



IPR MANAGEMENT AND DATA PROTECTION. SECOND RELEASE.

D9.9



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Executive summary

This report updates the IPR management and Data Protection. First Release (D9.3) submitted in M12 (August 2022) of the project. For this, D9.9 reviews the methodology applied for the appropriate creation, management and storage of datasets defined in D9.2 and updated in D9.7.

D9.9. identifies different aspects related to data protection and its legal aspects of each partner, upgraded and used in the project up to end of project (M39). This document provides an overview of the current IPR management in TANGENT project, specifically highlighting the approach of background and foreground management in the project.

Key words

#IPR management, #background management, #foreground management, #data management, #data protection, #GDPR, #personal data, #artificial intelligence, #data processing technologies, #secure data sharing

Table of contents

DELIVERABLE ADMINISTRATIVE INFORMATION.....	1
EXECUTIVE SUMMARY	3
TABLE OF CONTENTS	4
LIST OF ABBREVIATIONS AND ACRONYMS.....	6
1 INTRODUCTION.....	7
2 IPR MANAGEMENT IN TANGENT.....	8
3 TANGENT KEY EXPLOITABLE RESULTS AND ITS IP PROTECTION.....	10
4 DATA PROTECTION IN TANGENT	24
5 CONCLUSIONS.....	28
6 REFERENCES.....	29
ANNEX	30

List of tables

Table 1: Key Exploitable Results	11
Table 2: Characteristics of the Exploitable Results and IPR management.....	23
Table 3: Identified background by AIMSUN.....	30
Table 4: Identified background by IMEC.....	31
Table 5: Identified background by Rupprecht	32
Table 6: Identified background by Rennes	33
Table 7: Identified background by A-to-Be.....	33
Table 8: Identified background by TFGM.....	34

List of abbreviations and acronyms

Acronym	Meaning
GA	Grant Agreement
WP	Work Package
IPR	Intellectual Property Rights
e.g.	For example,
GA	Grant Agreement
TFGM	Transport for Greater Manchester
GDPR	General Data Protection Regulation
UK	United Kingdom
EU	European Union
EC	European Commissions
DPO	Data Protection Officer

1 Introduction

This deliverable outlines an overview on the management of Intellectual Property Rights (IPR) in the second period of the project. It showcases the IPR management strategies for key exploitable results, with a particular emphasis on protection measures.

Moreover, the report details the data protection measures implemented throughout the M19-M39 of the project. It demonstrates the impact of the activities described at the deliverables related to legal aspects, regulations, ethics, and data management on this deliverable's results.

2 IPR management in TANGENT

2.1 Introduction

The TANGENT activity on the visibility of the project itself and its outcomes and results has increased the potential for market adoption of the knowledge generated. It has helped to manage individual intellectual property rights (IPR) among partners effectively, facilitating knowledge transfer. The TANGENT IPR strategy was designed at Deliverable 9.3 (D9.3) and *remains unchanged* during the second period of the project.

2.2 Background management

The management of background information *was not modified during the project*. The following features have been included as stays in the D9.3:

- Information and knowledge held by the Parties prior to their accession to the Project, as well as any IPRs necessary for implementing the project or for using Foreground.
- Where application is necessary, only those IPRs for which the application was filed before the accession of the Party to the Project are included in the Background.
- Relate only to information needed to carry out the project or to use the foreground generated.
- The Background of a Party is not limited to the information and knowledge it owns, but also extends to any information, knowledge or IPRs it holds (e.g. licensing agreements).

The partners background information (Article 24.1 of GA) identified in the TANGENT is detailed at the time of signature of this Consortium Agreement and provided in the D9.3. The details of background and specific limitations or conditions for each partner involved in the project are further specified in the Annex.

2.3 Foreground management

The procedure for conducting the TANGENT foreground information *remains unchanged from that established in D9.3*, specifically:

In terms of the foreground information, each beneficiary is the owner of the results generated by them.

According to Article 26.2 of the Grant Agreement, the beneficiaries have joint ownership of the work, where results are generated from work carried out jointly by two or more Parties and it is not possible to separate such joint invention, design or work for the purpose of applying for, obtaining and/or maintaining the relevant patent protection or any other intellectual property right.

Within six (6) months of generating joint research results, the joint owners shall establish a written agreement outlining the ownership allocation, terms for exercising and protecting these results, the division of related costs, and the exploitation of jointly owned results on a case-by-case basis.

Until a joint ownership agreement is established and those rights remain in effect, the joint research results will be owned jointly in shares proportionate to each owner's contribution to the inventive step. The share of contribution will be determined by considering the individual contributions of the joint owners to the generation of the results.

Unless otherwise agreed between the joint owners:

- Each of the joint owners shall be entitled to use its jointly owned results for non-economic activities as defined in the Communication from the Commission — Framework for State aid for research and development and innovation (2014/C 198/01) on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and
- Each of the joint owners shall be entitled to otherwise Exploit the jointly owned results and to grant non-exclusive licenses to third parties (without any right to sub-license), if the other joint owners are given:
 - (a) at least 45 calendar days advance notice; and
 - (b) Fair and Reasonable compensation;

E.g., if a beneficiary, such as Deusto, is a joint owner of project results, they may use those results royalty-free for any purpose without seeking prior consent from other joint owners.

As indicated in deliverable D8.6, the consortium generates several research results that will be exploited by project partners after the project ends, this is further explained in the Section 3 of this document, covering the following: features and characteristics of the exploitable results, ownership, and protection measures.

3 TANGENT Key Exploitable Results and its IP protection

This section is devoted to the IPR management strategies for Key Exploitable Results (KER) in the TANGENT project.

#	Exploitable result	WP number	Ownership	IPR level & IPR protection
1	TANGENT solution for data harmonisation and fusion	WP2	CEFRIEL	Restricted to the owner, with access rights to consortium partners under agreed conditions.
2	Travel choice modelling (set of models, code)	WP3	NTUA	Restricted to the owner, with access rights to consortium partners under agreed conditions.
3	Framework for real-time traffic monitoring and forecasting	WP4	AIMSUN, IMEC	Restricted to the owner, with access rights to consortium partners under agreed conditions.
4	Data-driven demand estimation and prediction methods	WP4	AIMSUN	Restricted to the owner, with access rights to consortium partners under agreed conditions.
5	Traffic state predictions supply	WP4	IMEC	Restricted to the owner, with access rights to consortium partners under agreed conditions.
6	Anomaly detection	WP4	IMEC	Restricted to the owner, with access rights to consortium partners under agreed conditions.
7	Transport Network Optimization Module	WP5	DEUSTO	Restricted to the owner, with access rights to consortium partners under agreed conditions.

8	TANGENT Tool Dashboard and API Engine	WP6	A-to-Be	Restricted to the owner, with access rights to consortium partners under agreed conditions.
9	Multi-actor cooperation models for NTM	WP1	RUPPRECHT	Restricted to the owner, with access rights to consortium partners under agreed conditions.
10	Policy, regulatory and planning framework for TNM	WP1	RUPPRECHT	Restricted to the owner, with access rights to consortium partners under agreed conditions.
11	Impact assessment report	WP7	PANTEIA	Restricted to the owner, with access rights to consortium partners under agreed conditions.
12	Policy recommendations	WP1	RUPPRECHT	Restricted to the owner, with access rights to consortium partners under agreed conditions.
13	Exploitation and Business Model Methodology	WP8	ID4MOBILITY	Restricted to the owner, with access rights to consortium partners under agreed conditions.

Table 1: Key Exploitable Results

Below Table 2, a brief explanation of the characteristics and features of the exploitable results and the IPR management is presented.

Title of the exploitable result	1. TANGENT solution for data harmonisation and fusion
Basic information	
Work Package number	WP2
Partner ownership	CEFRIEL
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	The integrated exploitation of data sources in the mobility domain is key to providing added-value services to passengers, transport companies and authorities. Indeed, multiple stakeholders operate and maintain different kinds of data but several interoperability issues limit their effective usage. The TANGENT solution for data harmonisation and fusion overcomes data heterogeneity in terms of models and standards and data sparsity, enabling the combined reuse of multiple data sources in traffic management. More details on this KER are available in D2.4.
Protection of results	
Protection of results:	The software solution has been released under an open-source license (Apache license v2.0) and Cefriel's copyright. Regarding the mappings among data models that enable data harmonisation and fusion, Cefriel retains ownership and keeps them as proprietary results. No patent or similar protection mechanisms have been established, but Cefriel may consider them in the future
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	In the short term, Cefriel aims to exploit the results with a newly funded research project. Since the TANGENT solution for data harmonisation and fusion needs to be customised according to the data requirements and the characteristics of available data sources, in the long term Cefriel aims to commercialize it as part of the professional services it offers to its customers.

Title of the exploitable result	2. Travel choice modelling (set of models, code)
Basic information	
Work Package number	WP3
Partner ownership	NTUA
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Discrete choice models that can describe how travel mode decisions are made and then, to develop a travel choice module that can predict the probability of choosing each of the available travel modes for every population.
Protection of results	
Protection of results:	The source code will be kept proprietary and can be made available to third parties through licensing agreements.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	NTUA aims to develop new travel choice models based on data gathered through the travel behaviour survey questionnaire, with the results to be published in leading research journals. Moreover, these findings may contribute to future research collaborations in transport and traffic management.

Title of the exploitable result	3. Framework for real-time traffic monitoring and forecasting
Basic information	
Work Package number	WP4

Partner ownership	AIMSUN
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO (we consider the framework as the AIMSUN's result, rather than the methods involved in the framework)
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Framework for real-time traffic monitoring and forecasting under various circumstances (e.g., large/sport event, roadworks, accidents, etc.) while incorporating novel traffic sensing technologies from smart infrastructure and sensors. The framework will consist of (1) traffic supply predictions, (2) travel demand predictions, (3) detection of congestion events and its duration, (4) simulation predictions.
Protection of results	
Protection of results:	The source code will be kept proprietary and can be made available to third parties through licensing agreements.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	Aimsun plans to exploit the results as new components or improvements in the suite of real-time traffic management solutions (Aimsun Live and Aimsun Predict solutions). In addition, the results could target new research projects in the field of transport and traffic management in consortium with other partners.

Title of the exploitable result	4. Data-driven demand estimation and prediction methods
Basic information	
Work Package number	WP4
Partner ownership	AIMSUN
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO

If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Development of data-driven demand estimation and prediction methods to enhance the accuracy of existing traffic simulation solutions for mobility management.
Protection of results	
Protection of results:	The source code will be kept proprietary and can be made available to third parties through licensing agreements.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	Aimsun plans to exploit the results as new components or improvements in the suite of real-time traffic management solutions (Aimsun Live and Aimsun Predict solutions). In addition, the results could target new research projects in the field of transport and traffic management in consortium with other partners.

Title of the exploitable result	5. Traffic state predictions supply
Basic information	
Work Package number	WP4
Partner ownership	imec
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	

Characteristics of the exploitable result:	Traffic supply forecasting based on deep learning modelling that combines spatial aggregation and temporal forecasting. The output of these models are time series predictions for the future time steps. The forecasting models have been applied to all the case studies within the TANGENT project, with heterogeneous datasets, e.g., counts, speeds, floating vehicle data on roads and public transport datasets.
Protection of results	
Protection of results:	The source code will be kept proprietary and can be made available to third parties through licensing agreements.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	imec plans to exploit the results in future research projects. It targets new research projects and corresponding academic publications. Future research directions may include more detailed accounting for unseen events through the integration of anomaly detection algorithms in deep learning algorithms, research regarding domain adaptation to align further with traffic flow theory, the need to retrain, the best measures used for anomaly detection, the incorporation of demand, the interaction with optimization methods, etc.

Title of the exploitable result	6. Anomaly detection
Basic information	
Work Package number	WP4
Partner ownership	imec
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	

Characteristics of the exploitable result:	Anomaly detection algorithm based on a comparison between the observed value, e.g. speed, travel time, etc., and the traffic supply prediction.
Protection of results	
Protection of results:	The source code will be kept proprietary and can be made available to third parties through licensing agreements.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	imec targets new research projects. Future research directions may include more detailed accounting for unseen events through the integration of anomaly detection algorithms in deep learning algorithms, the best measures used for anomaly detection, the interaction with event duration in a full framework of prediction and optimization.

Title of the exploitable result	7. Transport Network Optimization Module
Basic information	
Work Package number	WP5
Partner ownership	DEUSTO (SVCC, DRT, PTTC and DCP) NTUA (Arbitration Model)
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	On-line and off-line optimisation of multimodal network-wide traffic management has been implemented based on Artificial Intelligence, and concretely model-based optimisation and deep reinforcement learning techniques. The module addresses 4 traffic management problems: • “Signal vehicle Coupled Control (SVCC) with CAVs” • “Optimization of integration of Demand-Responsive Transport (DRT) systems with public transit modes” • “Synchronization of Public Transport and Traffic control” (PTTC)

	“Dynamic Congestion Pricing (DCP)” Additionally, the Arbitration Model supplies the KER 7. Transport Network Optimization Module: A data-driven decision support system is developed to detect consensual views in multi-actor traffic management environments. The system aids in assessing how stakeholders balance tradeoffs across transport network goals for the four TANGENT strategies, while also revealing stakeholder relationships, prominent opinion clusters, and simulating spontaneous discussions, with a virtual arbitrator stepping in when consensus fails.
Protection of results	
Protection of results:	The system will be protected as “SW registration” and with “Copyright”, giving the option of granting licenses of the “Transport Network Optimization Module” to third parties, mainly companies offering information services in ITS. The source code of the Arbitration Model will be kept proprietary and can be made available to third parties through licensing agreements.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	The exploitation strategy of Deusto as a university is to strengthen the mechanisms for the interaction between university and industry. The results will be protected as “SW registration” and Copyright, giving the option of granting licenses of the optimisation module to third parties, mainly companies offering information services in ITS. Besides, the knowledge gained in this research will be integrated into different research programmes offered by the University of Deusto, in the domain of ‘Engineering for the Information Society and Sustainable Development’ as a PhD program. Besides, new research projects in transport and traffic management domain in consortium with other partners. NTUA (a proprietor of the Arbitration Model) aims to develop new arbitration models based on data gathered through the travel behaviour survey questionnaire, with the results to be published in leading research journals. These findings along with the finding already reported in TANGENT deliverables may contribute to future research collaborations in transport and traffic management.

Title of the exploitable result	8. TANGENT Tool Dashboard and API Engine
Basic information	
Work Package number	WP6
Partner ownership	A-to-Be

Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	A customizable Dashboarding tool that can be used to create and display live Map, Indicator and Table data. The data sources displayed and the way the data is displayed is customizable in this user interface. It includes a Planning module where Management plans can be created and managed. It also includes Alerts, Chat, a Smart Infrastructure Classification Index dashboard, a backoffice, a Support section and a user Feedback mechanism that is capable of reporting issues along with client screenshots. The TANGENT API is a generic, data-driven API engine that combines an AMQP broker with generic REST Services and supports data exchange and persistence for the TANGENT Tool, namely its Dashboard
Protection of results	
Protection of results:	The source code will be kept proprietary and can be made available to third parties through licensing agreements. The source code may also be deposited and registered to clearly provide proof of its authorship and be able to enjoy the associated protection under the Bern convention.
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	The result will mainly be exploited directly by A-to-Be although specific licensing and/or partnership arrangements are also possible.

Title of the exploitable result	9. Multi-actor cooperation models for NTM
Basic information	
Work Package number	WP1
Partner ownership	RUPPRECHT

Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Analysis of multi-actor cooperation models for innovative NTM, studying the system's architecture and operation, to develop optimal cooperation models and provide recommendations towards effective governance structures for NTM
Protection of results	
Protection of results:	The result will be protected with "Copyright"
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	In the short term, Rupperecht plans to leverage the outcomes for newly funded research projects. Given that TANGENT's insights into multi-actor requirements and needs require further consideration alongside ongoing advancements in multimodal traffic management, Rupperecht aims to eventually commercialize these findings as part of its professional service offerings.

Title of the exploitable result	10. Policy, regulatory and planning framework for TNM
Basic information	
Work Package number	WP1
Partner ownership	RUPPRECHT
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO

Description of the exploitable results	
Characteristics of the exploitable result:	Guidance to local authorities on the effective integration of the developed NTM capabilities, models and tools, into their planning and decision-making processes. It builds upon SUMP methodology, and the developed guidance to handle innovative mobility solutions to support and maximise take-up of TANGENT's outputs and outcomes.
Protection of results	
Protection of results:	The result will be protected with "Copyright"
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	The results will be applied in future projects to further advance knowledge on urban governance, particularly within the TEN-T network. This will help to more closely integrate SUMP and MTM processes through potential publications, consulting activities, and updated guidelines.

Title of the exploitable result	11. Impact assessment report
Basic information	
Work Package number	WP7
Partner ownership	PANTEIA
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Overall report with the results of TANGENT in the different Case Studies and a guide of recommendations for replicability in other cities

Protection of results	
Protection of results:	The result will be protected with "Copyright"
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	The results will be applied in future projects and consulting activities to advance knowledge on impact assessment of transport management solutions.

Title of the exploitable result	12. Policy recommendations
Basic information	
Work Package number	WP1
Partner ownership	RUPPRECHT
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Policy report targeted at public authorities describing the link between multi-modal network management and policy and recommending on how multimodal network management can be integrated into policy and planning processes
Protection of results	
Protection of results:	The result will be protected with "Copyright"

Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	The results are planned to be exploited through direct consulting services for cities focusing on developing their SUMP and enhancing ITS and Traffic management status quo.
Title of the exploitable result	13. Exploitation and Business Model Methodology
Basic information	
Work Package number	WP8
Partner ownership	ID4MOBILITY
Does it have jointed / shared ownership? Please indicate the beneficiary(ies)	NO
If the ownership is joined/shared, please indicate the type of agreement between the organisations	NO
Description of the exploitable results	
Characteristics of the exploitable result:	Methodologies to build Exploitation and Business Plans of the TANGENT tools and overall solution
Protection of results	
Protection of results:	The result will be protected with "Copyright"
Does your organisation plan to exploit directly the results or does it plan to license it to third parties?	The knowledge of the business and exploitation methodology will be exploited directly by TANGENT consortium and may be contributed to future research and innovative collaborations, such as future HORIZON projects related to multimodal traffic management.

Table 2: Characteristics of the Exploitable Results and IPR management

4 Data protection in TANGENT

The Data Protection principles and techniques, collection and maintenance of the personal data and proceeding the rights of data subjects *have not been modified during the project life*. They follow to those established in the Data Management Plan (DMP) – D9.2 and D9.7. The brief outline of these principles is provided below.

4.1 Introduction

In line with our commitment to data protection, the TANGENT project has delivered the DMP.1st release (D9.2) and DMP.2nd release (D9.7). The DMP plan outlined the data that were managed and processed throughout the project lifetime, including personal data. The consortium employed the “IPR management and Data Protection” (D9.3) that was submitted M12. Additionally, deliverables D10.1 and D10.2 identified the ethical requirements for individual participation in project activities.

Moreover, TANGENT adhered to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 – GDPR, “UK - Data Protection Act 2018” and relevant national regulations for data protection. Therefore, only anonymous user data was collected and securely stored. Sensitive data was not collected. Data was processed in compliance with established procedures for collection, storage, access, sharing, protection, retention, and destruction. TANGENT protected user privacy and data security. This is detailed and updated in the 3 documents: (1) Data Management Plan. First release (D9.2), Second release (D9.7), and Third release (D9.8)

4.2 Datasets with personal data in TANGENT

TANGENT fully complied with EU and national privacy and data protection regulations. To ensure GDPR compliance, personal data was primarily kept at its source, with only pseudonymized data shared. Access was strictly controlled. Consent forms were collected when necessary (More information in D10.1).

Before data publication, a thorough review ensured compliance with Article 29 of Grant Agreement. All parties were involved to safeguard confidentiality. De-anonymization measures were implemented, and potential issues were addressed before each publication. Please consult the D9.3 regarding the TANGENT datasets with personal data.

4.3 Data processing principles

The TANGENT data protection policy is grounded in the six fundamental data processing principles outlined by the GDPR, as detailed in D10.2. Shortly, this includes:

- Data must be processed lawfully, fairly, transparently, and for specified purposes.
- Data should be minimal, accurate, and up-to-date.
- Data must be stored securely for a limited time, unless needed for archiving purposes.
- Security measures must be in place to protect data from unauthorized access, loss, destruction, or damage.

4.4 Data anonymization and pseudonymisation techniques

TANGENT shared project data is pseudonymized and processed through private agreements to maintain anonymity which ensures it's unidentifiable.

4.5 Informed consents

TANGENT participants have been recruited for the following activities: (1) TANGENT Forum activities, (2) participation in surveys and (3) participation in travel behaviour modelling (providing tracking information).

Volunteers who participated in these actions signed or digitally accepted an informed consent form. Through this form participants received detailed information about the research objectives and methods in a language and terms they understood. Additionally, they were informed of their voluntary participation and their right to withdraw from the research at any time, even after providing informed consent, without facing any consequences.

The submitted deliverable D10.1 H – Requirement No 1 provides the three types of informed consents templates:

- stakeholders' participating in the TANGENT Forum activities
- volunteers participating in the TANGENT Survey
- volunteers participating in providing their tracking information

4.6 Rights of data subjects

During the second phase of the TANGENT, partners guarantee the right to access, rectify, cancel, consult the General Data Protection Registry, claim protection from the Data Protection Agency. This was established at the D9.3 and *remain without changes*, namely:

- A Data Protection Officer (DPO) has ensured GDPR compliance, as outlined in Deliverable D10.2 POPD – Requirement No.2.
- A comprehensive informed consent process will be implemented, providing data subjects with clear information about data collection, usage, retention, and their rights to access, rectify, erase, object to, and restrict the processing of their personal data.

4.7 Privacy policy of the TANGENT dashboard

The TANGENT also applied the Articles 12, 13, and 14 of the GDPR which provide specific guidelines for creating a privacy policy, which is also referred to as a "privacy notice".

The information in the TANGENT dashboard is confidential, and no one else except TANGENT consortium partners will access. The information and data will be managed according to the terms outlined in the Consortium Agreement and TANGENT Data Management Plan. The TANGENT dashboard privacy policy is presented below.

TANGENT dashboard privacy policy

TANGENT project

The European transport faces major challenges in terms of safety, greenhouse gas emissions, traffic congestion and its derived costs. In addition, the development of disruptive technologies and emergence of new mobility solutions generate a revolution in transport network and traffic management. In this context, TANGENT aims to develop new complementary tools for optimising traffic operations in a coordinated and dynamic way from a multimodal perspective and considering automated/non-automated vehicles, passengers and freight transport.

TANGENT will research on advanced techniques on modelling and simulation, such as prediction and simulation models for future demand & supply of transport; optimisation techniques for balancing the demand flows between the means of transport; and users travel behaviour modelling. As a result, a set of applications for decision-making support will be delivered creating a framework for coordinated traffic and transport management, encompassing an enhanced mobility information service and dashboard with associated APIs and advanced functionalities with a two-fold approach: to provide real-time traffic management recommendations and to support Transport Authorities to design network-wide optimal strategies. The framework also aims at supporting a multi-actor cooperation approach for transport network management by enabling communication channels. In this way, the services target to different actors in traffic management.

The results will be tested in three case studies: Rennes Métropole (FR), Lisbon (PT), Great Manchester (UK) and a virtual case study in Athens (EL) with real data from various modes of transport, under different traffic events such as bottlenecks, accidents, pedestrian flow etc.

For further information in TANGENT project, please see: <https://cordis.europa.eu/project/id/955273>

Data protection and confidentiality

The information in the TANGENT dashboard is confidential, and no one else except TANGENT consortium partners will access. The information and data will be managed according to the terms outlined in the Consortium Agreement and TANGENT Data Management Plan.

The information will be used only for the sole purpose of research. It will be stored on a server owned by the University of Deusto and will be kept for a minimum of five years after the end of the project for auditing or reporting purposes by request of the funding agencies.

Contact information from users will be collected to keep contact during project duration. Afterwards, it will be incorporated to a file and kept confidential and will only be used for possible contacts in the future for related projects or activities.

At any time, you can contact Leire Serrano (leire.serrano@deusto.es) to modify or delete your personal data and /or other sensitive information.

Legal information

Data will be handled complying with the applicable regulation at EU level, as well as the national laws applicable:

At EU level:

- *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).*

United Kingdom:

UK - Data Protection Act 2018

Further information

If you have any question, please contact: Leire Serrano (leire.serrano@deusto.es)

5 Conclusions

TANGENT have implemented the IPR management framework outlined in Deliverable D9.3 without modifications. It specified background knowledge contributions from each partner and terms for sharing results. The document demonstrated joint ownership of key exploitable results and outlines measures for protecting project outcomes.

Additionally, the document outlines the employed during the second period of the project data protection management strategy, including:

- Personal datasets handled within the project
- Data processing principles
- Data anonymization/pseudo-anonymization techniques
- Informed consent procedures and participant rights
- Privacy policy for the TANGENT dashboard

6 References

TANGENT- Grant Agreement (Description of the Action)

TANGENT deliverable: D9.2 - Data Management Plan. First release

TANGENT deliverable: D9.7 - Data Management Plan. Second release

TANGENT deliverable: D10.1 - H - Requirement No. 1

TANGENT deliverable: D10.2- POPD - Requirement No. 2

TANGENT deliverable: D10.3- EPQ - Requirement No. 3

Annex

The information retrieved from the Deliverable 9.3, IPR management and Data Protection. First release, issued 31/08/2022.

DEUSTO

As to DEUSTO, it is agreed between the Parties that, to the best of their knowledge, no data, know-how or information of DEUSTO shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party's Results (Article 25.3 Grant Agreement).

AIMSUN

The following background is hereby identified and agreed upon for the Project. Specific limitations and/or conditions, shall be as mentioned hereunder:

Specific limitations and/or conditions for:		
Describe Background	Implementation (Article 25.2 of GA)	Exploitation (Article 25.3 of GA)
AIMSUN Next Advanced Edition	Use of AIMSUN Next subject to AIMSUN End-user License Agreement and limited to evaluation or testing tasks during the project.	After the end of the project, AIMSUN Next licenses can be purchased under standard commercial conditions
AIMSUN Live	Excluded	Excluded

Table 3: Identified background by AIMSUN

NTUA

As to NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA), it is agreed between the Parties that, no data, know-how or information of NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA) shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party's Results (Article 25.3 Grant Agreement).

IMEC

The following background is hereby identified and agreed upon for the Project. Specific limitations and/or conditions, shall be as mentioned hereunder:

	Specific limitations and/or conditions for:
Describe Background	Implementation (Article 25.2 of GA) and Exploitation (Article 25.3 of GA) (Article 25.3 of GA)
Acsim simulator: The Acsim simulator is an agent-based traffic simulation framework developed by imec mainly used for research purposes to simulation performance. The framework is characterized by its dynamic multi-level and load balancing capabilities. It allows to optimize the distribution of abstraction formalisms and agent load balancing based on simulation context information gathered during simulation execution. As a result, it can balance computational cost and simulation accuracy at run-time. The techniques presented in the Acsim framework are particularly interesting in traffic optimization scenarios and non-deterministic simulations of traffic events.	Acsim simulator consists below open source components which access rights for Implementation and Exploitation are subject to listed related open source licenses: -Boost: https://www.boost.org/LICENSE_1_0.txt -nlohmann/json: https://opensource.org/licenses/MIT -gtest: https://github.com/google/googletest/blob/master/LICENSE (BSD3) -tinyclang: https://opensource.org/licenses/Zlib -concurrentqueue: https://github.com/ericniebler/concurrentqueue/blob/master/LICENSE.md (BSD) -sfml: https://www.sfml-dev.org/license.php (Zlib) -ImGui: https://github.com/ocornut/imgui/blob/master/LICENSE.txt (MIT)
“Traffic prediction”, number: 202115790.5 – 1222, filing: 18-12-20	Traffic prediction patent application consists Tensorflow open source components which access rights for Implementation and Exploitation are subject to the related open source license: https://github.com/tensorflow/tensorflow/blob/master/LICENSE

Table 4: Identified background by IMEC

CEFRIEL

No data, know-how or information of Cefriel shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party’s Results (Article 25.3 Grant Agreement).

RUPPRECHT

The following background is hereby identified and agreed upon for the Project. Specific limitations and/or conditions shall be as mentioned hereunder:

Describe Background	Specific limitations and/or conditions for:	
	Implementation (Article 25.2 of GA)	Exploitation (Article 25.3 of GA)
CoEXist Automation-Ready Framework: conceptual and methodological framework for CCAM planning and implementation.	Utilisation under attribution of authorship.	
SUMP Self-Assessment tool: questionnaire and analysis of a SUMP's development process and its content, structured along the SUMP Guidelines. It corresponds to the SUMP requirements as set out in the European Commission's Urban Mobility Package.	Utilisation under attribution of authorship.	

Table 5: Identified background by Rupprecht

ID4MOBILITY

No data, know-how or information of ID4MOBILITY shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party's Results (Article 25.3 Grant Agreement).

RENNES

The following background is hereby identified and agreed upon for the Project. Specific limitations and/or conditions, shall be as mentioned hereunder:

Describe Background	Specific limitations and/or conditions for:	
	Implementation (Article 25.2 of GA)	Exploitation (Article 25.3 of GA)
Any open data publicly available on https://data.rennesmetropole.fr/explore/?sort=modified (public transport data, public parking areas, vehicle power stations, etc.)	Written Open License or written ODbL (Open Database License) from the Open Knowledge Foundation	Written Open License or written ODbL (Open Database License) from the Open Knowledge Foundation
Other restricted data held by Rennes Metropole or linked	Written agreement for data access and/or use	Subject to further agreement/contract

Specific limitations and/or conditions for:		
Describe Background	Implementation (Article 25.2 of GA)	Exploitation (Article 25.3 of GA)
partners (e.g. private/personal transportation, specific mobility surveys, air quality, etc.)		

Table 6: Identified background by Rennes

A-to-Be

The following background is hereby identified and agreed upon for the Project. Specific limitations and/or conditions, shall be as mentioned hereunder:

Specific limitations and/or conditions for:		
Describe Background	Implementation (Article 25.2 of GA)	Exploitation (Article 25.3 of GA)
Restricted data held by A-to-Be and its Linked Third Party Via Verde, namely anonymized data from: c-its vehicles; highway volumes and Via Verde users in parks, ferries, trains and buses.	Written agreement for data access and/or use, with specific conditions	Subject to further agreement/contract
A-to-Be will provide knowledge and expertise in the fields of Traffic Management Platforms Architecting and Intelligent Transport Systems.	Utilisation under attribution of authorship.	

Table 7: Identified background by A-to-Be

CARRIS

No data, know-how or information of CARRIS shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party's Results (Article 25.3 Grant Agreement).

TFGM

The following background is hereby identified and agreed upon for the Project. Specific limitations and/or conditions, shall be as mentioned hereunder:

Specific limitations and/or conditions for:		
Describe Background	Implementation (Article 25.2 of GA)	Exploitation (Article 25.3 of GA)
TfGM will supply non confidential highways traffic related data, including but not limited to journey time, traffic signal timings, automated traffic count, variable message sign, roadworks and events data	Access Rights to Background are limited to the project implementation based on specific information needed by other Parties in the context of work plan as defined in the Annex I of the Grant Agreement. The information shall be requested previously by each Party.	
TfGM will provide knowledge and expertise in the fields of Intelligent Transport Systems, Urban Traffic Control and control centre operations. Sharing knowledge of transport challenges and solutions to these challenges from a transport authority perspective	No limitations	

Table 8: Identified background by TFGM

PANTEIA

No data, know-how or information of PANTEIA shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party's Results (Article 25.3 Grant Agreement).

POLIS

No data, know-how or information of POLIS - PROMOTION OF OPERATIONAL LINKS WITH INTEGRATED SERVICES, ASSOCIATION INTERNATIONALE shall be Needed by another Party for implementation of the Project (Article 25.2 Grant Agreement) or Exploitation of that other Party's Results (Article 25.3 Grant Agreement).