

D2.5 KPIs AND EVALUATION CRITERIA

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The main objective of this deliverable is to present the elements of the evaluation framework of the AEOLIX platform and outline the procedures to be followed in assessing the impacts of the AEOLIX functions, including aspects related to usability, user friendliness and acceptance of AEOLIX. To tackle the problems at hand in the different Living Labs (LLs) some concepts must be discussed and put into the context of supply chain management. For this reason, the main title of this deliverable should rather be "Evaluation of Living Labs in the freight transport sector" with the subtitle "KPIs and evaluation criteria".

The main scope of the AEOLIX project is to increase overall visibility in the supply chain, across multiple modes and actors, making it possible for each logistics actor to manage, (re-) plan and synchronize facilities in the supply chain through a flexible cloud-based collaborative ecosystem in a trusted business environment. Local information and communication technologies (ICT) platforms will be connected through the ecosystem to exchange information in a scalable, trusted and secure way. This is an example of digitalisation.

From a thorough investigation of the concept "Living Lab", this deliverable strives to identify what constitutes a "best practice" Living Lab (LL) for the Freight Transportation sector. The LLs to be implemented can be categorised into three categories; 1. Hub, port, terminal, 2. Supply chain visibility and vertical control, and 3. Network optimisation, identifying management needs, data needs and outputs and the intelligence level needed (applications).

The Field Operational Test Support Action (FESTA) Field Operational Test (FOT) Methodology is presented as the evaluation approach applied, and it has been adapted to freight transportation. How to determine Functions, Use cases, Research questions, and Hypotheses is discussed in some detail. The 11 LLs are addressed, and suitable research questions are derived from the objectives of each LL. This is the first step to determine the Performance Indicators (PIs), where also a section on Acceptance and trust is included. It should be noted that the iteration element will be very important to keep in mind when the use cases, research questions, hypotheses and PIs are developed in the different LLs and in their process of co-creation. The report ends with short sections on measures, data collection and evaluation criteria, and with two questionnaires, the first one to help identify the data collection procedures that the LLs can follow, and a second questionnaire about usability issues.

To succeed with innovations, AEOLIX shall create value for its intended users, such as logistics service providers, drivers, terminal operators and customs people. The AEOLIX ecosystem contains 11 LLs, for which the proposed solutions/functions will be evaluated. The impact of the proposed new operational solutions/functions will be tested in terms of their contribution to logistics efficiency and quality and in terms of its usability (user acceptance and adoption) in at least two steps, allowing a co-creation period in between or possibly in parallel. Each LL will be assessed based on their unique context and data collected, but the focus will be mainly to the derived operational benefits and the market penetration achieved from the implementation of the LLs.



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The concept of the LLs, as defined in this deliverable, can be described as a user-centric research methodology, which takes a developmental view of innovation and examines innovative technologies in complex real-world environments. They aim to provide opportunities for the key users to study and be involved in the innovation process. The evaluation of the LLs should be based on whether the LL accomplished its mission according to the project or not. Each LL has some expected impacts at project level and possibly some other impact categories outside of the project's aims.

The expected impacts at project level are summarised below:

- Reduction in fuel consumption;
- Increase in consolidated trips;
- Decrease of empty runs;
- Reduction of waiting time for trucks in the terminal;
- Reduction of average loading/unloading time;
- Increase of terminal productivity;
- Increase of load factor.

Each LL has specific objectives, which will result in (some or all of) the above listed impacts. The evaluation techniques to estimate the expected impact of the implementation of each LL will cover:

- Economic dimension (investment costs compared to expected benefits);
- Stakeholder needs (whether the stakeholders meet their requirements from the implementation of the LL or not);
- Usability (the user general acceptance and will for actual and for future use);
- Business models analysis (Identification and comparison of the before/after situation of business models of each actor)
- Strategic analysis (possibilities for alternatives based on user's needs and requirements).

Each LL should foresee (at least a minimum) development of tools that will be used for the impact assessment of the actual operation/delivery of the AEOLIX services/functions. Concerning usability data, it will be mainly qualitative, using questionnaires, surveys and interviews.

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