Rules for the TURMS-Innovation cluster

Lyyli Living Lab and the coordinator of its activities TURMS (Tampere Urban Rail Mobility Services) – Innovation cluster is an open development environment for city transport and mobility services that utilise trams as their core component and for related digital services.

The **host organisation for the Turms-Innovation cluster is Tampere Raitiotie Oy** (TRO), and Lyyli Living Lab is part of the Testbed Finland network.

Lyyli Living Lab is intended to accelerate, in a user-centred manner, the creation of products and services and sustainable urban development through real-life, agile experiments, verifications and reference solutions. Activities also include solving the goal-orientated challenges related to the development of the city's transport system.

In the core of TURMS-Innovation cluster is the innovation cluster, which has the SmartRail Ecosystem at its center and also includes companies, public sector actors, research organisations and service users. Cluster companies are typically **service and technology developers**, **service providers** and associated **start-ups**.

Lyyli Living Lab provides application developers with a data transfer connection to the test tram environment and with interfaces for the data sources provided by the test tram and the devices/systems installed there – sources which can be combined with other data from the urban traffic environment. It is also possible to agree with the tram and equipment suppliers on the utilisation of special data related to the systems. In addition, the **physical environments** can be used for carrying out experiments that relate to the depot, stops, charging stations, feeder transport and tram.

Living Lab environment, coordinated by VTT, is build-in Lyyli-tramcar to facilitate the development activities. The environment provides experiment authors with a **research data platform** that utilises Living Lab data, **an application development environment with accompanying tools**, a HelpDesk, an experiment register + self-assessment tool and a versatile and easy-to-use user feedback system.

The basic principles for using the open Lyyli Living Lab development environment are as follows.

- 1. The open development environment can be utilised by companies, public actors, research and education organisations, cities, foundations, sectoral organisations, etc. This applies to both domestic and international actors.
- 2. The registered users who have paid the annual partnership fee together form the TURMS-Innovation cluster. Registration takes place by filling the application form available online www.tampereenratikka.fi. At the same time, a description is given of the content and scheduling of the planned experiment. TRO then processes the application within two weeks and the feedback provided includes, among other things, an approved membership category.
- 3. Experiments and other measures relating to the internal structure of the tram and the details of the subsystems also require approval from the tram and/or subsystem supplier.

- 4. Experiments will be assessed according to the safety methods of TRO and the tramcar manufacturer Skoda-Transtech. Should the proposed experiment cause a safety risk, which can`t be managed, will it be a reason to deny the experiment.
- 5. The membership categories that give the right to use the development environment are: Large company, midcap company, small enterprise, microenterprise, start-up enterprise, university and polytechnic, research institute, foundation / association / sectoral organisation, city or city-owned company, and public sector operator.
- 6. Coordination of the development environment is based on the one-stop shop principle and is conducted via the host organisation. The host organisation designates the contact person(s) and maintains an up-to-date website in order to facilitate information exchange. Members of the development environment are actively informed about future Lyyli Living Lab events and are offered the opportunity to influence their content.
- 7. All members have equal rights to reserve and use services in the development environment in accordance with the host organisation's experiment evaluation and approval process (process description provided below). Depending on the experiment, the process may also include functionality and safety conditions set by the tram supplier and equipment/system suppliers.
- 8. The experiment author shall provide its test plan for TRO's assessment in advance; the impacts to the tramcar, tramway infrastructure and to the general safety will be assessed prior to the acceptance of the experiment. TRO may ask changes to the test plan or to deny the experiment in case it could cause reputational damages or unreasonable harm to the tramcar, tramway infrastructure, tramway operations or to the passengers.
- 9. Before carrying out experiments, it is also necessary to engage in more detailed discussions with the host organisation in order to obtain a more detailed picture of the preparation of the experiment, the necessary installations and the practical workflow. At the same time, there is also discussion of the safety principles of the development environment and other rules. VTT gives guidance to experiment authors on the use of the Living Lab environment and its tools. This guidance is provided as a free service.
- 10. Where experiments and related installations require the absence of parts connected with the safety or functionality of the experimental environment (e.g. structures, equipment, information systems), a representative of the supplier of the subsystem in question is required to approve and, if necessary, carry out and/or monitor the actions to be taken. Tram-related measures are carried out in accordance with the change management process of the Tampere tram project (TRO/Skoda-Transtech).
- 11. The user is liable for the equipment and other procurements related to the experiments as well as the installation and dismantling costs and associated obligations. Within the limits set by TRO, the user can carry out the installations themselves. Other installations are performed by the parties designated by the host organisation as a service paid for by the user. The installation service is mainly provided by TRO but, where necessary, also through subsystem suppliers coordinated by TRO.
- 12. There are no charges for the use of either data sources (transport system + physical environments) or the Living Lab environment. If the utilisation of data requires changes to the Living Lab environment (beyond just minimal changes), separate agreement is made on covering the costs for this.
- 13. As a rule, the exchange of information related to experiments is confidential for both the host organisation and the parties acting as subcontractors. Where necessary, a separate NDA agreement is made.

- 14. It is however hoped that experiment authors would submit short descriptions of their experiments to the Lyyli Living Lab experiment register and carry out a self-assessment describing the effectiveness of the experiments. The experiment register and the results of the self-assessment tool are only available to the host organisation (TRO) and the subcontractors responsible for Living Lab operations (VTT Technical Research Centre of Finland and the University of Tampere).
- 15. In addition, it is hoped that experiment authors would disclose their own experimental data to the entire innovation cluster based on terms and conditions agreed upon in more detail (e.g. the experiment author retains the proprietary right to the experiment data). The disclosure takes place either through the research data platform or through the experiment author's own interfaces. Such data can be disclosed as data for different kinds of R&D projects and for use by other developers in the innovation cluster, which also brings economic benefits to the disclosing party by enabling them to show what they have to offer.
- 16. The partnership fee entitles the user to carry out experiments during the partnership period. The experiments are free of charge for the user provided that a) they do not entail costs for the host organisation and b) there is no need for separately priced support measures from the host organisation or suppliers of the subsystems. The length of an individual experiment is agreed on with the host organisation, which has the right to limit the length of the experiment where there are justified grounds for doing so.
- 17. The experiments take place according to the schedule specified by the host organisation. Some of the experiments can be implemented as part of tests carried out without passengers, but most can be carried out in normal operational traffic. Separate agreement is made for covering the costs incurred in test runs and experiments that are arranged separately.
- 18. The proprietary rights and access rights to both the results obtained in the development environment (foreground) and the background data belong to the organisation that carried out the experiment.
- 19. Part of the costs of Lyyli Living Lab is covered by the Business Finland's (BF) Innovation cluster funding. BF funding can also be used for acquisitions that support Living Lab development. Experimental activities in Living Lab provide an opportunity to demonstrate solution functionality and, depending on the needs of Living Lab, TURMS-Innovation cluster can purchase solutions as part of the Lyyli Living Lab package. Outside of Lyyli Living Lab, TRO also has the opportunity to discuss procurements for the entire tram fleet. Such procurements are always agreed on separately between the solution provider and TRO.

