LL #18 SmartTSGate

FACTSHEET

10 MARCH 2022

GENERAL (Business case)

1. Objectives

- Transport and trailer tracking
- Optimized asset and infrastructure use management
  - Fluid gate-in/gate-out operations, resulting from the automation of access operations and from the dematerialization of documental procedures (optimised access to the terminal).
  - Reduction of parking time for disembarked trailers, resulting from enhanced interoperability between the terminal and the carriers.
- Enhanced interoperability among interconnected systems
- Global supply chain visibility, resulting from enhanced interoperability between all involved parties.
- New busines opportunities for logistic operators and technology providers.

2. **Main emphasis**

Interoperability with interconnected systems. In the context of FEDeRATED, TSG will pursue a twofold strategy, which will be implemented and validated in the Living Lab named smarTSGate (Smart Gate Management for Terminal San Giorgio):

- At the bottom layer, the Living Lab will digitalize some processes that still require human activity, aiming to optimize the access to the terminal. More specifically, the LL will focus on the automated check-in/check-out of trailers at the terminal gates; the digitalization of gate management procedures represents the foundation to build enhanced interoperability with all the other logistics operators, which in turn will definitely enable fluid gate-in/gate-out operations and dematerialization of documental procedures.
- At the top layer, the LL will contribute to build a global and accessible supply chain visibility; more specifically, the Living Lab will implement an integrated trailer tracking service (through interoperability with truck and ship carriers) and a “trailer ready” information service (early advice about the pick-up/drop-off of booked trailers).

Terminal San Giorgio (TSG) is currently devoting a great effort to enhance the interoperability with interconnected systems, aiming to achieve a true digital and effective port ecosystem; in this perspective, the work of DTLF, further developed by FEDeRATED, is an optimal foundation to build upon.

3. Challenges

- The growing volume of maritime cargo, both in number and capacity of vessels, is entailing a progressive saturation of operating spaces at terminals' yard; the primary means for addressing the problem are optimized planning and (semi-)automated handling of containers, trailers and break-bulk cargo, which are only achievable through specialized machinery and sophisticated ICT platforms.
- The great number of operators in the port ecosystem, their different "digital maturity" and the uncoordinated deployment of heterogeneous technologies (often having conflicting requirements and operation) led to a sort of "platform jungle" that prevents single actors from taking full advantage of their investment.

4. Transport mode

Road (trailers), Sea

5. EU Map Focus

(South) stretch of the Rhine – Alpine corridor for trailers; more specifically, it will cover the final road connection to the port of Genoa, and subsequently the sea transfer to Sicily

6. Geographical coverage

Sea route between Genoa and Sicily, and related port operations (Genoa)

7. Actors

- Terminal San Giorgio (maritime terminal operator, LL coordinator and main technical partner)
- Grimaldi Lines (maritime carrier)
- Luigi Cozza Trasporti (truck carrier)
- Circle Group (ICT service provider, overall technological support and project management assistance)

8. Forecast scaling outside LL

The Living Lab will initially focus on trailers, but it is perfectly suitable to evolve to different types of loading units and to engage further private operators and public authorities. The Terminal Operating System used by TSG (Milos-TOS by Circle) is designed to support multiple terminal types (containerized cargo, Ro-Ro, break bulk and multipurpose) and to interoperate with major Port Community Systems (PCSs). The evolution of Milos-TOS within FEDeRATED opens a broad range of opportunities through the federation of platforms, starting from the customer base of the product and including the related Port Authorities, i.e. Genoa.

B. TECHNICAL SETTING

9. ICT vs physical

A selected set of trailers operated by Luigi Cozza Trasporti (truck carrier) are equipped with a hard-wired IoT tag that enables the automated transit through dedicated lanes in Terminal San Giorgio (gate-in/gate-out); the same tag is also used for quick identification during boarding/disembarkation operations.

The tag ID is a unique “virtual” key that enables the safe and fast retrieval of all data related to the “physical” trailer and its contents, which are exchanged across involved ICT platforms.

The smarTSGate Living Lab will be developed following a multi-(3) phase approach:

1. Phase1, (2019-2021) the LL will lay down the minimum set of technologies to implement the basic services, featuring custom interoperability (and human interface for some flows) – this will enable the operational assessment of new functionalities
2. Phase 2, - 2020-2022 - the LL will evolve basic services taking into account FEDeRATED leading principles and technologies, thus moving to a full-M2M scenario;- this will
3. Phase 3 (optional – possibly after 2022)) will further evolve the services by bringing in scalable access policies and dynamic service brokeri

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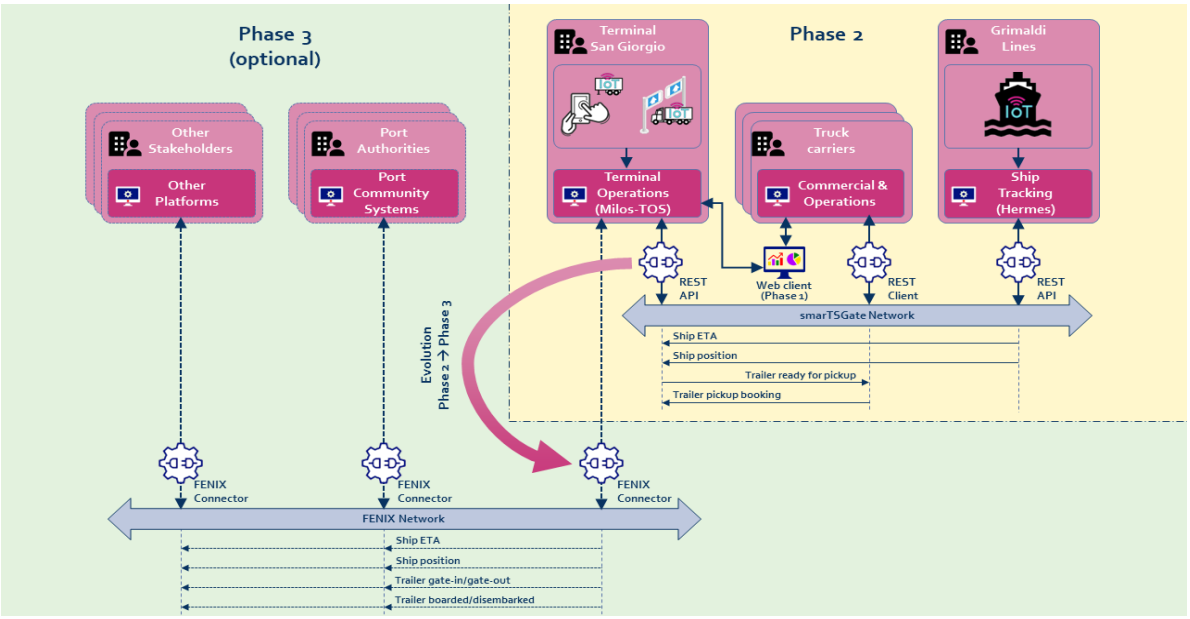
The second (and optionally the third) stage will focus on the technical aspects properly related to the federated architecture; hence, contributions to DTLF building blocks will mostly happen within the second (and possibly the third) stage.



This Living Lab deals with the following FEDeRATED global features:

- Semantics
- Access
- Findability (optional phase 3)
- Identity (optional phase 3)

10. DTLF implementation option

A. Peer-to-Peer (P2P) - Phase 1
C. Multiple platforms - Phase 2

C. ORGANISATIONAL ISSUES

11. Success factors

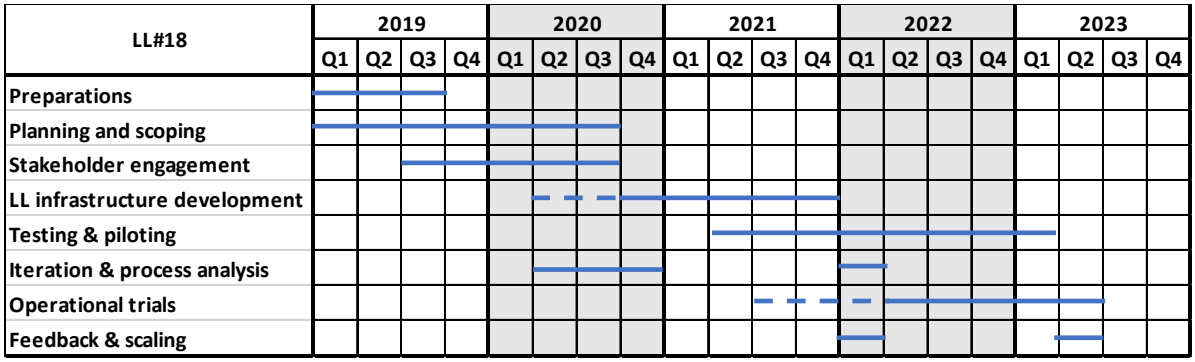
- Reduction of average truck waiting time (i.e. average waiting time at gate-in/gate-out for trucks towing trailers): automated gate-in/gate-out procedure ensures fast access to instrumented trailers, which can transit through dedicated lanes avoiding stops for manual check-in/check-out
- Reduction of average trailer parking time (i.e. average time a disembarked trailer remains parked in the terminal before being towed out): ”trailer ready” information service ensures a timely towing of disembarked trailers through up-to-date information to truck carriers
- Platform interoperability: the adoption of a strong service-oriented, technology-independent architecture enhances the interoperability among the ICT platforms of all involved operators, thus contributing to global supply chain visibility.

- Reduction of tracking latency (i.e. the time elapsed between the actual occurrence of an event and its notification on the tracking service); thanks to the full automation of some operational procedures (e.g. trailer gate-in/gate-out), the accuracy and timeliness of the tracking service are substantially improved,

12. Risks

- Discrepancies in the technical visions
- Lack of communication among interested parties
- Divergences between business perspective and project ambition
- Delays in the integration of the solution
- Problems scaling up the solution at regional/national level

13. Timing



14. Contact

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