

The EGTN PLATFORM

Functional Requirements & Layers

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.

The functional requirements of the EGTN consist of the strategy definition, the support to strategy implementation, the possible outcomes (digital and physical infrastructure, new operational methods etc.), as well as monitoring and maximisation of the strategy impact.

In this context PLANET defines the attributes of the future EGTN as:

- **Geo-economics aware:** A European T&L network that is aware of the geo-economics aspects driving the development of new trade routes and flows to/from Europe and their impact on the TEN-T.
- **Innovation:** A European T&L network that takes advantage of the potential of innovative logistics concepts (e.g., Physical Internet) and enables technological innovations (Industry 4.0, blockchain, Internet of Things, 3D printing, etc.) throughout its operation.
- **Impact:** A T&L network that is more economically, environmentally and socially sustainable than the existing TEN-T.
- **Integrated:** An EU T&L network integrated with the global network both in terms of hard and soft infrastructure.
- **Inclusive:** A T&L network accessible to disadvantaged regions, supporting the development of workforce skills and knowledge.

Thus, aiming to satisfy the above attributes, PLANET goes beyond strategic transport studies and beyond transport ICT research, by rigorously modelling, analysing, and assessing T&L interactions and dynamics. Its purpose is to generate and exercise the most important future scenarios from a T&L perspective.

In order to fulfil the vision of the project, the EGTN concept is structured in the form of three interactive layers:

Physical layer

It is related to the physical network's corridors and nodes. This infrastructure is revised regarding its importance and enriched to support the integration of TEN-T to the global network, taking into account the impact of the technology implementation to its structure.

Technological layer

The technological layer consists of the digital infrastructure of EGTN which aims to realise the innovation attribute of EGTN by leveraging emerging technologies and supporting its operation under the PI paradigm. In this context, the services and functionalities that are required to support the PI are defined and developed which will be available to users through a digital platform. With that in mind, an open, cloud based EGTN infrastructure has been developed in the form of an online platform to support the planning of EGTN, meet its management requirements and facilitate its governance

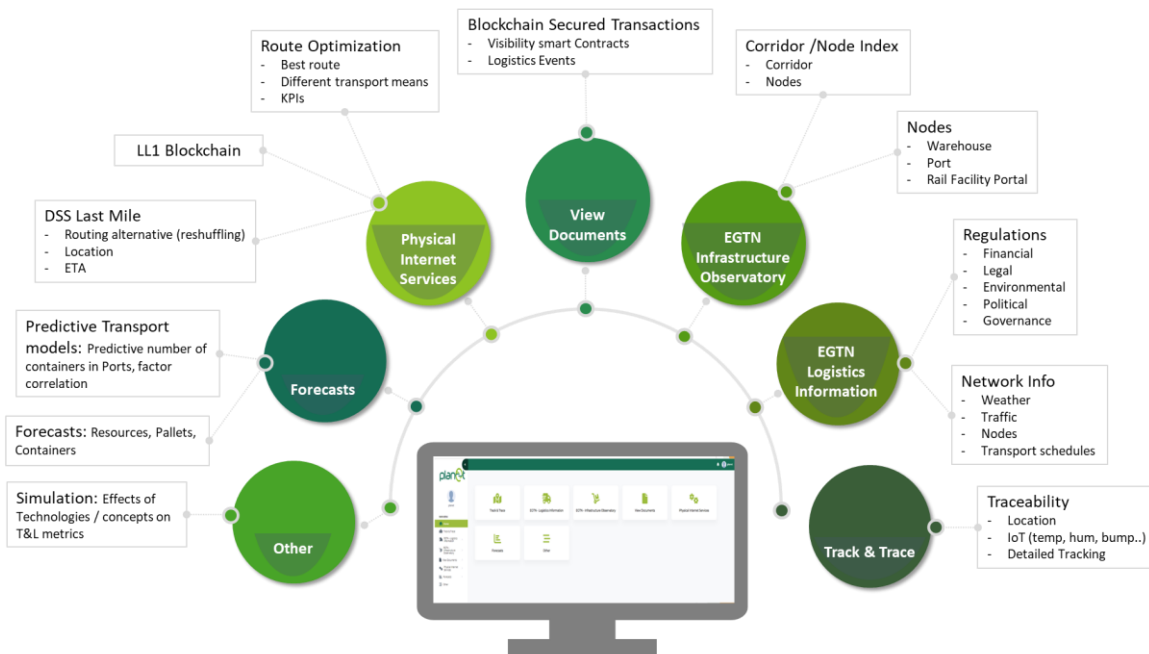
Governance layer

This layer addresses how the EGTN should be managed effectively to reach its objectives, taking into account the current governance framework of the TEN-T as well as the governance framework that has been developed for the PI.

EGTN Platform Services

The technical EGTN dimension comprises of the merging of the project’s two main research and development streams: **1)** modelling and simulation leading to increased understanding and design of the EGTN, and **2)** provision of an ICT infrastructure that can be used for the implementation of the EGTN solutions.

As a result, 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.



Thus, 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.



Value to the T&L Industry

The 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.

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) 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.