

The global food supply triggers adverse impacts, which are evident in Europe. Developing a local food system is needed; however, this is a challenge due to its complexity. In the urban context, buildings are seen as a resource that when up-cycled can provide a space for controlled environment agriculture as the most productive urban farming technique. This project investigates the transformation of the architectural typology of multi-storey garages whose future is now discussed due to their function, aesthetics and urban locations. The project indicates new insights into the alternatives in which they can be put to use as well as social, economic and environmental opportunities that such up-cycling offers.

T.U.R.F. aims (1) to demonstrate how adaptive reuse of car parking structures for controlled environment agriculture (CEA) can strengthen urban social, economic and environmental resilience, (2) to develop a web-based decision support manual for the creation of Living Labs through the proposed up-cycling as novel strategies that transform urban neighbourhoods, and (3) to create interactive 3D models that improve understanding of the concept and support robust decision making on new perspectives on adaptive reuse for food provision as a driver for sustainable development.

The study begins (WP1) with the selection of two urban car parking structures in Sweden and Poland. Relevant stakeholders working in the chosen neighbourhoods and responsible for the selected garages will be contacted to discuss their participation as experts in the project. The preparation of on-site studies will begin. At the same time, a literature review on repurposing existing buildings for user-centred urban agriculture will be conducted. In WP2, on-site studies will start, which includes the collection of architectural layouts, and photo documentation. WP3 will focus on interviews with selected stakeholders. Ten semi-structured interviews are planned to get a better understanding of how Urban Farming Living Labs should be developed to contribute to the resilience of a specific urban neighbourhood. WP4 starts the speculative design phase of the project where, based on the results of the earlier WPs, key development questions will be defined. Participatory speculative design/ideation workshops with the consortium members will be organised to develop the general idea for the design of the adaptive reuse of multi-storey garages for food production. The knowledge developed will be analysed to create visual concepts for the proposed adaptive reuse, as well as back casting strategies and action plans. The knowledge collected will be transferred to WP5, where visual 3D models of “What can be 2030” within selected car parking structures will be developed. Simultaneously, the data gathered from WP1 to WP4 will be presented in an international conference and published in conference proceedings. WP6 focuses on the conceptualisation of a business model for urban farming in disused multi-storey garages as a financially viable operation. Key objectives will be discussed in a workshop for relevant stakeholders and experts. The results from the workshop will become a foundation for designing an economic framework for the development of an Urban Farming Living Lab for multiple uses (startups) gathered around urban food production and distribution. The developed results will be validated in WP7, where the revision meeting will be set up with the stakeholders involved. The revised results will be used in WP8 for the development of the decision support manual for the creation of Living Labs through the proposed up-cycling as novel strategies that transform urban neighbourhoods. The Web platform for the decision support manual will be produced and tested. In WP9, conclusions of the project will be drawn, and the knowledge will be disseminated. In WP10 the open-source web platform will be launched and the communication campaign will start. The dissemination of results and implementation of the platform in selected key city planning offices (workshops) will begin in WP10 and continue after the project ends.

A successful project will answer the question of which actors will start using the proposed Web-based decision support to use and work. As an extension of using the tool as a feasibility support for repurposing existing car parking structures, the overarching aim is for key stakeholders to move from uncertainty to action. In the narrow scope, the tool can convince the uninitiated, that they may consider the upcycling of multi-storey garage into controlled environment agriculture production plants as “science fiction” as an achievable solution. The broad scope is when the tool becomes a key in a city’s strategic sustainability development plans, and by seeing, planning, and using existing garages as future resources in a transition toward future proofing of the city’s food production by 2030.

The project aims to strengthen research on future proofing European food production based on threat scenarios and risk analyses. With a speculative, human-centred design methodology as a practical implementation method, we intend to develop new knowledge, a springboard for the future food system of the future. Based on virtual strategic models, we want to uncover the perceived difficulties in adapting multi-storey garages to act as catalysts for regenerative and resilient urban development. Here the main target group are key decision-makers such as city planners, investors and urban developers.