FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2025
Solution idea for the city challenges

send to smartcity@taltech.ee by Nov 30, 2025

Solution Idea Title New Campus Consulting Field & Digitial Playbook **Planned pilot project duration** 24 months **Main contacts** Kimmo Lylykangas, kimmo.lylykangas@taltech.ee, +358405829439, Taltech, Dept. of Civil Engineering and Architecture | Antti Ahlava, antti.ahlava@aalto.fi, +358503241179, Aalto University, Dept. of Architecture

1. Which urban challenge or problem are you planning to provide a solution to?

Campuses Fostering the Creative Economy

2. The solution you are proposing

- What is the solution you are proposing for the challenge above?

The project creates a new **consultancy field**: campus development facilitation for knowledge-intensive and creative sectors. It provides local city and campus actors with methods, concepts, and templates, and especially a practical, tangible and **digital playbook** including creative design concepts, ideas and examples for spaces and use. Using the scalable playbook, the consultant's own creative input, and stakeholder interaction, the campus development process becomes alteration between creative design ideas and interaction with the involved. This supports informed, evidence-based and visionary decision-making. By fostering technological transfer from research to practice, as well as collaboration between campuses, local governments, and enterprises, a campus pilot (e.g. Taltech) can become a testbed for sustainable, creative solutions in social and technical sustainability, spatial planning, and design. The work also produces possibilities for further EU and national R&D funding.

- How does it solve the city challenge you target?

By combining science-based consultancy tools and design creativity with local knowledge, campuses can become **experimental hubs** where learning, research, living, and the creative economy meet, advancing Estonia's strategic goal to transform campuses into **urban engines** that strengthen national innovation ecosystems.

3. Innovation and piloting of your solution

- What are the best solutions available now that solve the challenge you target? How will your solution be better?

The concept of "campus" is here understood broadly to include urban precincts with similar characteristics – scale, density, governance mechanisms, and identities – along with their ambitions for knowledge and creative-economy growth. Information from the research on creative and knowledge-intensive economy has been widely utilised at the city scale, yet research on campuses, neighbourhoods, and building clusters remain underexploited in development despite the evident possibilities for innovation and community life. Existing development approaches are often top-down, discipline-specific, and overly focused on economic or real-estate priorities, neglecting lived experience, established assets, and the campus as a strategic anchor institution. Development of campus-like environments has also been fragmented, typically centring either on university agendas or on innovation-driven business districts or creative-arts clusters. What is missing internationally is **integrated action on how innovation and cultural communities intersect**, including spaces that enable collaboration such as co-working spaces, hybrid learning hubs, maker spaces, open groundfloor spaces, workshops, informal places, mixprogrammed areas, and other shared architecture. Our pilot introduces an **interdisciplinary model** that views the campus as both a spatial system and a cultural ecosystem. It applies insights from business and economics, design, sociology, heritage studies, architecture, and urban research to analyse actor ecosystems and to enhance diverse campus communities to generate value through interaction, mixing uses and user groups within same buildings. The project directs integrated culture, innovation, and economic activity at the district scale, contributing to better conditions for attracting and retaining creative professionals and international talent with better quality spaces, recreation possibilities and better community. By combining urban and architectural expertise with local cultural and creative-economy analysis, we can assess campus environments through use, experience and potential. The innovation of the project lies in boosting development based on how **communities interact** within campus spaces, what forms of value they create, which activities should be prioritised to support the innovation potential, a role of a community manager, and digital tools (campus apps), spatial hierarchies and typologies. To generate **sustainable growth**, campuses must connect meaningfully with all **user**

groups, including local citizens, and operate as everyday lived spaces that resonate beyond academia or business. By applying participatory design principles, the project aims towards equal access to public services for all user groups by actively involving people of different ages, backgrounds, and abilities – including Estonia's diverse ethnic and linguistic communities. Co-creation sessions, multilingual engagement methods, and culturally sensitive design practices help remove barriers, making shared spaces, mobility options, and community services inclusive, accessible, and inspirational to all users. A local contextual perspective is essential: **campuses and cities evolve together**. While campuses aim to become more integrated into urban life, cities themselves increasingly adopt the characteristics of large, organisation-governed spaces. Campuses can no longer function as closed institutional enclaves; they must become **porous**: open, socially and physically permeable realms that extend into, and collaborate with, surrounding areas and people beyond and above academia. Achieving this requires balancing institutional autonomy with creative exchange and community openness. Our solution goes beyond physical design to improve also cultural identity, social cohesion, user experience, and innovation capacity combining a socio-material basis for creativity. **Transdisciplinarity** reinforces technology transfer, startup incubation, and creative work, ensuring that campus-generated innovations have multidimensional foundations and can scale to the wider city and regional economy. The proposed solution embodies the **New European Bauhaus** principles by integrating sustainability, inclusivity, and aesthetic quality into campus–neighbourhood development. Through co-created design, environment-based solutions, and human-centred spatial experiences, the project creates environments that are not only resource-efficient and socially accessible but also meaningful. A unique element of our methodology is the understanding of historical and heritage layers in the planning of the future. Campuses are **unique layered cultural environments** shaped by decades of educational, scientific, and creative activity. Systematically analysing the types of this identity and continuity provides guidance for future development and reconnects past and present community members. This enhances social cohesion, strengthens place identity, and deepens creative collaboration. Our interdisciplinary approach addresses spatial, technical, social, and cultural aspects of campus development, resulting in a **commercially viable model** for urban innovation that can be scaled internationally.

- What do the cities need for piloting the proposed solution? How could the piloting work?

The pilot project intended at least with Taltech will produce **practical guidelines** for connecting the campus with surrounding anchor institutions and areas. Positioning the Taltech campus as a connector between the Science and Business Park Technopol and the North Estonia Medical Centre establishes a service-based urban network that enhances accessibility and supports long-term strategic value for the city. It strengthens local community development and includes culture, business, health, and education programming. Our evidence-based, integrative approach positions the TalTech campus as a **bridge for technological transfer** between major institutions. By reframing the campus as porous and interconnected, the project proposes an exportable model in which campuses act as anchor institutions offering service-based connectivity between diverse urban hubs. Such a model enhances everyday functionality and supports resilience within broader geopolitical contexts, providing a replicable pathway for modern, innovation-driven campus-aware urban development.The process includes **participatory mapping of interests, global benchmarking, user research and post-occupancy evaluation, scenario planning, visioning, and design workshops**. This is complemented by an **analysis** of campus history and cultural heritage to identify values that strengthen identity and guide development. We offer a participatory, co-creative method combining urban design management, co-design labs, and testing of new concepts, methods, and templates. Our approach goes beyond existing practices by establishing an inclusive, interdisciplinary open working group that co-creates solutions through scenario planning and design workshops, ensuring broad stakeholder input and cultural adaptability. It addresses the limits of traditional participation by integrating lived experiences and recognising campuses as dynamic spaces where learning, research, and the creative economy intersect. The open working group will include administrators, property owners, entrepreneurs, residents, workers, and frequent visitors – not only as research subjects but as contributors throughout the development process. Innovation potential increases when campuses are integrated with their surrounding neighbourhoods, supported by shared cultural programming, social interaction around mobility hubs, and business activity that contributes to community development. Cities play a key role by sharing expertise on co-creation and on building innovation platforms and ecosystems. Each development project will generate research data that can baseline future initiatives. With input from benchmarking, thematic research, and local interaction such as POE, it becomes possible to identify synergies between the TalTech campus and surrounding institutions and communities. This supports exploration of a porous campus model based on reciprocal interaction between campus life and neighbourhoods.

- The capabilities of the research and development proposed team

Taltech's present staff: Sustainable architecture: Kimmo Lylykangas (project director). Urban innovation, technological forecasting, futures research, HE institutions & smart cities: Luca Mora & Ioannis Lykouras. Built heritage and history: Epi Tohvri

& Grete Tiigiste. **To be hired to Taltech:** Architecture and urban design: Antti Ahlava, Helsinki (auxiliary work agreement with Aalto University). Urban studies: Daniele Belleri, AU (visiting researcher, has been the communications director for Carlo Ratti and co-curated the 2025 Venice Biennale). Business: service design, design business management, business logics, self-directed communities: Taija Turunen & Sanna Tiilikainen, AU. Urban Geography: Creative and knowledge-based economies: Sami Moisio, Univ. of Helsinki). Sociology: interaction, communities, locality (Ilkka Arminen, UH).

4. Expected impact of your pilot solution.

- What is the potential impact for city environments, sustainability and citizens?

Our project's practical, ready-to-use playbook to foster creative economy can be adopted immediately by governments, municipalities, businesses, and civil society organizations. It supports more innovative and effective development processes while improving **citizen well-being**, quality of life, and community-engaged creativity. The approach strengthens campus–city environments by integrating campuses with surrounding neighbourhoods through vibrant public spaces, accessible culture, and reactivated historical layers and heritage values. This benefits all users – students, residents, alumni, workers, and visitors—by enhancing well-being, social belonging, cultural participation, and overall user experience. Reconnecting communities across generations fosters more inclusive, resilient, and identity-rich urban districts. **Governance** improves through stronger collaboration between universities, municipalities, and local stakeholders. Insights from pilots will inform land-use, policy, and urban design frameworks that can be scaled across European cities, demonstrating how campuses can function as inclusive, innovation-driven urban commons. We will study incubation-supportive environments—makerspaces, startup offices, artist lofts, university labs, and living labs—drawing on research on how spatial ecosystems foster creativity and innovation. Development efforts will balance existing industries and social communities with emerging tech ecosystems, supported by improved collaboration among universities, cities, and local actors. Pilot projects will also explore pathways for startups and high-tech ventures to scale from campus prototypes to citywide solutions. Project partners and collaborators will gain direct benefits from these pilots. Our approach aligns with **Estonia's** commitment to smart, human-centred cities, echoing the FinEst Centre's *Happy Cities* initiative. By positioning campuses as interconnected innovation ecosystems embedded in urban neighbourhoods, the project advances social sustainability, mental well-being, cultural access, and human-centred planning. Shared spaces, cultural exchange, accessible green areas, and strengthened social ties contribute to improved quality of life for students, residents, and visitors. The work also supports Estonia's effort to retain talent by creating attractive living and working environments and by reinforcing the role of campuses as training grounds for future tech and startup actors. Project **data** and experience will support pluralistic urban development, recognising campuses as long-standing testbeds for ecological practices, ecosystem services, green capital, and sustainability innovations. Data-driven planning will enhance well-being by involving users in shaping spaces that meet their needs, while supporting sustainable construction and energy use through evidence-based design and active space utilisation. The benefits extend **beyond university campuses** to other campus-like districts and innovation precincts. The project strengthens the innovation capacity of cities and companies, supporting **economic** vitality, employment, and industry development. Our inclusive, adaptable, and globally scalable design principles can be applied by universities, startup campuses, business innovation hubs, and commercial developers. Business case definitions and design principles will help commercial actors establish supportive spaces and complementary services, both digital and physical.

A robust commercial **validation plan** underpins the work. Iterative development cycles and stakeholder feedback—from students, campus actors, businesses, and others – will refine both process and outputs. Participatory service design ensures continuous involvement and adaptability across diverse user groups. This iterative model is ideal for testing and refining urban solutions in Finnish and Estonian cities before expanding EU-wide. **Scaling and export** are central components. Templates, services, and digital support applications will spread first across Finnish and Estonian urban areas, then to the broader EU. The research builds models for urbanisation through spatial design, collaboration frameworks, and use-programming methods that can be tested in the Baltics and Nordics and expanded globally. This responds to growing international interest in the European urban model and in higher education–driven development, especially amid geopolitical multipolarity. The project strengthens Estonia's creative economy and contributes to building a European approach to campus development aligned with the economic priorities outlined in Mario Draghi's 2024 report *The Future of European Competitiveness*. The insights gained from pilots, together with the playbook and accumulated expertise, can be extended to other campus-like districts, enhancing collaboration between universities, businesses, municipalities, and other local actors. This supports better governance, stronger innovation capacity, and long-term urban vitality. The porous campus model offers cities practical tools to unify cultural heritage, everyday practices, and sustainable urbanism into a coherent and future-ready whole.