NEWSLETTER #9

March 2023

planet

PROGRESS TOWARDS FEDERATED LOGISTICS THROUGH THE INTEGRATION OF TEN-T INTO A GLOBAL TRADE NETWORK

COORDINATION

inlecom

COMMUNICATION

FUNDACIÓN VALENCIAPORT

Contents

The PLANET Open EGTN Platform

PLANET aims to address the challenges of assessing the impact of emerging global trade corridors on the TEN-T network and to ensure effective integration of the European to the Global Network, through the transformation of TEN-T to a Physical Internet-enabled Integrated Green EU-Global transport and logistics Network, the **EGTN**.

The EGTN can be defined as a green, globally connected and smart network that is aware of the global and EU geoeconomic developments and takes advantage of technological advancements, responding to changes, ensuring equitable inclusivity of all transport and logistics (T&L) participants, preserving the environment and enhancing Citizens quality of life. As such, the EGTN extends the notion of the TEN-T concept by incorporating geo-economic awareness and takes a global view.

PLANET's concept and vision is supported by the **Open EGTN Platform**, a unified interface to communicate with all of PLANET's Cloud-based Open EGTN Infrastructure components that integrates infrastructure such as an Event Streaming Service, a Data Lake, monitoring interfaces, a dashboard with a User Interface (UI) as well as PI services – predictive analytics for logistics operations, Physical Internet (PI) route optimisation and Decision Support Systems (DSS) –, and provides seamless integration of these components based on an explicit governance model for onboarding users and data.

The EGTN Platform Functionalities and Innovation

The EGTN Platform is a solution that goes one step closer to the realization of the PI paradigm, facilitating data sharing, collaboration and decision making through the integration of Artificial Intelligence (AI) models and PI services to be easily implemented that answer analytics questions in real time using a plethora of data stemming from heterogeneous sources.

The lack of information sharing and the large number of standards in the industry prevent the creation of collaborative networks capable of optimizing processes and taking advantage of shared capacities and resources especially technological ones. This PLANET solution aims to be an inclusive and powerful platform designed to meet the particular needs of the T&L industry by implementing a customised, unique combination of cutting-edge technologies and models that securely and privately share data, enable efficient data processing and analysis, and bring together heterogeneous data from Internet of things (IoT) data to blockchain events.

To this end, a **secure and scalable layer for data aggregation and data ingestion** is proposed that enables the pre-processing and validation of data based on metadata. Data Ingestion is handled by versatile mechanisms responsible for importing heterogeneous data from various external sources in batch and/or in real time in a secure manner, such as IoT networks and devices, which are then processed and used by the **PI Services** offered by the platform, i.e., DSS that consists of predictive and prescriptive models and whose goal is to decide upon the best transportation options.

www.planetproject.eu
www.linkedin.com/company/planeth2020
@PlanetH2020
Planet Project - YouTube

*The **PI Services** empower all EGTN actors with better decision-making tools, so that they can in turn optimise planning and preplanning, considering certain constrains, goals and limitations, such as lowest-cost route, fastest route or low carbon route.*

On top of this, the data-driven services developed in *WP2 - PLANET Cloud-based Open EGTN Infrastructure* are deployed that offer optimisations in the selection of routes, ports and in general PI nodes towards developing an interconnected network and improve the efficient use of resources. A DSS allows the users to make important T&L and PI decisions, such as corridor route optimisations, warehouse time reductions etc. The DSS provides data intelligence and is based on different Machine Learning (ML) models, as well as simulation mechanisms. The results of these models and simulations are the basis for the decision-making process. Intelligent pallet and container volume forecasting and route optimisation is used with the ultimate purpose of achieving the PI roadmap, while the use of smart contracts facilitates automated and paperless negotiations.

To conclude, **Blockchain interoperability** aims to overcome the silos of the different Blockchain systems/partners and user-accessible dashboards within the **Human Machine Interface (HMI)** offer a visual frontend to all stakeholders.

The provision of a blockchain front-end for the interconnection of backend blockchain systems increases the visibility across the entire supply chain and enhances the collaboration between communities. Also, Smart contracts are enabled through a Blockchain frontend, that exposes a decentralized network of transactions of multiple backend blockchain systems that connect to the EGTN Platform and share logistics and SLA management events in a transparent, immutable, trusted, and efficient manner. As a result, following the decision-making process, by using smart contracts, contract negotiation and execution can take place.

Finally, critical data are presented to the end users through the dashboards developed in the frontend of the EGTN Platform empowering actors to manage all TEN-T corridors as well as the PI workflows in real time through a **HMI**. As such, the HMIs go beyond the presentation of numbers and analytics. In fact, they are based on various work packages of the project in an effort to draw requirements, needs and anticipated support to the logistics' user. Supply chain visibility to the evolving networks has been key to the design considerations. Technological advancements, solutions and concepts like PI and Blockchain have also been key to the final offering. The aim was a content-rich, real time information library running across different information silos and enabling a more effective T&L decision support making and emphasizing interoperability amongst the logistics community and beyond.

More specifically, the user can rely on the HMIs to:

1. Track and Trace a specific consignment(s) at any point of time.

2. Search and identify information and regulations as well as an observatory of the T&L network in one-for-all data library.

www.planetproject.eu
www.linkedin.com/company/planeth2020
@PlanetH2020
Planet Project - YouTube
3

3. View, edit, communicate transport documents and logistics events exchanged securely using blockchain technologies.

4. Benefit from technical offerings like the Decision Support System last mile optimization, Physical Internet, predictive analytics, routing optimization, predictive transport models and blockchain to assess the best possible scenario for the logistics service as well as plan capacity resources and utilization.

5. Evaluate simulation tests evidencing the benefit of technologies and concepts designed and implemented in the project.

6. Interface with other platforms and gain advantage of a dashboard capable to offer security, flexibility, connectivity and monitoring capacity.

As a result, the unified interface to the EGTN infrastructure's data and services will support the users' interaction and interoperability with various systems via a trusted, web-based solution. The unified interface collects, analyses and presents information to the users in a customizable module, offering tangible benefits to an industry which has always been described as fragmented with complex operations and isolated ICT systems and resources that often lead to elevated costs.

Value to the T&L Industry

In this way, **added value to the business community** is achieved with an information ecosystem to support the decision-making process with real time data across different supply chain domains. On the other hand, **added value to the technology** is the offering of tools, applications and programming languages to enhance integration of systems for an interoperable network of the logistics industry through a novel one-point data library.

The EGTN platform and the results of the different technologies applied and validated throughout the Living Labs (LLs)[1] have demonstrated that PLANET is generating valuable insights and solutions that will improve the efficiency, sustainability, and resilience of the supply chain. The EGTN users take advantage of the cutting-edge technologies and the unique set of features offered by the platform, as it:

- Improves customs control through the digitisation of the process.
- Increases trust but also confidentiality between different partners.
- Ensures the authenticity and the integrity of the data shared between partners.

To sum up, **it is a solution for sustainable, integrated, and multimodal freight transport** that engages diverse stakeholders of the T&L supply chain, enabling them to interoperate and exchange data through a secure and friendly ICT infrastructure, without the need for multiple logins on multiple platforms and data accumulation. Moreover, it provides tools, services and guidelines for shipping, routing and physical internet node optimization, enables and promotes the collaboration with other actors of the supply chain, within and across borders in a self-determined and secure way, and accelerates the adoption of technological advancements and new concepts, making them accessible to T&L actors.

---

[1] For more information, please visit the Newsletters 6, 7 and 8, and the Factsheets of LL1, LL2 and LL3.

PLANET LL1 and LL3 workshops

SAVE THE DATE! PLANET LL2 WORKSHOP

Thursday, April 20, 2023, 14:00h-17:00, Hybrid. Registrations by email: c.wensink@panteia.nl

The seminar on *Synchromodal & dynamic management of TEN-T & Intercontinental flows* will present the outcomes of LL2 and include interactive discussions. The seminar will answer the question: **What can state-of-the-art innovations for customs and intercontinental rail freight deliver?**

You can find more information and the agenda here!

SAVE THE DATE! PLANET LL1 WORKSHOP

Thursday, April 27, 2023, 11:00h-13:00, Hybrid.
On-line registration here

The workshop PLANET Living Lab 1 *Physical Internet and Blockchain for optimised door-to-door Asia-Europe corridors – Mediterranean Corridor* will address logistic challenges and how new technologies (IoT, AI and blockchain) and concepts (Physical Internet) have been utilised to improve processes, operations and efficiency along the door-to-door transport chains linking the Maritime Silk Road with EU internal corridors.

You can find more information and the agenda here!

New submitted deliverables

There are the new public deliverables you can find in our website:

DELIVERABLE	WORK PACKAGE (WP)
D2.2 Open EGTN Platform Architecture final version	WP2
D1.5 Simulation based impact of new trade routes on TEN T and disadvantaged regions final version	WP1
D1.7 Legislation and EU Policy to impact EGTN final version	WP1
D1.9 Simulation-based analysis of T&L and ICT innovation technologies final version	WP1

www.planetproject.eu
www.linkedin.com/company/planeth2020
@PlanetH2020
Planet Project - YouTube

News & Events: publications and past events

You can find all PLANET publications in our **Zenodo** portal <u>here</u> or in our website <u>here</u>

CERTH presented PLANET Project and the resilience attribute of EGTN

CERTH wrote an interesting article about PLANET and the work related to the resilience attribute of the EGTN.

You can read and download the full article <u>here</u>!
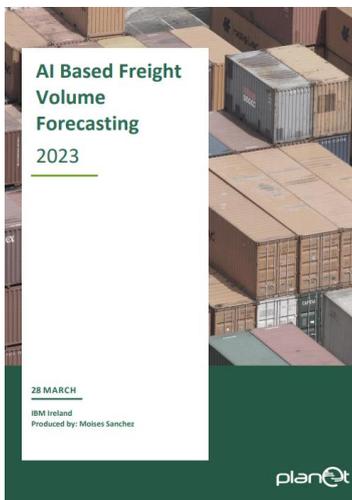
PLANET released its First White Paper

The 1st white paper – *Towards an Integrated System for Global Transport Tracking* presents a conceptual solution for tracking and tracing transportation on a global scale.

The approach focuses on defining data flows and formats based on the latest versions of GS1 standards. Importantly, this means that so long as each system conforms to the guidelines, a global solution can be comprised of any number of separate systems that are rolled out over time and the systems can choose which parts of their data to share and with whom. The white paper will thus inevitably focus on some of the technical details because these shared details are crucial to avoid the need for a centralized system that stores and controls all the private data.

You can read and download the *PLANET White Paper – Towards an Integrated System for Global Transport Tracking* <u>here</u>!

Towards an Integrated System for Global Transport Tracking

2023

27 FEBRUARY
Sirma AI trading as Ontotext
Produced by: Andrey Tagarev
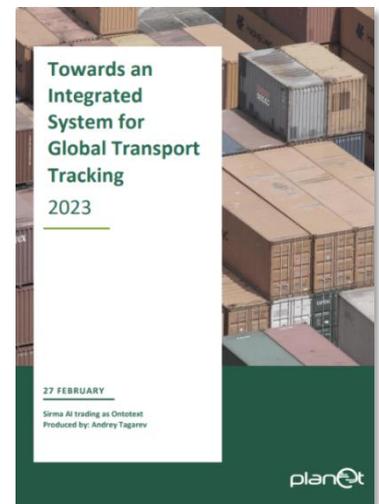
PLANET released its Second White Paper

AI Based Freight Volume Forecasting

2023

28 MARCH
IBM Ireland
Produced by: Moises Sanchez

The 2nd white paper – AI Based Freight Volume Forecasting looks at analysing and describing the relevance in using AI based forecasting models to predict freight volume and their usage in the transport and logistic domain towards the development of Physical Internet. Also, the paper highlights the more immediate applicability of the AI based forecasting models across different use cases within the PLANET project in predicting containers as a standalone forecast demand service.

You can read and download the PLANET White Paper – AI Based Freight Volume Forecasting <u>here</u>!

www.planetproject.eu

www.linkedin.com/company/planeth2020

@PlanetH2020

Planet Project - YouTube

MARCH 07-08, 2023 – PLANET FINAL GENERAL ASSEMBLY MEETING

PLANET Final General Assembly took place on the 07th and 08th of March 2023, following a hybrid format. This meeting, hosted by The Centre for Research & Technology, Hellas (CERTH)/ Hellenic Institute of Transport (HIT), was divided in two days and was attended by over 58 participants.

You can find more information here!

MARCH 08, 2023 – PLANET FINAL ADVISORY BOARD MEETING

PLANET Final Advisory Board Meeting took place on the 8th of March 2023 and centred on 2 key aspects of the PLANET project: commercialisation and experimentation.

You can find more information here!

MARCH 08, 2023 – PLANET LL3 WORKSHOP

In the Railway Systems | Intermodal Forum in Wisla, Marta Waldmann (Łukasiewicz - Poznan Institute of Technology) and Robert Roszko (Railfreight Director Rohlig Suus Logistics), presented the results and conclusions of the Living Lab 3 of the PLANET project in a presentation entitled *PLANET project - application of IoT on the New Silk Road*. Then in the workshop block 17:15-18:30 they held discussions with stakeholders in session A – Center for EU transport projects, during which we will exchange experiences and gather feedback on the results of PLANET LL3.

You can find more information here!

www.planetproject.eu
www.linkedin.com/company/planeth2020
@PlanetH2020
Planet Project - YouTube

COORDINATOR OF THE PLANET PROJECT

inlecom

PARTNERS

www.planetproject.eu

www.linkedin.com/company/planeth2020

@PlanetH2020

Planet Project - YouTube

Follow us!