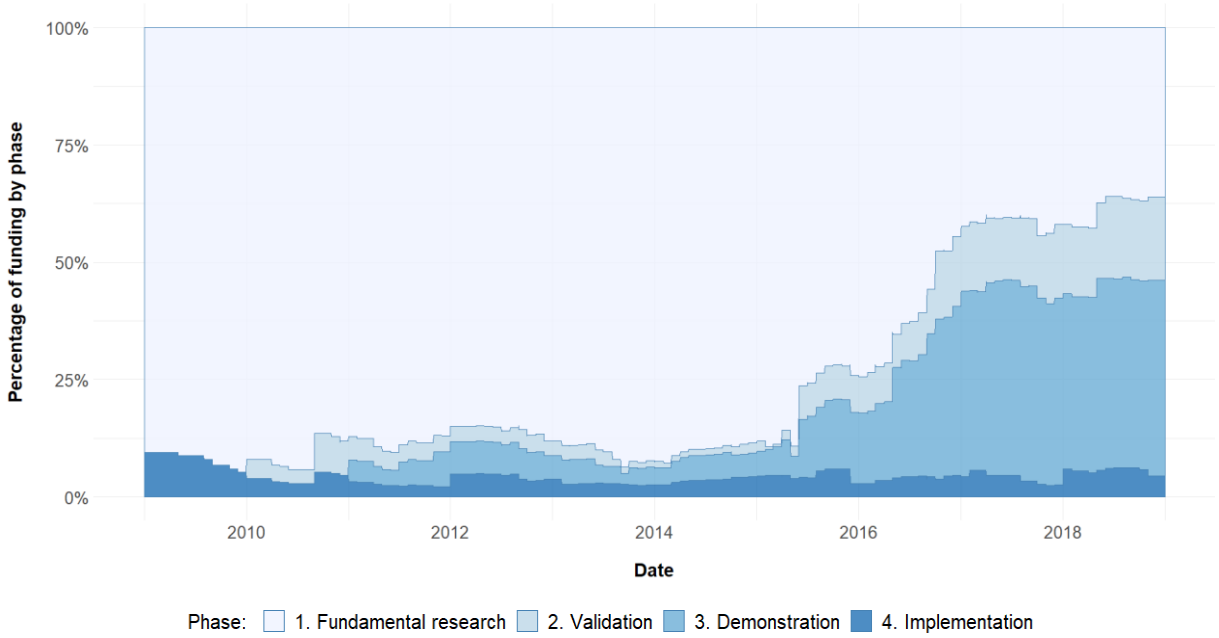
This information has consequently been linked to the project participant information, so that a clearer image can be created on what type of transport research occurs and where, as illustrated in Figure 11. More information on this methodology can be found in Gkoumas et al. (2019).

Figure 11. Regional share of transport research by research phase (FP7 and H2020)



Beyond geographical analyses of technology development, the data allows for longitudinal analysis on how certain technology themes evolve in terms of funding. From the example provided in Figure 12, it becomes clear that as the field of transport electrification matures, more research funds are directed towards validation and demonstration projects.

Figure 12. Evolution of transport research on electrification by research phase (FP7 and H2020)



For both figures it should be noted that the analysis is based on FP7 and H2020 projects. The design of the FPs makes that relatively fewer funds are assigned to implementation research projects, which is the domain of other instruments (e.g. several CEF Transport calls). More detailed technology analyses shall be found in the future assessment reports for the various STRIA roadmaps.

3.5 Macro-level statistics

As described in Grosso et al. (2018, 2019), TRIMIS now covers macro-level statistics on transport innovation. The information is used to draw a broader picture on transport innovation, beyond what can be told by the analysis of R&I projects in the TRIMIS database. Table 2 provides an overview of all indicators that are included and periodically updated. These indicators will be used for the KPI dashboard, which will show the progress of transport R&I for the various STRIA roadmaps.

Table 2. Macro-level indicators on transport innovation

Innovation aspect	Indicator	Data Source
Funding	Business expenditure on R&D (BERD)	Eurostat
Funding	Business R&D intensity	Eurostat
Funding	Total GBAORD by NABS 2007 socio-economic objectives	Eurostat
Funding	Total GBAORD as a % of total general government expenditure	Eurostat
Human Resources	Number of persons employed	Eurostat
Human Resources	Total R&D personnel in business enterprise	Eurostat
Human Resources	Total R&D personnel relative to total number of persons employed	Eurostat
Human Resources	Total R&D researchers in business enterprise	Eurostat
Transport Sector	Turnover	Eurostat
Transport Sector	Number of enterprises	Eurostat

Innovation aspect	Indicator	Data Source
Transport Sector	Personnel costs	Eurostat
Transport Sector	Value added at factor costs	Eurostat
Innovation engagement	Co-operation of the enterprises/ Enterprises engaged in cooperation in innovation	CIS
Innovation engagement	Patent applications to EPO	Eurostat
Innovation engagement	Public funding in the enterprise	CIS
Innovation engagement	Innovative enterprises	CIS
Innovation engagement	Product innovative enterprises only	CIS
Innovation engagement	Process innovative enterprises only	CIS
Innovation engagement	Organisational/marketing innovative enterprises only	CIS
Innovation engagement	Product and/or process AND organisation and/or marketing innovative enterprises only	CIS
Innovation engagement	Marketing innovative enterprises	CIS
Innovation engagement	Enterprises with service innovations	CIS
Innovation engagement	Total innovation expenditures in the enterprises	Eurostat/ CIS
Innovation barriers & benefits	Enterprises for which the lack of internal finance was a highly important barrier to innovate	CIS
Innovation barriers & benefits	Enterprises for which the lack of skilled employees within the enterprise was a highly important barrier to innovate	CIS
Innovation barriers & benefits	Enterprises for which the difficulties in obtaining government grants or subsidies was a highly important barrier to innovate	CIS
Innovation barriers & benefits	Enterprises for which the lack of collaboration partners was a highly important barrier to innovate	CIS
Innovation barriers & benefits	Environmental benefits due to innovation in the enterprises	CIS

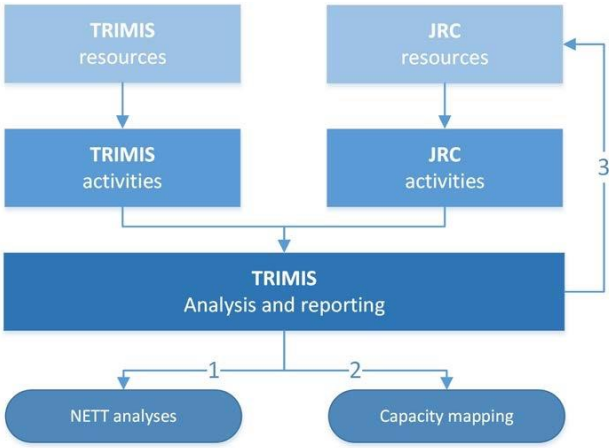
3.6 Horizon scanning

Part of TRIMIS' mission is to provide strategic foresight on transport R&I with the aim of establishing an anticipatory and adaptive culture in the field of transport R&I and EU transport research, providing useful insights for potential future developments to a range of stakeholders.

To this end a horizon scanning process has been put in place. Horizon scanning is one of the available foresight methods, allowing for a better preparation for future and emerging events. It is a structured, forward-oriented process that allows organisations to develop an anticipatory framework of conduct and be better prepared for potential changes that could involve significant opportunities or threats.

Horizon scanning relates to the other key TRIMIS outputs both as input for the assessment of new and emerging technologies and trends (as discussed in section 3.4) and supporting the identification of future research capacity needs and gaps. Additionally, it feeds back into the general JRC horizon scanning scheme providing more specific information on the future of transport, as presented in Figure 1. A detailed workflow of the TRIMIS horizon scanning workflow, interconnections and potential outputs can be found in Tsakalidis et al (2019).

Figure 13. TRIMIS horizon scanning process



Horizon scanning contributions need to have a reliable source, be concise and highlight elements with a potential future impact on transport, and by extension to the society and EU policy. TRIMIS horizon scanning contributions are prepared and stored following a common format presented in Table 1 and then forwarded through the appropriate channels to the JRC horizon scanning scheme. The table is maintained and updated on a weekly basis and gives important input to TRIMIS deliverables.

Table 3. Horizon scanning information sheet

Field	Description
HS_ID	Identification number of horizon scanning sheet
Item	Short indicator of issue/theme/technology/event/legislation
Keywords	Small number of identifying keywords/tags
Date	Track of last update
STRIA _RM	Identification of relevant STRIA roadmap(s) that will be impacted, or absence of relevant STRIA roadmap(s)
Mode of transport	Road/Rail/Water/Air or Multimodal
Relevant geography	Node/Urban/Flows/not applicable
Timescale	Short/medium/long term
Summary	Short summary of the issue/theme
Description	Why is this important and what is changing
Impacts	Possible future consequences or impacts
Policy implications	Contribution of technology, e.g. to achieve policy objectives
Importance rating	Significance of technology, etc. in light of policy objectives
Actors involved	Organisations that are, or need to be, involved to deliver the technology
Source	Source(s) of information

3.7 Country profiles

In addition to the database updates, efforts were made to synthesise information on a MS level to better understand the countries' role in transport innovation. Annex C lists

the profiles of the 28 MSs, providing project-level and macro-level insights into transport R&I. One fact sheet is provided in this section for illustrative purposes (Figure 14)

Importantly, the profiles bring together a large part of the information currently covered by the TRIMIS database, and showcase some of the insights that can be extracted from such a synthesis. The profiles also provide an indication on the extent to which national projects are included, the coverage of which varies strongly from one country to another.

Figure 14. TRIMIS country fact sheet

AUSTRIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	703
Government R&D expenditure (million EUR)	32
Enterprises engaged in cooperation in innovation (%)	44%

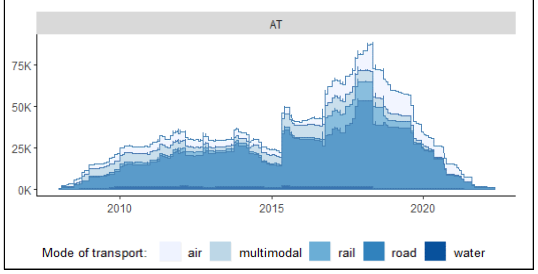
2) Transport R&D employment statistics	
Total jobs (thousands)	25
Male employment (%)	91%
Female employment (%)	9%
Permanent contract (%)	92%
Temporary contract (%)	8%
Age 15-29 (%)	37%
Age 30 - 49 (%)	35%
Age 50+ (%)	28%

3) Spatial distribution of FP7 & H2020 funds

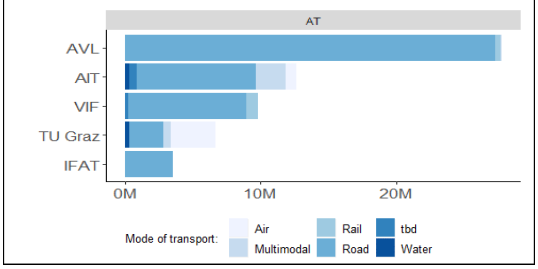
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	23	36	53	17	45	47	29
FP7 & H2020	Number of projects	53	86	108	38	97	46	48
	Number of beneficiaries	78	174	176	65	154	68	90
	Total amount (mEUR)	12.3	45.4	49.0	21.2	22.3	12.4	14.3

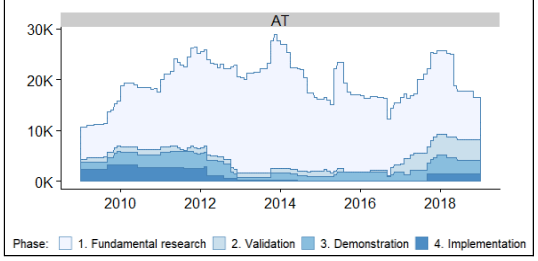
5) Evolution of daily funding by mode (EUR)



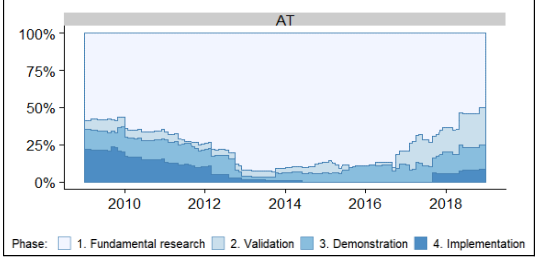
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



4 Future developments

TRIMIS continuously improves the quality of its outputs to support policymakers and researchers. For the coming year, four major improvements are anticipated.

4.1 STRIA KPIs

Part of TRIMIS' objective is to monitor the development of the STRIA roadmaps over time. For that reason, KPIs have already been developed for the CAT and SMO roadmaps. A set of KPIs is currently being developed for the other roadmaps, to enable a better understanding on the current status of R&I in each STRIA field, and which steps need to be made.

The KPI development runs in parallel with the STRIA working groups, whose feedback acts as critical input. The STRIA roadmaps that are not updated over the coming year will be assigned KPIs that are based on the previous roadmap. The interactive STRIA KPI dashboard is expected to be launched in Autumn 2019.

4.2 Patents

TRIMIS currently focuses on publicly funded research projects, but aims to provide additional insights into private investments and research outputs. For this, patent data provides a solid and well established source of information. Moreover, patent data is highly standardised and can be retrieved from different countries. As such, it enables comparative analyses on how Europe performs versus other transport R&I regions.

The JRC team working for TRIMIS collaborates with the JRC researchers behind the Strategic Energy Technologies Information System (SETIS) to gather information on transport patents. The SETIS team has extensive experience with patent-based innovation analysis (e.g. Georgakaki et al., 2018) and the collaboration makes that TRIMIS can rely on robust patent data and analyses.

Efforts will be made to link the patent data to existing information on projects, organisations and technologies, with the aim to map technology value chains. The interlinkages that are being established were depicted in Figure 1.

4.3 Publications

Publication data provides a rich source of information which shows where academic transport R&I occurs, and which direction it is heading. The data can provide a complementary perspective compared to project and patent based analysis.

Steps are made to use bibliometric analyses, based on the Scopus dataset, for the analysis of the various STRIA roadmaps. Similar to patent data, publications allow for the comparison of various countries and regions across the globe.

By linking project, patent and publication data, greater insights into transport R&I can be provided from development till implementation.

4.4 Data quality

Annex A described how projects were relabelled to improve the accuracy of project information within the TRIMIS database. Improving the quality of data is an ongoing effort, because new projects are continuously added. Also, imprecise or incomplete information can occur in the legacy projects within the database. The TRIMIS team together with external support, undertake continuous efforts to ensure the highest data quality. For the upcoming year, a quality check will be performed on the 'transport policies' variable to ensure that the information is consistent and robust.

5 Conclusions

This report provides an overview of the recent developments, current status and future steps of the TRIMIS database and the related analytical work in the R&I field.

It shows that the quality of the data improved thanks to relabelling efforts, and the coverage of transport R&I projects was extended by tapping into new data sources, including projects on innovation implementation. The number of programmes in TRIMIS increased by 4.6% and the project list by 9.4% since the last database assessment report in 2018.

It was observed that the database is still predominantly filled with European projects, although some Member States actively submit national research projects. Country specific information in Annex C clearly highlight these differences.

Beyond projects and programmes, TRIMIS now offers dedicated information on organisations and transport technologies, which enables a whole range of new analyses. This includes, for example, the identification of top R&I performers and the assessment of technology value chains.

The technology analysis, also discussed in Gkoumas et al. (2019), showed that most technology research under FP7 and H2020 focuses on fundamental research, but some regions are clearly more focused on validation and implementation research projects.

Beyond project data, new sources and data types were added that enable TRIMIS to better support the STRIA working groups. Additions include a systematic horizon scanning exercise and the collection of macro-level transport R&I statistics. Information on these data sources has recently been published in separate reports (Tsakalidis et al. 2019, Grosso et al., 2019).

During the upcoming year complementary data sources, such as patent and publication data, will be integrated to reinforce TRIMIS' analytical capabilities. These data sources will also support the development and measurement of KPIs for each of the STRIA roadmaps.

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List of abbreviations and definitions

AU	Austria
BA	Bosnia and Herzegovina
BE	Belgium
BG	Bulgaria
CA	Canada
CAT	Connected and Automated Transport
CEF	Connecting Europe Facility
CIS	Community Innovation Survey
CH	Switzerland
CY	Cyprus
CZ	Czechia
DE	Germany
DG MOVE	Directorate-General for Mobility and Transport
DG RTD	Directorate-General for Research and Innovation
DK	Denmark
EC	European Commission
EE	Estonia
ES	Spain
EU	European Union
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
INT	International
IS	Iceland
IT	Italy
JRC	Joint Research Centre
KPI	Key Performance Indicator
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
NO	Norway
NTM	Network and Traffic Management

PL	Poland
PT	Portugal
R&I	Research and Innovation
RO	Romania
RS	Serbia
SE	Sweden
SETIS	Strategic Energy Technologies Information System
SI	Slovenia
SK	Slovakia
STRIA	Strategic Transport Research and Innovation Agenda
TEN-T	Trans European Transport Network
TRIMIS	Transport Research and Innovation Monitoring and Information System
TRIP	Transport Research and Innovation Portal
UK	United Kingdom
USA	United States of America
VDM	Vehicle Design and Manufacturing

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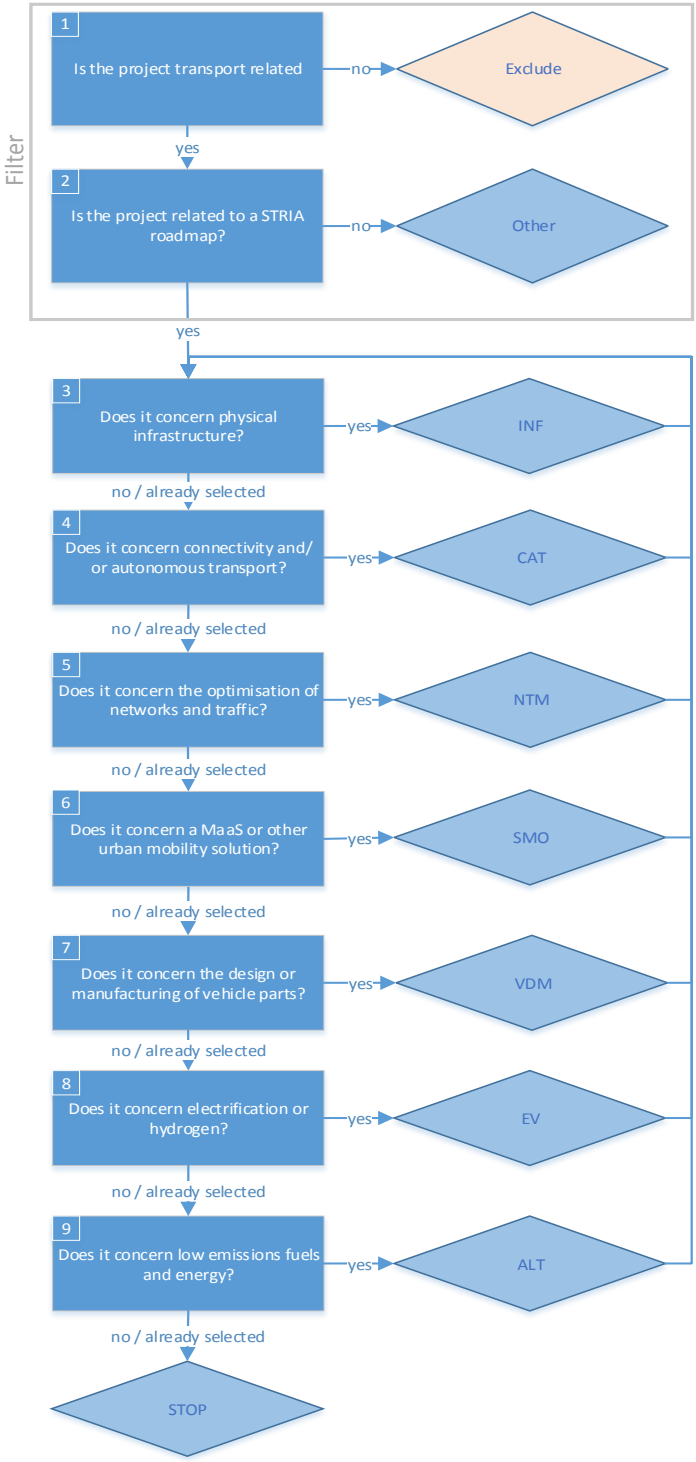
Annex A – Relabelling methodology

Over 1 800 projects under H2020 and FP7 were relabelled by the TRIMIS team, whereas 3 600 other projects were relabelled by a contractor. The remaining projects that were not coded were predominantly older ones, with a start date before 2000, and had too little information to be reassessed. A relabelling scheme was developed (see figure below) along with some methodological guidelines.

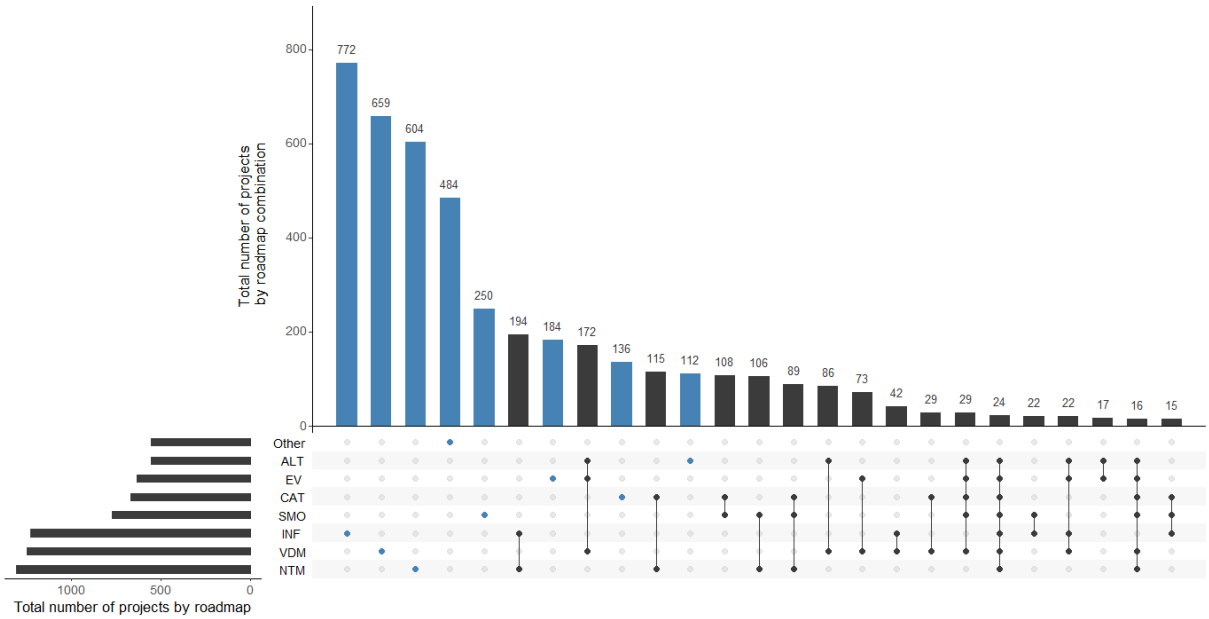


This retagging exercise mainly consisted of reading all the information available such as a description of the project, methodology and results, and selecting the right features. Since some interpretation is needed, it is challenging to have a full agreement on all the features. The relabelling reliability in the team hovered between a respectable 85% and

90%, depending on the variable, which proves a high percentage of agreement and therefore a better data quality.

Considering that the labelling is dependent on both interpretation and the information that is available on a project, it is likely that a few minor corrections might need to be done in the future. It is therefore important to mention that the TRIMIS team and external contributors' correct inaccuracies directly in the database when they are spotted, constantly improving the quality of the data available.

After the relabelling exercise, the number of projects for each STRIA roadmap has changed. Also, the number of projects that fall under one or more STRIA roadmaps altered drastically. Figure 2 gives an overview on the current state of affairs on the most common combinations. The blue bars indicate the projects that link to only one STRIA roadmap, whereas the black bars indicate projects that align with two or more STRIA roadmaps.



Alternative Energy (ALT); Electrification (EV); Vehicle Design & Manufacturing (VDM); Connected & Automated Transport (CAT); Smart Mobility (SMO), Network & Traffic Management (NTM), Infrastructure (INF).

The updated project information is used for analyses and project reports, since the publication of the Smart Mobility and Services capacity report (van Balen et al., 2018b).

Annex B – Transport energy projects in TRIMIS

CEF PROJECTS	
Name/description of the project	**Project Code**
Pilot deployment of a smart (bio-)LNG/CNG network in Flanders, investigating an innovative 'mobile CNG pipeline' concept	2014-BE-TM-0170-S
Watertruck+	2014-BE-TM-0578-S
Decarbonised passenger transport at European airports	2014-DE-TM-0105-S
RIO Railway Infrastructure Optimisation - Deployment of an innovative rail infrastructure-vehicle interface system	2014-DE-TM-0414-S
Viability analysis on the harmonization of common data type categories for the road and public transport network (HARMONY)	2014-ES-TM-0674-S
CLEANPORT - Alternative Fuels and Solutions for Port's Cold-Ironing: Standardisation of Regulatory Framework and Demonstration of Feasible Exploitation	2014-ES-TM-0711-S
FAST-E (DE/BE)	2014-EU-TM-0196-S
Pilot implementation of an Upper Rhine traffic management platform	2014-EU-TM-0210-S
Connecting Hydrogen Refuelling Stations (COHRS)	2014-EU-TM-0318-S
GREAT (Green Region for Electrification and Alternatives fuels for Transport)	2014-EU-TM-0477-S
Planning, construction, demonstration and market roll-out of small-scale liquefaction and supply facility for Liquefied Biogas (LBG) as alternative fuel for the transport sector	2014-EU-TM-0503-S
UNIT-E	2014-EU-TM-0579-M
Connect2LNG	2014-EU-TM-0630-S
H2Nodes – evolution of a European hydrogen refuelling station network by mobilising the local demand and value chains	2014-EU-TM-0643-S
e-Freight Implementation Action (e-Impact)	2014-EU-TM-0686-S
Boosting Energy Sustainable fuels for freight Transport in European motorWays (BESTWay)	2014-EU-TM-0729-S
CORE LNGas hive - Core Network Corridors and Liquefied Natural Gas	2014-EU-TM-0732-S
FAST-E (SK/CZ)	2014-EU-TMC-0568-S
Development of LNG/L-CNG network in Finland	2014-FI-TA-0119-S
EAS-HyMob	2014-FR-TA-0519-S
BioMovLNG	2014-FR-TM-0031-W
PAN-LNG Project	2014-HU-TMC-0629-M
Breakthrough LNG deployment in Inland Waterway Transport	2014-NL-TM-0394-S
Study optimizing the functioning and deployment of alternative fuel stations of the TENT-T core network	2014-PL-TMC-0220-S
Study of Innovative Natural Gas Solutions for Road Transport in North West Europe with Pilot Deployment in UK and Netherlands	2014-UK-TM-0388-S
EV Fast Charging Backbone Network Central Europe	2015-CZ-TM-0357-S
LNG for shipping and logistics in Europe	2015-DE-TM-0376-M
Deployment of autogas refuelling stations in different metropolitan areas between Spain and Portugal	2015-ES-TM-0030-W
SiLNGT Small Scale TRANSPORT	2015-EU-TM-0104-S
The Causeway Study - Impact of CNG on the Irish Gas Network	2015-EU-TM-0186-S
EAST-E	2015-EU-TM-0204-S
Creation of LNG road HAulage MArket in a smart & quick way	2015-EU-TM-0292-S
Models for Economic Hydrogen Refuelling Infrastructure	2015-EU-TM-0316-S
ULTRA-E	2015-EU-TM-0367-S
LNG Logistics	2015-EU-TM-0404-S
CIRVE Project	2015-EU-TM-0409-S
EVA+ (Electric Vehicles Arteries in Italy and Austria)	2015-EU-TM-0415-S
Masterplan for OPS in Spanish ports	2015-EU-TM-0417-S
LNG motion: Fuelling trucks with LNG/CNG along the core network	2015-EU-TM-0422-S
CNG Clean Fuel Box Project	2015-HU-TM-0315-M
PAN-LNG-4-DANUBE	2015-HU-TM-0349-M

CEF PROJECTS	
Name/description of the project	**Project Code**
Deployment of autogas refuelling stations in different metropolitan areas between Spain and Portugal	2015-PT-TM-0031-W
CIRVE_PT	2015-PT-TM-0433-S
CNG ROMANIA: Initial Market Deployment of a Refuelling Station Network along the Core Network Corridors	2015-RO-TM-0373-M
Early Warning Intelligent System for Road Transportation Risks	2015-RO-TM-0435-W
NCE-FastEvNet	2015-SK-TM-0320-S
LNGAFT - Liquefied natural gas as alternative fuel for transport	2015-SK-TM-0348-S
Shifting Freight2Rail – Innovative international TT process and increased real time t&t for customer satisfaction	2016-AT-TM-0043-S
CEZ EV TEN-T Fast Charging Network	2016-CZ-TMC-0296-S
HYBRID-INFRA-RAIL - Deployment of hybrid systems for rail infrastructure to reduce energy consumption by 30%	2016-DE-TM-0002-S
LNG4Trucks	2016-DE-TM-0332-S
STUDY ON A PILOT CNG FILLING STATION NETWORK ACROSS THE GREEK PART OF THE ORIENT EAST MEDITERRANEAN ROAD CORRIDOR	2016-EL-TM-0227-S
FPSII. Advanced deployment of innovative solutions to improve railway traffic management & operation on the Core Network	2016-ES-TM-0058-S
Demonstration study of infrastructure associated with an innovative LNG traction solution in railway operation	2016-ES-TM-0125-S
High speed electric mobility across Europe	2016-EU-TM-0121-W
ECO-GATE: European COrridors for natural GAs Transport Efficiency	2016-EU-TM-0126-S
H2Benelux	2016-EU-TM-0175-S
BENEFIC	2016-EU-TM-0277-S
E-VIA – FLEX-E mobility in ES, FR, IT	2016-EU-TM-0337-S
Comprehensive fast-charging corridor network in South East Europe	2016-EU-TMC-0344-W
NEXT-E	2016-EU-TMC-0350-S
GAINN4MED	2016-IT-TM-0284-S
BIOLNG4EU	2016-NL-TM-0339-S
The construction of a pilot docking station, as a part of an LNG distribution system based on cryogenic tank containers	2016-PL-TM-0268-S
LEM project – pilot implementation of electromobility along the TEN-T base network	2016-PL-TM-0281-S
Nordic Hydrogen Corridor: zero emission transport between the capitals of the Nordic countries with fuel cell vehicles	2016-SE-TM-0242-S
fueLCNG	2016-SK-TMC-0235-S
NCE-AdvancedEvNet	2016-SK-TMC-0317-S
LBG: Fuelling Renewable Transport in the Visegrad countries	2016-SK-TMC-0320-S
LNG Rollout in Central Europe - for a greener transportation sector	2017-DE-TM-0040-W
EUROP-E: European Ultra-Charge Roll Out Project - Electric	2017-DE-TM-0064-W
Biohybrid-Market rollout of sustainable small-scale solution supplying LBG as alternative fuel for heavy-duty transport	2017-DE-TM-0126-W
H2Bus Europe	2017-DK-TM-0083-W
EG LNG bunker vessel	2017-EE-TM-0079-W
SuperGreen (SG)	2017-EL-TM-0048-W
LNGHIVE2 Infrastructure and logistics solutions	2017-ES-TM-0156-W
GAINN4MID -GAINN for Mobile Infrastructure Deployment	2017-EU-TM-0062-W
Central European Ultra Charging	2017-EU-TM-0065-W
MEGA-E: Metropolitan Greater Areas - Electric	2017-EU-TM-0068-W
BioLNG EuroNet	2017-EU-TM-0080-W
LNGHIVE2 vessels demand: green and smart links - LNG solutions for smart maritime links in Spanish Core ports	2017-EU-TM-0147-W
MULTI-E: Multiple Urban and Long-distance Transport Initiatives – Electric and CNG	2017-EU-TM-0165-W
EU Green Loop	2017-EU-TM-0169-W

CEF PROJECTS	
Name/description of the project	**Project Code**
Nordic LNG/CNG - Decarbonisation of the Core Network by deployment of alternative fuel refuelling infrastructure	2017-FI-TM-0074-W
Blue Stations Network	2017-FR-TM-0034-W
Zero Emission Valley	2017-FR-TM-0052-W
LAST MILE	2017-FR-TM-0109-W
CORRI-DOOR²	2017-FR-TM-0111-W
Seven Europe Network	2017-FR-TM-0112-W
Olympic Energy: Tipping the scale towards Bio-CNG for European Transport starts in TEN-T Core Urban Node Paris!	2017-FR-TM-0117-W
Green Connect - A Public CNG Network	2017-IE-TM-0141-W
CRE8: Creating the station of the future	2017-IT-TM-0106-W
AMBRA-E lectrify Europe	2017-IT-TM-0110-W
Snam 4 Mobility - retail LNG network development	2017-IT-TM-0113-W
Port-Liner, "zero emission" ships for inland waterways	2017-NL-TM-0056-W
ACCEL BARGE: Accelerated Electrification of Inland Waterways	2017-NL-TM-0140-W
Zero emission public transport services for Schiphol Amsterdam Airport and along the core corridors.	2017-NL-TM-0143-W
PURE H2 - Hydrogen Purifying Unit and Filling Infrastructure	2017-PL-TM-0157-W
Building a charging infrastructure for electric vehicles in order to decarbonize public transport in Warsaw	2017-PL-TM-0164-W
Svealand Public Transport infrastructure roll-out for biogas and electric buses	2017-SE-TM-0153-W
Multimodal e-mobility connectivity for the Öresund Region (MECOR)	2014-EU-TM-0213-M
Low-noise and low-carbon freight delivery for Postal Operators to ensure last mile connections through optimized urban and long distance transport (POSTLowCIT)	2015-ES-TM-0239-S
URBAN-E: e-Mobilty, Infrastructure and Innovative Intermodal Services in Ljubljana, Bratislava and Zagreb	2016-EU-TMC-0351-S
REMETBUS2 Rotterdam	2017-NL-TM-0060-W

H2020 PROJECTS		
Acronym	**Name**	**Call for proposal**
eForFuel	Fuels from electricity: de novo metabolic conversion of electrochemically produced formate into hydrocarbons	H2020-LCE-2017-RES-RIA-TwoStage
Photofuel	Biocatalytic solar fuels for sustainable mobility in Europe	H2020-LCE-2014-1
SUN-TO-LIQUID	SUNlight-to-LIQUID: Integrated solar-thermochemical synthesis of liquid hydrocarbon fuels	H2020-LCE-2015-1-two-stage
ADVANCEFUEL	Facilitating market roll-out of RESfuels in the transport sector to 2030 and beyond	H2020-LCE-2017-RES-CSA
Bin2Grid	Turning unexploited food waste into biomethane supplied through local filling stations network	H2020-LCE-2014-3
BIOSURF	BIOmethane as SUstainable and Renewable Fuel	H2020-LCE-2014-3
greenGain	Supporting Sustainable Energy Production from Biomass from Landscape Conservation and Maintenance Work	H2020-LCE-2014-3
BECOOL	Brazil-EU Cooperation for Development of Advanced Lignocellulosic Biofuels	H2020-LCE-2016-RES-IA
ButaNexT	Next Generation Bio-butanol	H2020-LCE-2014-1
COMSYN	Compact Gasification and Synthesis process for Transport Fuels	H2020-LCE-2016-RES-CCS-RIA
Heat-To-Fuel	Biorefinery combining HTL and FT to convert wet and solid organic, industrial wastes into 2nd generation biofuels with highest efficiency	H2020-LCE-2017-RES-CCS-RIA
HyFlexFuel	Hydrothermal liquefaction: Enhanced performance and feedstock flexibility for efficient biofuel production	H2020-LCE-2017-RES-CCS-RIA
MacroFuels	Developing the next generation Macro-Algae based biofuels for transportation via advanced bio-refinery processes	H2020-LCE-2015-1-two-stage
STEELANOL	Production of sustainable, advanced bio-ethANOL through an innovative gas-fermentation process using exhaust gases emitted in the STEEL industry	H2020-LCE-2014-2
TORERO	TORrefying wood with Ethanol as a Renewable Output: large-scale demonstration	H2020-LCE-2016-RES-IA
TO-SYN-FUEL	The Demonstration of Waste Biomass to Synthetic Fuels and Green Hydrogen	H2020-LCE-2016-RES-IA
WASTE2FUELS	Sustainable production of next generation biofuels from waste streams	H2020-LCE-2015-1-two-stage
BioMates	Reliable Bio-based Refinery Intermediates	H2020-LCE-2016-RES-CCS-RIA
FLEDGED	FLExible Dimethyl ether production from biomass Gasification with sorption-enhancED processes	H2020-LCE-2016-RES-CCS-RIA
FReSMe	From residual steel gasses to methanol	H2020-LCE-2016-RES-CCS-RIA
FlexiFuel-SOFC	Development of a new and highly efficient micro-scale CHP system based on fuel-flexible gasification and a SOFC	H2020-LCE-2014-1
ENERGISE	European Network for Research, Good Practice and Innovation for Sustainable Energy	H2020-LCE-2016-RES-CCS-RIA
GOFLEX	Generalized Operational FLEXibility for Integrating Renewables in the Distribution Grid	H2020-LCE-2016-SGS
InteGrid	Demonstration of INTElligent grid technologies for renewables INTEgration and INTEractive consumer participation enabling INTEroperable market solutions and INTErconnected stakeholders	H2020-LCE-2016-SGS
inteGRIDy	integrated Smart GRID Cross-Functional Solutions for Optimized Synergetic Energy Distribution, Utilization Storage Technologies	H2020-LCE-2016-SGS
InterFlex	Interactions between automated energy systems and Flexibilities brought by energy market players	H2020-LCE-2016-SGS
INVADE	Smart system of renewable energy storage based on	H2020-LCE-2016-SGS

H2020 PROJECTS		
Acronym	**Name**	**Call for proposal**
	INtegrated EVs and bAtteries to empower mobile, Distributed and centralised Energy storage in the distribution grid	
MIGRATE	Massive InteGRATion of power Electronic devices	H2020-LCE-2015-3
WiseGRID	Wide scale demonstration of Integrated Solutions and business models for European smartGRID	H2020-LCE-2016-SGS
GrowSmarter	GrowSmarter	H2020-SCC-2014
mySMARTLife	Smart Transition of EU cities towards a new concept of smart Life and Economy	H2020-SCC-2016
REMOURBAN	REgeneration MOdel for accelerating the smart URBAN transformation	H2020-SCC-2014
REPLICATE	REnaissance of Places with Innovative Citizenship and TEchnolgy	H2020-SCC-2015
RUGGEDISED	Rotterdam, Umea and Glasgow: Generating Exemplar Districts In Sustainable Energy Deployment	H2020-SCC-2016
SHAR-LLM	Sharing Cities	H2020-SCC-2015
SmartEnCity	Towards Smart Zero CO2 Cities across Europe	H2020-SCC-2015
SMARTER TOGETHER	Smart and Inclusive Solutions for a Better Life in Urban Districts	H2020-SCC-2015
Triangulum	Triangulum: The Three Point Project / Demonstrate. Disseminate. Replicate.	H2020-SCC-2014
ELSA	Energy Local Storage Advanced system	H2020-LCE-2014-3
EnergyKeeper	Keep the Energy at the right place!	H2020-LCE-2016-SGS
NETFFICIENT	Energy and economic efficiency for today's smart communities through integrated multi storage technologies	H2020-LCE-2014-3
SHAR-Q	Storage capacity sharing over virtual neighbourhoods of energy ecosystems	H2020-LCE-2016-SGS
Storage4Grid	Storage4Grid	H2020-LCE-2016-SGS
STOREandGO	Innovative large-scale energy STOragE technologies AND Power-to-Gas concepts after Optimisation	H2020-LCE-2015-3
STARDUST	HOLISTIC AND INTEGRATED URBAN MODEL FOR SMART CITIES	H2020-SCC-2017
IRIS	Integrated and Replicable Solutions for Co-Creation in Sustainable Cities	H2020-SCC-2017
MAtchUP	MAximizing the UPscaling and replication potential of high level urban transformation strategies	H2020-SCC-2017
SMILE	SMart IsLand Energy systems	H2020-LCE-2016-SGS
REWOFUEL	REsidual soft WOod conversion to high characteristics drop-in bioFUELs	H2020-LCE-2017-RES-IA
REDIFUEL	Robust and Efficient processes and technologies for Drop In renewable FUELs for road transport	H2020-LC-SC3-2018-RES-SingleStage
BIO4A	Advanced sustainable BIOfuels for Aviation	H2020-LCE-2017-RES-IA
KEROGREEN	Production of Sustainable aircraft grade Kerosene from water and air powered by Renewable Electricity, through the splitting of CO2, syngas formation and Fischer-Tropsch synthesis	H2020-LCE-2017-RES-RIA-TwoStage
FlexJET	Sustainable Jet Fuel from Flexible Waste Biomass	H2020-LCE-2017-RES-IA
WASTE2ROAD	Biofuels from WASTE TO ROAD transport	H2020-LC-SC3-2018-RES-SingleStage
CLARA	Chemical Looping gAsification foR sustainAble production of biofuels	H2020-LC-SC3-2018-RES-SingleStage
Pulp and Fuel	Pulp and Paper Industry Wastes to Fuel	H2020-LC-SC3-2018-RES-SingleStage

H2020 PROJECTS		
Acronym	**Name**	**Call for proposal**
CONVERGE	CarbON Valorisation in Energy-efficient Green fuels	H2020-LC-SC3-2018-RES-SingleStage
BioRen	Development of competitive, next generation biofuels from municipal solid waste	H2020-LC-SC3-2018-RES-SingleStage
NextGenRoadFuels	Sustainable Drop-In Transport fuels from Hydrothermal Liquefaction of Low Value Urban Feedstocks	H2020-LC-SC3-2018-RES-SingleStage
e-LOBSTER	Electric LOsses Balancing through integrated STorage and power Electronics towards increased synergy between Railways and electricity distribution networks	H2020-LCE-2017-SGS (not in INEA's website)
ENABLE.EU	Enabling the Energy Union through understanding the drivers of individual and collective energy choices in Europe	H2020-LCE-2016-RES-CCS-RIA

Annex C – Country profiles

TRIMIS COUNTRY FACT SHEETS

DISCLAIMER	
The views expressed here are purely those of the authors and may not, under any circumstances, be regarded as an official position of the European Commission. The Joint Research Centre is in charge of the development of TRIMIS, and the work has been carried out under the supervision of the Directorate-General for Mobility and Transport (DG MOVE) and the Directorate-General for Research and Innovation (DG RTD) of the European Commission that are co-leading the Strategic Transport Research and Innovation Agenda (STRIA).	
Document version	TRIMIS FACT SHEET (DRAFT 03/06/2019)
TRIMIS DB source	05/2019
Scope	The fact sheets focus on all transport research as defined by the Strategic Transport Research and Innovation Agenda (STRIA)
Methodology	TRIMIS technical reports can be downloaded from https://trimis.ec.europa.eu . The documents provide the methodological backdrop behind the presented information.

SECTION	REMARKS
1) General transport innovation statistics	*Most recent and complete year is selected*
Business R&D expenditure (million EUR)	Year: 2015 -- Source: Eurostat -- Link: https://ec.europa.eu/eurostat/web/products-datasets/-/rd_e_berdindr2 -- Transport Sector Codes included: C29+C30+H -- Table name: Business enterprise R&D expenditure (BERD) by economic activity (NACE Rev. 2) [rd_e_berdindr2] -- Rounded figures
Government R&D expenditure (million EUR)	Year: 2017 -- Source: Eurostat -- Link: https://ec.europa.eu/eurostat/web/products-datasets/-/gba_nabsfin07 -- Transport Sector Codes: NABS04 -- Table name: Total GBAORD by NABS 2007 socio-economic objectives -- Rounded figures
Enterprises engaged in cooperation in innovation (%)	Year: 2014 -- Source: CIS -- Link: https://ec.europa.eu/eurostat/web/products-datasets/-/inn_cis9_coop -- Transport Sector Codes included: C29+C30+H -- Table name:Types of co-operation of the enterprises by NACE Rev. 2 activity and size class [inn_cis9_coop] -- Rounded figures
2) Transport R&D employment statistics	Data shows, for 2014, the employment of R&D related personnel (ISCO08 Occupations 21 and 31) for the transport sector, defined as in the following NACE Rev. 2: C.29 Manufacture of motor vehicles, trailers and semi-trailers, C.30 Manufacture of other transport equipment, G.45 Wholesale and retail trade and repair of motor vehicles and motorcycles, H.49 Land transport and transport via pipelines, H.50 Water transport, H.51 Air transport, H.52 Warehousing and support activities for transportation, H.53 Postal and courier activities .
Total jobs (thousands)	Figures have been rounded to the nearest 1.000. Please note that this is an approximate figure.
Male employment (%)	approximation based on total jobs
Female employment (%)	approximation based on total jobs
Permanent contract (%)	approximation based on total jobs
Temporary contract (%)	approximation based on total jobs
Age 15-29 (%)	approximation based on total jobs
Age 30 - 49 (%)	approximation based on total jobs
Age 50+ (%)	approximation based on total jobs
3) Spatial distribution of FP7 & H2020 funds	Circle size indicates the relative national share of allocated funds. Organisations are geolocated based on the address as found in CORDA.
4) TRIMIS statistics for each STRIA roadmap	National projects concern those with funding from a national/regional source. Information on these projects is typically provided by national contact points and the coverage varies greatly between countries. FP7 and H2020 project information is mostly extracted from CORDIS/CORDA. A project can relate to multiple roadmaps. The following STRIA roadmaps are covered: Cooperative, connected and automated transport (CAT) - Transport electrification (EV) - Vehicle design and manufacturing (VDM) - Low-emission alternative energy for transport (ALT) - Network and traffic management systems (NTM) - Smart mobility and services (SMO) - Infrastructure (INF). One organisation can be multiple times a beneficiary of framework programme funding.
5) Evolution of daily funding by mode (EUR)	Forecasted funding is also provided, based on information regarding awarded projects by May 2019.
6) Top 5 beneficiaries	Top 5 beneficiaries of FP7 and H2020 funding. Due to the limited space, only the short names of organisations are provided. Full information can be retrieved from the TRIMIS portal.
7) Evolution of daily funding by technology phase (EUR)	Methodology of technology analysis is provided in Gkoumas et al. (2019). Absolute funding in transport technologies by development phase is provided. Contrary to the funding evolution shown in figure 5, this figure exclusively focuses on projects that develop a specific technology. Please note that the 'implementation' development phase typically is small as FP projects rarely target such projects by design. Other financing instruments (such as CEF) focus on technology implementation to a larger extent.
8) Evolution of daily funding by technology phase (%)	This chart depicts the information provided in figure 7 as a 100% stacked bar chart.

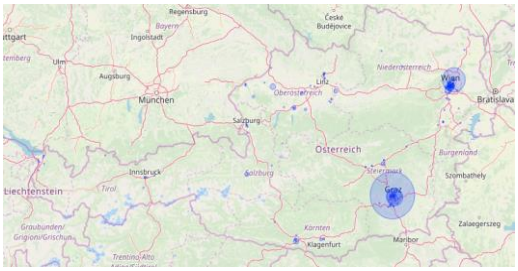
AUSTRIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	703
Government R&D expenditure (million EUR)	32
Enterprises engaged in cooperation in innovation (%)	44%

2) Transport R&D employment statistics	
Total jobs (thousands)	25
Male employment (%)	91%
Female employment (%)	9%
Permanent contract (%)	92%
Temporary contract (%)	8%
Age 15-29 (%)	37%
Age 30 - 49 (%)	35%
Age 50+ (%)	28%

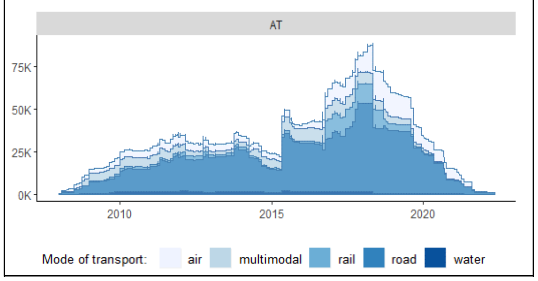
3) Spatial distribution of FP7 & H2020 funds



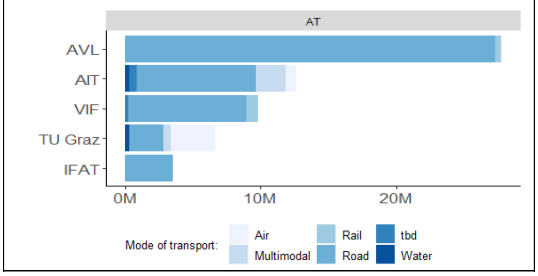
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	23	36	53	17	45	47	29
FP7 & H2020	Number of projects	53	86	108	38	97	46	48
	Number of beneficiaries	78	174	176	65	154	68	90
	Total amount (mEUR)	12.3	45.4	49.0	21.2	22.3	12.4	14.3

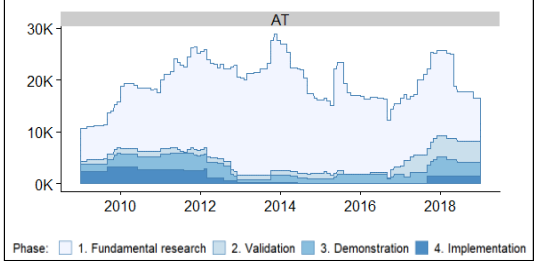
5) Evolution of daily funding by mode (EUR)



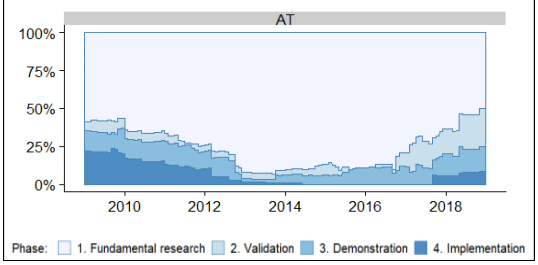
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



BELGIUM

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	306
Government R&D expenditure (million EUR)	13
Enterprises engaged in cooperation in innovation (%)	42%

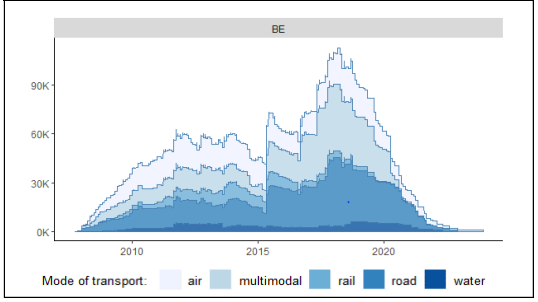
2) Transport R&D employment statistics	
Total jobs (thousands)	32
Male employment (%)	88%
Female employment (%)	12%
Permanent contract (%)	96%
Temporary contract (%)	4%
Age 15-29 (%)	21%
Age 30 - 49 (%)	45%
Age 50+ (%)	33%

3) Spatial distribution of FP7 & H2020 funds

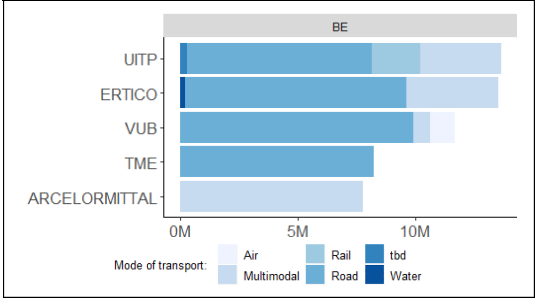
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	2	0	1	1	8	5	4
FP7 & H2020	Number of projects	89	75	202	41	170	102	88
	Number of beneficiaries	132	124	332	75	309	200	159
	Total amount (mEUR)	26.5	31.1	76.9	25.4	48.0	41.1	28.6

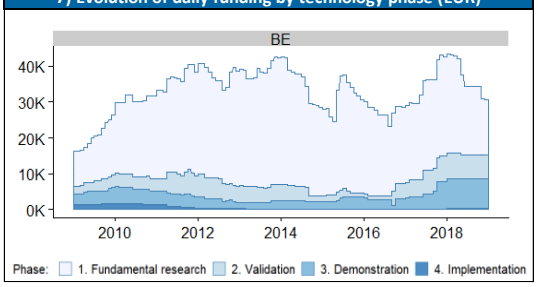
5) Evolution of daily funding by mode (EUR)



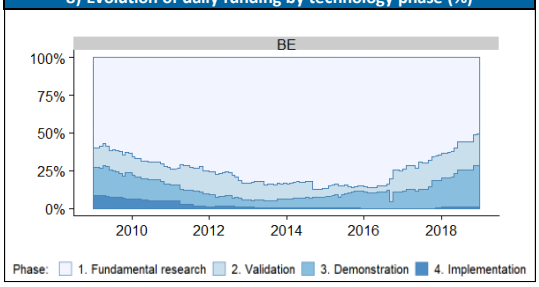
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



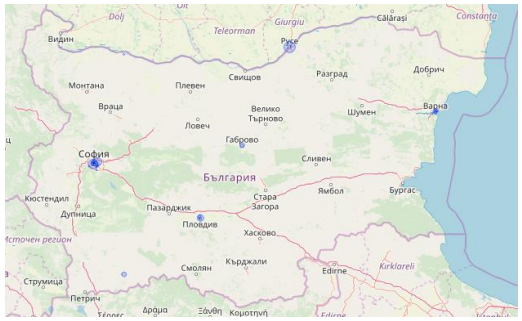
BULGARIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	7
Government R&D expenditure (million EUR)	2
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	15
Male employment (%)	89%
Female employment (%)	11%
Permanent contract (%)	83%
Temporary contract (%)	17%
Age 15-29 (%)	18%
Age 30 - 49 (%)	38%
Age 50+ (%)	45%

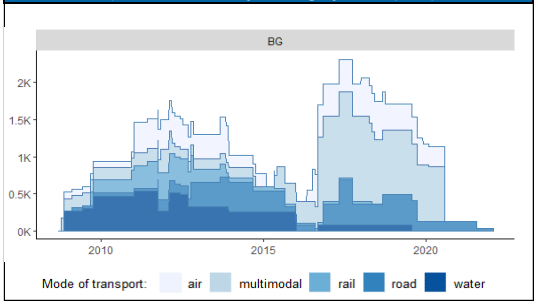
3) Spatial distribution of FP7 & H2020 funds



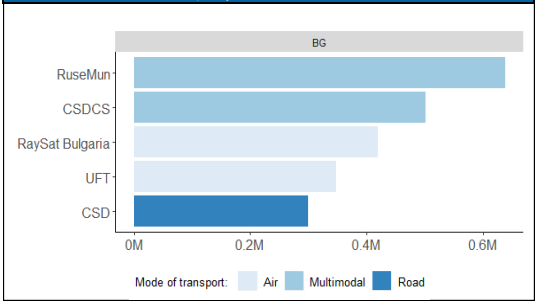
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	4	2	1	1	19	4	23
FP7 & H2020	Number of projects	2	5	13	2	11	9	5
	Number of beneficiaries	2	6	19	3	16	17	10
	Total amount (mEUR)	0.1	0.9	1.8	0.4	1.1	0.6	0.6

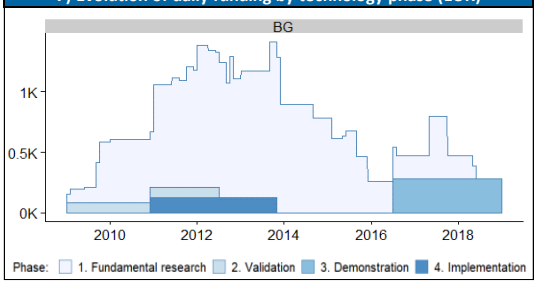
5) Evolution of daily funding by mode (EUR)



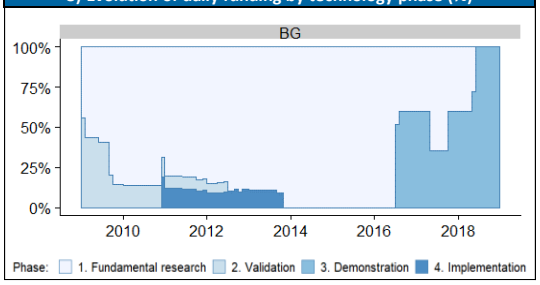
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



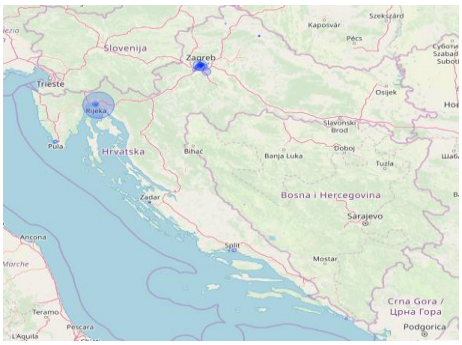
CROATIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	22
Government R&D expenditure (million EUR)	1
Enterprises engaged in cooperation in innovation (%)	21%

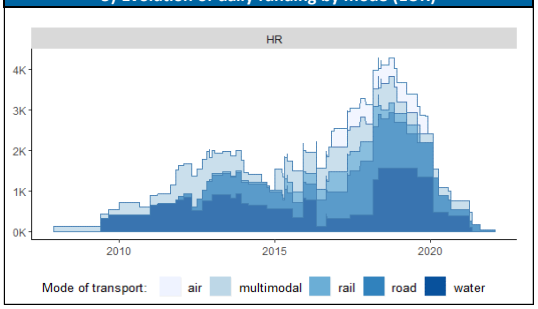
2) Transport R&D employment statistics	
Total jobs (thousands)	18
Male employment (%)	93%
Female employment (%)	7%
Permanent contract (%)	72%
Temporary contract (%)	28%
Age 15-29 (%)	23%
Age 30 - 49 (%)	45%
Age 50+ (%)	33%

3) Spatial distribution of FP7 & H2020 funds

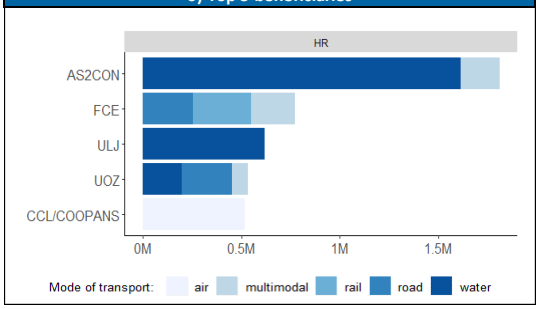


4) TRIMIS statistics for each STRIA roadmap								
Scope	**Indicator**	**CAT**	**EV**	**VDM**	**ALT**	**NTM**	**SMO**	**INF**
National	Number of projects	7	8	7	7	21	8	22
FP7 & H2020	Number of projects	1	8	13	4	30	9	13
	Number of beneficiaries	1	20	15	16	38	22	27
	Total amount (mEUR)	0.0	1.1	2.3	0.2	1.7	0.5	2.3

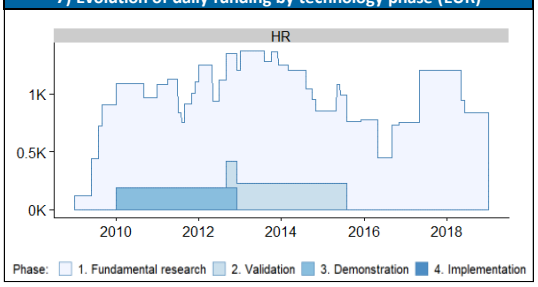
5) Evolution of daily funding by mode (EUR)



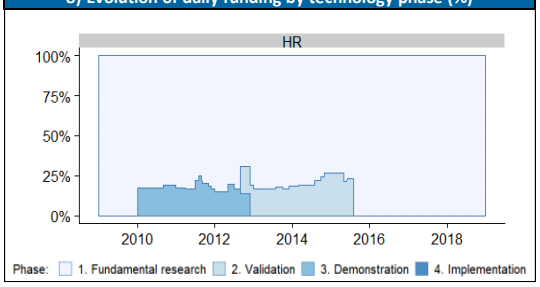
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



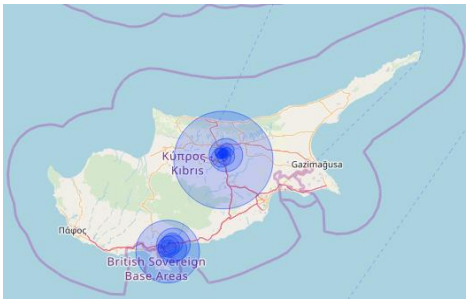
CYPRUS

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	0
Government R&D expenditure (million EUR)	0
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	1
Male employment (%)	:
Female employment (%)	:
Permanent contract (%)	98%
Temporary contract (%)	2%
Age 15-29 (%)	12%
Age 30 - 49 (%)	65%
Age 50+ (%)	24%

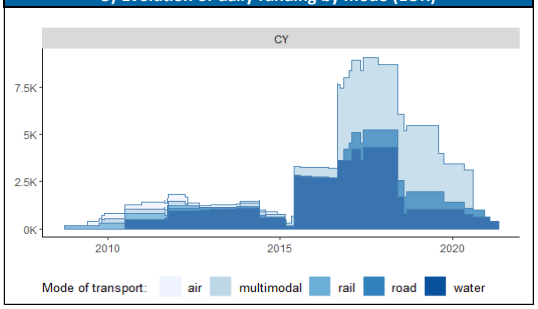
3) Spatial distribution of FP7 & H2020 funds



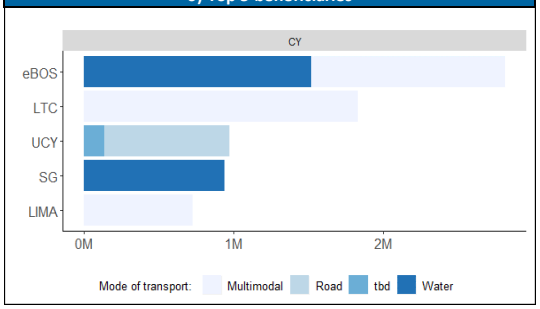
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	0	0	0	0	1	0	0
FP7 & H2020	Number of projects	5	5	13	3	9	4	7
	Number of beneficiaries	6	7	21	3	11	7	8
	Total amount (mEUR)	0.5	0.9	4.4	0.6	2.7	3.4	1.1

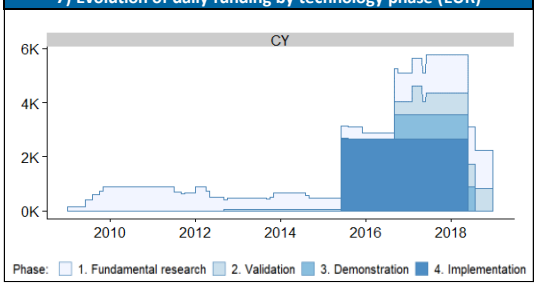
5) Evolution of daily funding by mode (EUR)



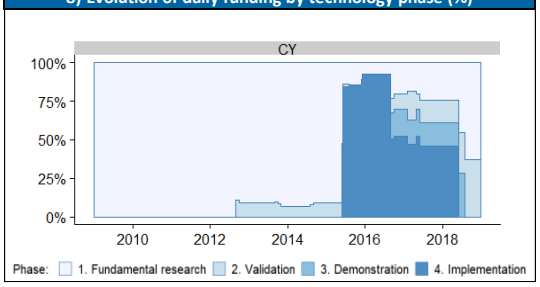
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



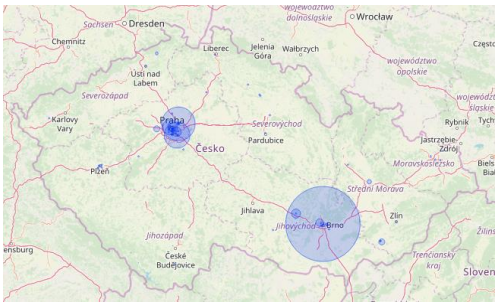
CZECHIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	314
Government R&D expenditure (million EUR)	45
Enterprises engaged in cooperation in innovation (%)	32%

2) Transport R&D employment statistics	
Total jobs (thousands)	45
Male employment (%)	79%
Female employment (%)	21%
Permanent contract (%)	95%
Temporary contract (%)	5%
Age 15-29 (%)	30%
Age 30 - 49 (%)	39%
Age 50+ (%)	32%

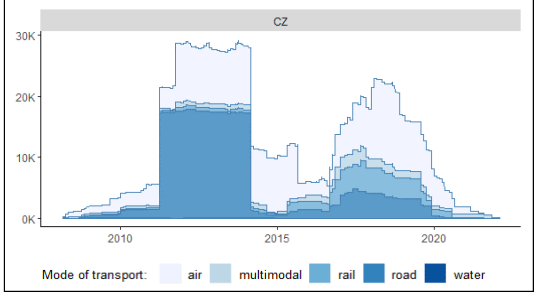
3) Spatial distribution of FP7 & H2020 funds



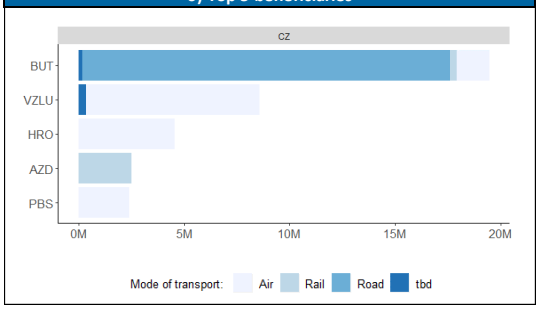
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	64	8	98	34	60	36	66
FP7 & H2020	Number of projects	26	22	77	15	49	18	18
	Number of beneficiaries	30	33	102	21	57	23	22
	Total amount (mEUR)	4.4	11.6	34.9	2.1	6.8	2.3	1.9

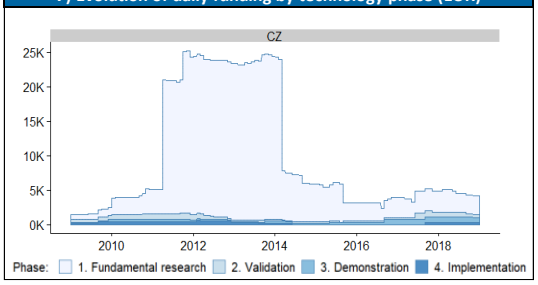
5) Evolution of daily funding by mode (EUR)



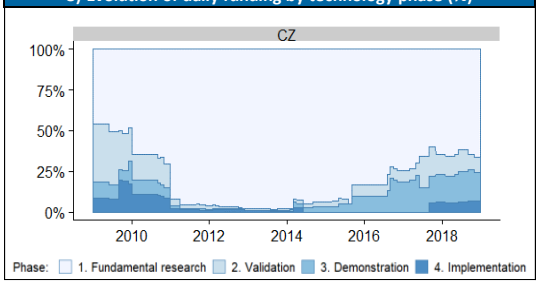
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



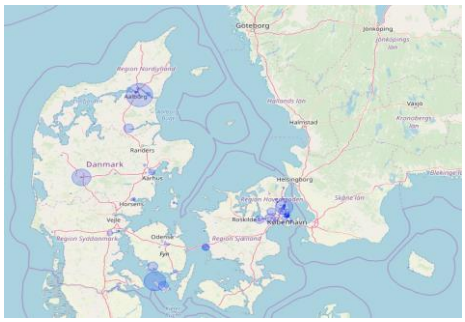
DENMARK

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	30
Government R&D expenditure (million EUR)	6
Enterprises engaged in cooperation in innovation (%)	36%

2) Transport R&D employment statistics	
Total jobs (thousands)	14
Male employment (%)	91%
Female employment (%)	9%
Permanent contract (%)	97%
Temporary contract (%)	3%
Age 15-29 (%)	18%
Age 30 - 49 (%)	42%
Age 50+ (%)	40%

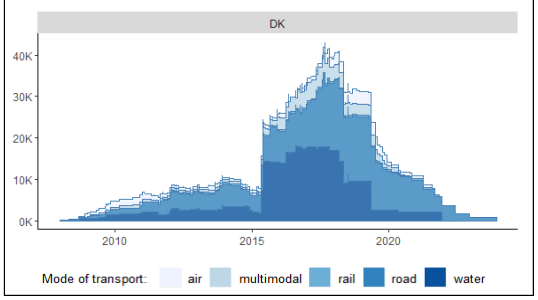
3) Spatial distribution of FP7 & H2020 funds



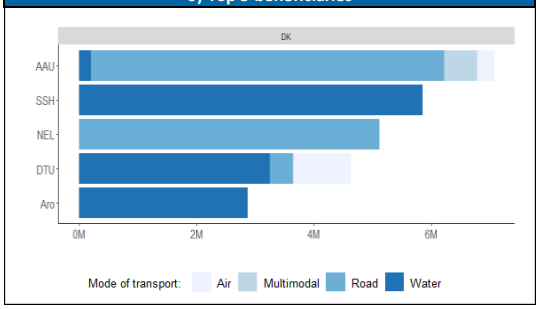
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	0	3	5	3	10	5	11
FP7 & H2020	Number of projects	21	32	36	15	45	23	24
	Number of beneficiaries	41	59	46	24	65	31	28
	Total amount (mEUR)	5.5	28.3	13.6	8.0	7.3	5.3	8.3

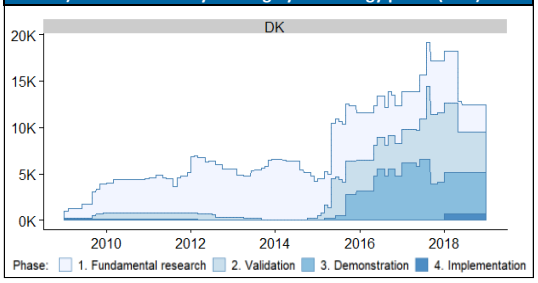
5) Evolution of daily funding by mode (EUR)



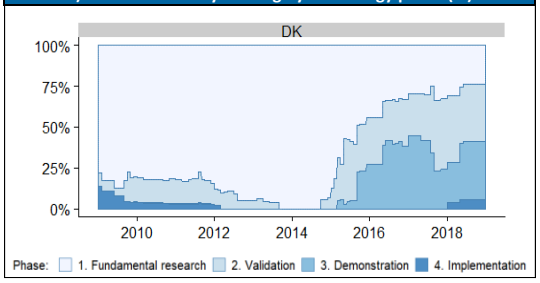
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



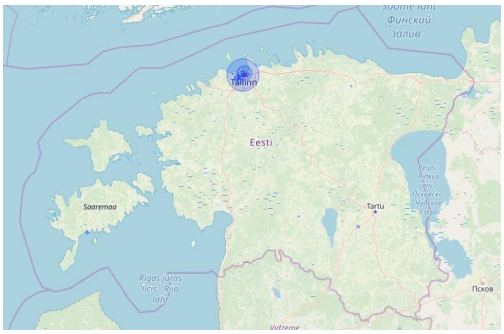
ESTONIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	:
Government R&D expenditure (million EUR)	3
Enterprises engaged in cooperation in innovation (%)	41%

2) Transport R&D employment statistics	
Total jobs (thousands)	4
Male employment (%)	86%
Female employment (%)	14%
Permanent contract (%)	:
Temporary contract (%)	:
Age 15-29 (%)	33%
Age 30 - 49 (%)	39%
Age 50+ (%)	27%

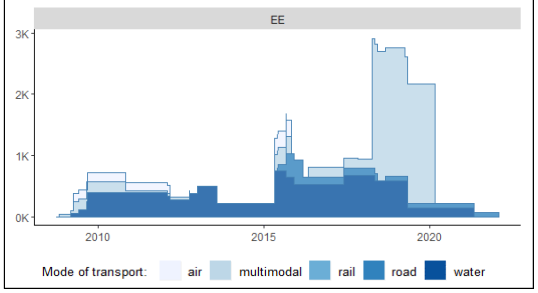
3) Spatial distribution of FP7 & H2020 funds



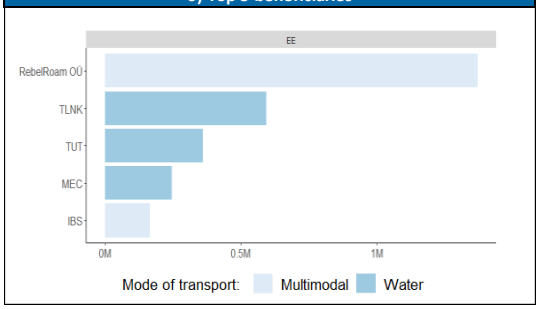
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	2	6	5	5	8	9	9
FP7 & H2020	Number of projects	3	2	9	2	7	4	2
	Number of beneficiaries	3	2	14	5	9	4	2
	Total amount (mEUR)	0.1	0.1	1.1	0.4	0.6	1.5	0.2

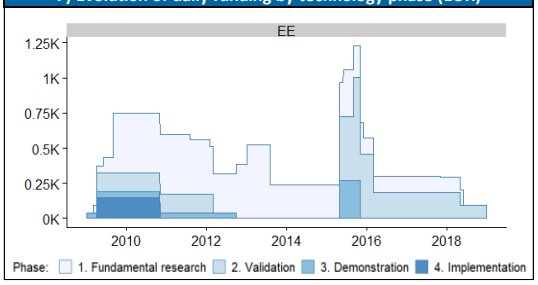
5) Evolution of daily funding by mode (EUR)



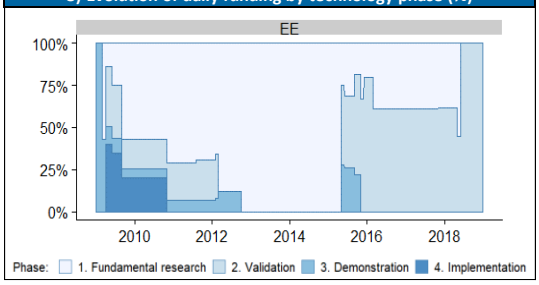
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



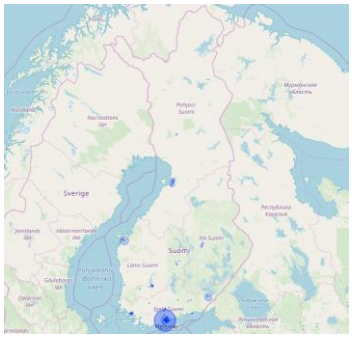
FINLAND

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	75
Government R&D expenditure (million EUR)	37
Enterprises engaged in cooperation in innovation (%)	23%

2) Transport R&D employment statistics	
Total jobs (thousands)	17
Male employment (%)	90%
Female employment (%)	10%
Permanent contract (%)	96%
Temporary contract (%)	4%
Age 15-29 (%)	31%
Age 30 - 49 (%)	40%
Age 50+ (%)	29%

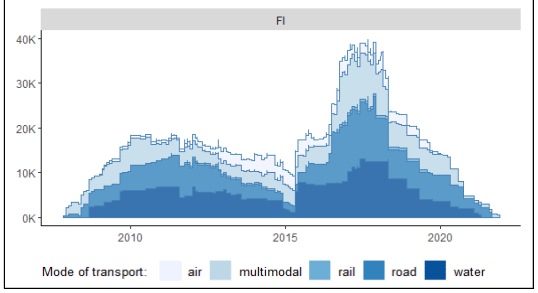
3) Spatial distribution of FP7 & H2020 funds



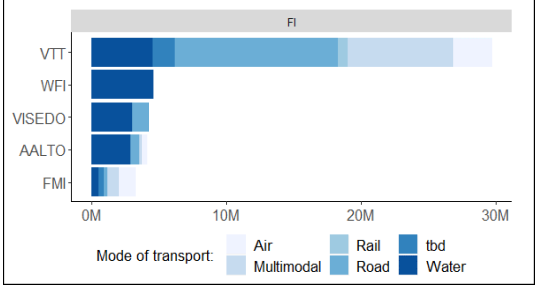
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	20	13	14	14	43	26	44
FP7 & H2020	Number of projects	32	28	56	22	40	28	29
	Number of beneficiaries	55	57	94	53	69	44	53
	Total amount (mEUR)	11.2	14.7	23.2	10.7	12.5	6.5	9.0

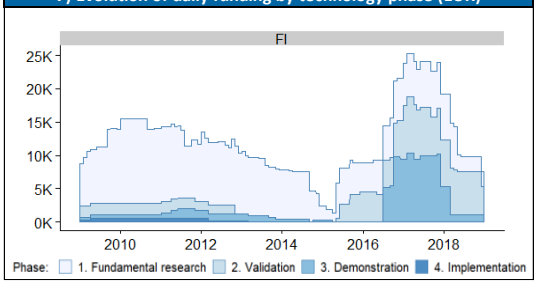
5) Evolution of daily funding by mode (EUR)



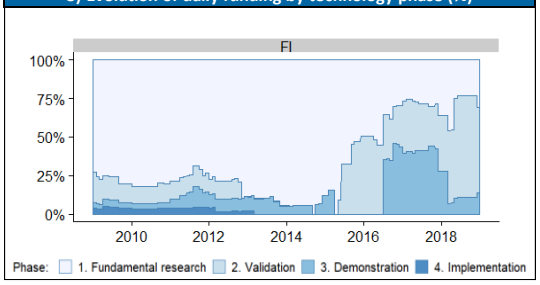
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



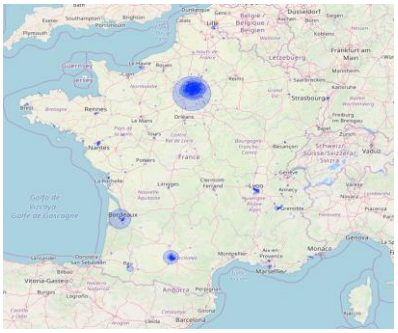
FRANCE

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	:
Government R&D expenditure (million EUR)	953
Enterprises engaged in cooperation in innovation (%)	27%

2) Transport R&D employment statistics	
Total jobs (thousands)	235
Male employment (%)	95%
Female employment (%)	5%
Permanent contract (%)	93%
Temporary contract (%)	7%
Age 15-29 (%)	16%
Age 30 - 49 (%)	51%
Age 50+ (%)	33%

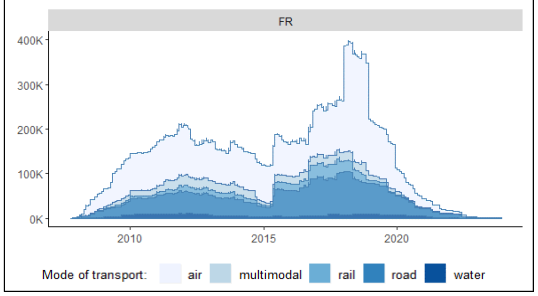
3) Spatial distribution of FP7 & H2020 funds



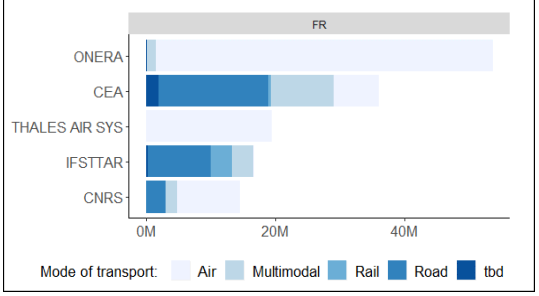
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	19	29	60	40	18	17	13
FP7 & H2020	Number of projects	129	141	366	66	200	88	99
	Number of beneficiaries	328	346	1099	150	478	201	267
	Total amount (mEUR)	70.3	103.6	397.3	32.5	115.5	34.4	67.7

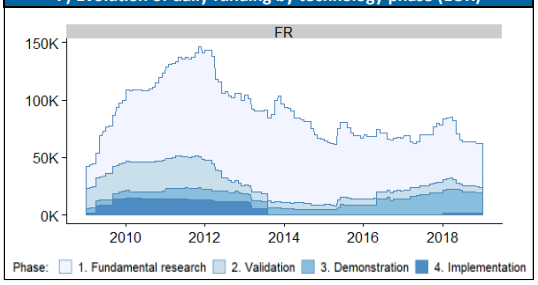
5) Evolution of daily funding by mode (EUR)



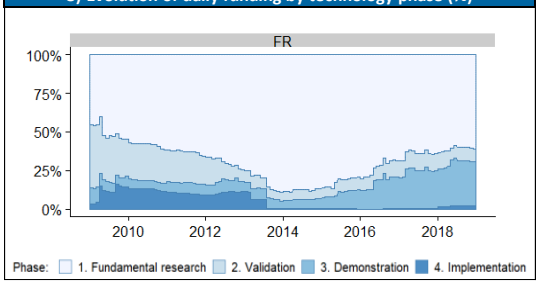
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



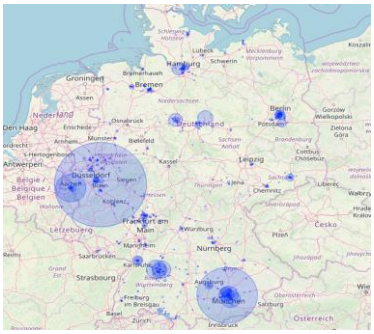
GERMANY

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	23607
Government R&D expenditure (million EUR)	509
Enterprises engaged in cooperation in innovation (%)	16%

2) Transport R&D employment statistics	
Total jobs (thousands)	520
Male employment (%)	91%
Female employment (%)	9%
Permanent contract (%)	94%
Temporary contract (%)	6%
Age 15-29 (%)	26%
Age 30 - 49 (%)	38%
Age 50+ (%)	36%

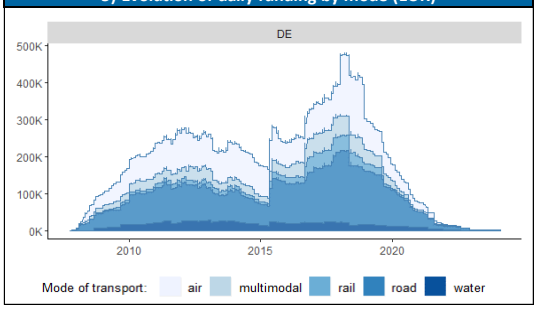
3) Spatial distribution of FP7 & H2020 funds



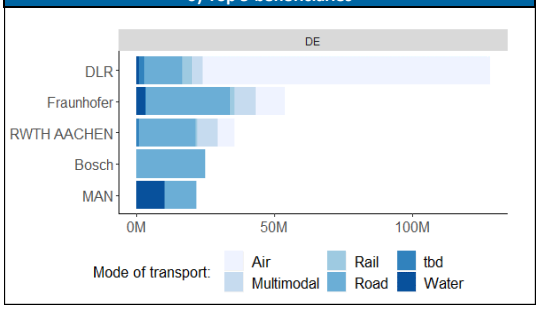
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	43	60	68	49	55	60	32
FP7 & H2020	Number of projects	166	202	433	82	245	135	126
	Number of beneficiaries	559	625	1239	266	565	299	308
	Total amount (mEUR)	159.5	202.2	443.5	78.7	115.5	54.3	71.8

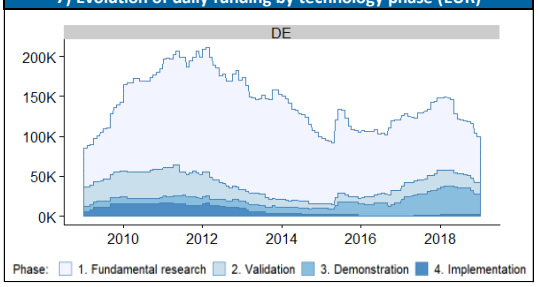
5) Evolution of daily funding by mode (EUR)



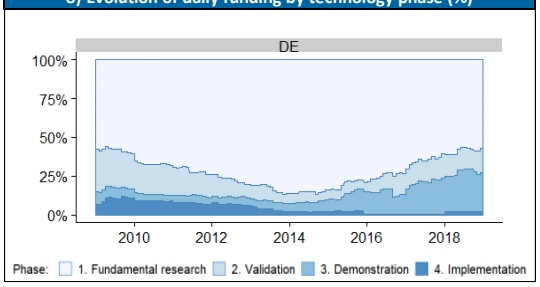
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



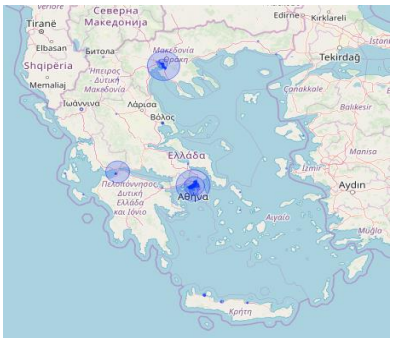
GREECE

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	:
Government R&D expenditure (million EUR)	43
Enterprises engaged in cooperation in innovation (%)	53%

2) Transport R&D employment statistics	
Total jobs (thousands)	16
Male employment (%)	87%
Female employment (%)	13%
Permanent contract (%)	89%
Temporary contract (%)	11%
Age 15-29 (%)	29%
Age 30 - 49 (%)	51%
Age 50+ (%)	21%

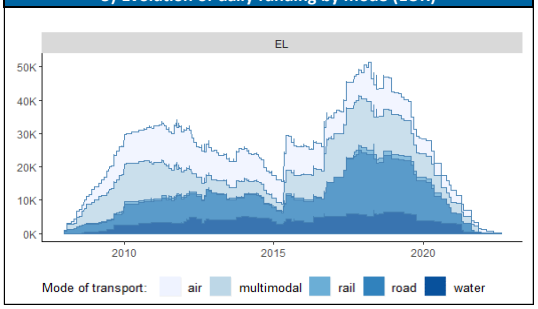
3) Spatial distribution of FP7 & H2020 funds



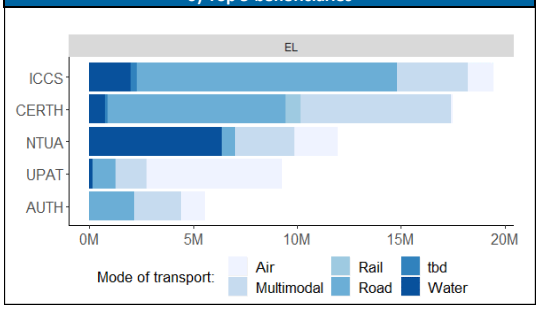
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	7	6	6	6	8	9	0
FP7 & H2020	Number of projects	45	25	121	12	70	57	43
	Number of beneficiaries	76	40	190	16	139	113	93
	Total amount (mEUR)	13.9	8.6	45.8	3.1	26.3	20.6	20.1

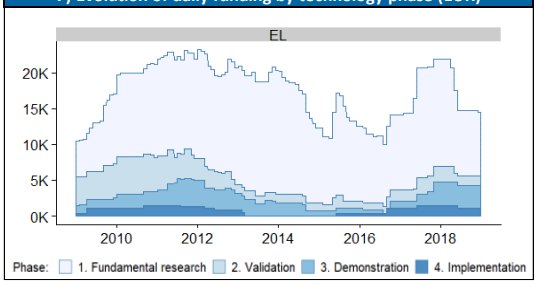
5) Evolution of daily funding by mode (EUR)



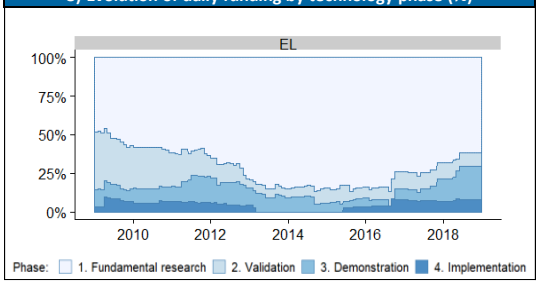
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



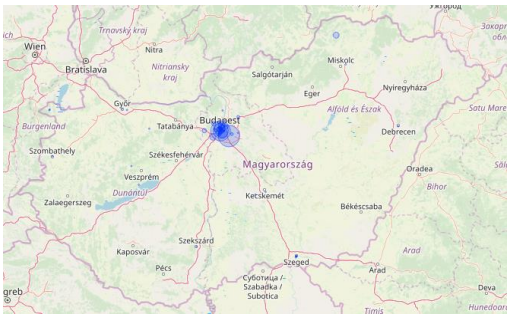
HUNGARY

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	125
Government R&D expenditure (million EUR)	22
Enterprises engaged in cooperation in innovation (%)	52%

2) Transport R&D employment statistics	
Total jobs (thousands)	24
Male employment (%)	90%
Female employment (%)	10%
Permanent contract (%)	98%
Temporary contract (%)	2%
Age 15-29 (%)	27%
Age 30 - 49 (%)	42%
Age 50+ (%)	32%

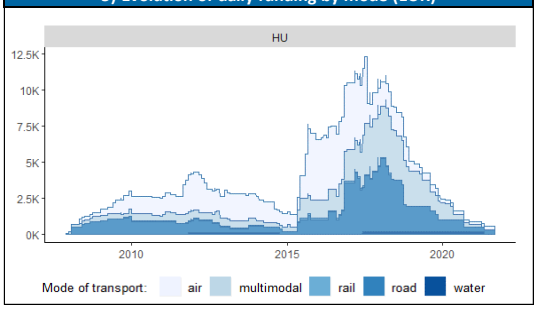
3) Spatial distribution of FP7 & H2020 funds



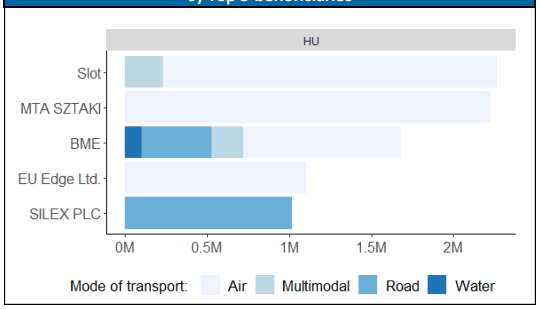
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	9	2	2	3	11	8	5
FP7 & H2020	Number of projects	27	15	29	8	46	35	21
	Number of beneficiaries	29	19	34	10	48	43	25
	Total amount (mEUR)	3.4	2.9	5.2	0.4	3.5	3.2	2.1

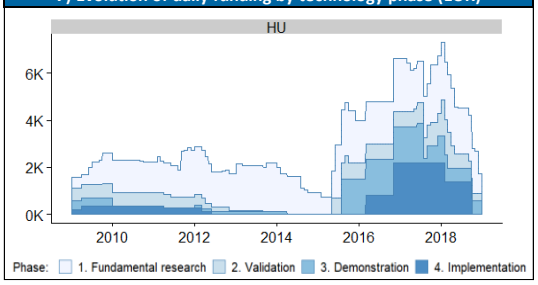
5) Evolution of daily funding by mode (EUR)



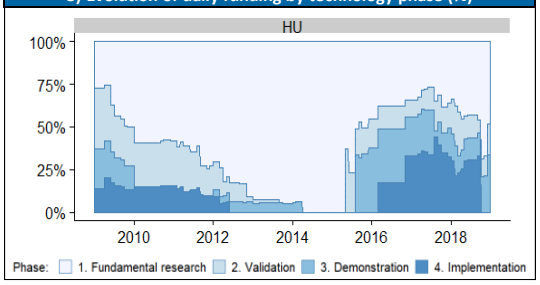
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



IRELAND

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	7
Government R&D expenditure (million EUR)	1
Enterprises engaged in cooperation in innovation (%)	:

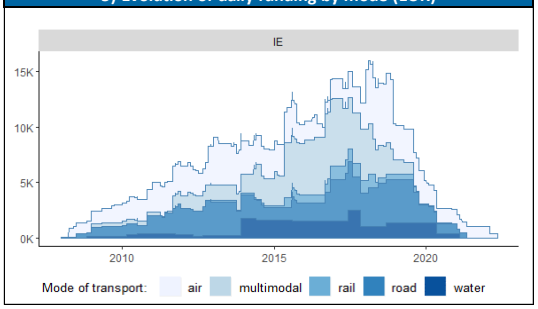
2) Transport R&D employment statistics	
Total jobs (thousands)	3
Male employment (%)	97%
Female employment (%)	3%
Permanent contract (%)	98%
Temporary contract (%)	2%
Age 15-29 (%)	20%
Age 30 - 49 (%)	45%
Age 50+ (%)	35%

3) Spatial distribution of FP7 & H2020 funds

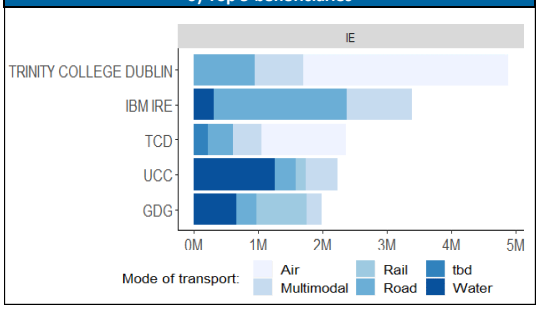
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	1	0	1	0	7	3	10
FP7 & H2020	Number of projects	17	9	22	6	49	7	23
	Number of beneficiaries	22	14	27	9	68	7	41
	Total amount (mEUR)	3.7	2.9	8.7	1.9	8.7	1.1	9.6

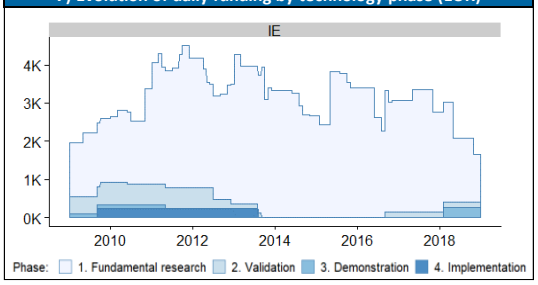
5) Evolution of daily funding by mode (EUR)



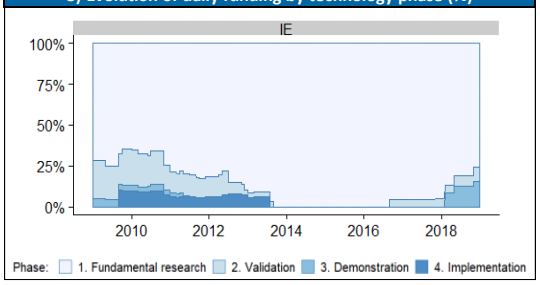
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



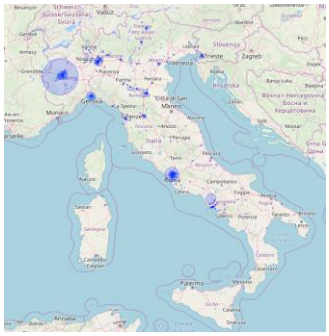
ITALY

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	2702
Government R&D expenditure (million EUR)	93
Enterprises engaged in cooperation in innovation (%)	21%

2) Transport R&D employment statistics	
Total jobs (thousands)	128
Male employment (%)	87%
Female employment (%)	13%
Permanent contract (%)	90%
Temporary contract (%)	10%
Age 15-29 (%)	28%
Age 30 - 49 (%)	48%
Age 50+ (%)	24%

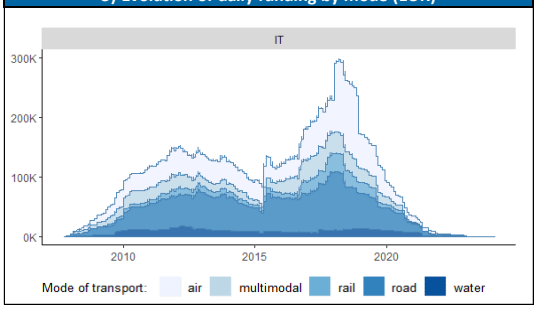
3) Spatial distribution of FP7 & H2020 funds



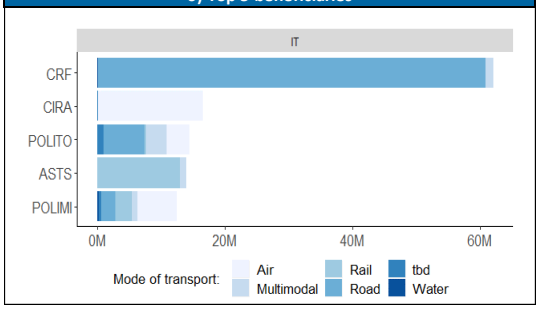
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	10	4	24	11	15	12	16
FP7 & H2020	Number of projects	119	174	357	72	228	123	107
	Number of beneficiaries	275	418	826	185	533	330	253
	Total amount (mEUR)	49.0	97.6	217.0	40.6	100.4	55.4	47.4

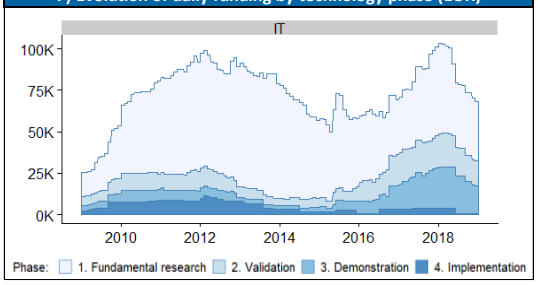
5) Evolution of daily funding by mode (EUR)



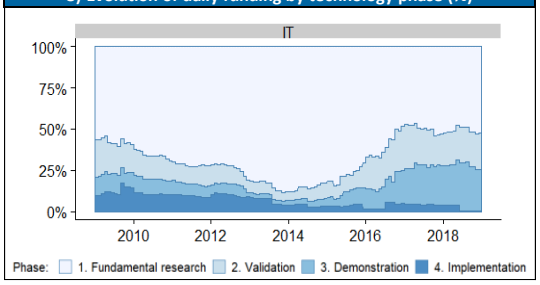
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



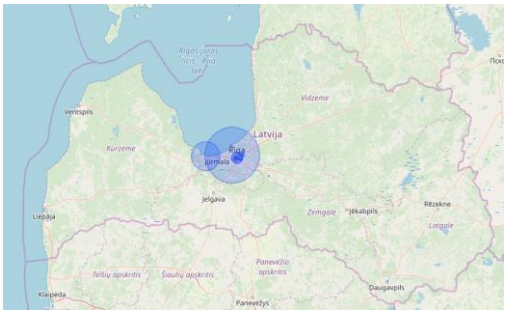
LATVIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	:
Government R&D expenditure (million EUR)	3
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	6
Male employment (%)	87%
Female employment (%)	13%
Permanent contract (%)	87%
Temporary contract (%)	13%
Age 15-29 (%)	28%
Age 30 - 49 (%)	35%
Age 50+ (%)	38%

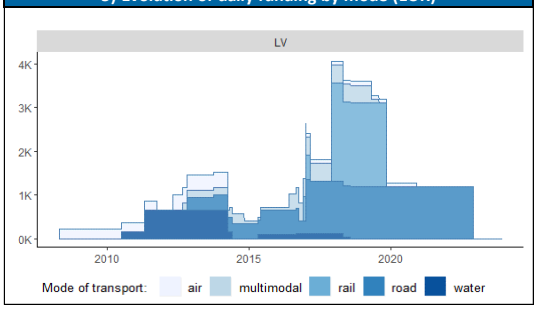
3) Spatial distribution of FP7 & H2020 funds



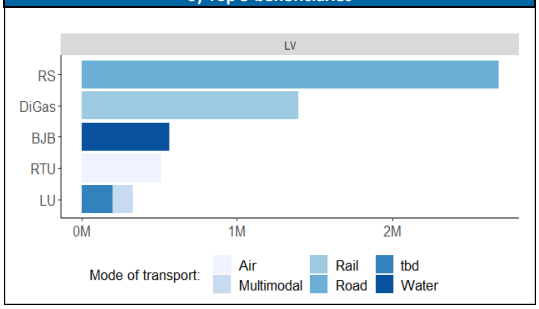
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	3	4	4	4	10	3	11
FP7 & H2020	Number of projects	4	7	4	3	5	3	4
	Number of beneficiaries	5	8	5	4	5	4	5
	Total amount (mEUR)	0.1	3.3	0.7	1.5	0.4	0.3	0.6

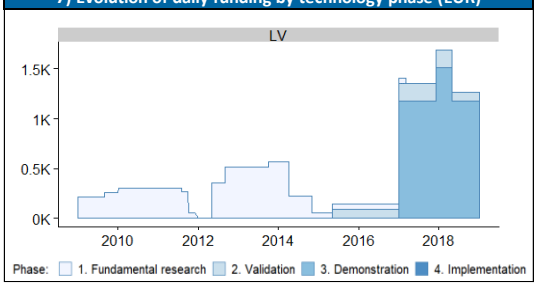
5) Evolution of daily funding by mode (EUR)



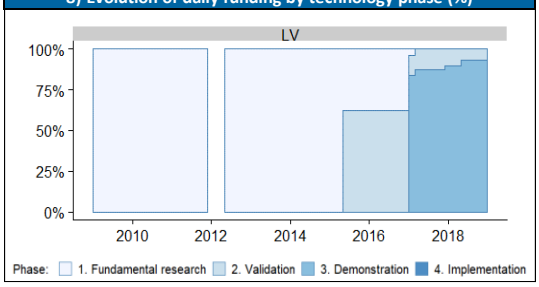
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



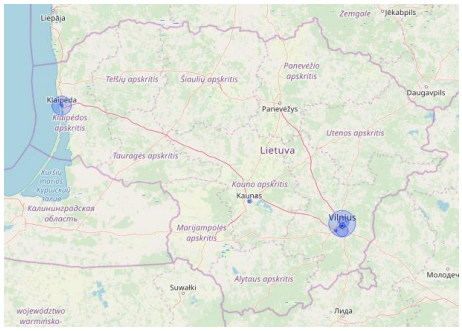
LITHUANIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	4
Government R&D expenditure (million EUR)	0
Enterprises engaged in cooperation in innovation (%)	53%

2) Transport R&D employment statistics	
Total jobs (thousands)	6
Male employment (%)	86%
Female employment (%)	14%
Permanent contract (%)	98%
Temporary contract (%)	2%
Age 15-29 (%)	26%
Age 30 - 49 (%)	40%
Age 50+ (%)	33%

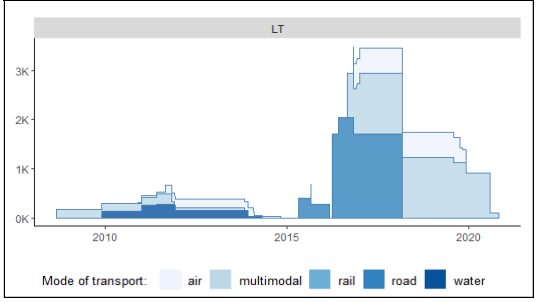
3) Spatial distribution of FP7 & H2020 funds



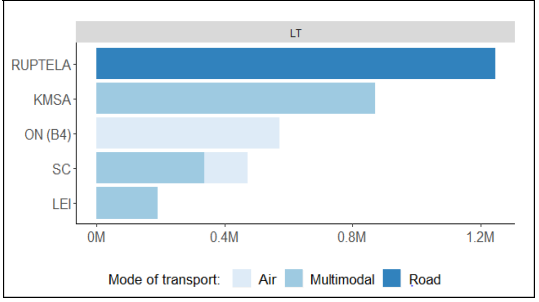
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	7	7	7	7	22	7	21
FP7 & H2020	Number of projects	7	3	4	1	27	7	4
	Number of beneficiaries	7	4	4	1	27	10	5
	Total amount (mEUR)	0.7	0.2	0.4	0.0	1.4	1.5	0.1

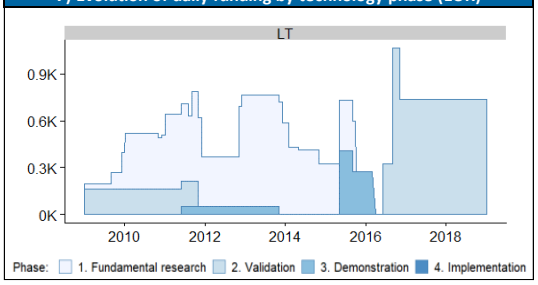
5) Evolution of daily funding by mode (EUR)



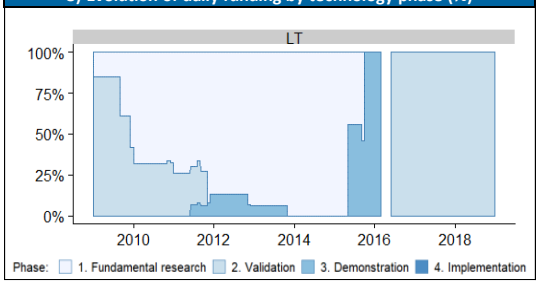
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



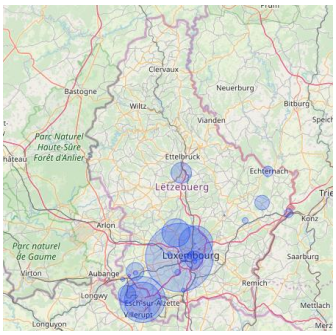
LUXEMBOURG

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	:
Government R&D expenditure (million EUR)	1
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	2
Male employment (%)	89%
Female employment (%)	11%
Permanent contract (%)	82%
Temporary contract (%)	18%
Age 15-29 (%)	15%
Age 30 - 49 (%)	50%
Age 50+ (%)	35%

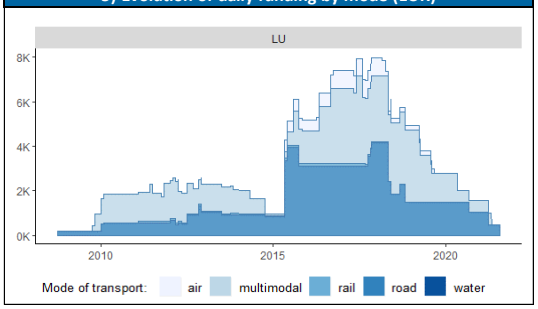
3) Spatial distribution of FP7 & H2020 funds



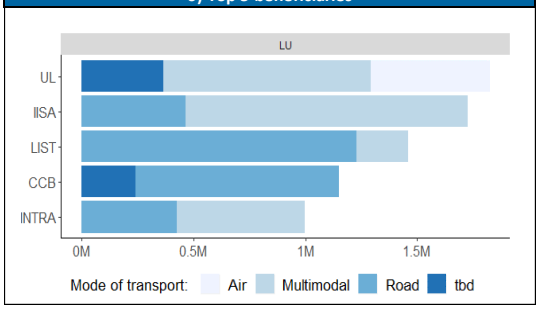
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	2	3	5	3	3	6	0
FP7 & H2020	Number of projects	5	7	5	3	15	17	8
	Number of beneficiaries	5	11	5	4	18	23	10
	Total amount (mEUR)	0.6	2.1	0.8	0.9	3.8	4.7	2.6

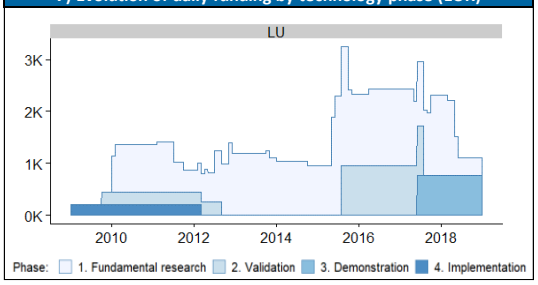
5) Evolution of daily funding by mode (EUR)



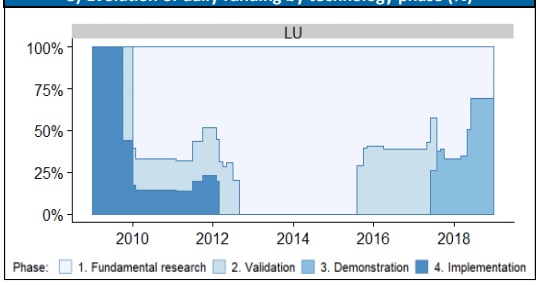
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



MALTA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	2
Government R&D expenditure (million EUR)	0
Enterprises engaged in cooperation in innovation (%)	:

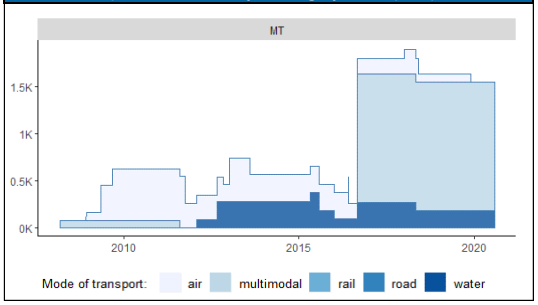
2) Transport R&D employment statistics	
Total jobs (thousands)	1
Male employment (%)	90%
Female employment (%)	10%
Permanent contract (%)	92%
Temporary contract (%)	8%
Age 15-29 (%)	34%
Age 30 - 49 (%)	41%
Age 50+ (%)	24%

3) Spatial distribution of FP7 & H2020 funds

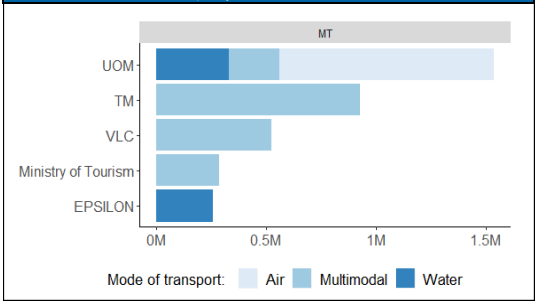
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	0	0	0	0	0	0	0
FP7 & H2020	Number of projects	6	0	4	0	6	1	0
	Number of beneficiaries	6	0	4	0	6	4	0
	Total amount (mEUR)	0.7	0.0	0.8	0.0	0.4	2.0	0.0

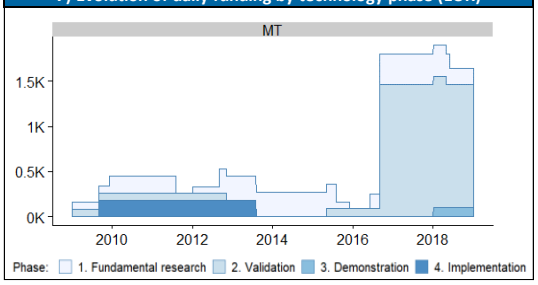
5) Evolution of daily funding by mode (EUR)



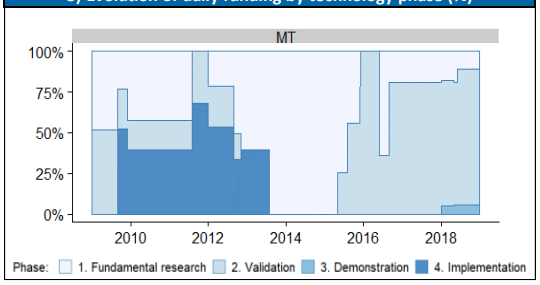
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



NETHERLANDS

TRIMIS FACT SHEET (DRAFT 03/06/2019)

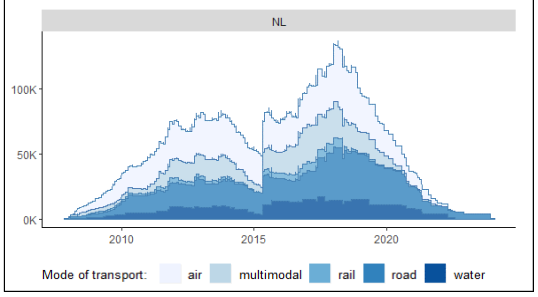
1) General transport innovation statistics	
Business R&D expenditure (million EUR)	394
Government R&D expenditure (million EUR)	75
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	29
Male employment (%)	94%
Female employment (%)	6%
Permanent contract (%)	89%
Temporary contract (%)	11%
Age 15-29 (%)	25%
Age 30 - 49 (%)	39%
Age 50+ (%)	35%

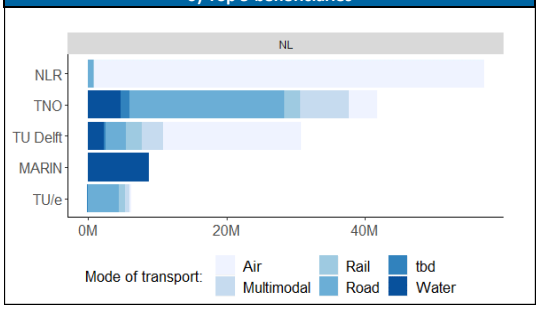
3) Spatial distribution of FP7 & H2020 funds

4) TRIMIS statistics for each STRIA roadmap								
Scope	**Indicator**	**CAT**	**EV**	**VDM**	**ALT**	**NTM**	**SMO**	**INF**
National	Number of projects	14	9	6	8	26	25	16
FP7 & H2020	Number of projects	103	80	222	42	150	98	73
	Number of beneficiaries	201	130	385	96	281	164	110
	Total amount (mEUR)	47.4	34.9	118.8	22.9	52.3	31.4	27.3

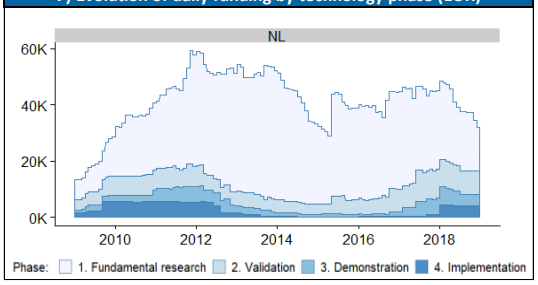
5) Evolution of daily funding by mode (EUR)



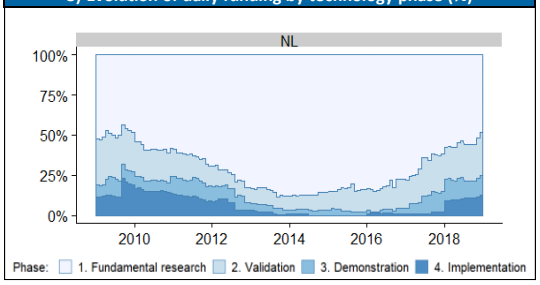
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



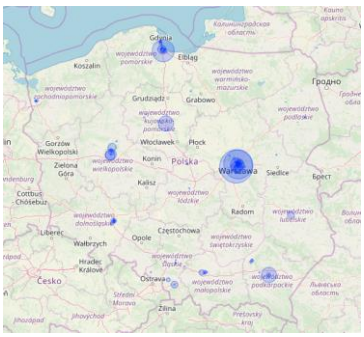
POLAND

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	249
Government R&D expenditure (million EUR)	127
Enterprises engaged in cooperation in innovation (%)	22%

2) Transport R&D employment statistics	
Total jobs (thousands)	138
Male employment (%)	83%
Female employment (%)	17%
Permanent contract (%)	78%
Temporary contract (%)	22%
Age 15-29 (%)	34%
Age 30 - 49 (%)	38%
Age 50+ (%)	29%

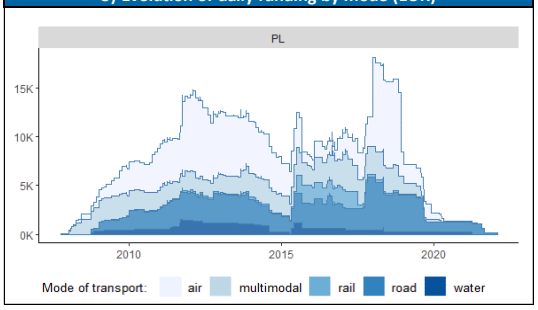
3) Spatial distribution of FP7 & H2020 funds



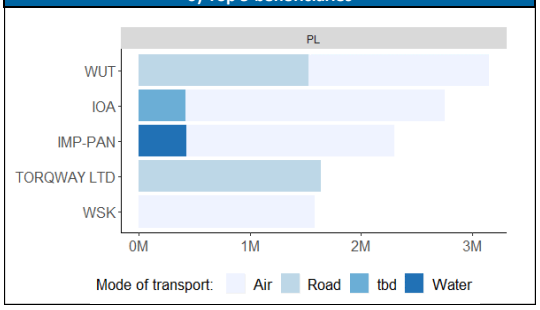
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	2	4	11	5	7	4	16
FP7 & H2020	Number of projects	25	29	75	13	61	34	29
	Number of beneficiaries	30	42	104	18	76	55	34
	Total amount (mEUR)	1.7	4.0	19.1	2.5	6.6	4.7	4.2

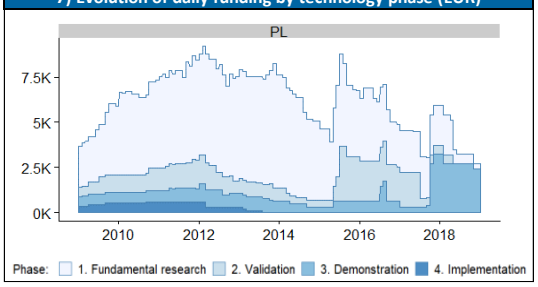
5) Evolution of daily funding by mode (EUR)



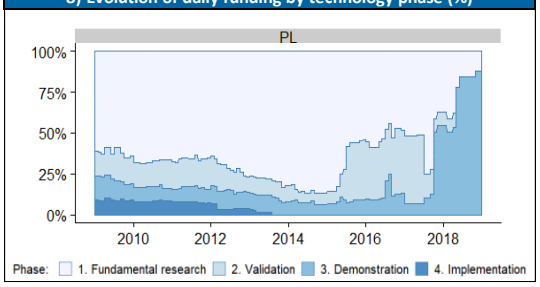
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



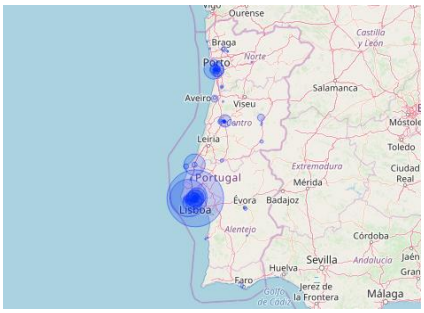
PORTUGAL

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	48
Government R&D expenditure (million EUR)	20
Enterprises engaged in cooperation in innovation (%)	14%

2) Transport R&D employment statistics	
Total jobs (thousands)	22
Male employment (%)	75%
Female employment (%)	25%
Permanent contract (%)	85%
Temporary contract (%)	15%
Age 15-29 (%)	29%
Age 30 - 49 (%)	42%
Age 50+ (%)	30%

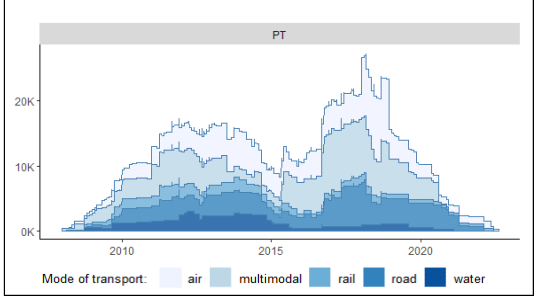
3) Spatial distribution of FP7 & H2020 funds



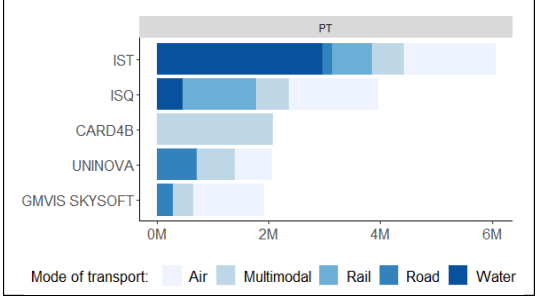
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	3	1	1	1	6	5	6
FP7 & H2020	Number of projects	21	14	52	6	50	38	39
	Number of beneficiaries	32	29	78	16	80	70	83
	Total amount (mEUR)	4.5	4.5	18.1	1.2	9.7	12.6	11.2

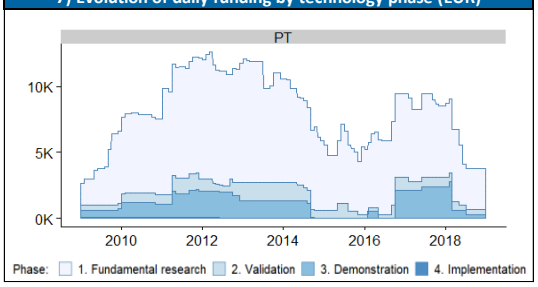
5) Evolution of daily funding by mode (EUR)



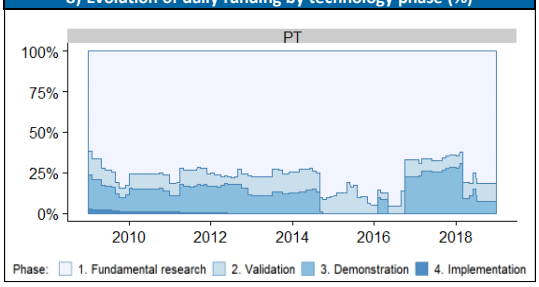
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



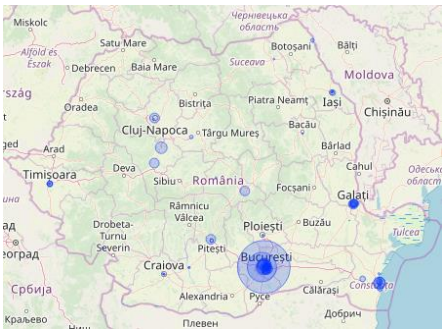
ROMANIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	95
Government R&D expenditure (million EUR)	11
Enterprises engaged in cooperation in innovation (%)	12%

2) Transport R&D employment statistics	
Total jobs (thousands)	68
Male employment (%)	84%
Female employment (%)	16%
Permanent contract (%)	99%
Temporary contract (%)	1%
Age 15-29 (%)	28%
Age 30 - 49 (%)	37%
Age 50+ (%)	35%

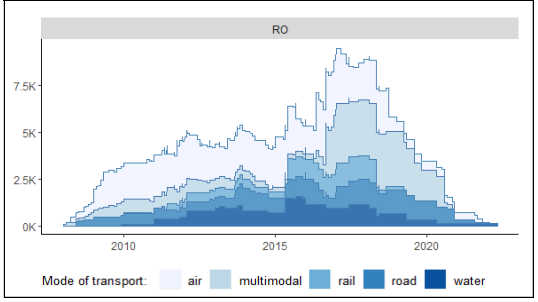
3) Spatial distribution of FP7 & H2020 funds



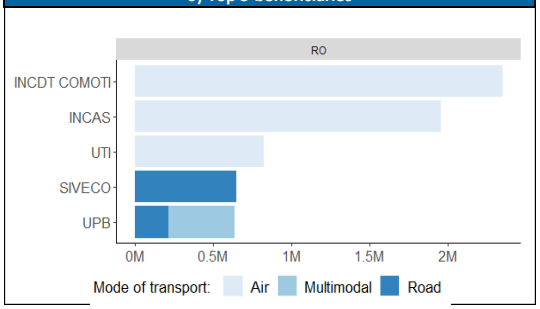
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	9	0	4	1	10	3	3
FP7 & H2020	Number of projects	13	12	46	12	28	21	19
	Number of beneficiaries	17	16	64	16	40	30	23
	Total amount (mEUR)	1.4	0.9	8.6	1.3	3.5	3.7	3.2

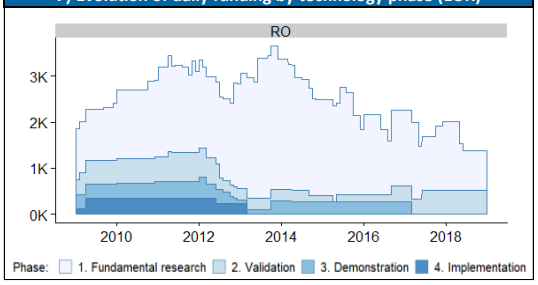
5) Evolution of daily funding by mode (EUR)



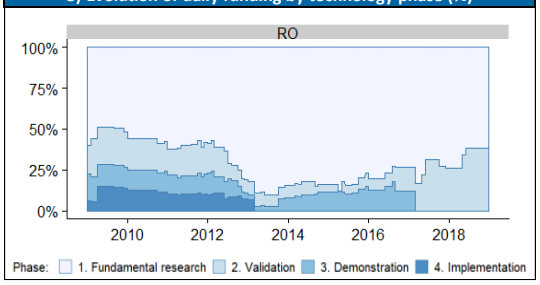
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



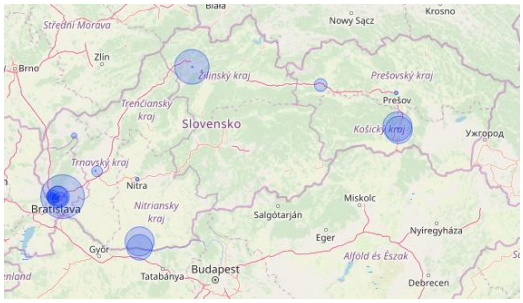
SLOVAKIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	63
Government R&D expenditure (million EUR)	5
Enterprises engaged in cooperation in innovation (%)	61%

2) Transport R&D employment statistics	
Total jobs (thousands)	18
Male employment (%)	89%
Female employment (%)	11%
Permanent contract (%)	:
Temporary contract (%)	:
Age 15-29 (%)	26%
Age 30 - 49 (%)	43%
Age 50+ (%)	31%

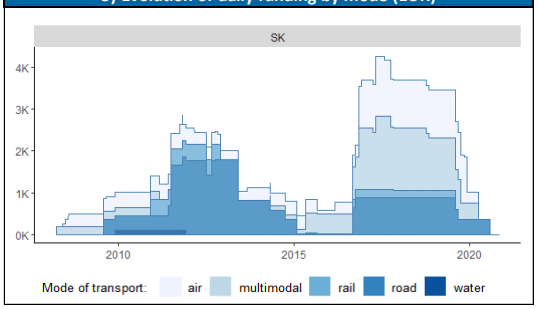
3) Spatial distribution of FP7 & H2020 funds



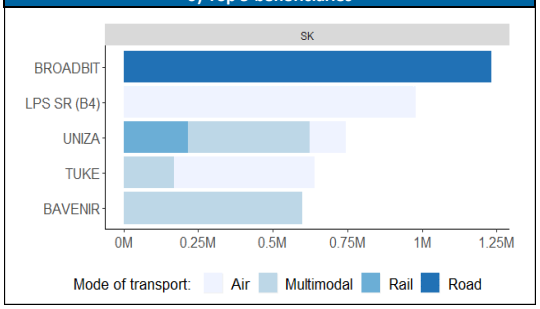
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	8	3	18	6	13	4	21
FP7 & H2020	Number of projects	7	10	9	2	29	6	3
	Number of beneficiaries	8	11	10	2	32	8	3
	Total amount (mEUR)	0.5	2.8	1.4	0.1	2.3	0.6	0.2

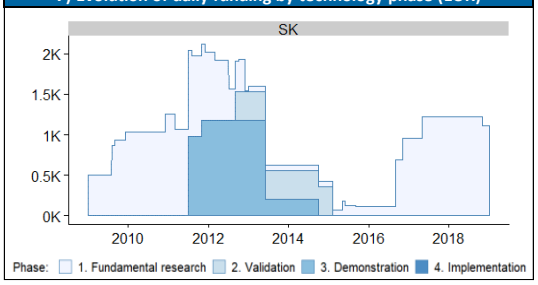
5) Evolution of daily funding by mode (EUR)



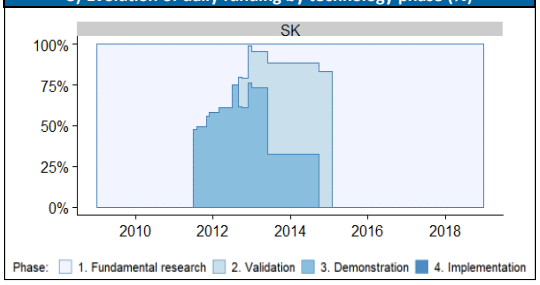
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



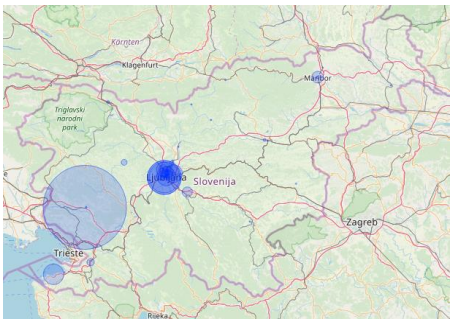
SLOVENIA

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	34
Government R&D expenditure (million EUR)	5
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	5
Male employment (%)	81%
Female employment (%)	19%
Permanent contract (%)	92%
Temporary contract (%)	8%
Age 15-29 (%)	22%
Age 30 - 49 (%)	52%
Age 50+ (%)	26%

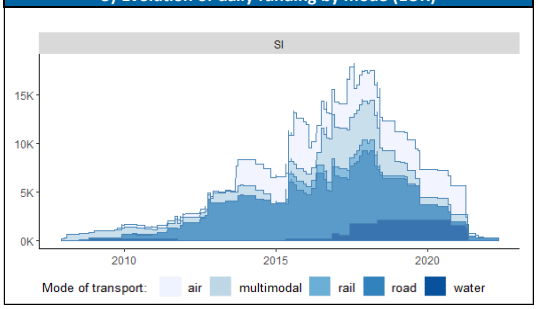
3) Spatial distribution of FP7 & H2020 funds



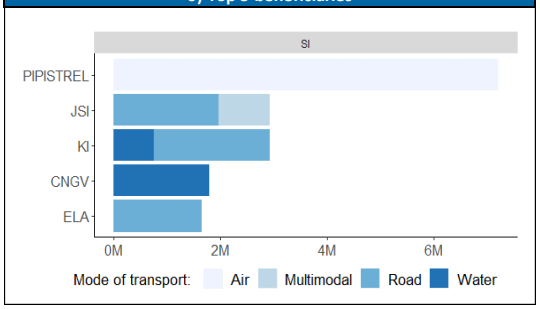
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	14	9	9	9	25	13	23
FP7 & H2020	Number of projects	10	26	17	6	17	20	22
	Number of beneficiaries	16	45	22	16	32	37	38
	Total amount (mEUR)	1.7	13.8	4.8	3.1	3.1	4.0	3.5

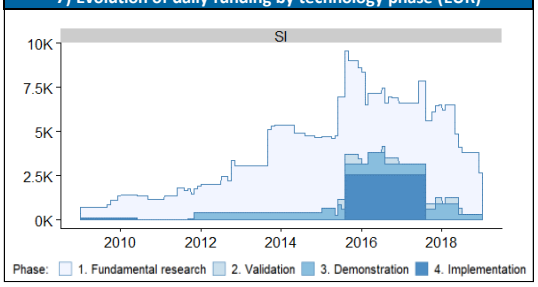
5) Evolution of daily funding by mode (EUR)



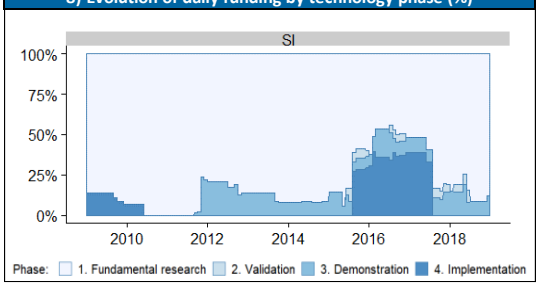
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



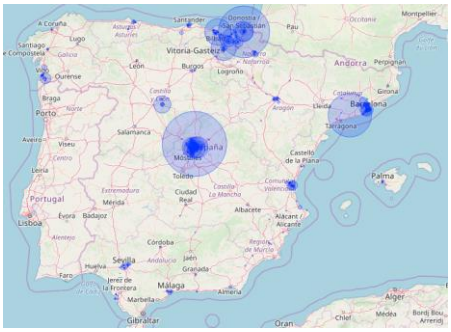
SPAIN

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	952
Government R&D expenditure (million EUR)	162
Enterprises engaged in cooperation in innovation (%)	28%

2) Transport R&D employment statistics	
Total jobs (thousands)	99
Male employment (%)	94%
Female employment (%)	6%
Permanent contract (%)	94%
Temporary contract (%)	6%
Age 15-29 (%)	21%
Age 30 - 49 (%)	44%
Age 50+ (%)	35%

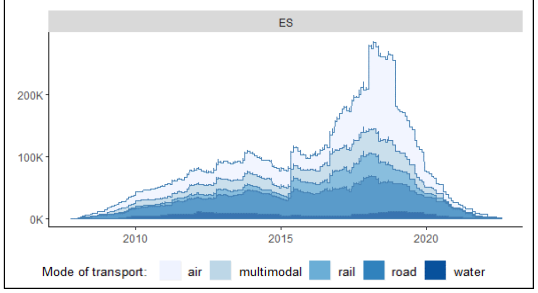
3) Spatial distribution of FP7 & H2020 funds



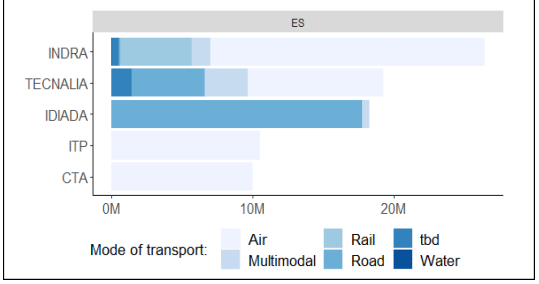
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	9	0	5	3	18	11	10
FP7 & H2020	Number of projects	120	124	318	48	212	124	113
	Number of beneficiaries	235	283	609	132	441	258	259
	Total amount (mEUR)	43.6	51.9	166.4	27.5	90.7	48.1	52.8

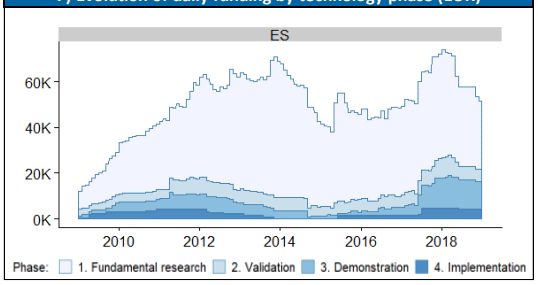
5) Evolution of daily funding by mode (EUR)



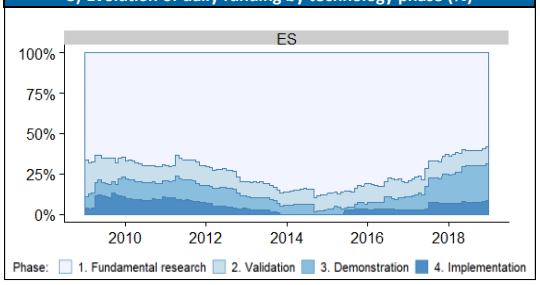
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



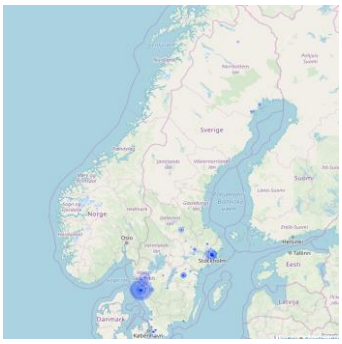
SWEDEN

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	:
Government R&D expenditure (million EUR)	180
Enterprises engaged in cooperation in innovation (%)	:

2) Transport R&D employment statistics	
Total jobs (thousands)	33
Male employment (%)	86%
Female employment (%)	14%
Permanent contract (%)	96%
Temporary contract (%)	4%
Age 15-29 (%)	25%
Age 30 - 49 (%)	43%
Age 50+ (%)	32%

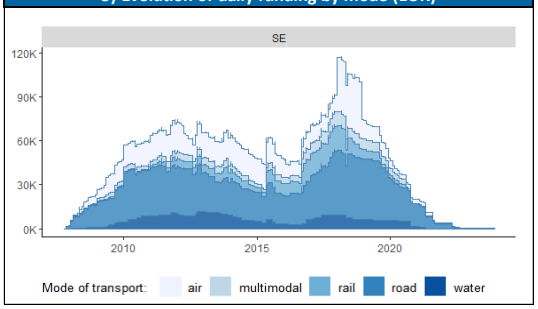
3) Spatial distribution of FP7 & H2020 funds



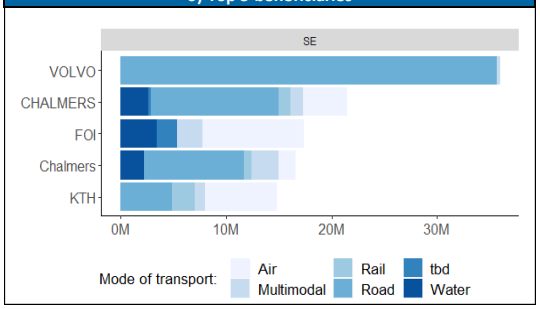
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	6	17	20	19	32	18	46
FP7 & H2020	Number of projects	78	84	183	38	97	52	61
	Number of beneficiaries	166	136	325	69	163	94	110
	Total amount (mEUR)	54.4	36.9	100.5	16.8	26.1	20.7	26.0

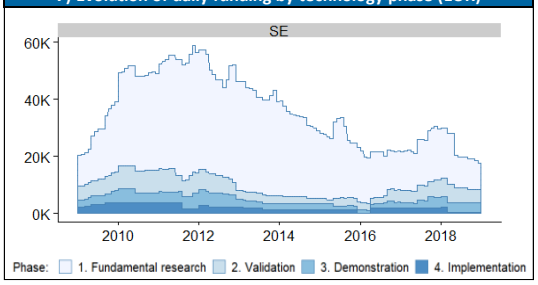
5) Evolution of daily funding by mode (EUR)



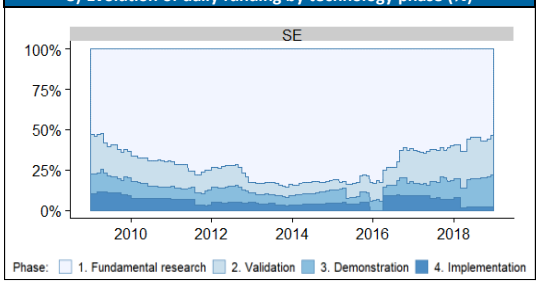
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



UNITED KINGDOM

TRIMIS FACT SHEET (DRAFT 03/06/2019)

1) General transport innovation statistics	
Business R&D expenditure (million EUR)	5538
Government R&D expenditure (million EUR)	856
Enterprises engaged in cooperation in innovation (%)	61%

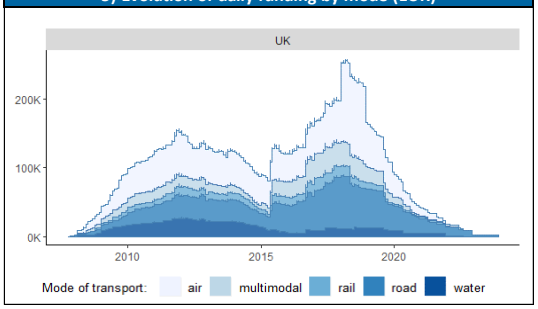
2) Transport R&D employment statistics	
Total jobs (thousands)	139
Male employment (%)	90%
Female employment (%)	10%
Permanent contract (%)	:
Temporary contract (%)	:
Age 15-29 (%)	25%
Age 30 - 49 (%)	45%
Age 50+ (%)	29%

3) Spatial distribution of FP7 & H2020 funds

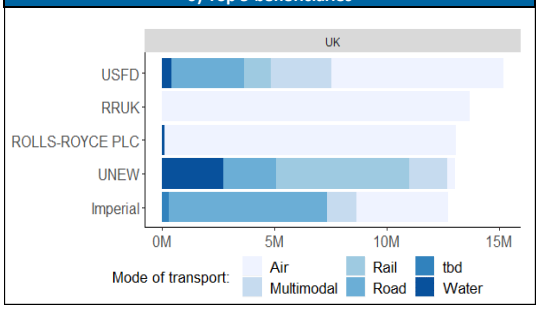
4) TRIMIS statistics for each STRIA roadmap

Scope	Indicator	CAT	EV	VDM	ALT	NTM	SMO	INF
National	Number of projects	32	5	17	8	51	39	42
FP7 & H2020	Number of projects	115	127	381	67	203	115	109
	Number of beneficiaries	201	266	811	137	360	227	230
	Total amount (mEUR)	40.4	90.7	254.1	24.7	77.7	46.8	58.6

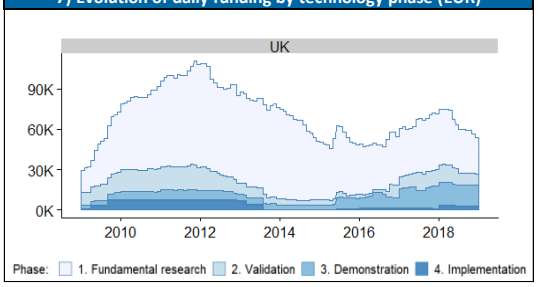
5) Evolution of daily funding by mode (EUR)



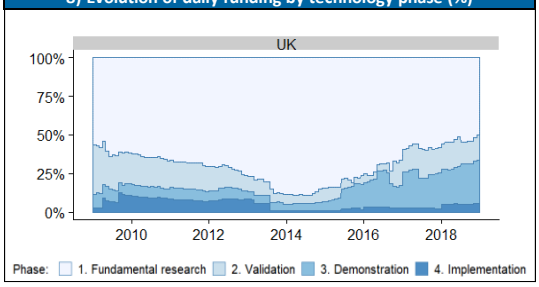
6) Top 5 beneficiaries



7) Evolution of daily funding by technology phase (EUR)



8) Evolution of daily funding by technology phase (%)



KJ-NA-29818-EN-N

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Publications Office

doi:10.2760/6954

ISBN 978-92-76-09005-2