

Future STEAM Cities

Transferability Study

URBACT IV Innovation Transfer Network

Date 27th February 2025

Author Mónica Nagore Santandreu, Lead Expert

Lead Partner Municipality of Aveiro (Portugal)

Partner Cities Alytus (Lithuania), Kolding (Denmark), Płock (Poland), Oulu (Finland)



Table of Contents

Executive Summary

1. Introduction

2. The Innovative Practice

- 2.1. Description of the UIA STEAM City Model
- 2.2. Key Features and Achievements
- 2.3. Governance and Stakeholder Engagement
- 2.4. Lessons Learned for Transferability

3. Partner Profiles

- 3.1. Alytus
- 3.2. Koldingz
- 3.3. Oulu
- 3.4. Płock

4. Synthesis and Overall Transferability

- 4.1. Synthesis: Transfer Challenges and Opportunities
- 4.2. Transferability Assessment per City
- 4.3. Overall Transferability

5. Network methodology and Roadmap

- 5.1. The Network Methodology: Principles and Hybrid Approach to Knowledge Transfer
- 5.2. The Network Methodology Tools
- 5.3. Future STEAM Cities Roadmap

6. Conclusion and Recommendations

Executive Summary

The Future STEAM Cities Transferability Study assesses the potential for transferring Aveiro’s innovative STEAM City model to four diverse European cities: Alytus (Lithuania), Kolding (Denmark), Oulu (Finland), and Płock (Poland).

Conducted within the framework of the URBACT Innovation Transfer Network (ITN), the study aims to identify the conditions, challenges, and opportunities that influence the successful adaptation of STEAM practices in these partner cities.Z

This study focuses on three key pillars: the Transferability Readiness Assessment, which evaluates each city’s capacity to adapt Aveiro’s STEAM City model, considering political support, resource availability, stakeholder engagement, and funding potential; the Transfer Model, a hybrid framework integrating radial (from Aveiro to partners) and carousel (peer-to-peer) approaches to foster dynamic, multi-directional learning; and the Network Methodology and Roadmap, which outlines a structured sequence of activities across three stages—UNDERSTAND, ADAPT, and RE-USE—designed to facilitate continuous learning, collaboration, co-creation of outputs and local experimentation.

The study reveals that while all partner cities show strong commitment to STEAM approaches, they face unique challenges, including talent retention (brain drain), inconsistent collaboration between education and business sectors, resource constraints (both human and financial), and governance barriers, particularly in centralised education systems. However, these challenges are balanced by significant opportunities. Cities can strengthen cross-sector partnerships, embed STEAM into formal education systems, and foster inclusive,

lifelong learning environments. The role of cultural and creative sectors also emerges as a promising avenue to enhance STEAM engagement. Moreover, the study highlights the dynamic nature of mutual learning within the network: while Aveiro provides the innovation framework, partner cities contribute valuable insights through local adaptations, enriching both their practices and Aveiro’s Continuity Plan.

Methodologically, the study employs a robust, mixed-methods approach. This includes city visits, stakeholder sessions, transnational workshops, city-partner meetings and structured peer reviews to gather qualitative and quantitative data. The Transferability Assessment provides a comparative analysis of each city’s potential, revealing both common patterns and unique contextual factors that influence the transfer process.

From the assessment, several headline conclusions emerge. All partner cities demonstrate strong political commitment to STEAM, yet the sustainability of these efforts hinges on securing long-term funding and embedding practices into policy frameworks. Effective transfer is not a one-size-fits-all process; it requires tailored approaches that consider local socio-economic contexts, governance structures, and stakeholder dynamics. Furthermore, the dynamic exchange within the network not only enhances the capacity of partner cities to adopt and adapt STEAM practices but also provides critical feedback that informs Aveiro’s strategy for sustaining and evolving its own STEAM City model.

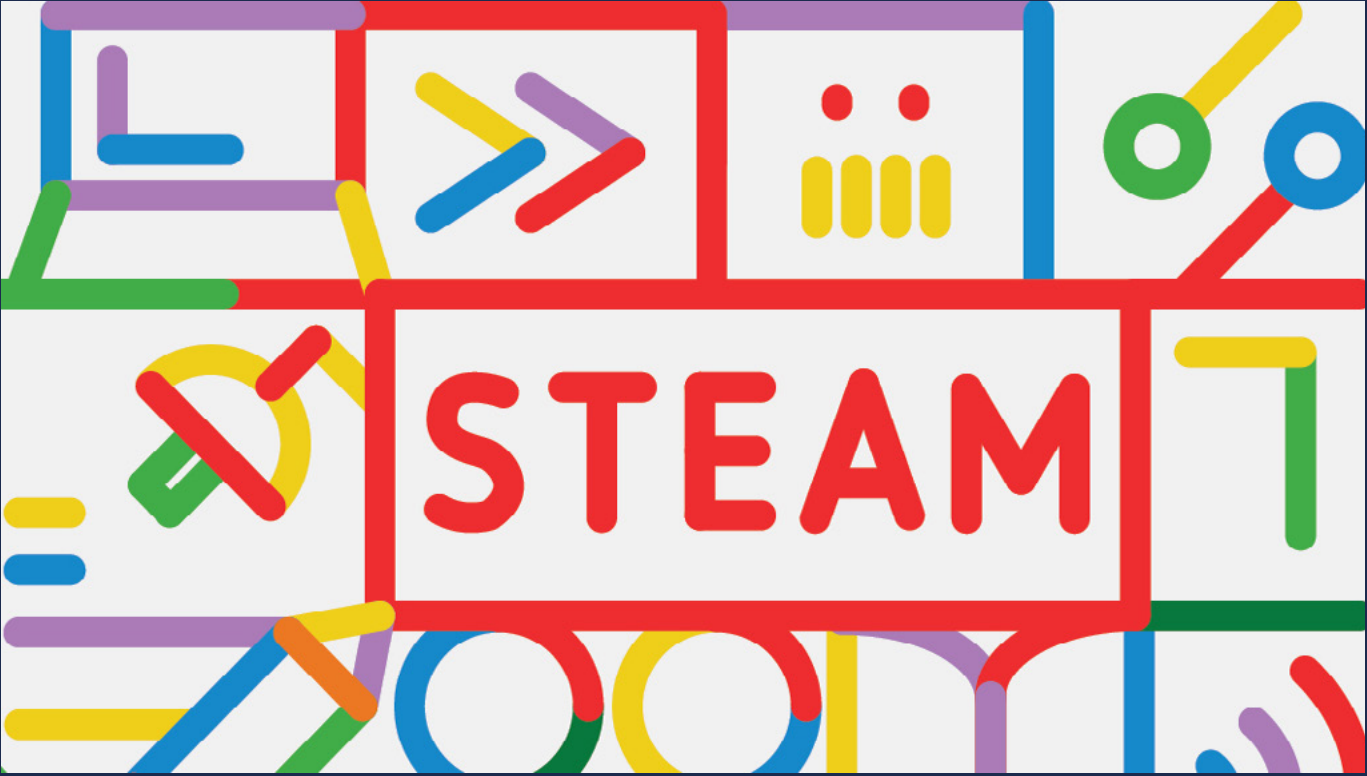
By providing a comprehensive assessment of the transfer potential, supported by a robust methodology, adaptable transfer model, and dynamic roadmap, this study aims to support partner cities in developing context-specific strategies for STEAM education, fostering sustainable urban innovation across Europe.



1. Introduction

In an era marked by rapid technological change and shifting labour market demands, cities across Europe face the challenge of preparing their communities for an uncertain future. The rise of artificial intelligence (AI) and other emerging technologies is reshaping industries, redefining job roles, and demanding new skill sets that blend technical proficiency with creative and critical thinking. Central to meeting this challenge is the need to foster skills that go beyond technical competence—encouraging adaptability, problem-solving, and interdisciplinary collaboration through integrated approaches to learning.

This is where STEAM (Science, Technology, Engineering, Arts, and Mathematics) approach plays a transformative role.



Embedding the “A” for Arts within STEAM is not simply about promoting creativity; it is about ensuring that as technology advances, human-centred thinking, ethical reflection, and cultural literacy remain integral to how societies innovate and grow. The arts offer critical perspectives that help navigate the complexities of a digital future, enabling individuals to question, imagine, and design with purpose. In the context of AI and automation, these competencies become even more vital, bridging the gap between what machines can do and what humans should do.

The Future STEAM Cities project is firmly rooted in the evolving EU urban policy landscape and reflects key strategic priorities set out in the updated Cohesion Policy framework (April 2025), the UN Sustainable Development Goals, and the Urban Agenda for the European Union (UAEU). By promoting STEAM (Science, Technology, Engineering, Arts, and Mathematics) education and skills development, the project responds directly to the need for a resilient, inclusive, and skilled workforce—an essential enabler of the EU’s digital and green transitions. STEAM methodologies foster critical and creative thinking, digital fluency, and cross-sector collaboration, all of which are crucial in preparing citizens for the jobs of tomorrow and the challenges of climate adaptation and technological change. In doing so, the project contributes notably to SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 11 (Sustainable Cities and Communities).

In parallel, the project reflects and reinforces the priorities of the UAEU, particularly its Partnerships on Jobs and Skills in the Local Economy, Digital Transition, and Urban Poverty.

Through transnational cooperation and the adaptation of Aveiro’s successful innovation modules, the network supports smaller and medium-sized cities in addressing persistent challenges such as brain drain, youth disengagement, and education-to-employment mismatches. The project’s emphasis on participatory governance—through URBACT Local Groups—and its co-creation of locally grounded Investment and Continuity Plans exemplify the integrative and place-based approach that both the Cohesion Policy and the UAEU call for. By connecting education, economic development, cultural sectors, and local governance, Future STEAM Cities stands as a living laboratory for the kind of urban transformation envisioned by Europe’s long-term vision for thriving, just and green cities.

The Future STEAM Cities Transferability Study situates itself within this landscape, aiming to understand how cities can leverage proven innovations to strengthen their local ecosystems. While Aveiro’s STEAM City model provides the starting point, the true focus of this study lies in the dynamics of transfer: What conditions make it possible for one city’s success to inspire meaningful change elsewhere? How do local factors—ranging from political support to educational infrastructure—influence the potential for adaptation? And crucially, how can cities learn not just from Aveiro, but from each other, as part of a broader network of mutual exchange?

Rather than offering a prescriptive formula, this study focuses on the practical aspects of transferring innovative practices across diverse urban landscapes. It identifies key factors that influence successful adaptation, shaped by each city’s specific context and conditions. In doing so, the study aims to support the effective implementation of STEAM approaches within different city environments.

2. The Innovative Practice

- 2.1. Description of the UIA STEAM City Model
- 2.2. Key Features and Achievements
- 2.3. Governance and Stakeholder Engagement
- 2.4. Lessons Learned for Transferability



2.1. Description of the IUA STEAM City Model

Aveiro is widely recognised as a digital innovation hub, and over the past five years—through the Aveiro STEAM City project (November 2018 to April 2022)—the city has accelerated a new technological transformation. This initiative introduced 5G and IoT infrastructure, significantly enhancing the local innovation ecosystem and addressing the growing demand for digital skills.

Funded by the Urban Innovative Actions (UIA) programme under the “Jobs & Skills” priority, Aveiro STEAM City served as a pioneering model for Future STEAM Cities, supporting businesses in rethinking the skills and talent they require to drive innovation. The project introduced new pathways to attract and develop talent in the digital economy, embedding Science, Technology, Engineering, Arts, and Mathematics (STEAM) principles into education and workforce strategies.

Aveiro STEAM City (UIA) addressed several key policy challenges, including:

Fostering innovation and smarteconomic transformation as a driver for talent attraction and retention.

In an era where digital competencies are increasingly essentialforemployment,education,andcivicparticipation, the project aimed to integrate STEAM education as a foundation for future workforce readiness.

Aveiro’s challenge was not simply to create more jobs, but to increase the added value and economic impact of employment, ensuring that the city fosters high-skilled, future-oriented opportunities. At the same time, Aveiro aimed to position itself as a Living Lab, where technology and data-driven solutions support evidence-based decision-making for local governance. By enabling the development and testing of new and disruptive products and services, the city integrates digital transformation as a key driver of sustainable urban development.

Promoting digital literacy and skills development among citizens.

In an era where digital competencies are increasingly essential for employment, education, and civic participation, the project aimed to integrate STEAM education as a foundation for future workforce readiness.

The Aveiro STEAM City initiative was built around four key axis, each shaping the city’s approach to STEAM education, digital transformation, and innovation as part of its long-term development strategy:

Education

Strengthening STEAM education across all levels, from primary to secondary schools, while equipping teachers with the skills to act as change agents and inspire students to pursue careers in STEAM disciplines.

Training

Supporting businesses in attracting, developing, and retaining digital talent, while fostering collaboration between scientific and creative communities to drive workforce innovation.

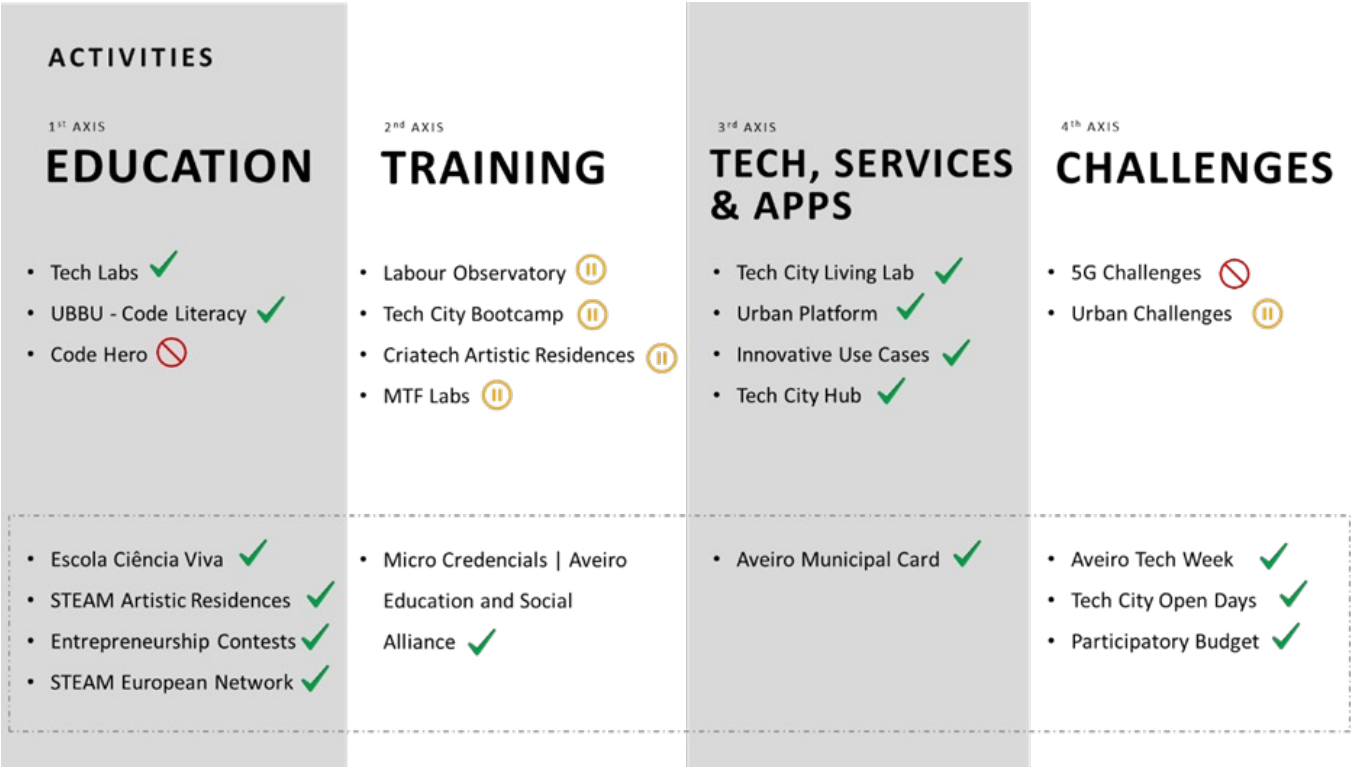
Technology, Services, and Applications

Positioning Aveiro as a Living Lab, providing businesses, startups, and research centres with access to cutting-edge digital infrastructure to develop and test IoT and Smart City solutions.

Challenges

Engaging citizens, SMEs, startups, and research institutions in co-creating solutions to urban challenges, encouraging an open innovation culture where the community plays an active role in city development.

Aveiro’s approach serves as a reference point for other cities looking to integrate STEAM education, digital transformation, and business innovation into their urban ecosystems.



Aveiro STEAM City innovative practices

Aveiro’s innovation is rooted in STEAM methodologies and their integration into a new urban testbed concept.

The Aveiro STEAM City initiative laid the foundation for a strengthened local innovation ecosystem, fostering closer collaboration between the public and private sectors, academia, and citizens. By upskilling the workforce and leveraging the digital infrastructure developed through the initiative, Aveiro has positioned itself as a hub for knowledge-driven economic growth.

Through a combination of short- and long-term initiatives, Aveiro STEAM City aimed to reinforce the city’s role in a knowledge-based economy, valuing diverse talent, R&D, open data, and the development of new products and services to support business growth and the creation of highly skilled jobs. Simultaneously, Aveiro adopted a first-mover strategy in deploying a radically new technological infrastructure, becoming a trial city for advanced 5G communications and IoT applications.



2.2. Key Features and Achievements

Aveiro STEAM City played a pivotal role in fostering a smarter Europe by addressing key challenges that many cities across the EU face, particularly in attracting and retaining talent. Through a holistic approach, the initiative integrated education, training, technology, and civic engagement to build a more resilient and dynamic local innovation ecosystem.

The following sections provide an overview of the UIA practice, with a particular focus on the modules identified by project partners as having the greatest potential for transfer (for further information see annex 1 table of modules description and target groups). These modules are described in slightly further detail.

1st Axis Education

Education is a central pillar of the City of Aveiro’s political strategy for building a knowledge-driven municipality, equipping future generations with the skills needed to succeed in the digital era. The STEAM Education Programme responds to the evolving challenges and demands of the labour market, ensuring that students are well-prepared for the opportunities of a rapidly changing economy.

The STEAM Education Programme adopts a modern and interdisciplinary approach, designed to foster entrepreneurial skills through training and competitions while sparking student interest in Science, Technology, Engineering, Arts, and Mathematics (STEAM). This is achieved by providing both low- and high-tech equipment, alongside structured teacher training and in-classroom monitoring, ensuring that schools, teachers, and students are well-prepared for the demands of the digital era and evolving job market.

By introducing these subjects to children and young people at an early age, the programme contributes to the development of a knowledge-based society—one that is more innovative, collaborative, and competitive. This early engagement fosters a mindset of co-creation and adaptability, equipping future generations with the skills needed to thrive in an ever-changing economy. The programme’s key objectives include:

- Enhancing scientific, technological, engineering, artistic, and mathematical knowledge;
- Strengthening critical thinking, self-learning, collaboration, and problem-solving skills;
- Equipping students with creative and innovative tools;
- Providing teachers with the necessary skills to inspire and guide students.

The active involvement of school communities, particularly school boards, has been crucial in the definition and validation of the STEAM Education Programme. The programme was developed through a series of initiatives, outlined below, where teachers play a fundamental role as agents of change, ensuring the effective transfer of knowledge to students—the programme’s ultimate beneficiaries—through creative and innovative educational methodologies.

Across all STEAM Education initiatives, teacher training and in-classroom monitoring are key components, providing ongoing support to ensure the effective implementation of newly acquired knowledge.

The programme has yielded significant results, with participating teachers and students reporting an 82% increase in STEAM and digital skills ([link](#)).

Tech Labs

Tech Labs were implemented across three levels of education - Primary, Intermediary, and Secondary Schools - equipping all 41 public schools in the municipality with low- and high-tech tools and creating experimental learning spaces. The objective was to engage students in Science, Technology, Engineering, Arts, and Mathematics (STEAM) by integrating Scratch, robotics kits, electronic equipment, and 3D printing, fostering critical thinking, self-learning, and collaborative work.

Since the launch of the UIA project in November 2018, Tech Labs have continued to be used and expanded within schools. To date, they have been introduced in 42 schools, reaching 12,377 students and training 225 teachers. In total, 564 training hours have been delivered, with 2,509 hours of classroom monitoring provided to support the ongoing implementation and sustainability of the initiative.

Additionally, Tech Labs were installed in two public buildings - the Library and Citizenship House - to promote digital literacy and STEAM competencies among the general public. Public sector workers were also trained to incorporate STEAM activities into educational programmes, broadening access to digital skills development.



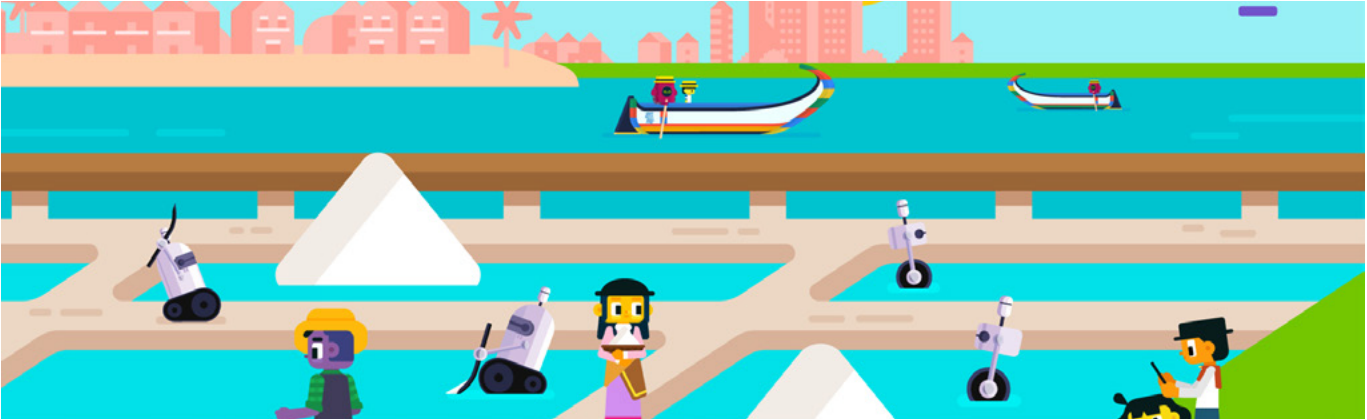
UBBU Code Literacy

UBBU is an online platform that provides an educational programme for primary schools, offering approximately 100 learning modules designed to develop computer science fundamentals, logical reasoning, problem-solving skills, and STEAM competencies. The content is aligned with the United Nations Sustainable Development Goals (SDGs), ensuring a comprehensive and socially relevant approach to digital literacy.

During the UIA project, the programme was implemented in 27 schools, engaging 3,569 students and 106 teachers. After the initial years of project implementation, up until the previous school year, it has covered 6,919 students and 147 teachers.

However, Aveiro took this initiative further by collaborating with the platform to develop seven custom exercises specifically focused on the city’s cultural and environmental heritage.

These exercises not only raise awareness among young learners about Aveiro’s culture, values, and history but also integrate code literacy with local identity. This unique feature allows students worldwide to engage with Aveiro’s heritage, bridging the digital and physical/ cultural spheres while promoting the city globally.



Code Hero

Code Hero is a free online course introducing Computer Science, designed to develop STEAM competencies and equip high school graduates with coding skills that enhance their future career opportunities. The programme ensures that students gain technical foundations in programming, preparing them for further education or entry into the digital job market. Across two editions, Code Hero engaged 199 trainees, providing them with essential digital skills and computational thinking to navigate an increasingly technology-driven world.

Entrepreneurship Contests

One idea, one project, one action aimed at intermediate level students, this contest fosters a proactive mindset and co-responsibility, enabling students to design and implement innovative projects within their schools or communities. By taking ownership of their ideas, students become active agents of change. Since its launch, it has involved 26 schools, 15,922 students, 1,136 teachers, and led to 109 projects being implemented. Another project, Your idea counts, was designed to recognise the best business ideas proposed by secondary school students, this contest encourages entrepreneurial thinking and creativity. Since its inception, it has engaged 6 schools, 4,246 students, 75 teachers, and resulted in 100 projects.

Escola de Ciência Viva

An educational programme for 4th-grade students, integrating Modern Science Museology with hands-on and experimental learning in a science centre setting. Over one week, students engage with STEAM content outside the traditional classroom environment, fostering curiosity and scientific thinking. As part of the UIA project, the programme reached 31 schools (100% of primary schools in the municipality), 3240 students, and 165 teachers.

STEAM Artistic Residences

Developed in collaboration with Oulu, Finland, the STEAM Artistic Residencies pilot introduced artistic content using STEAM methodologies in Intermediary Schools. Through a co-creation process, artists, teachers, and students worked together to explore the role of Arts (“A”) in STEAM education. Simultaneously, Oulu implemented the same approach, fostering knowledge exchange and collaboration between both cities. This initiative enabled participants to develop new ideas and projects, share experiences, and engage in mutual learning through exchange visits.

2nd Axis Training

Labour Observatory

Developed with the University of Aveiro and Inova-Ria, the Labour Observatory aimed to align skills development with local labour market needs. While not fully meeting expectations in responsiveness, it provided valuable job market data and strengthened public-private collaboration on workforce development.

Tech City Bootcamp

The Tech City Bootcamp was created to attract, retain, and develop digital talent, aligning with the evolving needs of Aveiro's tech-based economy. Designed as an intensive training programme, it equipped unemployed individuals, students, and career changers with coding skills in Java and JavaScript, preparing them to work as Full Stack Developers in the ICT sector.

The programme was developed in close collaboration with local tech companies, ensuring it met industry demands. Businesses were actively involved from the start, defining human resource needs, offering on-the-job training placements, and ultimately hiring many of the participants. This public-private cooperation was key to fostering a talent-friendly environment, with both companies and the City of Aveiro co-financing the training.



Aveiro STEAM City delivered three bootcamps, each spanning 28 weeks—14 weeks in a classroom setting followed by 14 weeks of work-based training. Across these editions:

60

trainees participated, with 59 successfully completing the programme - a high success rate due to a rigorous selection process.

450

From 450 applicants, candidates were assessed on digital dexterity and logical reasoning, rather than prior coding experience, ensuring access to individuals with critical thinking and problem-solving skills.

The Tech City Bootcamp not only equipped participants with specialised digital skills but also led to strong employability results, demonstrating its effectiveness in bridging the gap between training and the job market:

75%

of trainees secured jobs in the tech sector, with 76% completing work-based training in 11 tech companies.

28

companies hired trainees, with half of them based in Aveiro or its region, supporting local talent retention.

Many participants transitioned into higher-paid and more qualified roles, particularly those from non-technical backgrounds or with only secondary education.

The programme's success was reinforced by industry commitment. Companies hiring graduates offered a minimum 12-month contract, with many providing open-ended contracts that remain in place today. Salaries started at €1,000 gross per month, ensuring competitive compensation for newly trained professionals.

Through this initiative, Aveiro strengthened its capacity to attract, train, and retain specialised digital talent, directly supporting the city's economic and technological growth.

Criatech Artistic Residences

The Criatech Artistic Residencies promote creativity and digital skills, fostering synergy between the arts and ICT industries. Participants from the creative and technology sectors receive artistic mentoring from international artists and guidance from industry professionals and academics. The programme encourages experimentation, collaboration, and knowledge exchange through research, production, and exhibitions.



MTF Labs

Music Tech Fest (MTF) is a global community using music as a driver for innovation. #MTFLabs is a five-day prototyping event where experts and local participants co-create hybrid technologies through lectures and hands-on labs. As part of Aveiro STEAM City, two editions engaged 50 participants per edition from 26+ countries, resulting in 19 new co-creative projects.



Aveiro Education and Social Alliance Micro Credentials

Approved under the Next Generation Fund, this project—led by the University of Aveiro—builds on its experience in Aveiro STEAM City, particularly the Labour Observatory. With over €10M in funding, the initiative aims to increase graduation rates and expand adult training in STEAM fields, aligning with the Territorial Development Strategy of the Aveiro Region.

Training will be reinforced through Higher Professional Technical Courses, degrees, and micro-credentials, covering areas such as Automation, Robotics, Industrial Informatics, Metrology, CNC Programming, Welding, IT, Electrical Installations, Computer Networks, Product Design, Aerospace Engineering, and Software Engineering.



3rd Axis
**Tech, Services,
and Apps**

Tech City Living Lab

The Tech City Living Lab is a large-scale testbed for researchers, start-ups, and businesses to develop, test, and demonstrate new technologies. Supported by 5G and IoT infrastructure, it enables real-world experimentation in Aveiro. The lab features 16 km of fibre optic network, 44 communication points, and has engaged 40+ companies and R&D centres in advancing technology and innovation.

Tech City Hub

Located in Edifício Atlas, alongside the municipal library, the Tech City Hub is a multifunctional space for exploring territorial data and urban development. Equipped with digital tools, it allows visitors to learn about Aveiro Tech City's strategy, visualise the city's social, economic, and industrial growth, discover its competitive advantages and innovation initiatives, and explore key public investments, past and future. The hub fosters community engagement, providing an interactive insight into Aveiro's strategic vision and technological progress.

Urban Platform

The Urban Platform processes real-time data from energy, mobility, environment, and utilities, supporting smart city management. It offers custom APIs for data sharing and a City Governance Centre for visualisation and analysis. By providing open access to urban data, it enhances planning, innovation, and quality of life.

Innovative Use Cases

As part of Aveiro STEAM City, three Smart City Use Cases were developed and implemented, focusing on Mobility, Energy, and Environment. These initiatives created a stimulating environment for private and public investment, fostering the creation of knowledge resources and best practices to support future urban innovation.

4th Axis
Challenges

5G & Urban Challenges

The 5G Challenges, Urban Challenges, and more recently ATC Challenges were developed to support innovative technological solutions addressing contemporary urban issues such as energy efficiency, mobility, flood management, bio-waste, smart resource management, inclusive tourism, and augmented reality (AR). These initiatives have positioned Aveiro as a testbed enabling companies

Tech City Open Days

A one-day event designed to connect students, businesses, and research centres, fostering both career exploration and industry-academia collaboration. It provides academic students with the opportunity to visit and engage with local companies, gaining insight into their operations and potential career pathways. At the same time, it strengthens partnerships between businesses and research centres at the University of Aveiro, promoting strategic collaborations that drive innovation and mutual growth.

and enabling companies and R&D centres to develop and deploy new solutions with financial, technical, and mentoring support. Public investment, in the form of monetary awards, has incentivised participants while also encouraging private sector co-investment in developing and implementing innovative projects.

Tech Week

A seven-day event celebrating technology, art, and culture through TechDays and Prisma/Art Light Tech. Held in October, it features conferences, exhibitions, artistic installations, performances, and interactive laboratories, reinforcing Aveiro's role as a hub for technological and creative industries. The event showcases key Aveiro Tech City initiatives, giving the public access to innovative and disruptive projects developed by local partners and stakeholders, while offering an immersive cultural and experimental experience.

2.3. Governance and Stakeholder Engagement

Multi-level partnerships have been a key feature in the implementation and sustainability of Aveiro STEAM City. The project served as the backbone of the broader Aveiro Tech City strategy, which focuses on education, training, technology, and local economic development. Without UIA funding, this strategy would not have gained the momentum and visibility needed to engage a broader network of local and national stakeholders.

Over three years, the project fostered strong cooperation between partners, leading to the exploration of new governance models. This collaboration resulted in the Aveiro Tech City Collaboration Protocol, signed in 2022 by 14 public and private entities, ensuring continued investment in digital transformation and skills development.

In line with this collaborative approach, and to support both the transfer of key modules and the continuity of Aveiro's strategy, the following partners from the original project will be directly involved in their URBACT Local Group:

University of Aveiro

A key partner in STEAM education, contributing to initiatives such as Tech Labs, Labour Observatory (Microcredentials), and Tech City Open Days.

Instituto de Telecomunicações

A private R&D institute involved in Living Lab and Challenges, also supporting Tech City Bootcamp by helping define technical skills and training content.

Inova-Ria

A business network of 70+ ICT and electronics companies, instrumental in Labour Observatory and Tech City Bootcamp by connecting SMEs with new talent. This partnership will remain valuable for Tech City Open Days.

These collaborations continue to drive innovation, skills development, and economic growth, reinforcing Aveiro's position as a leading STEAM and digital innovation hub.

Altice Labs

Altice Labs is the R&D branch of the Altice Telecommunication and Media Group, with over 65 years of experience in telecommunications and ICT. As a key partner in the UIA project, Altice Labs played a crucial role in the implementation of innovation initiatives, particularly the Urban Platform and Challenges.

Their continued involvement is essential in Tech City Open Days, where they can welcome and engage university students, providing insights into the ICT industry and potential career opportunities. Additionally, as a leading private sector ICT company, Altice Labs will contribute to the implementation of Tech City Bootcamp, helping to define training content based on their human resources needs, ensuring that the programme aligns with industry demands and workforce requirements.

Education remains a cornerstone of Aveiro's political strategy, driving the development of a knowledge-based society and equipping future generations with the skills required for the digital era. To ensure effective implementation and sustainability, Aveiro has established a structured governance model that fosters active collaboration among key stakeholders, including school boards, businesses, and research institutions.

The governance model engages school boards, businesses, and research institutions and operates across four levels:

General Board

Led by the City Mayor and top-level stakeholder representatives, this board oversees objectives, budget, marketing strategy, constraints, and business model evaluation.

Steering Comittee

Chaired by the Project Coordinator (City of Aveiro) and ULG Senior Managers, it ensures alignment between the UIA Continuous Plan and stakeholder strategies, reporting to the ULG Assembly.

ULG Assembly

Comprising one representative per stakeholder and the ULG Coordinator, it drives implementation and stakeholder engagement. The ULG Coordinator plays a key role in supporting project transfer and the Continuous Plan.

Project Team Unit

Includes the Communication Coordinator and City of Aveiro staff, reporting to the ULG and Project Coordinators to ensure efficient project execution.

This governance model, combined with active cooperation among partners, creates a strong framework that not only enhances the transfer of innovation but also shapes the long-term strategy for Aveiro's Continuous Plan.



2.4. Lessons Learned for Transferability

As the Future STEAM Cities network adapts selected Aveiro STEAM City modules, key lessons from Aveiro’s experience can provide valuable insights to guide the transfer process. These lessons focus on education, labour market alignment, collaboration, technology, and innovation, ensuring they remain relevant and actionable for partner cities.

A holistic approach to transferability will ensure that the adaptation of Aveiro STEAM City modules aligns with each city’s local needs and priorities, integrating education, workforce development, technology, and innovation for a lasting impact. By prioritising teacher engagement, industry collaboration, stakeholder partnerships, technology integration, and entrepreneurship, partner cities can effectively implement and expand the most relevant aspects of Aveiro’s model, fostering long-term sustainability and innovation.

Embedding STEAM Education in Schools

STEAM education plays a critical role in preparing students for the future workforce. A key success factor in Aveiro was the active involvement of teachers and school leadership, positioning them as agents of change in engaging and motivating students. Hands-on methodologies, teacher training, and access to low- and high-tech tools significantly enhanced students’ problem-solving, critical thinking, and creative skills.

Building Multi-Stakeholder Collaboration

Aveiro’s multi-level governance model successfully engaged public bodies, academia, businesses, and research centres in a shared vision for digital and economic transformation. This collaborative approach ensured that STEAM initiatives were co-designed and supported by key local actors, increasing their impact and sustainability.

Leveraging Technology to Support STEAM and Workforce Development

Aveiro’s technological infrastructure, including IoT platforms, 5G connectivity, and digital tools, played a key role in supporting STEAM learning, training programmes, and entrepreneurship initiatives. While not all cities will replicate Aveiro’s infrastructure, the integration of technology into education and workforce development remains a key lesson.

Strengthening Business-Education Alignment

A major challenge in Aveiro was the mismatch between job supply and demand, requiring a stronger connection between education and industry. Initiatives like Tech City Bootcamp and the Labour Observatory helped companies anticipate workforce needs and ensured that training programmes aligned with labour market demands.

Fostering Innovation and Entrepreneurship

Entrepreneurship was a key driver of Aveiro’s STEAM City model, with initiatives such as Challenges, MTF Labs, and Criatech Artistic Residencies fostering creativity, problem-solving, and start-up development. These programmes provided mentoring, funding opportunities, and innovation test beds for students, researchers, and businesses.

3. Partner Profiles

- 3.1. Alytus
- 3.2. Kolding
- 3.3. Oulu
- 3.4. Płock



3. Partner Profiles

The four partner cities - **Alytus (Lithuania), Kolding (Denmark), Oulu (Finland) and Płock (Poland)** - reflect a rich diversity of socio-economic landscapes, each shaped by unique historical, geographical, and cultural contexts.

Despite these differences, they share common urban dynamics that are increasingly shaped by demographic shifts, economic transitions, and the challenges of digital transformation. As medium-sized European cities, they are navigating issues related to talent retention, economic diversification, and sustainable development while fostering innovation ecosystems that can support resilient, future-ready communities. This socio-economic backdrop provides the foundation for understanding each city’s approach to urban development and their potential to adapt and transfer innovative practices.

Partner	Type of Organisation	Population (2024)	Country
Alytus	Local public authority	51 730	Lithuania
Kolding	Business support organisation	62 444	Denmark
Oulu	Local public authority	215 000	Finland
Płock	Local public authority	110 495	Poland

The following section presents an overview of each partner city, providing essential context for understanding how each city engages with urban challenges and opportunities, particularly in relation to their project-specific challenges and STEAM ambitions. By exploring the unique pathways each city is taking towards fostering innovation and addressing local needs, these profiles set the stage for their role within the Future STEAM Cities network.

3.1. Alytus

Driving digital transformation and innovation through STEAM

Located in southern Lithuania, Alytus serves as a regional hub within the Dzūkija region. Known for its natural surroundings and industrial heritage, the city has been transitioning from traditional manufacturing towards a more diversified economy. Alytus faces significant demographic challenges, particularly youth outmigration, which impacts its labour market and innovation potential. Despite these challenges, the city benefits from strong political support for digital transformation and urban development, with strategic initiatives aimed at enhancing quality of life, fostering entrepreneurship, and creating conditions that attract and retain talent. Alytus’s socio-economic landscape is marked by efforts to revitalise its local economy, strengthen educational pathways, and position itself as an emerging centre for digital and creative industries within Lithuania.

Alytus faces the overarching challenge of **brain drain**, with young talent leaving the city for opportunities elsewhere. This not only weakens the local workforce but also limits Alytus’s capacity to evolve as an innovative and dynamic city. The challenge is compounded by the need to create stronger connections between education, business, and cultural sectors to foster an environment where young people see Alytus as a place to build their future.

At the heart of this challenge is Alytus’s drive to become a **digitally advanced and innovative city**—a place where STEAM (Science, Technology, Engineering, Arts, and Mathematics) education serves as a catalyst for sustainable growth, community engagement, and economic resilience. By embedding creativity and innovation into its urban development, the city aims to cultivate an

ecosystem where young talent can thrive, reducing the risk of outmigration and positioning Alytus as a vibrant hub for the future.

A key strength in addressing these challenges is the strong political support from the Mayor and City Council members, who view STEAM as a strategic tool to enhance the city’s future. Their commitment ensures that STEAM initiatives are not just project-based but embedded in long-term urban policies and development plans. According to the Alytus Development Plan 2030 and the Sustainable Development Strategy 2024–2029, the city aims to strengthen STEAM-based learning at all levels of education, provide students with opportunities to learn digital skills, strengthen the business, science, municipal, and cultural sectors, and foster collaboration to retain and attract young talent to the city. This strategic alignment provides a solid framework to support the city’s ambitions in fostering a skilled workforce through STEAM education and strengthening cooperation between educational institutions and businesses.

Challenge Areas

Education plays a central role in this vision, with 15 schools across all educational levels forming the foundation for STEAM integration. However, a key challenge remains the expansion of STEAM education to kindergartens. While some private and informal education providers offer STEAM-related activities, these are not accessible to all children. Alytus aims to establish a more inclusive and systematic approach to STEAM education in early childhood, recognising its importance in developing skills and interest from an early age.

1. Attracting, Developing, and Retaining Talent

Brain drain remains a critical challenge, with young talent leaving Alytus for opportunities elsewhere. This is compounded by limited business involvement in supporting young talent, which reduces opportunities for career development. Building strong connections between education, businesses, and the city is key to retaining skilled individuals and fostering local economic growth.

2. Enhancing STEAM Education Across All Levels

While some schools in Alytus have STEAM assets, there is a lack of consistency and coordination across educational institutions. Additionally, STEAM education is not fully integrated at all levels, particularly in early childhood education. There’s a need for a more inclusive and systematic approach to STEAM, with better resource-sharing and collaboration among schools.

3. Bridging Gaps Between Culture, Innovation, and Education

Cultural institutions in Alytus show interest in collaborating on STEAM initiatives, but events often lack interactive and digital elements that engage the wider community. Furthermore, coordination gaps between education, business, and cultural sectors hinder efforts to create an integrated ecosystem that fosters innovation. Strengthening cross-sector partnerships can unlock the city’s full creative and technological potential.

4. Ensuring Long-Term Financial Sustainability

Many STEAM initiatives rely on EU funds and municipal budgets, but long-term financial sustainability remains a challenge. Alytus needs to develop structured investment plans and identify diversified funding sources to ensure that projects can scale and have lasting impact

Category	Assets	Barriers
Fit with city’s strategic priorities	Strong alignment with the city’s goal to become a digitally transformed city, with a focus on STEAM education and talent retention.	The challenge of talent outflow remains a significant obstacle, impacting long-term workforce development and innovation capacity.
Level of political support	Strong commitment from the mayor and local government, with budget allocation and ongoing support for education initiatives.	Centralised governance of schools may limit flexibility in decision-making and implementation of STEAM initiatives.
Available resources (infrastructure and people)	A network of 15 schools covering all educational levels and existing STEAM assets in some institutions. Collaboration with project partners and administrative units to address skill gaps. Private STEAM providers and businesses are motivated and willing to get involved.	Gaps in STEAM education, especially at the kindergarten level, and a lack of dedicated personnel or platforms to coordinate efforts across schools and businesses.
Availability of finance (funding opportunities)	Access to EU funds and city budget allocations that support educational initiatives and innovation.	Long-term financial sustainability remains uncertain, with a need for structured investment planning and diversified funding sources.
Other assets or barriers	Cultural institutions are interested in STEAM collaboration, and businesses are open to engagement in educational initiatives.	Limited interaction between cultural and educational sectors, and businesses are not yet fully integrated into talent retention strategies.

Strategic Vision and Path Forward

Alytus benefits from a strong foundation of collaboration with schools and businesses, but challenges persist in fostering consistent cooperation. Despite some schools possessing STEAM assets, the level of collaboration between institutions remains uneven, highlighting the need for improved coordination and resource-sharing. Additionally, while business involvement in city initiatives has been limited in the past, recent developments show growing interest from private STEAM providers and other businesses to actively engage in the project. This emerging enthusiasm presents new opportunities to support young talent and create meaningful career pathways in STEAM-related fields.

Cultural engagement also presents both challenges and opportunities. Although cultural institutions are eager to collaborate on STEAM initiatives, events in the city often lack interactive and digital elements that could enhance public engagement and align with innovation goals. Strengthening the link between culture and STEAM is seen as an opportunity to foster creativity, make cultural events more dynamic, and position Alytus as a city where education, technology, and the arts converge to drive innovation.

In terms of financial resources, Alytus has access to EU funds and municipal budget allocations to support STEAM initiatives. However, ensuring long-term financial sustainability and scalability remains a challenge, requiring structured investment planning and diversified funding sources. Additionally, the absence of a dedicated platform or staff to coordinate efforts across education, business, and cultural sectors continues to pose a barrier to achieving a fully integrated STEAM ecosystem.

Alytus is embarking on the Future STEAM Cities Innovation Transfer project with a strong commitment to enhancing its educational landscape and fostering local talent. Building on its experience in transnational collaboration through the URBACT TechRevolution 2 project, Alytus views the transfer of urban solutions as an opportunity to learn, grow, and adapt innovative practices to its local context. The city is confident in its ability to implement the project successfully by leveraging its stakeholder network, engaging key administrative units, and learning from project partners to address competency gaps and develop a robust, future-ready STEAM ecosystem.

The City of Alytus has a clear strategic vision to become a digitally transformed and innovative city, supported by strong political commitment from the Mayor and City Council members, who see the project as a key driver for improving the quality of life and expanding economic opportunities. This strategic alignment provides a strong foundation to support Alytus's ambition to foster a skilled workforce and promote cross-sector cooperation through STEAM education.

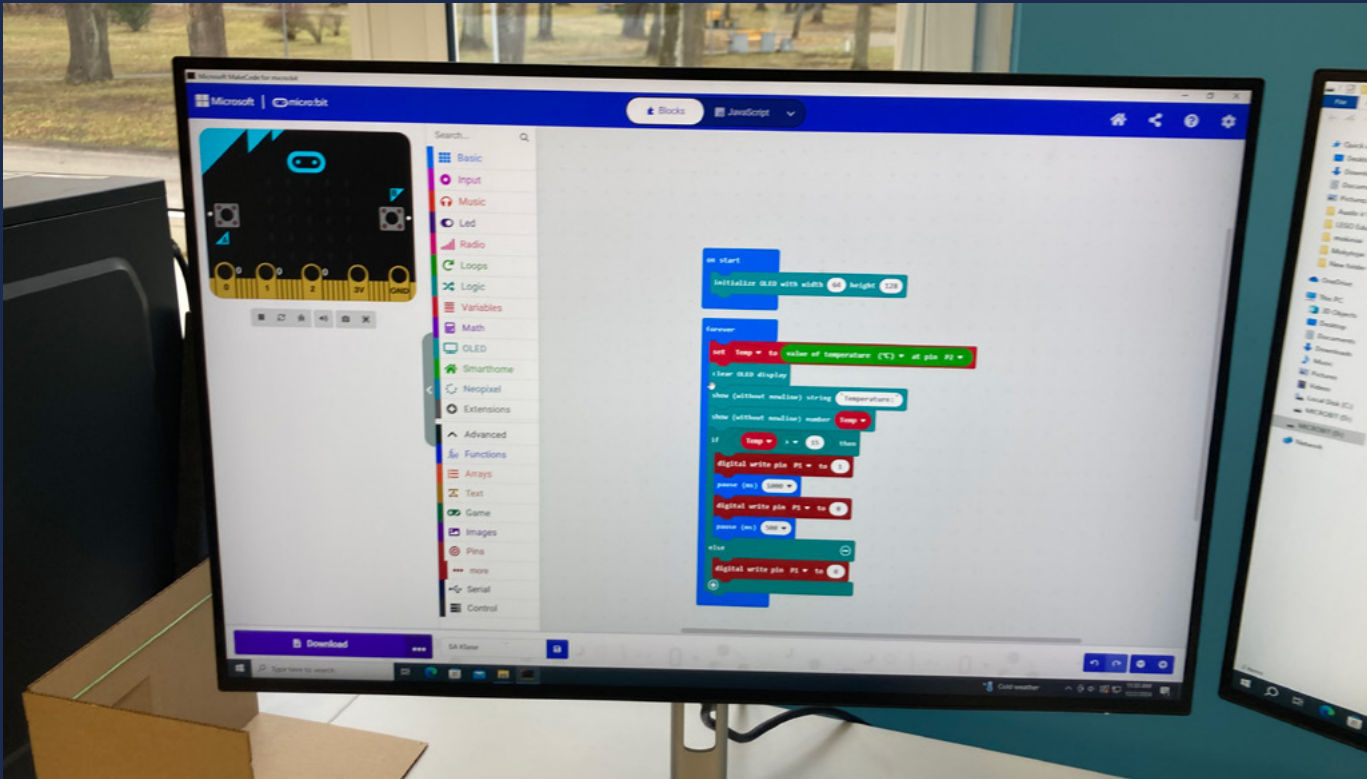
The URBACT Local Group in Alytus brings together key stakeholders from education, business, politics, and culture to support the implementation of STEAM initiatives.

Their diverse roles ensure cross-sector collaboration, fostering a strong foundation for the city's innovation ecosystem.

ULG member	Role
Department of Education	Supervision of education institutions
Department of Business	Support for business development
Department of Culture	Cultural integration in STEAM projects
Educational Institutions	STEAM labs and implementation
Politicians	Project support and policy alignment
Kaunas College	Higher education collaboration
Business Companies	Engagement in educational initiatives
Alytus Vocational Training Centre	Vocational education collaboration
Private Education Providers	Supplementary education support

Based on the modules to be adapted from Aveiro’s STEAM City, Alytus is developing a range of **projects** to strengthen STEAM education, foster entrepreneurship, and enhance cultural collaboration. These initiatives aim to create meaningful learning opportunities and support local talent development.

Project Name	Brief Description	Stakeholders Involved	Modules Adapted
Entrepreneurship Contests for Secondary School Students	Aimed at fostering entrepreneurial thinking among secondary school students through real-world business challenges and innovative solutions.	Department of Education, Business Department, Local Businesses, Politicians, Kaunas College	Entrepreneurship Contests
Alytus Business Open Day	An initiative to connect students with businesses, providing first-hand exposure to local companies and career opportunities in the STEAM sector.	Business Companies, Business Department, Politicians, Private Education Providers	Tech City Open Days
STEAM Education in Alytus Schools	Expansion of STEAM education across Alytus educational institutions, focusing on technical and creative skill development at different levels	Department of Education, Politicians, Alytus Vocational Training Centre (AVTC), Cultural Department	TechLabs, UBBU Code Literacy
STEAM Labs for Early Education	Establishing STEAM labs in kindergartens to introduce hands-on, inquiry-based learning experiences for young children.	Department of Education, Educational Institutions, Private Education Providers, Cultural Institutions.	TechLabs
Cultural & STEAM Collaboration Programme	Integrating cultural and creative industries into STEAM projects to remote interdisciplinary learning and innovation.	Cultural Department, Educational Institutions, Business Companies	STEAM Events





3.2. Kolding

Igniting Innovation Through STEAM and Tech

Situated in southern Denmark, Kolding is a vibrant city known for its dynamic business environment, strong educational institutions, and cultural vitality. As part of the Triangle Region, Kolding enjoys strategic connectivity and economic opportunities that support a thriving knowledge economy. The city has positioned itself as a hub for design, technology, and entrepreneurship, supported by a robust network of higher education institutions and active business communities. However, Kolding faces challenges in talent retention, particularly among graduates who often migrate to larger urban centres. The city's commitment to sustainability, digitalisation, and inclusive growth is evident in its strategic policies, which aim to strengthen local innovation ecosystems, foster cross-sector collaboration, and ensure that education and industry are closely aligned to meet future workforce demands.

Kolding faces the persistent challenge of brain drain, with graduates leaving the city even as it hosts some of the largest IT recruiters in the country. This paradox highlights a critical gap: while there are abundant job opportunities, local companies often have to recruit talent from outside the city to fill these roles. This reliance on external talent not only underscores challenges in retaining local graduates but also limits the city's potential to develop a sustainable, homegrown workforce. Universities are under pressure to improve student employment rates, influenced by funding structures tied to these outcomes, while businesses face growing demands for both hard skills (such as IT and technical competencies) and soft skills (like collaboration and adaptability), further intensifying the need for stronger connections between education and the labour market.

Addressing these issues requires overcoming barriers related to stakeholder collaboration, visibility, and inclusivity within STEAM (Science, Technology, Engineering, Arts, and Mathematics) fields. Although there is strong support from business leaders, turning this enthusiasm into concrete actions and sustained engagement remains a significant hurdle. Engaging technical staff within businesses, beyond just CEOs, is a key area needing attention to ensure consistent project implementation. Additionally, ensuring long-term financial sustainability for STEAM initiatives is critical,

especially as many programmes currently rely on voluntary contributions and short-term funding.

At the core of Kolding's challenge lies an ambition to become a leading STEAM Tech city, where talent thrives through the fusion of technology, innovation, and education. Kolding aims to create a dynamic ecosystem that attracts, develops, and retains skilled individuals, fostering a culture of digital transformation and future-focused learning. The city seeks to strengthen collaboration across sectors, ensuring that businesses, educational institutions, and local government work seamlessly together to align skills development with the evolving demands of the tech-driven labour market.

This ambition is deeply embedded in Kolding's strategic approach, leveraging the city's strong stakeholder network, innovative practices in design thinking, and active partnerships through initiatives like Campus Kolding. By embedding STEAM education into the fabric of the city's growth strategy, Kolding aims to ensure that students not only gain technical expertise but also develop the soft skills needed for future careers. The goal is to establish Kolding as a vibrant hub for STEAM talent, where young people see clear career pathways and businesses find the skills they need to innovate and grow.

Challenge Areas

1. Attracting and Retaining STEAM Talent

Kolding faces the challenge of retaining graduates and attracting talent to the city. Limited visibility as a destination for STEAM careers and a low interest among students in IT and technical fields make it difficult to build a strong talent pipeline. Enhancing Kolding's appeal as a vibrant STEAM Tech city is essential to reversing this trend.

2. Bridging the Skills Gap

There is a growing mismatch between the skills students acquire during their education and the needs of local businesses. This includes not just technical competencies but also soft skills such as collaboration, adaptability, and critical thinking, which are increasingly valued by employers.

3. Strengthening Cross-Sector Collaboration

Collaboration between educational institutions, businesses, and government bodies remains inconsistent, making it difficult to create cohesive pathways from education to employment. Additionally, many skills development programmes rely on volunteer efforts, raising concerns about their long-term sustainability without formal structures or consistent funding.

4. Promoting Diversity and Inclusion in STEAM

Many STEAM initiatives rely on EU funds and municipal budgets, but long-term financial sustainability remains a challenge. Alytus needs to develop structured investment plans and identify diversified funding sources to ensure that projects can scale and have lasting impact

Category	Assets	Barriers
Alignment with Strategic Priorities	Kolding is home to the largest IT recruiters in the region. The city's STEAM strategy aligns with its broader goals of becoming a STEAM Tech city, with strong focus on digital transformation and innovation.	Limited time and resources of local companies may pose a challenge for scaling efforts. Ensuring continuity beyond pilot projects, such as the Hard Skills Station, remains a concern.
Political Support	The City Council has established a dedicated unit to support students, with strong political leadership actively championing STEAM initiatives. New cross-sector partnerships reflect growing political will to prioritise tech education.	Potential changes in political leadership or key stakeholders may affect project sustainability, particularly with upcoming elections. High turnover in decision-making roles adds uncertainty to long-term planning.
Available resources (infrastructure and people)	Strong engagement from local businesses, educational institutions, and initiatives like Campus Kolding foster collaboration. Resources such as the NextTech Lab (3D printing hub) and Coding Pirates enhance practical learning opportunities.	Coordination across diverse stakeholders can be complex and time-consuming. Many initiatives rely heavily on volunteer efforts, such as Coding Pirates, which face sustainability risks without consistent funding or staff.
Financial Resources	Initial funding secured for pilot activities, including the Hard Skills Station. Businesses contribute through voluntary support, with increasing interest in formalising public-private partnerships to secure project funding.	Achieving financial sustainability beyond pilot phases remains challenging. Projects often depend on short-term funding, and securing long-term investments is essential for scaling initiatives and ensuring lasting impact.

Strategic Vision and Path Forward

Kolding is embarking on its first Innovation Transfer project, marking a new chapter in its approach to urban development and skills enhancement. While the city does not have prior experience in transferring urban solutions, it draws valuable insights from its participation in other initiatives, such as Interreg projects supporting designers and creatives. This experience, coupled with strong stakeholder networks and well-established collaborations with educational institutions and businesses, provides a solid foundation for successful project implementation.

Business Kolding and the City of Kolding have set clear strategic goals to drive digitalisation within local schools, with a strong commitment to enhancing STEAM initiatives in elementary education. Their approach is deeply rooted in innovation and design thinking, aligning with the city’s broader business strategy to strengthen collaboration between educational institutions and the private sector, supporting both economic growth and social development.

A key asset in Kolding’s ecosystem is the Campus Kolding network, which facilitates collaboration between the city and local schools through formal partnership agreements aimed at strengthening ties with businesses. Business Kolding plays an active role in this initiative, organising events such as Business Lunches and speed-dating sessions, connecting students with companies to explore career opportunities and bridge the gap between education and industry.

While local businesses demonstrate strong support for these initiatives, translating enthusiasm into concrete actions remains a challenge. CEOs are highly supportive of STEAM activities but are not always directly involved in day-to-day project implementation. Engaging and securing commitment from technical staff, who play a crucial role in driving projects forward, requires focused attention.

Kolding has secured initial funding for pilot initiatives, such as the Hard Skills Station, and benefits from voluntary contributions and support from local businesses. These resources provide a strong foundation for advancing STEAM-related activities. However, ensuring long-term financial sustainability beyond the pilot phase is critical. Moving forward, Kolding aims to secure larger, more consistent funding sources to establish a sustainable framework for skills development and business engagement, ensuring the lasting impact of its STEAM initiatives.

The URBACT Local Group in Kolding brings together key stakeholders from education, business, and the tech sector to support the city’s ambition of becoming a leading STEAM Tech city.

This diverse group plays a crucial role in fostering innovation, bridging the gap between education and industry, and promoting inclusive participation in STEAM fields. Their collaboration ensures that the adapted modules from Aveiro are effectively implemented, tailored to Kolding’s local context, and aligned with the city’s strategic goals.

ULG member	Role [Short Description]
Coding Pirates	NGO providing coding skills for children aged 7–17, fostering early digital literacy and STEAM interest.
University of Southern Denmark	Provider of technical education, with a focus on entrepreneurship through the Startup Station and support for innovation projects.
International Business Academy	Offers IT and tech education, hosting the advanced 3D print lab NextTech, supporting digital fabrication and tech skills.
IT Companies (Various)	Engaged in hackathon-style events, mentoring students in real-world problem-solving and tech innovation challenges.
Schneider Electric	Active in promoting gender diversity in STEAM, running mentorship programmes to support girls in tech-related fields.
Kolding Design School	Integrates arts and creativity within STEAM, supporting artistic residencies and cross-disciplinary collaboration.

To support Kolding’s ambition of becoming a leading STEAM Tech city, the city is planning to develop a range of projects inspired by and adapted from Aveiro’s STEAM City modules. These initiatives are designed to strengthen the connection between education, businesses, and the wider community, with a focus on fostering innovation, entrepreneurship, and skills development. By creating practical, real-world learning environments and promoting cross-disciplinary collaboration, these projects aim to nurture local talent, support digital transformation, and enhance inclusivity within STEAM fields.

Project Name	Brief Description	Stakeholders Involved	Modules Adapted
Hard Skills Station	A programme designed to introduce students to practical technical skills through lectures and workshops led by university faculty and industry professionals. It bridges the gap between education and industry by offering hands-on experience in high-demand skill areas like IT, design, and digital fabrication.	Universities, Business Kolding, Local Companies, City of Kolding	TechLabs, Tech City Open Days, UBBU Code Literacy (TBC)
Company-Based Challenges & City Challenges	A competition-style initiative where businesses or the City Council present real-world and societal challenges to students, encouraging them to develop innovative solutions. This fosters collaboration between students, companies, and public services while offering fresh perspectives and access to emerging talent.	City of Kolding, Local Businesses, IT Companies	Entrepreneurship Contest, Urban Challenges
Living Lab	A collaborative space where students and businesses co-develop and test new ideas and technologies in a real-world setting. It provides an interactive environment for exploring innovative solutions to societal and business challenges, fostering entrepreneurship and creativity.	University of Southern Denmark, Local Companies	Living Lab, Tech City Open Days
STEAM Artistic Residencies	A programme that integrates arts and creativity within STEAM, where students and artists collaborate on projects that combine technology, design thinking, and artistic expression. Inspired by Aveiro’s Criatech model.	Kolding Design School, Local Artists, Educational Institutions	STEAM Artistic Residencies
Mentorship Programme for Girls in STEAM	A mentorship initiative led by companies like Schneider Electric, aiming to promote gender diversity in STEAM fields by providing guidance, role models, and hands-on experiences for girls interested in tech careers.	Schneider Electric, Local Schools, Business Kolding	



3.3. Oulu

Shaping the Future as a Global STEAM City

Located in northern Finland, Oulu is a leading city in technology and innovation, often referred to as the “Silicon Valley of the North.” With a population of over 200,000, Oulu is a dynamic urban centre known for its cutting-edge research, strong ICT sector, and vibrant start-up ecosystem. The city’s economy is driven by high-tech industries, supported by world-class educational institutions like the University of Oulu, which fosters research and development across various disciplines. Despite its strong economic foundation, Oulu faces challenges related to demographic changes, including an ageing population and the need to attract and retain global talent. The city’s strategic focus on digitalisation, sustainability, and smart city initiatives underscores its ambition to remain at the forefront of technological advancement while ensuring a high quality of life for its residents. Oulu’s socio-economic profile is defined by its resilience, adaptability, and commitment to fostering a knowledge-based economy in the context of rapid global change.

Oulu is the most advanced city in terms of STEAM integration, with STEAM education embedded in the city’s education and innovation strategy, including early childhood education through STEAMinOulu. The city has a well-established STEAM network, with FabLabs, digital literacy programs, and deep business-academic partnerships. STEAM is embedded across all basic education schools and most kindergartens, supported by a mentoring system for educators. Despite this strong reputation as a leader in STEAM education, Oulu faces significant challenges in maintaining momentum and scaling its initiatives to meet evolving needs.

The city must address **gaps in pedagogical leadership**, ensuring that all schools have the capacity to integrate STEAM effectively into their curricula. **Reaching new target groups**, such as adults, seniors, and broader community members, presents challenges related to outreach, programme development, and resource allocation.

Additionally, while Oulu has access to multiple funding streams, **securing long-term financial sustainability** remains a critical concern, particularly in a competitive grant landscape. The upcoming municipal elections in 2025 also introduce potential uncertainties regarding political priorities and funding commitments, which could impact the continuity of current STEAM strategies.

At the core of Oulu’s challenge is its ambition to become a **Global STEAM City** that not only leads in educational excellence but also inspires lifelong learning across all generations. Oulu seeks to strengthen its role as an innovation hub, where STEAM education drives community engagement, economic development, and social inclusion. By fostering strong connections between education, business, cultural sectors, and the wider community, the city aims to create an ecosystem that nurtures creativity, critical thinking, and digital literacy for the future.

Challenge Areas

1. Enhancing STEAM Leadership and Educational Excellence

Oulu’s established STEAM framework requires further development, particularly in enhancing pedagogical leadership. This involves supporting educators with continuous professional development to ensure STEAM becomes fully integrated into the educational system, along with continuous monitoring and adaptation to maintain relevance and effectiveness.

2. Expanding STEAM Access and Lifelong Learning

The challenge lies in broadening STEAM outreach beyond school-aged children to include adults, seniors, and community groups. This requires tailored programmes, inclusive learning environments, and innovative collaboration models that promote lifelong learning.

3. Strengthening Ecosystem Collaboration

Despite strong political and institutional backing, Oulu faces challenges in fostering deeper collaboration between educational institutions, businesses, cultural organisations, and the broader community to create a cohesive STEAM ecosystem.

4. Ensuring Financial Sustainability and Resource Development

While Oulu has access to diverse funding sources, ensuring long-term financial sustainability is an ongoing challenge. This includes securing competitive grants, building capacity for resource management, and exploring public-private partnerships. Ensuring early childhood educators have the necessary resources and training to sustain STEAM integration.

Category	Assets	Barriers
Fit with City’s Strategic Priorities	Strong alignment with Oulu’s digitalisation and future skills strategy, with STEAM embedded in city-level educational planning and recognised as a key driver of innovation.	Potential shifts in priorities following the 2025 municipal elections could affect long-term strategic commitments for STEAM development.
Level of Political Support	Strong support from city decision-makers, including the mayor and the Education Board, with active involvement in shaping STEAM policies and programmes.	Political changes in 2025 may influence existing commitments and priorities for STEAM expansion, creating uncertainty around future leadership support.
Available Resources (Infrastructure & People)	A well-established STEAMinOulu network with strong coordination across schools, cultural institutions, and businesses. Continuous in-service teacher training ensures up-to-date STEAM practices. Well-established STEAM network, with FabLabs, digital literacy programs, and deep business-academic partnerships. Mentoring system for educators.	Expanding initiatives to new audiences (e.g., adults and seniors) increases demand for resources, requiring additional staff,infrastructure, and tailored outreach strategies.
Availability of Finance (Funding Opportunities)	Diverse funding streams from municipal budgets, Horizon Europe, and Nordic programmes provide a solid foundation for STEAM activities. Oulu has strong experience in managing EU-funded projects.	High competition for grants and limited capacity to secure long-term, sustainable funding. The dependency on external funding can create vulnerabilities for scaling projects.
Other Assets or Barriers	Strong stakeholder engagement from educational institutions, cultural organisations, and businesses, creating a collaborative environment for STEAM innovation.	Challenges in engaging new target groups beyond traditional school settings, such as adults, seniors, and community organisations, requiring new collaboration models and inclusive programme designs.

Strategic Vision and Path Forward

Oulu’s strategic vision is to become a globally recognised STEAM city, where education, innovation, and community thrive together. The city is committed to empowering educators by strengthening pedagogical leadership and providing continuous professional development opportunities to ensure dynamic and future-oriented STEAM methodologies. Oulu also aims to foster lifelong learning by designing inclusive programmes that engage learners of all ages, promoting STEAM as a continuous journey that extends beyond traditional classrooms and into the broader community.

Building strong partnerships is central to this vision. Oulu seeks to deepen collaboration between educational institutions, businesses, cultural organisations, and local communities, creating a vibrant and interconnected STEAM ecosystem. Financial sustainability remains a key focus, with the city committed to diversifying funding streams through national and international grants, public-private partnerships, and strong municipal support. Promoting equity and inclusion is also integral, ensuring that STEAM opportunities are accessible to diverse groups, reducing barriers to participation, and fostering a culture that values creativity, critical thinking, and innovation.

By leveraging its existing strengths, addressing current challenges, and drawing inspiration from Aveiro’s experiences, Oulu is well-positioned to lead as a Global STEAM City, shaping the future of education, innovation, and community development.

Oulu’s URBACT Local Group brings together key stakeholders from education, business, culture, and the community to support the city’s ambition of becoming a Global STEAM City.

These stakeholders play a crucial role in shaping, implementing, and sustaining STEAM initiatives by fostering cross-sector collaboration and ensuring the effective adaptation of Aveiro’s modules to Oulu’s local context. The diverse expertise within the ULG strengthens Oulu’s STEAM ecosystem, enabling innovative learning environments that connect education, industry, and cultural sectors.

ULG member	Role
University of Oulu	Hosts the Super FabLab, supports teacher training, research, pedagogy, and provides technological expertise. Networking with international academic and business experts.
Business Oulu	Fosters industry-academia collaboration, supports business development, and promotes innovation ecosystems.
City Library	Engages the community with STEAM initiatives through resources, events, and lifelong learning programmes
Science Centre Tietomaa	Provides interactive STEAM experiences and exhibitions to engage diverse audiences in science and technology.
Art Centre	Integrates artistic and creative elements into STEAM activities to promote cross-disciplinary learning.
Educational Development Services	Supports curriculum development and pedagogical leadership in STEAM, ensuring integration across educational levels.
Cultural Services Oulu	Enhances the cultural dimension of STEAM through partnerships with museums, galleries, and creative industries.

As part of Oulu’s ambition to become a Global STEAM City, the city is planning to develop a range of innovative projects inspired by and adapted from Aveiro’s STEAM City modules. These projects aim to strengthen pedagogical leadership, promote digital literacy, and expand STEAM learning opportunities to diverse audiences beyond traditional classrooms. By fostering collaboration between educational institutions, cultural organisations, and businesses, these initiatives will support Oulu’s strategic vision of creating an inclusive, future-oriented STEAM ecosystem that nurtures creativity, critical thinking, and lifelong learning.

Project Name	Brief Description	Stakeholders Involved	Modules Adapted
STEAM - The Next Level	Advancing STEAM education by enhancing pedagogical leadership, supporting high-achieving students, and fostering innovation among educators.	City of Oulu, University of Oulu, Super FabLab, STEAMinOulu network, Business Oulu	Tech Labs, UBBU Code Literacy
Pilot Classroom	Testing new STEAM, ICT, and audiovisual tools to evaluate their effectiveness before scaling up across educational institutions.	City of Oulu, Educational Institutions, Local Companies	Tech Labs
STEAM on Wheels	Bringing mobile STEAM labs to schools and communities to deliver interactive learning experiences, promoting hands-on engagement with technology.	City Library, Science Centre, Youth Services, Art Centres, FabLabs	Tech Labs, Entrepreneurship Contest
STEAM for Everyone	Expanding STEAM learning to diverse groups, including adults and seniors, through programmes in libraries, museums, and cultural centres.	City Library, Science Centre, Youth Services, Art Centres, University of Oulu	Tech Labs, Entrepreneurship Contest
STEAM Residency Programme	Integrating artistic and creative practices into STEAM education through residencies where artists collaborate with educators and students.	Art Centre, Educational Institutions, Cultural Services Oulu	STEAM Artistic Residencies, Design Thinking Modules
Digital Skills for Lifelong Learning	Promoting digital literacy and coding skills for all age groups, with a focus on lifelong learning through workshops and community programmes.	Business Oulu, City Library, University of Oulu	UBBU Code Literacy, Tech City Open Days
STEAM Business Connect	A cross-cutting initiative to strengthen business involvement within existing STEAM projects through mentorship, internships, and industry challenges. It will help establish a STEAM Business Network to ensure long-term collaboration between education and industry.	Business Oulu, University of Oulu, STEAMinOulu Network, City of Oulu	Tech City Open Days, Entrepreneurship Contests





3.4. Płock

Towards a Connected and Innovative STEAM Ecosystem

Located in central Poland along the Vistula River, Płock is a city with a rich industrial heritage, historically anchored in the petrochemical sector. As an important regional economic centre, Płock is characterised by a strong industrial base, complemented by emerging sectors focused on technology, entrepreneurship, and education. The city faces socio-economic challenges related to demographic shifts, including youth migration to larger cities, which affects the availability of skilled labour and limits local economic dynamism. In response, Płock has been investing in educational reforms, innovation hubs, and partnerships between industry and academia to foster local talent and diversify its economic profile. Strong municipal leadership and strategic planning play key roles in driving the city's development agenda, with a focus on sustainable growth and social inclusion.

Płock faces the significant challenge of **retaining young graduates**, as many leave the city in search of better career opportunities in larger urban centres. This ongoing brain drain limits the local talent pool, reducing the city's potential for sustainable economic growth and innovation. Additionally, there is a disconnect between educational institutions and the labour market, leading to a mismatch between the skills students acquire and the competencies demanded by local businesses. Despite existing efforts, the city struggles with low motivation and engagement in STEAM education among students, teachers, and parents, which impacts participation rates and hinders the development of a future-ready workforce. Schools also face resource constraints, including limited funding for STEAM equipment and insufficient structured training for teachers to effectively integrate STEAM methodologies. Moreover, maintaining consistent stakeholder engagement throughout project implementation presents an ongoing challenge, affecting the sustainability of initiatives aimed at addressing these issues.

At the core of Płock's challenge lies its ambition to **become a city where young talent thrives and innovative ideas flourish**. The city aspires to create a dynamic STEAM ecosystem that not only retains young professionals but also attracts new talent by offering strong connections between education, businesses, and local government. Płock aims to foster an environment where STEAM education is seen as a pathway to exciting career opportunities, motivating students, teachers, and parents to engage actively in the learning process. By strengthening collaboration across sectors, the city seeks to bridge the gap between education and the labour market, ensuring that students are equipped with the skills needed to succeed in an evolving economy.

Challenge Areas

1. Talent Retention and Skills Development

Plock faces the dual challenge of brain drain and a skills mismatch between education and labour market needs. Many young professionals leave for larger cities, limiting the availability of skilled workers and affecting local economic growth. Additionally, the current education system struggles to align with evolving industry demands, reducing graduates’ employability and business competitiveness.This is also visible in decreasing number of students at local higher education facilities

2. Engagement and Motivation in STEAM Education

There is a lack of motivation and awareness among students, teachers, and parents regarding the value of STEAM education. This low engagement affects participation rates and hampers the development of a skilled, future-ready workforce. Strengthening interest and enthusiasm for STEAM subjects is essential for long-term success.

3. Collaboration and Resource Gaps

Limited partnerships between educational institutions and businesses restrict opportunities for practical experiences, internships, and mentorship programmes. Schools also face challenges related to insufficient resources, such as inadequate funding, outdated STEAM equipment, and the need for comprehensive teacher training to effectively implement STEAM methodologies.

Category	Assets	Barriers
Fit with City’s Strategic Priorities	Strong alignment with Plock’s 2030 Sustainable Development Strategy and the Supra-local Development Strategy, supporting long-term planning and innovation.	Adapting STEAM initiatives to fit evolving labour market demands and changing education policies may pose implementation challenges.
Level of Political Support	Stable political leadership with a re-elected mayor and consistent party governance for over 10 years, ensuring commitment to STEAM initiatives.	Shifts in national policies or changes in funding priorities could affect the long-term sustainability of STEAM projects.
Available Resources (Infrastructure & People)	A dedicated project team, engaged ULG stakeholders, and motivated educational institutions with a strong interest in STEAM development.	Weak collaboration between education and business, leading to skills mismatches and difficulties aligning education with industry needs; and decreasing number of students
Availability of Finance (Funding Opportunities)	A stable municipal budget with potential access to national and EU funding streams to support STEAM project implementation.	The need for structured long-term financial planning to ensure sustainability beyond initial funding phases remains a challenge.
Other Assets or Barriers	Strong interest from local educational and cultural institutions in participating in STEAM initiatives, creating opportunities for new partnerships.	Lack of structured engagement mechanisms between businesses and educational institutions, limiting collaboration, knowledge exchange, and innovation.

Strategic Vision and Path Forward

Płock’s strategic vision is to create a connected and innovative STEAM ecosystem that supports both talent retention and economic growth. The city is committed to fostering strong collaborations between educational institutions, businesses, and local government, ensuring that STEAM education is not only relevant but also inspiring for students of all ages. To achieve this, Płock will focus on strengthening the alignment between education and the labour market, promoting STEAM as a key driver for personal and professional development.

A key part of this vision is to motivate and engage students, teachers, and parents by showcasing the real-world applications of STEAM skills and the career opportunities they unlock. Płock aims to enhance teacher training programmes, equipping educators with the tools and knowledge to deliver dynamic, hands-on STEAM experiences. The city also recognises the importance of resource investment, planning to secure diversified funding streams, including national and EU funds, to support the development of modern STEAM facilities and infrastructure.

Furthermore, Płock will strengthen stakeholder engagement through continuous collaboration within the URBACT Local Group (ULG), ensuring that all voices are heard and that the city’s STEAM initiatives are sustainable in the long term. By drawing inspiration from Aveiro’s successful practices and leveraging its own strengths, Płock is well-positioned to transform into a vibrant hub of STEAM excellence, where young people are inspired to learn, grow, and build their futures within the city.

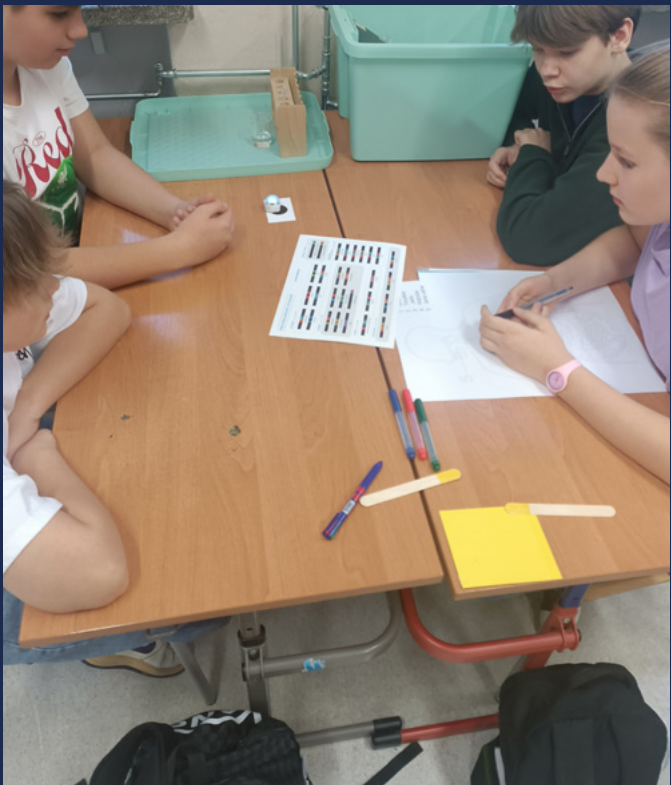
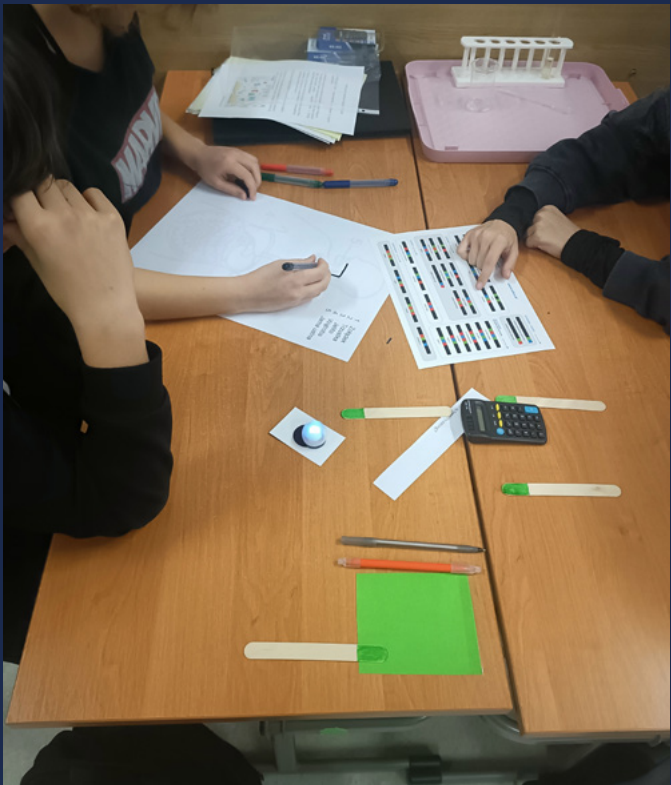
Płock’s URBACT Local Group brings together a diverse range of stakeholders from education, business, culture, and local government to support the city’s STEAM ambitions.

These key actors play a vital role in fostering collaboration, driving innovation, and ensuring the successful adaptation of Aveiro’s modules to Płock’s local context. Their collective expertise and engagement are crucial for building a dynamic STEAM ecosystem that connects education with the labour market, promotes entrepreneurship, and supports lifelong learning.

ULG member	Role
Płock Chamber of Commerce	Fostering the local business environment, networking, an supporting entrepreneurship.
Department of Education	Overseeing all of Płock’s schools, ensuring STEAM integration into educational policies in close collaboration with school’s principals, who are the main agents for methodological improvements.
Płock Industrial and Technological Park	Providing business support, training, and promoting innovation within the local economy.
Mazovian Self-Government Centre for Teachers Training	Leading teacher training and mentoring to enhance STEAM teaching methodologies.
Selected Primary Schools	Serving as Living Labs for STEAM, piloting innovative projects and learning environments.
Mazovian Academy (Higher Education)	Supporting research and development in STEAM disciplines and fostering academic partnerships.
Warsaw University of Technology – Płock Branch	Promoting higher education in STEAM, supporting student projects, and entrepreneurship.
Basell Orlen (Local Business)	Engaging in industry-academia collaboration, providing insights into labour market needs.
Mazovian Museum (Cultural Institution)	Integrating cultural and creative approaches into STEAM through exhibitions and workshops.
Municipal Labour Office	Providing support for the unemployed and entrepreneurs, enhancing STEAM-related skills.

Płock’s planned projects, inspired by Aveiro’s modules, aim to strengthen the city’s STEAM ecosystem by fostering practical learning experiences, promoting entrepreneurship, and enhancing connections between education and the labour market. These initiatives are designed to equip students with the skills needed for future careers, while encouraging collaboration between schools, businesses, and cultural institutions. The following table outlines the key projects, their objectives, and the stakeholders involved in their implementation.

Project Name	Brief Description	Stakeholders Involved	Modules Adapted
Tech Labs	Establishing hands-on STEAM learning spaces in selected primary schools to enhance students' technical skills through practical experiments and teacher training.	Mazovian Self-Government Centre for Teachers Training, Selected Primary Schools, Mazovian Museum, Department of Education	TechLabs
Entrepreneurship Contests	Engaging primary and secondary students in entrepreneurial challenges to develop problem-solving skills and foster innovation through tech-based business solutions or other.	Department of Education, Primary Schools	Entrepreneurship Contests
Open Days	Facilitating business engagement through organised visits where students explore local companies, understand operations, and learn about STEAM career opportunities.	Płock Chamber of Commerce, Płock Industrial and Technological Park, Mazovian Academy, Warsaw University of Technology – Płock Branch, Basell Orlen Polyolefins	Tech City Open Days
City BootCamp	Delivering skill-based training programmes tailored to labour market demands, where businesses identify key competencies and participants receive targeted training.	Płock Chamber of Commerce, Płock Industrial and Technological Park, Mazovian Academy, Warsaw University of Technology – Płock Branch	BootCamp



4. Synthesis and Overall Transferability

- 4.1. Synthesis: Transfer Challenges and Opportunities
- 4.2. Transferability Assessment per City
- 4.3. Overall Transferability



4.1. Synthesis: Transfer Challenges and Opportunities

While the transfer of Aveiro STEAM CITY elements is feasible, it presents several challenges and opportunities that must be strategically addressed by each partner city.

Key Challenges

1. Stakeholder engagement and governance

A primary challenge is stakeholder engagement and governance, as the success of Aveiro’s model relied on strong partnerships between the public sector, academia, businesses, and civil society. Varying levels of stakeholder involvement and political structures across partner cities impact their ability to replicate this collaboration. Some cities, such as Oulu, rely on educational boards for political support, while others, such as Alytus and Płock, have strong mayoral backing but face challenges in business engagement. Establishing effective URBACT Local Groups (ULGs) and ensuring alignment between stakeholders will be crucial for a successful transfer.

2. Capacity and skills gaps

Another key challenge is capacity and skills gaps, particularly regarding STEAM-trained educators, industry collaboration, and pedagogical leadership. Some cities (e.g. Kolding, Alytus) struggle with teacher shortages and professional training, while others (e.g. Płock) need stronger companies-education links to align with local labor market needs. Addressing these gaps requires structured teacher development programs, cross-sector collaboration, and technical training.

3. Financial sustainability and long-term investment

Financial sustainability and long-term investment remain concerns across all cities. While municipal and EU funding sources are available, cities highlighted challenges in securing ongoing financial support for STEAM expansion beyond pilot projects. Volunteer-driven initiatives, such as Coding Pirates in Kolding, may face sustainability risks without structured support. Additionally, cities like Oulu, despite stable funding, are concerned about securing financial sustainability for expansion. To address these challenges cities can look at alternative funding strategies, including blended funding models, public-private partnerships, and integrating STEAM into formal education budgets.

4. Policy and governance constraints

Another major challenge is policy and governance constraints. In some cities, such as Alytus and Płock, the centralized education governance model limits school-level decision-making on STEAM integration. Addressing these challenges requires advocacy for policy flexibility and exploring alternative ways to integrate STEAM within existing educational frameworks.

The network will provide targeted support to help address these challenges. This includes Topic Webinars, thematic workshops, and 1:1 support, ensuring that cities receive guidance on stakeholder engagement, capacity-building, funding strategies, and policy integration. Through this structured approach, the network will enable cities to move forward with confidence, adapting Aveiro’s model to their unique local contexts.

Opportunities for Adaptation and Impact

Despite these challenges, cities have significant opportunities to adapt and enhance Aveiro’s STEAM City model, strengthening local innovation ecosystems.

One of the biggest opportunities is enhancing STEAM education at all levels. Several cities, including Płock and Alytus, are now shifting towards embedding STEAM into the formal curriculum rather than treating it as an extracurricular initiative. This offers a more sustainable and scalable approach to STEAM integration. Cities should focus on teacher training, curriculum alignment, and partnerships with universities to ensure long-term impact.

Another key opportunity is bridging the gap between education and the labor market. Cities such as Płock and Kolding have recognized the need for industry collaboration in defining workforce-relevant skills. By leveraging Bootcamps, Open Days, and short-term qualification courses, cities can better align STEAM education with business needs. Establishing formalized education-business partnerships will further strengthen this link.

Cities are also exploring new target groups for STEAM education. Oulu has expressed interest in expanding STEAM beyond traditional school environments to include adult learners, seniors, and underserved communities. This creates an opportunity for lifelong learning initiatives, STEAM reskilling programs, and broader public engagement.

Additionally, cities such as Alytus and Kolding are recognizing the role of cultural and artistic institutions in STEAM learning. By integrating STEAM artistic residencies and creative design-thinking approaches, cities can create interdisciplinary learning environments that make STEAM education more engaging and inclusive.

To ensure long-term sustainability, cities need to secure stable financial models. Some cities, such as Płock and Kolding, are exploring ways to integrate STEAM funding into mainstream education budgets rather than relying on project-based funding. Additionally, cities should leverage EU funding streams, municipal investment, and private sector partnerships to sustain and scale initiatives.

Different Gears, Shared Progress

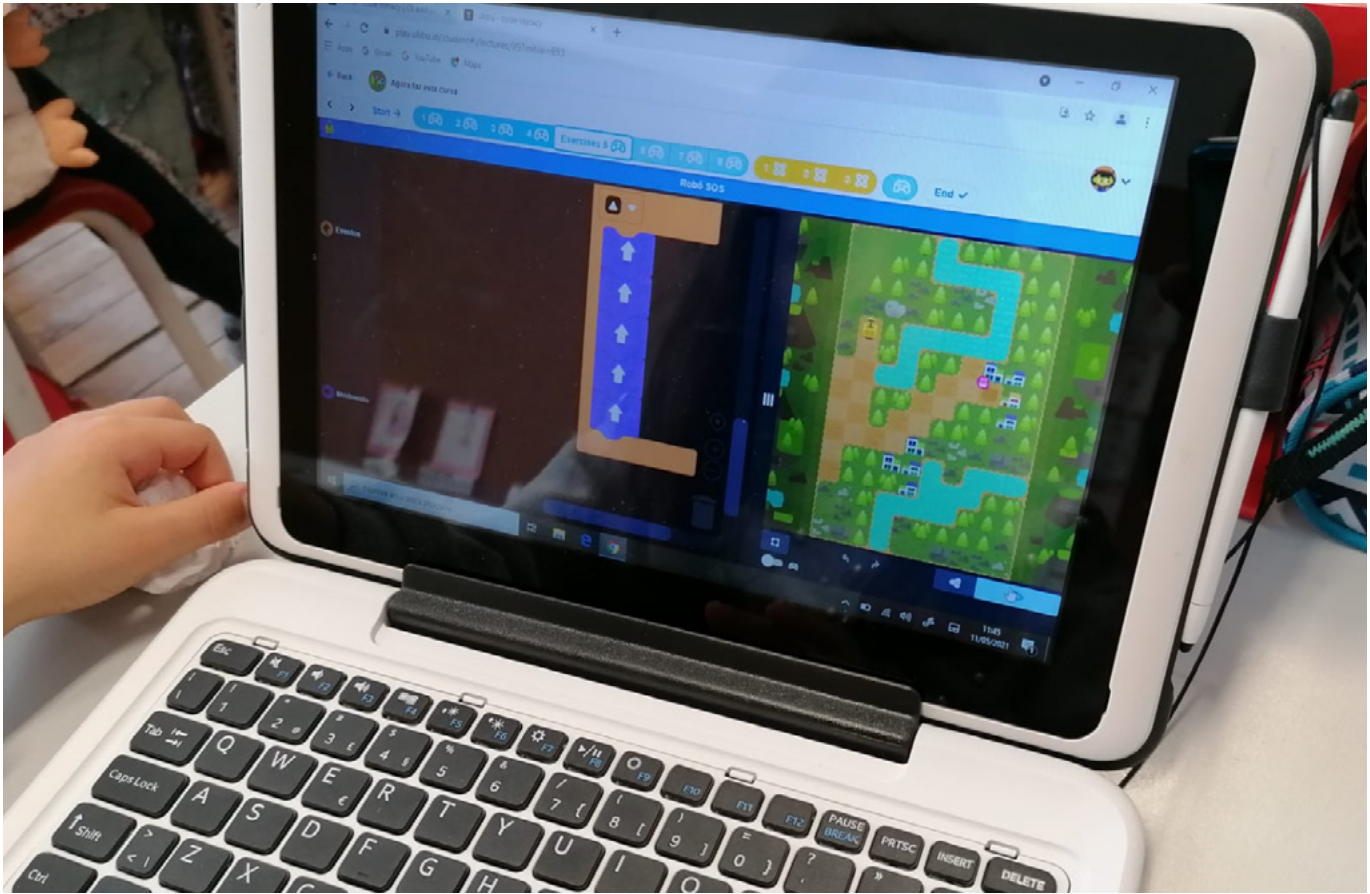
In the Future STEAM Cities network, all cities are moving towards stronger STEAM education and innovation, but at different speeds and with different priorities.

Some, like Oulu, have been developing structured STEAM initiatives for years, while others, like Plock, Alytus, and Kolding, are accelerating their integration of STEAM into schools and businesses. Meanwhile, Aveiro, as the innovation transfer leader, has the most comprehensive experience, having developed and tested a modular STEAM model through the UIA pilot, which is now being transferred to all partners.

Oulu, with its long-standing expertise in STEAM education, is currently exploring "STEAM-The Next Level", focusing on deepening pedagogical leadership, expanding engagement to new learners (including adults and seniors), and strengthening methodologies for long-term sustainability. These insights can help all cities reflect on future steps, ensuring their STEAM strategies remain relevant and adaptable. At the same time, Oulu is actively learning from Aveiro and other cities, particularly in entrepreneurship education, industry collaboration, and business-driven innovation.

The exchange of knowledge is mutual, with cities sharing their challenges, lessons learned, and best practices as they adapt STEAM City elements in ways that fit their local needs.

This multi-speed, shared-progress approach ensures that while Aveiro leads the transfer process, bringing its tested modular model to all partners, each city contributes to the collective learning process. Oulu's expertise in STEAM education, Kolding's leadership in business-driven innovation, Alytus' well-established STEAM schools network, and Plock's strength in supporting local entrepreneurship development all contribute to the successful adaptation of Aveiro's modular STEAM model, reinforcing the network's collective strength. By learning from each other, the Future STEAM Cities network becomes more resilient, ensuring that each city advances in its own way while contributing to the collective development of STEAM education.



4.2. Transfer potential assessment per city

This section evaluates the transfer potential of each partner city based on key criteria, including alignment with strategic priorities, political support, available resources (infrastructure and human capacity), funding opportunities, and other assets or barriers. The assessment also considers the potential impact of upcoming municipal elections in 2025, which could affect political commitment and project continuity in some cities.

Transferability Assessment Methodology

The transferability readiness assessment methodology followed a structured and consistent approach across all partner cities to evaluate their capacity to adapt and implement elements of Aveiro’s STEAM City innovation. To ensure comparability and alignment, all cities used the same assessment structure, focusing on:

Strategic alignment

How well the STEAM City innovation fits within the city’s existing policies and development priorities.

Level of political support

The extent of commitment from city leadership and policymakers to sustain the transfer.

Availability of resources (infrastructure and human capacity)

The existing facilities, expertise, and institutional capabilities to support STEAM initiatives.

Financial availability

The potential for securing funding through municipal budgets, national or EU funds, and private sector partnerships.

The assessment was conducted in four key phases:

1. Cities’ Self-Assessment

Each partner city conducted an initial review of its transfer potential using the agreed framework.

2. Lead Partner (LP) and Lead Expert (LE) Review

Based on city visits and one-to-one meetings with partners. The LP and LE provided an external evaluation, identifying assets, barriers, and opportunities. These findings were then reviewed collectively during the peer review with all partners to ensure a balanced and well-informed assessment.

3. Peer Review

Peer Review during the Transnational Online Meeting (4th Feb). Partners reviewed each other’s assessments, shared insights, and refined their evaluations collectively (see annex 2).

4. Final Adjustments

Final Adjustments based on collective assessment. The last phase involved all partners, integrating the feedback from the peer review to ensure a balanced and well-informed assessment of transfer potential.

This methodology ensured a rigorous, collaborative, and context-specific evaluation, strengthening the Future STEAM Cities network’s shared understanding of opportunities and challenges for transferring Aveiro’s innovation.

During the Peer Review, we made several updates to the transferability assessment for each city. Oulu’s political support was upgraded, reflecting strong backing from local politicians and a recent government appointment. Funding availability was also adjusted, indicating some secure funding but ongoing uncertainties. In Alytus, funding availability was upgraded, indicating ongoing efforts to secure funding. Overall, these changes reflected a more optimistic outlook for political support and funding in some cities, while acknowledging ongoing challenges in resources and infrastructure.

Alytus

Alytus aligns strongly with STEAM and digital transformation policies, with the mayor and city council providing strong backing for educational innovation. However, municipal elections in 2025 pose a potential risk to political continuity, which may affect long-term commitment.

The city has a network of 15 schools covering all education levels, though STEAM integration remains limited, particularly in kindergarten and early education. Cultural institutions have shown interest in STEAM collaborations, and businesses are open to engagement, but inconsistent cooperation among schools and weak business-education links remain challenges. The city is planning (not yet implementing) Entrepreneurship Contests, Business Open Days, and expanded STEAM education in schools, inspired by Aveiro’s model.

However, centralized governance of schools limits flexibility in decision-making, and there is a lack of dedicated personnel or platforms to coordinate efforts across schools and businesses. To enhance transferability, Alytus should strengthen business-education collaborations, improve coordination mechanisms, and address governance constraints. Ensuring political continuity post-election and securing long-term financial sustainability will also be crucial.

Kolding

Kolding has a strong strategic fit with IT and business innovation, with Business Kolding and universities playing key roles in supporting the initiative. However, political support is more business-driven than municipally led, creating potential risks with the 2025 elections, as leadership changes may affect commitment.

The city benefits from strong academic and business collaborations, yet school engagement remains inconsistent. Initial funding for pilot projects, such as the Hard Skills Station, has been secured, but long-term investment is needed to sustain and scale up initiatives. Kolding has also introduced a stronger focus on gender inclusivity in STEAM, seeking to engage underrepresented demographics, particularly women in tech. Additionally, the city is actively integrating artistic elements into

STEAM, such as STEAM artistic residencies and sound design initiatives. A key challenge is the reliance on volunteer-driven initiatives, such as Coding Pirates, which creates sustainability risks if structured financial and professional support is not secured. To enhance transferability, Kolding should formalize partnerships with schools, ensure stable funding for STEAM initiatives, and secure stronger municipal backing.

PŁOCK

Płock has a strong strategic alignment with its Sustainable Development Strategy, and political stability is a major advantage, with long-standing leadership ensuring project continuity.

The city is shifting from treating STEAM as an extracurricular activity to embedding it within the core school curriculum. The city aspires to find its way in STEAM as a holistic approach to learning and growing in business. However, weak collaboration between education and industry remains a significant challenge. While schools and businesses participate in initiatives such as hackathons, there is no structured mechanism to align educational curricula with labor market needs. Teacher training has emerged as a top priority, with the goal of developing educators as “agents of change” in STEAM.

Additionally, traditional universities prioritizing long study programs over short-term qualification courses are seen as a barrier to quickly adapting STEAM methodologies to workforce demands. The city is addressing these challenges by developing short-term qualification courses based on industry needs. To improve transferability, Płock should establish formal industry-education partnerships, expand teacher training programs, and accelerate efforts to embed STEAM into core educational frameworks. Additionally, Płock will work on finding the Art in STEAM

OULU

Oulu is the most advanced city in terms of STEAM integration, with STEAM embedded in its education and innovation strategy. Political support primarily comes from the educational board, rather than broader municipal leadership, making continued engagement with policymakers essential.

The city has a well-established STEAM network, with FabLabs, digital literacy programs, and strong business-academic partnerships. However, it now aims to broaden STEAM initiatives beyond schools, expanding engagement to adult learners, seniors, and underserved populations. Funding is available through municipal and Nordic grants, but long-term financial sustainability for large-scale STEAM expansion remains a challenge.

Additionally, Oulu requires deeper collaboration with Aveiro to successfully adapt STEAM City elements, as noted in its presentation. To ensure long-term success, Oulu should focus on expanding STEAM initiatives to broader demographics, secure sustainable funding mechanisms, and strengthen cooperation with Aveiro to facilitate effective adaptation.

Aveiro

Aveiro’s leadership in the Future STEAM Cities network offers a unique opportunity to learn from the diverse experiences of Alytus, Kolding, Płock, and Oulu, enriching its Continuity Plan. While Aveiro has strong connections between STEAM education and the creative industries through initiatives like the Artistic Residencies and Music Tech Festival, there are valuable lessons to be drawn from the network.

Alytus focuses on strengthening school-business collaboration, offering insights into how Aveiro could deepen the role of local businesses as active partners in STEAM learning. Oulu’s approach to engaging adults and seniors within school communities highlights the potential for intergenerational learning, inspiring Aveiro to explore ways to extend STEAM beyond traditional student groups. Kolding’s emphasis on integrating soft skills development within STEAM programmes presents ideas for enhancing personal development and civic engagement alongside technical learning.

Financial sustainability is a shared challenge across the network. While Płock explores diversified funding, all partners—including Aveiro—can benefit from co-developing innovative funding strategies. By learning from these diverse approaches, Aveiro can strengthen its Continuity Plan, ensuring its STEAM ecosystem remains dynamic, inclusive, and resilient.

4.3. Overall Transferability

The transferability assessment highlights the diverse positions of each city within the network, reflecting their unique strengths and areas for development. While all partners are progressing toward STEAM integration, their specific contexts shape the pace and focus of their adaptation efforts.

Oulu leads in readiness

Oulu leads in readiness, with strong STEAM infrastructure and political support, but needs to secure sustainable funding and expand STEAM beyond schools.

Płock has financial stability and political backing

The existing facilities, expertise, and institutional capabilities to support STEAM initiatives.

Kolding has high potential

Kolding has high potential, with strong business and academic ties, but requires structured industry engagement, gender inclusivity in STEAM, and stable funding for volunteer-driven initiatives.

Alytus has strong political will and funding access

Alytus has strong political will and funding access, but faces brain drain, weak early STEAM integration, governance constraints, and challenges in business-education collaboration.

Cities	Strategic Fit	Political Support	Resources & Infrastructure	Funding Availability	Transfer Potential
Alytus					Medium
Kolding					Medium-High
Oulu					High
Płock					Medium

By focusing on political commitment, strengthening industry partnerships, integrating STEAM into formal education, and ensuring long-term financial sustainability, all cities can successfully adapt and implement key elements of the Aveiro STEAM City model.

5. Transfer Network Methodology and Roadmap

- 5.1. The Network Methodology Principles and Hybrid Approach to Knowledge Transfer
- 5.2. The Network Methodology Tools
- 5.3. Future STEAM Cities Roadmap

5.1. The Network Methodology Principles and Hybrid Approach to Knowledge Transfer

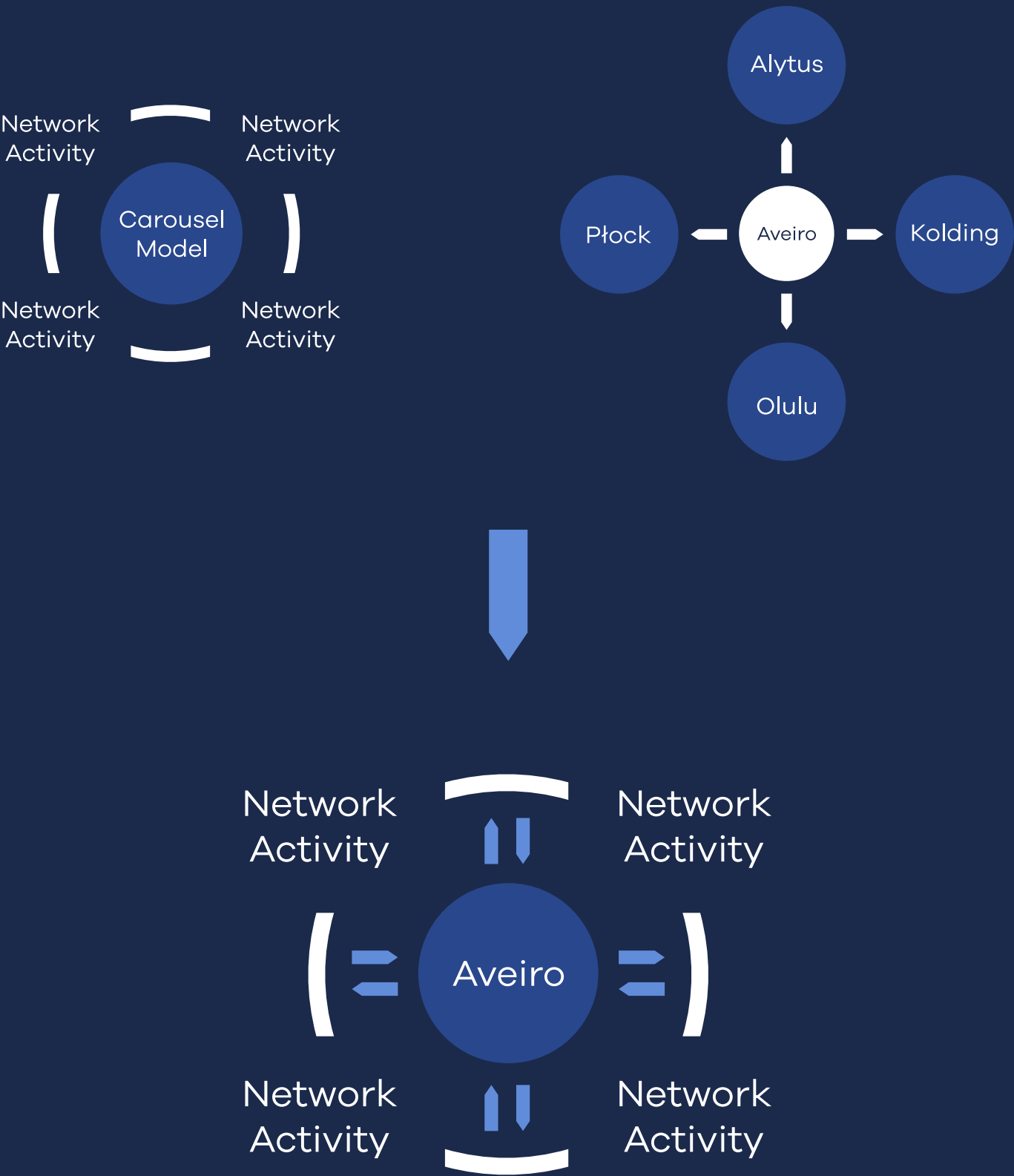
The Future STEAM Cities (FSC) network operates within the URBACT framework, which emphasises integrated and participatory approaches, peer-to-peer learning, flexibility, and experimentation. These principles guide how cities learn from one another and adapt innovations to their unique contexts. In the FSC network, these URBACT principles are embodied through a hybrid knowledge transfer model, blending the strengths of the radial and carousel approaches to create a dynamic and flexible learning environment.

In the **radial model**, Aveiro serves as the central hub, sharing its STEAM City innovation with all partner cities. This centralised approach ensures that the core principles and practice knowledge of Aveiro's successful UIA project are effectively communicated. However, knowledge flow is not unidirectional. The radial structure is complemented by feedback loops where partners share their reflections and adaptations, providing valuable insights for Aveiro's own ongoing development and its STEAM City Continuity Plan.

The **carousel model** introduces a peer-to-peer dynamic, enabling cities to learn directly from each other's experiences. This model supports the idea that every city in the network has unique strengths and expertise to offer. For example, Oulu's experience with STEAM in education or Kolding's work on business-education partnerships can provide valuable lessons for other partners. In this way, the carousel model fosters a rich, multi-directional exchange of knowledge.

By combining these two models, the hybrid approach ensures that learning is both structured and flexible, allowing cities to engage in ways that are most meaningful to their local contexts. The roadmap itself was co-created with all partners, reflecting a collaborative process where each city contributed to shaping the learning journey based on their unique needs and priorities. This co-creation process involved iterative feedback loops, allowing partners to refine activities and themes collectively, ensuring that the roadmap is responsive and grounded in real-world experiences.

It supports the network's commitment to **adaptation, co-creation, continuous learning, and experimentation**. Recognising that each city operates within different cultural, institutional, and socio-economic landscapes, the methodology is designed to be adaptive. The roadmap is not fixed; it will evolve based on continuous feedback, emerging challenges, and opportunities identified during implementation.



5.2. The Network Methodology Tools

The FSC network employs a variety of tools and activities designed to support knowledge transfer, peer learning, local adaptation, testing and planning. These activities are strategically embedded within the network’s roadmap to maximise their impact and can be grouped into three core functions: exchange, learning & reflection, tailored support, learning progress tracking and showcasing results.

Transnational Meetings

Core in-person gatherings of the network, hosted in each partner city to facilitate exchange, learning, and collaboration. These meetings focus on STEAM strategy adaptation, site visits, stakeholder engagement, and peer review exercises, ensuring progress and alignment across cities.

The first meeting in Aveiro - beginning of UNDERSTAND stage - served as an immersion visit, introducing partners to the STEAM City model. Subsequent meetings in the other four cities will track progress, peer learning, and investment plan development, including mid-term peer reviews. The final meeting will take place in Oulu in 2026, coinciding with its European Capital of Culture title, reinforcing the cultural and creative dimensions of STEAM.

Thematic Workshops

Face-to-face sessions held during transnational meetings, focusing on specific elements of Aveiro’s STEAM modules, such as Tech Labs, Entrepreneurship Contests, or Bootcamps and Micro-credentials. These workshops are interactive, allowing participants to bring relevant members of their ULGs and explore practical applications and discuss local adaptations.

Topic-Based Webinars

Conducted online to explore broader STEAM-related themes, such as innovative funding models, the future of STEAM education, and gender equality in STEAM. The topics for these webinars are co-defined with all partners, ensuring relevance and alignment with local priorities. Additionally, partners are encouraged to bring in experts from their cities to enrich discussions with diverse,

context-specific insights. These webinars engage a wider range of experts and participants, fostering diverse perspectives

Peer Reviews

Integrated into transnational meetings, these sessions focus on thematic areas, enabling partners to provide constructive feedback and share insights. A **mid-term peer review** will be conducted at the midpoint of the network journey in Stage 2 (ADAPT), focusing on the development of investment plans and the outcomes of local testing activities.

ITN Network Meetings (Paris)

Organised by the URBACT Secretariat at the beginning of each stage, these meetings provide valuable opportunities to learn from other Innovation Transfer Networks (ITNs). They facilitate cross-network exchanges, sharing best practices, and fostering connections beyond the FSC network.

Funding & Resourcing Online meeting

During the ADAPT stage and organised by the URBACT Secretariat, partners will engage in an online session to explore funding opportunities and sustainability strategies beyond URBACT.

One-to-One Meetings

Personalised sessions offering tailored support to individual cities and their ULGs. These meetings are crucial for addressing specific challenges, preparing for city visits, developing investment plans, and strengthening ULG engagement.

Learning Progress Meetings (between LP and LE)

Regular meetings to monitor the network’s learning progress, address emerging challenges, and ensure alignment with the project’s learning objectives. These sessions facilitate continuous improvement and agile adaptation of the roadmap.

Quarterly Network Journals

Four quarterly reports will capture key activities, thematic insights, and local progress across the network, providing an accessible overview of both transnational and local developments. These journals are designed not only to support internal reflection but also to communicate outcomes to a broader audience of policy-makers and urban practitioners.

Core Network Articles

Three key articles will be published throughout the network’s lifecycle to highlight milestones: the first during Stage 1 (UNDERSTAND) presenting network challenges and ambitions, the second at the end of Stage 2 (ADAPT) summarising key learnings, and the final article during Stage 3 (RE-USE) reflecting on results, local impacts, and future prospects.

Network Final Report

Comprehensive report consolidating the network’s journey, lessons learned, and the impact of the transfer process.

Importantly, learnings from partners will not only inform the local adaptation of STEAM modules but also contribute to Aveiro’s Continuity Plan and enrich URBACT’s broader knowledge hubs. This ensures that the network’s experiences and innovations have an impact beyond the immediate partnership, influencing urban practices across Europe.

It will serve as a valuable resource for both network partners and external stakeholders, providing insights into the effectiveness of the methodologies and the potential for broader application.

Local Final Conferences

Events held in each partner city towards the end of the network journey. These conferences showcase the results of the transfer process, share lessons learned, and engage with broader local and national audiences

Final Conference (Oulu, June 2026)

The network will organise a single Future STEAM Cities Final Conference in June 2026, as part of the last transnational meeting in Oulu. This event will take place in the context of Oulu’s European Capital of Culture 2026, offering a unique platform to showcase the results and impact of the network’s knowledge transfer and adaptation process. The conference will bring together city representatives, policy-makers, STEAM practitioners, educators, businesses, and key stakeholders from across the partner cities to reflect on achievements, share success stories, and discuss future pathways for sustaining and scaling STEAM initiatives in urban settings. As the project nears its conclusion in August 2026, this event will serve as a key dissemination and networking opportunity, reinforcing the legacy of the Future STEAM Cities network.

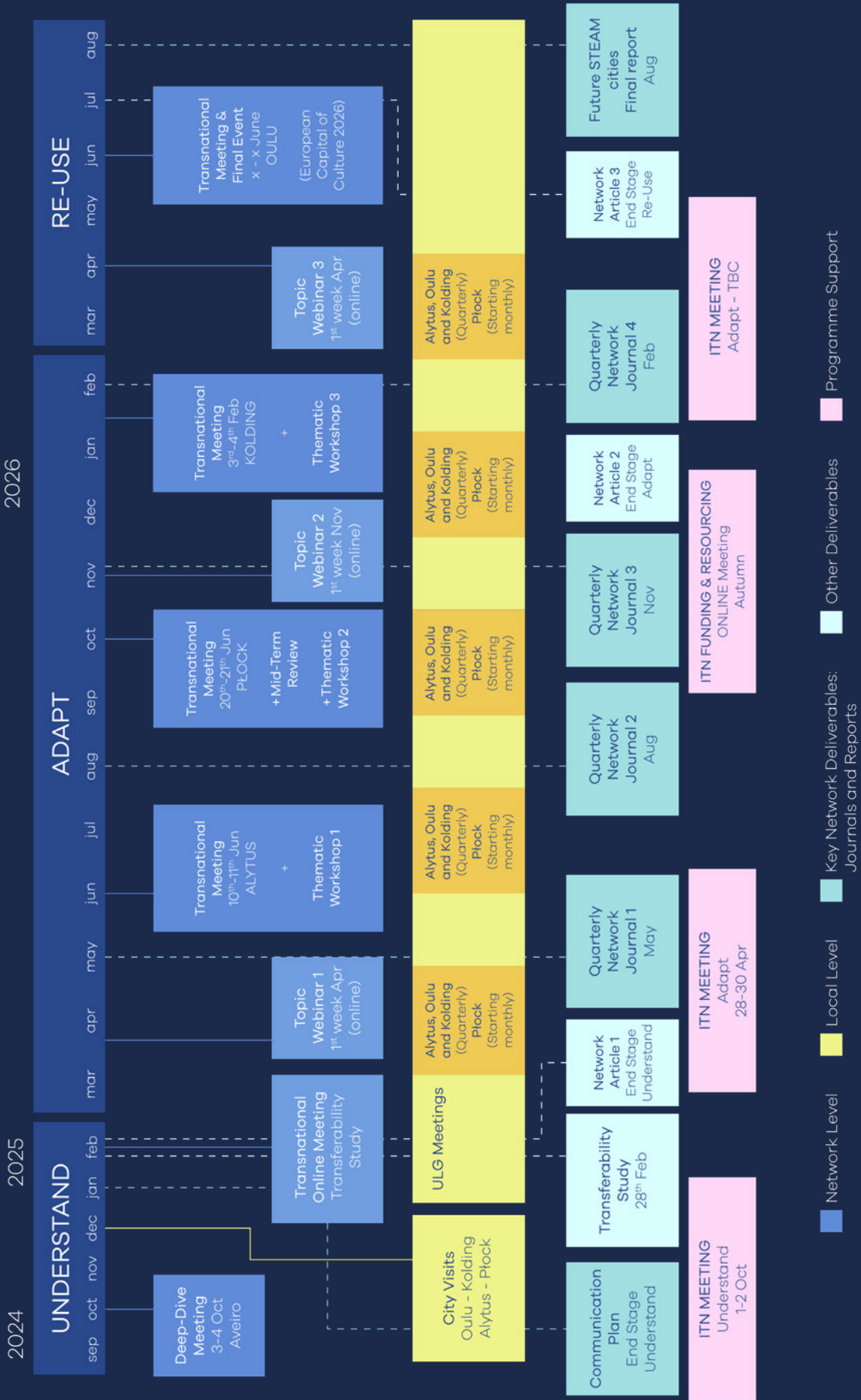
5.3. Future STEAM Cities Roadmap

The FSC roadmap is the structural backbone of the transfer process, guiding the sequence of activities and ensuring coherence across the network. It reflects the three stages UNDERSTAND, ADAPT, and RE-USE, while incorporating flexibility to accommodate the evolving needs of the network.

The roadmap is designed to support a progressive learning journey, starting with deep dives into Aveiro's STEAM City model and moving towards adaptation, local experimentation, and sustainability planning. Its rationale is grounded in the need for both structured guidance and adaptive flexibility.

Activities are sequenced to build on each other, with core network meetings and thematic workshops providing foundational knowledge, webinars offering strategic insights, and peer reviews fostering continuous reflection and improvement. The inclusion of 1:1 meetings ensures that individual city needs are addressed throughout the process.

Importantly, the roadmap is not static. It will be continuously reviewed and adapted based on feedback from partners, emerging challenges, and new opportunities. This flexible, iterative approach ensures that the FSC network remains responsive and relevant, supporting each city's unique journey towards integrating STEAM into their urban development strategies.



6. Conclusion and Recommendations

The Future STEAM Cities Transferability Study marks the beginning of an exciting journey for partner cities as they prepare to adapt Aveiro’s STEAM City model. This study has laid the groundwork, providing a shared understanding of the key conditions needed to support the transfer of STEAM approaches—which go beyond education to influence areas such as economic development, cultural innovation, social inclusion, and urban sustainability.

What has emerged from this preparatory phase is that successful adaptation is not about replicating specific programmes but about creating the right environment for STEAM approaches to thrive. This involves securing strong political support, fostering dynamic stakeholder engagement, ensuring resource availability, and promoting cross-departmental collaboration within city administrations.

As cities move into the adaptation phase, they will actively reflect on the decisions made during this initial stage. They will assess whether the selected modules align with their evolving needs, whether the ULGs include the right stakeholders, and how their strategies can be refined through real-world testing. This iterative process will be key to embedding STEAM approaches in ways that are meaningful, flexible, and responsive to local contexts.

1. Empower Stakeholders to Lead the Change

Activate ULGs as dynamic hubs for collaboration, co-creation, and shared ownership of STEAM initiatives. Strengthen the role of ULGs by fostering active participation from a diverse range of stakeholders. Encourage continuous mutual learning within and across ULGs, creating spaces for knowledge exchange and peer support to enhance the transfer process. Ensure continuous engagement through regular meetings, clear roles, and shared ownership of STEAM initiatives.

While the study provides valuable insights, it also recognises that the true test of transferability lies ahead. The next phase will be shaped by continuous learning, experimentation, and adaptation as cities put their plans into action. This process will not be linear but iterative, where early lessons will inform adjustments, ensuring strategies remain relevant and effective.

The diversity of experiences within the network will be a powerful asset, fostering mutual exchange and shared growth. Ultimately, the goal is not just to transfer Aveiro’s model but to inspire locally-driven STEAM approaches that are sustainable, inclusive, and future-ready. The following recommendations are designed to support cities in this dynamic journey, providing guidance to strengthen their foundations, navigate complexities, and maximise the transformative potential of STEAM approaches.

2. Keep Political Champions on Board

Build lasting political support through visible results and compelling narratives that resonate beyond election cycles. Develop strategies to sustain political backing, even through changes in leadership. This can be achieved by embedding STEAM initiatives within broader urban development plans and fostering cross-party support. Communicating early results clearly to showcase tangible impacts, and highlight the specific benefits for new political leaders to maintain their interest and support.

3. Break Silos, Spark Innovation Across Departments

Drive STEAM thinking into every corner of city governance to unlock creative synergies and new ways of working. Promote STEAM as an integrated approach within city administrations. As cities are already adopting STEAM approaches beyond education, it is important to continue fostering collaboration across departments, including economic development, urban planning, culture, environmental sustainability, and social services. This cross-departmental engagement can create synergies, inspire new ways of working, and embed STEAM thinking across broader municipal strategies.

4. Plan Boldly, Test Smartly

Design with ambition, pilot with purpose—ensure STEAM projects are ready to make real-world impact. Prioritise detailed project planning with a strong emphasis on testing STEAM approaches in real-world contexts. Pilot projects should be designed to evaluate feasibility, scalability, and impact before broader implementation.

5. Turn Plans into Action with Confidence

Build strong foundations for implementation through clear roadmaps, resource alignment, and adaptive strategies. Strengthen readiness for STEAM implementation by integrating financial planning, resource allocation, and pilot testing into the early stages of project development. Develop clear implementation roadmaps that link project design with practical testing outcomes, ensuring

By implementing these recommendations, cities will strengthen the foundations for successful STEAM adaptation. This will ensure that innovative practices are not only transferred but are continuously refined through mutual learning, embedded in local contexts, and sustained through resilient partnerships, adaptive financial strategies, and resource mobilisation. Ultimately, this fosters sustainable, inclusive, and resilient urban communities.

scalability and sustainability. Focus on aligning organisational capacities, securing necessary funding, and creating mechanisms to monitor progress and adapt strategies as needed.

6. Make Every Euro Count from Day One

Secure smart, sustainable funding strategies that fuel STEAM projects from the start. Integrate financial planning into the early stages of project development, focusing on initial funding strategies and cost assessments. Identify diverse funding sources, including public, private, and EU funds, to support project launch and secure foundational resources needed for early-phase implementation.

7. Future-Proof Your Funding

Build resilient, adaptable financial models to sustain STEAM initiatives long after the pilot phase. Develop adaptive strategies to secure long-term, recurring financial and other resources. This includes building resilient funding models, fostering public-private partnerships, and leveraging local assets. Establish flexible mechanisms that can adapt to changing financial environments, with a focus on sustainability beyond initial project phases.

8. Show, Don’t Just Tell - Inspire Through Action

Make STEAM visible, tangible, and irresistible through powerful storytelling and hands-on demonstrations. Make STEAM approaches visible and engaging by combining hands-on, real-world projects with dynamic communication strategies. Use interactive formats such as pop-up exhibitions, community workshops, and live demonstrations to showcase the transformative impact of STEAM initiatives. Pair these activities with compelling storytelling, visual media, and inclusive platforms that not only highlight successes but also promote mutual learning among partner cities. Prioritise clarity, creativity, and accessibility to inspire diverse audiences and foster broad-based support.

Future STEAM Cities

Transferability Study

URBACT IV Innovation Transfer Network

**Future
STEAM Cities**

URBACT



Co-funded by
the European Union
Interreg



Alytaus miesto
savivaldybė



Kolding
Kommune
en del af Trekantområdet

OULU

