

LL #21 SIMPLE

FACTSHEET

28 SEPTEMBER 2022

A. GENERAL (Business case)

1. Objectives

- Data sharing, by digital means, between the different actors of the logistics chain.
- Real-time tracking of cargo, and incidents, through tracing of the different modes along different nodes, in Spain.
- Promote data sharing with a Multimodal Platform interoperability (federative) approach.
- Compliance of administrative formalities monitoring.
- Asset and infrastructure use monitoring
- Supply chain feasibility

2. Main emphasis

SIMPLE, as an integrated and collaborative space for data sharing between the different nodes and modes of the transport chain, and with Authorities, will optimise the multimodal logistics chain by unifying the communication channel between those modes and nodes. In terms of scope, SIMPLE will

- Facilitate data sharing relating to the transport of goods and allow real time traceability of goods transported, regardless of the node or mode in which they are at any given moment. It is also intended to simplify the exchange of data between users and the Administration.
- Promote digitalization of logistic and transport sector, generating electronic version of documents and using digital twin concept.
- Promote interoperability between IT systems and platforms with a federative platform approach, without affecting the operating systems and regulatory standards, with whom SIMPLE will be aligned, such as TAF-TSI, UCC, EMSWe, or eFTI.
- Digitalize processes and generate electronic versions of transport and interoperability documents,
- Analyse the potential and feasibility of distributed registry technologies and distributed architectures.
- Identify the applicability of Blockchain technology to the logistics sector for the specific aspect of physical and administrative traceability of goods.

3. Challenges

- Implement digitalisation in transport and logistics to enhance efficiency and simplification, reusing all the existing data between different actors, and between different modes of transport, assuring the traceability of goods, contributing to a better use of existing resources and infrastructure (more transport activity with less empty routes, means or infrastructures). Define a functional scope that covers a relevant spectrum of the full set of logistics processes.
- Develop a Semantic Model align with what is defined in the FEDeRATED Semantic Model and its future updates and developments, in order to keep the interoperability and compliance with the EU standardization in semantics and ontology.
- Network effect: to attract as much stakeholders as possible, including not only the main stakeholders in terms of size, but also the rest, small and medium sized stakeholders, to generate traction and a network effect.
- Define a business model to make the platform sustainable in the long-term considering the governance and incentive system under definition.
- Avoid the potential resistance to change, due to the need of the different entities involved in the transport chain to adapt its operation to the use of a new tool (platform) and the possibility of recording additional information and data beyond of what is currently required.
- Data sovereignty. SIMPLE considers data sovereignty at source, and deals with the potential needs and requirements in this matter, with the aim of keeping, in the best way, data sovereignty and, at the same time, the essence of an integrated and collaborative platform for data sharing.
- Know and share the administrative status of freights along the transport chain.
- SIMPLE API. Get all SIMPLE users to adapt to the SIMPLE API, by developing an API and associated documentation that allows its easy integration into any external system or platform that would like to communicate with SIMPLE.
- Interrelation of Consignments, Events and Transactions in the registers through the SIMPLE API. In order to automate the registration of Events via API, some algorithms are being developed to automatically assign Events to Shipments or interrelate Consignments, through certain references (booking number, container registration...) in combination with dates and locations (Events associated with a train or a ship can have a systematic report to the Shipments generated in SIMPLE that go within those transport means).

4. Transport mode

Rail, Sea and Road. In a next phase: Air

5. EU Map Focus

Mediterranean and Atlantic Core Network Corridors,

6. Geographical coverage

Spain - import, export, transit, Intra-European, and national logistic flows. Other countries can follow in the context of European or international trading.

7 Actors

- Puertos del Estado (PdE),
- Ministerio de Transportes, Movilidad y Agenda Urbana (MITMA) and
- Administrador de Infraestructuras Ferroviarias (ADIF).
- Additional tbd

8. Forecast scaling outside LL

Future intention is to scale both horizontally and vertically, by increasing the number of actors that use and share data across SIMPLE, thus maximizing the network effect.

At the same time, to provide new and enhanced services, either directly through the platform or by integrating services provided by third parties, via a Market Place.

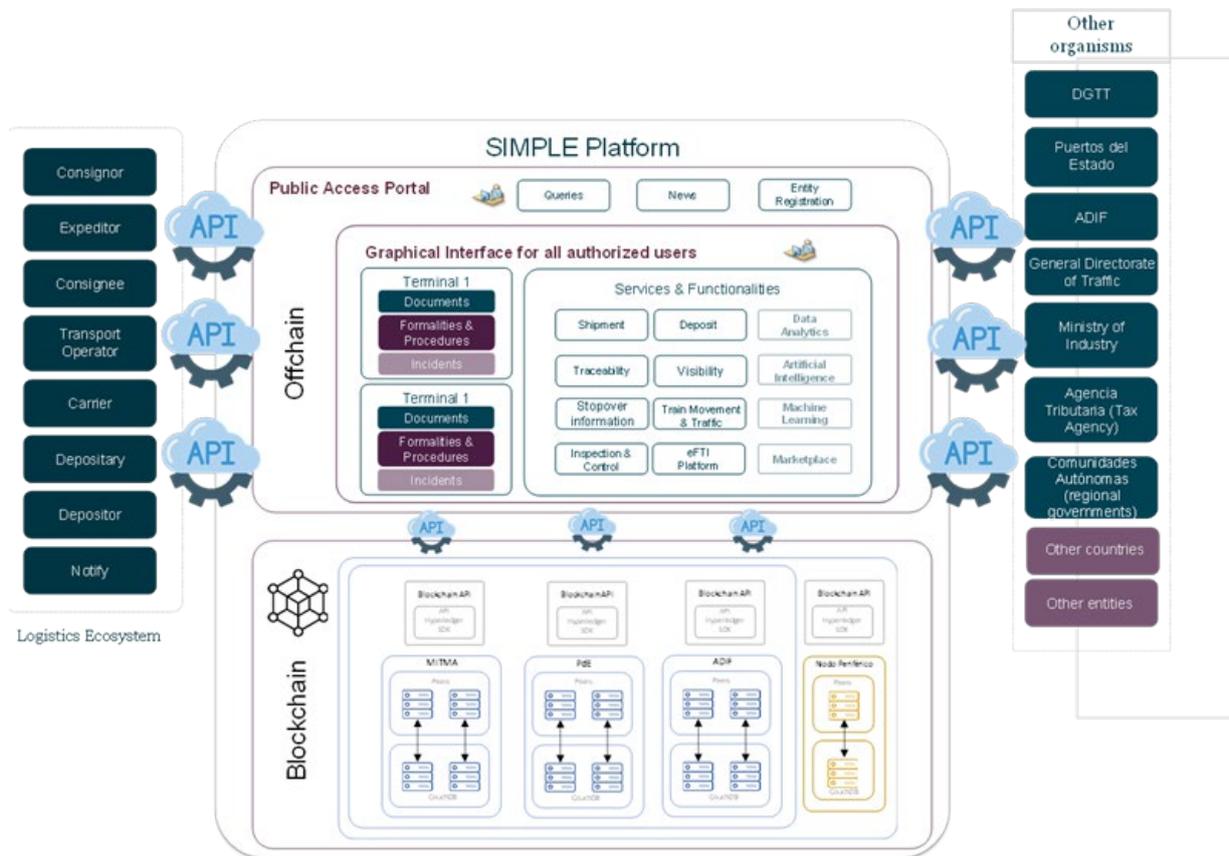
In addition, SIMPLE's Living Lab intends to allow the management of all logistic flows for Railway, Maritime and Road Transportation. Once the Living Lab is fully operational and the relevant stakeholders are sharing and consuming data with this federated approach, the idea is to scale it to incorporate Air cargo flows, and to include any other event deemed necessary to enhance the data shared in SIMPLE, as well as to share and collect data from different Authorities that may be relevant in the context of any logistic flow, for both operational and administrative purposes.

B. TECHNICAL SETTING

9. ICT vs physical

Through the digitisation process, the main events associated with logistics flows are identified and the documents currently in use are digitised, reducing the administrative burden and the need to manage physical documents. Value-added services through SIMPLE enable traceability, interoperability and visibility on goods and incidents. Regarding the focus on data sharing, with the *report once* principle the information

already declared does not have to be re-recorded and is available to all actors in a logistics chain, according to the corresponding permissions. Finally, SIMPLE is an open technological platform that allows for its extension according to the needs identified over time.



The focus is on both allowing all the relevant stakeholders to participate in national and international logistic flows, proper data management and data sharing, ensuring interoperability and, at the same, the necessary secure and access control mechanisms, with a federated approach, both for data and platforms, in which all the events of a logistics chain can be registered, monitored, and audited.

SIMPLE's Architecture is composed of Blockchain (on-chain transactions) and non-Blockchain (off-chain transactions) components. Through this structure, aligned with the reference model, the immutable and secure registration of all data, whose traceability is critical, can be guaranteed.

This allows to guarantee who registered a data, and when but also the response, confirmation or rejection by any Authority or any other entity authorized to do so, allowing a complete audit of the exchanges generated by SIMPLE.

All the users both through its API (S2S communications) or directly through the GUI (Graphical User Interface) can use SIMPLE and all of its functionalities. There is no

specific functionality that could be accessed only through the API nor through the GUI.

This Living Lab deals with the following FEDeRATED global features:

- Semantics
- Access
- Identity

10. DTLF implementation options

- A. Peer-to-Peer (P2P)
- C. Multiple platforms
- D. P2P and platforms

C. ORGANISATIONAL ISSUES

11. Success factors

- Maximizing the network effect by having the maximum number of actors sharing and using data from SIMPLE.
- Traceability of multimodal chains (road, rail and sea) not only monomodal o bimodal ones.
- Interoperability and use of API instead of messaging or GUI.

12. Risks

- Cover the needs of all the actors and its operational procedures: there is a large amount of operational cases in the logistics chains, and the different actors involved on them have their own operating procedures. SIMPLE must cover and be compatible with this diversity of procedures through a unique approach in order to allow the use of the platform to all the actors who want to join it.
- Definition of scope: it is complex to define a functional scope that covers a relevant spectrum of the full set of logistics processes.
- Lack of knowledge on using digital platforms for data sharing and even lack of trust causing difficulties in the sovereignty of data governance.
- Network effect: to attract as much stakeholders as possible, including not only the main stakeholders in terms of size, but also the rest, small and medium sized stakeholders, to generate traction and a network effect.
- Business model: definition of a business model for the platform that makes it sustainable.

- Potential lack of digitalization of some actors and stakeholders of the logistics chain: mainly in road, transport there is a potential risk of lack of digitalization of, for example, small carriers.
- Adaptation to the SIMPLE API. Willingness of all the stakeholders involved in the transport chain to adapt to the SIMPLE API for communications with the platform, especially in certain areas or dimensions.

13. Timing

LL#21	2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4																
Preparations	[Solid Blue Bar]																			
Planning and scoping	[Dashed Blue Bar]																			
Stakeholder engagement	[Dashed Blue Bar]																			
LL infrastructure development	[Solid Blue Bar]																			
Testing & piloting	[Solid Blue Bar]																			
Iteration & process analysis	[Solid Blue Bar]																			
Operational trials	[Solid Blue Bar]																			
Feedback & scaling	[Solid Blue Bar]																			

14. Contact

Javier García Fortea, Adif, jgfortea@adif.es

Jaime Luezas Alvarado, Puertos del Estado, jluezas@puertos.es