

Future STEAM Cities Full STEAM Ahead

**A practical guide
for cities that want
to connect education,
talent, creativity
and urban innovation.**

URBACT



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How To Use This Booklet

This booklet is for cities that want to turn STEAM into practical action. You can read it in three ways:

- **Start with the big idea:** what STEAM is and why it matters.
- **Explore the five city snapshots:** what each city tested and learned.
- Use the final pages as a starter guide for your own city.

What this booklet is:

- A short guide.
- A source of inspiration.
- A practical starting point.

The Challenge

The future is changing faster than cities can prepare for it. Across Europe, cities are facing the same question:

How do we prepare people for a future of digital transformation, AI, new industries and changing work?

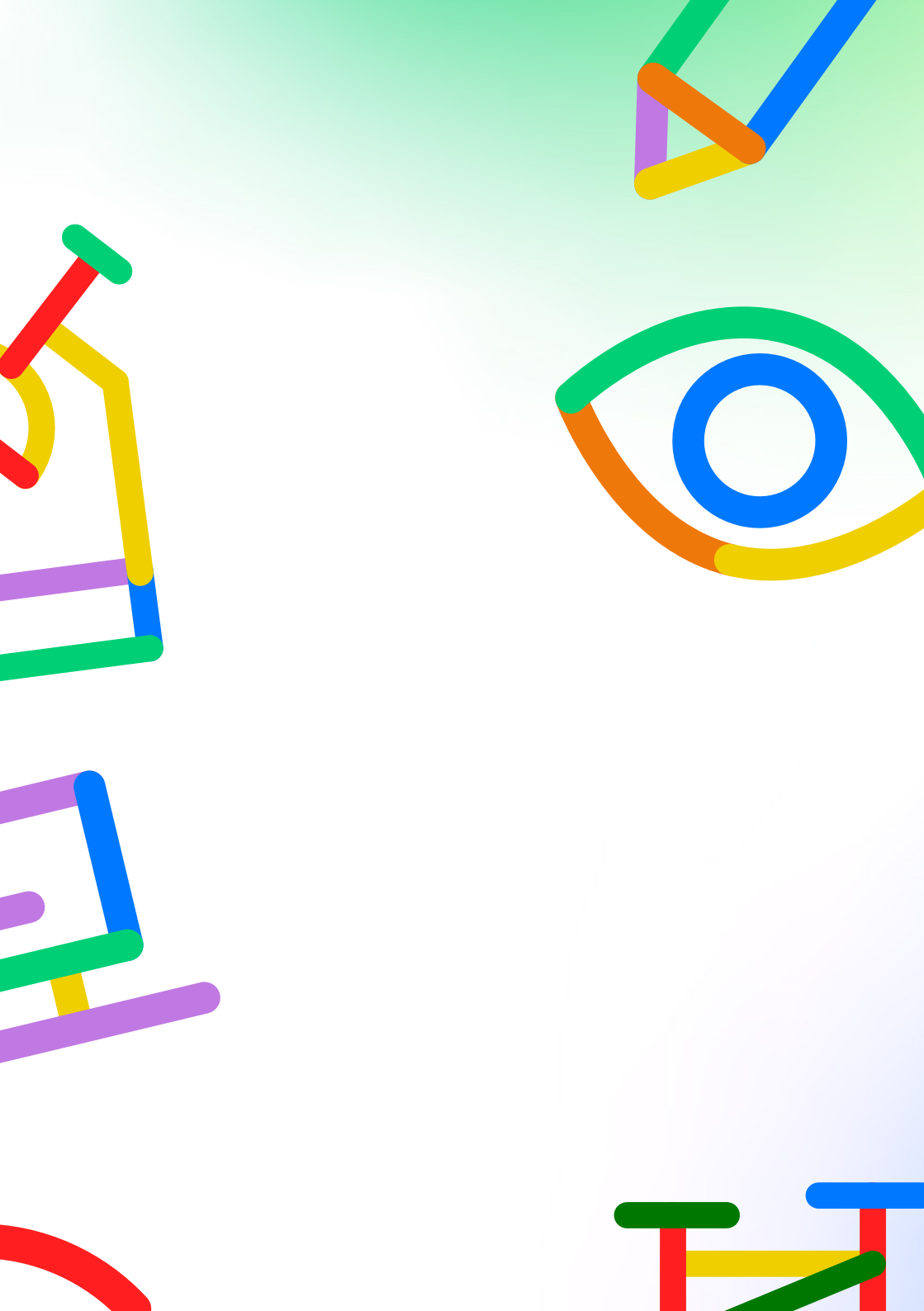
For many medium-sized cities, the challenge is even sharper. Young people leave. Skills do not match local jobs. Schools, businesses and public institutions often work in parallel rather than together.

This is not a report to store. It is a menu to use. Choose one challenge. Pick one small experiment. Bring the right people together. Test, learn and scale what works.

At the heart of this challenge is talent retention: how can cities make local opportunities visible, attractive and credible enough for people to imagine their future there?

Future STEAM Cities starts from this reality. The answer is not to copy one city's solution. The answer is to build local ecosystems where learning, creativity, business and city life connect.

**What if education, business
and culture worked as one system?**



What is STEAM?

STEAM stands for:

Science

Technology

Engineering

Arts

Mathematics

But STEAM is more
than five words.

It is a way of learning by doing. A way of asking questions, testing ideas, using data, building prototypes, imagining alternatives and solving real problems. The “A” matters.

Arts bring creativity, empathy, communication, culture and critical thinking into science and technology. They help people design solutions that are not only smart, but human.

Why STEAM for cities?

Why should cities care about STEAM?

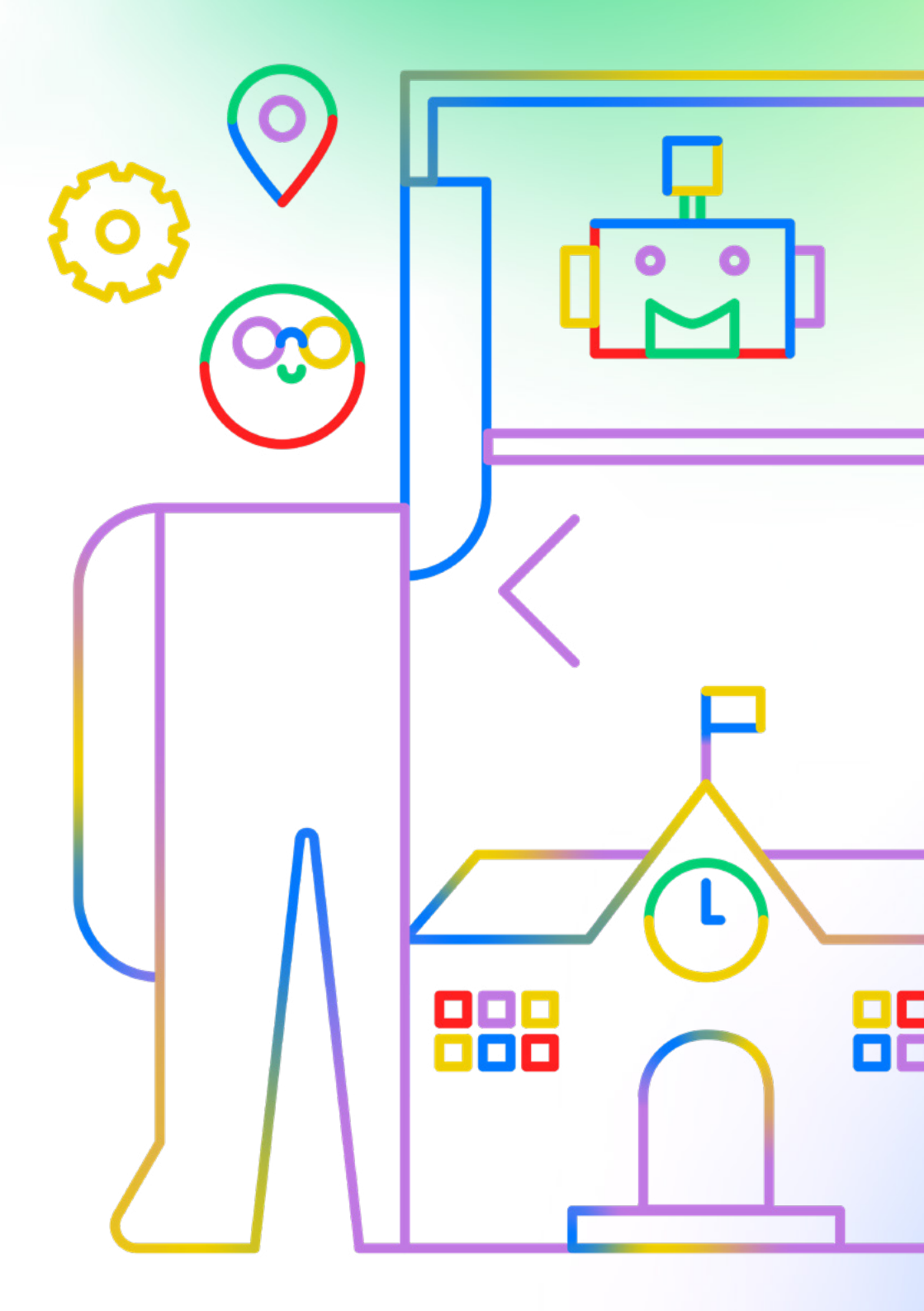
Because the future of work is also the future of cities.

STEAM helps cities:

- Build digital and creative skills from an early age.
- Connect schools with companies, universities and cultural institutions.
- Make local talent visible and valuable.
- Support lifelong learning for adults, seniors and career changers.
- Turn the city itself into a place for experimentation.

The Future STEAM Cities network focuses on transferring Aveiro’s innovative practice to address challenges shared by EU cities, including talent attraction and retention, innovation and digitalisation.

**STEAM is not only
an education policy.
It is a city strategy.**



The Aveiro Model

Aveiro: the city that turned STEAM into an ecosystem. Aveiro STEAM City created a modular model that other cities can adapt.

The model has four connected axes:

1. Education: STEAM in schools, teacher training, coding, entrepreneurship and artistic residencies.

2. Training: bootcamps, reskilling and pathways into the digital economy.

3. Technology, services and applications: Aveiro as a Living Lab, with city data, 5G, IoT and digital tools.

4. Challenges: open innovation, company challenges and citizen participation.

The model's strength lies in its modularity. A city does not need to copy everything. It can start with one axis, adapt it to local needs, and grow from there.

Aveiro's role in the network is not only to teach. It also learns from its partner cities' adaptations.

How Transfer Works

Transfer does not mean copy-paste.

Future STEAM Cities uses a simple learning journey:

1. Understand: explore the original model, local needs and city readiness.

2. Adapt: test small actions, involve local actors and adjust the model.

3. Re-use: translate what was learned into Investment and Continuity Plans, funding priorities and practical tools for other cities.

Testing is not the destination. It is the evidence-building phase. The purpose is to understand what works, what needs adapting and what should be done differently before cities commit resources, partners and long-term governance.

The network uses two knowledge flows:

- **Radial:** Aveiro shares the original model with partner cities.

- **Carousel:** partner cities learn from each other and improve the model together.

The Transferability Study describes the network method as a hybrid approach combining Aveiro-to-partner transfer with peer-to-peer learning across cities.

**Every city is
both teacher and learner.**



How to implement STEAM in your city

A city implementation recipe.

To implement STEAM locally, start with five questions.

1. To whom?

Who should benefit first: children, teachers, adults, seniors, job seekers, companies, or the whole community?

2. Who should be involved?

Which schools, companies, universities, museums, libraries, public services and community groups need to be in the room?

3. What can you test?

Start with a small action: an open day, workshop, hackathon, artistic residency, bootcamp, coding lab or school-business challenge.

4. What change do you expect?

Define what you want to improve: motivation, skills, collaboration, employability, inclusion, confidence or policy support.

5. How will you evaluate?

Use feedback, observation, simple surveys, stakeholder meetings and evidence of engagement.

Aveiro Snapshot

Aveiro: from digital city to community learning city

For Aveiro, STEAM means connecting education, technology and urban innovation inside the Aveiro Tech City ecosystem.

The current challenge is to extend transformation beyond those already connected to innovation. STEAM must reach families, seniors, job seekers, career changers, startups, SMEs and the general public.

WHAT AVEIRO TESTED

- Community STEAM workshops.
- Stop Motion activities for families.
- Introductory coding for adults with no previous experience.
- New possibilities for intergenerational learning.

WHAT AVEIRO LEARNED

Informal learning formats increase engagement. Community spaces can make digital skills less intimidating. Training should be long enough for people to create, not only to observe.

FROM TESTING TO INVESTMENT

The testing reinforced the need to move beyond school-based and tech-sector audiences, pointing towards community-based STEAM formats that can support inclusion, digital confidence and lifelong learning.

RECOMMENDATION

Start with small community pilots. Build strong partnerships between education, industry and local authorities. Adapt the model before scaling it.

Alytus Snapshot

Alytus: from brain drain to talent connection

For Alytus, STEAM means connecting education, local businesses and innovation to give young people practical, future-oriented skills.

The city's challenge is youth outmigration. Schools, businesses and cultural institutions exist, but they need to work as a connected ecosystem.

WHAT ALYTUS TESTED

- Company Open Days.
- Entrepreneurship contests linked to real company challenges.
- UBBU Code and digital coding in schools.
- A future Learning Hub for STEAM collaboration.

WHAT WORKED

Hands-on activities and direct contact with companies increased student motivation.

WHAT WAS HARDER

Long-term business engagement requires structure, coordination and mutual value.

FROM TESTING TO INVESTMENT

The tests showed that school-business contact can motivate students, but also that long-term talent retention requires a more structured ecosystem: recurring formats, committed companies and clearer pathways between education and local opportunity.

RECOMMENDATION

Create simple, recurring formats that make local opportunities visible to young people. Use each school-business activity to strengthen trust, clarify roles and build a more durable talent ecosystem.



Kolding Snapshot

Kolding: design, business and hard skills

For Kolding, STEAM is a playful way of working with innovation, technology and creativity. Kolding is an internationally renowned design city. Its opportunity is to use the “A” in STEAM to connect creative thinking with technical skills and business needs.

WHAT KOLDING TESTED

- Open Days with primary schools and companies.
- SONIC Challenge between students and businesses.
- Entrepreneurship workshops.
- Hackathon using city mobility data.

WHAT WORKED

Company visits and real data challenges gave students tangible experience.

WHAT WAS HARDER

Complex setups can discourage businesses. Participation can drop when formats are too demanding.

FROM TESTING TO INVESTMENT

The testing suggests that Kolding’s next step is not to multiply one-off activities, but to build simpler, recurring formats where companies, schools and students can collaborate with clear roles and realistic levels of commitment.

RECOMMENDATION

Keep formats light enough for companies to join and repeat. Focus on clear roles, practical challenges and manageable commitments that can grow over time.



Oulu Snapshot

Oulu: STEAM 2.0 for lifelong learning.

Oulu already has a strong STEAM culture in schools. Its next step is STEAM 2.0.

For Oulu, STEAM means future skills for the whole city, not only for school students. The ambition is to extend learning into public services, cultural institutions, adults, seniors and business collaboration.

WHAT OULU TESTED

- Invisible Beauties: Art for Oulu's Endangered Species, where students researched critically endangered local insects and created artwork using FabLab tools, digital media and QR codes.
- Future Classroom with STEAM, ICT and audiovisual equipment, designed as both a learning environment and a real-world testing space for educational tools.
- STEAM 2.0 tools and self-assessment.
- Hackathon / ToolCamp activities for upper secondary students.

WHAT OULU LEARNED

The "A" in STEAM is transformative. Artistic and creative methods can connect science, technology and local environmental awareness, helping students investigate complex issues and communicate them in accessible ways.

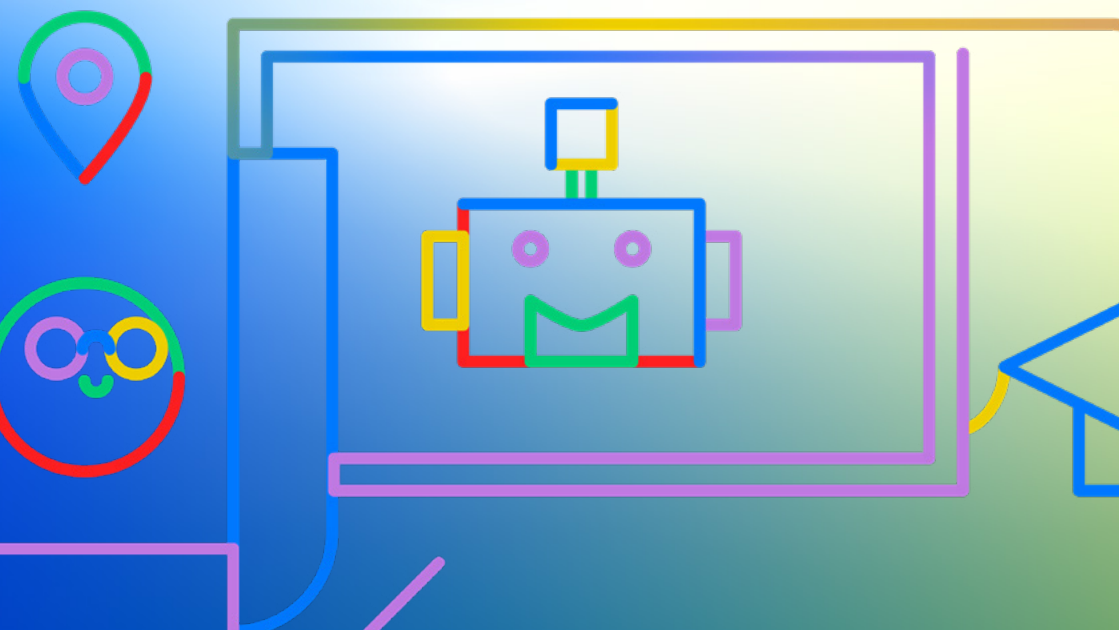
The Future Classroom also showed how schools can become testing environments: teachers and students gain access to new tools, while companies receive feedback that no laboratory can replicate.

FROM TESTING TO INVESTMENT

The testing points towards a broader STEAM 2.0 approach: extending STEAM beyond schools, developing the Future Classroom as a shared learning, showroom and product-testing environment, and creating stronger links between education, culture and companies.

RECOMMENDATION

Make STEAM available for all ages. Start small, avoid unrealistic expectations, and use the Future Classroom to connect schools, companies and public services around practical future skills.



Plock Snapshot

Plock: for this city, STEAM is a tool for strengthening future competences and building lasting connections between schools, universities, businesses and the local community.

The challenge is to connect education with labour market needs and make STEAM practical, visible and motivating.

WHAT PLOCK TESTED

- STEAM classes in primary schools.
- Workshops at Warsaw University of Technology.
- STEAM workshops at the Masovian Museum.
- Agile and Scrum training for final-year technical students.
- Study visit for teachers.

WHAT Plock LEARNED

Teacher confidence is essential. If teachers feel motivated and supported, students can experience STEAM as relevant and exciting.

FROM TESTING TO INVESTMENT

The testing confirmed that Plock's future STEAM work should begin with teacher confidence and committed partnerships, creating stronger bridges between schools, universities, cultural institutions and the labour market.

RECOMMENDATION

Work with committed partners. A smaller, reliable URBACT Local Group is better than a large passive one.



Five Pilots, One Shared Learning Map

Each city adapted STEAM to its own needs. The pilots were not designed as final answers. They were learning tools. Across the network, testing helped cities understand what could be scaled, what needed to be adapted and what should change before becoming part of an Investment and Continuity Plan.

City	Local Challenge	Testing Focus	Main Learning
Aveiro	Digital inclusion and community learning	Community Workshops	Informal learning increases access
Alytus	Youth outmigration	School-business activities	Real company contact motivates students
Kolding	Skills mismatch and talent retention	Open days, hackathons, design-business links	Start light and build recurring formats
Oulu	STEAM beyond schools	Invisible Beauties and Future Classroom	The "A" connects creativity, science and real-world testing
Plock	Education-industry gap	STEAM classes, university and museum workshops	Teacher confidence comes first.

**The cities move at different speeds,
but in the same direction.**

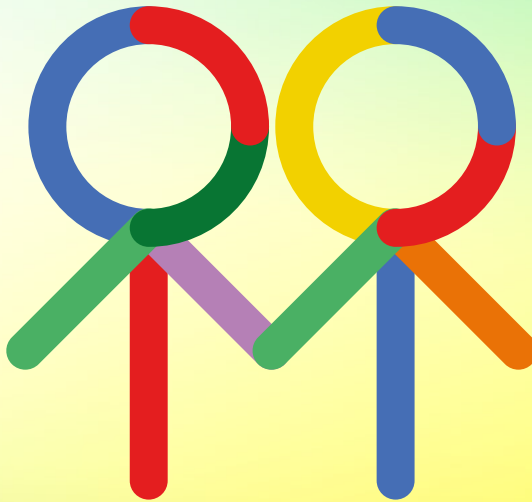
To Whom?

Who should benefit from STEAM?

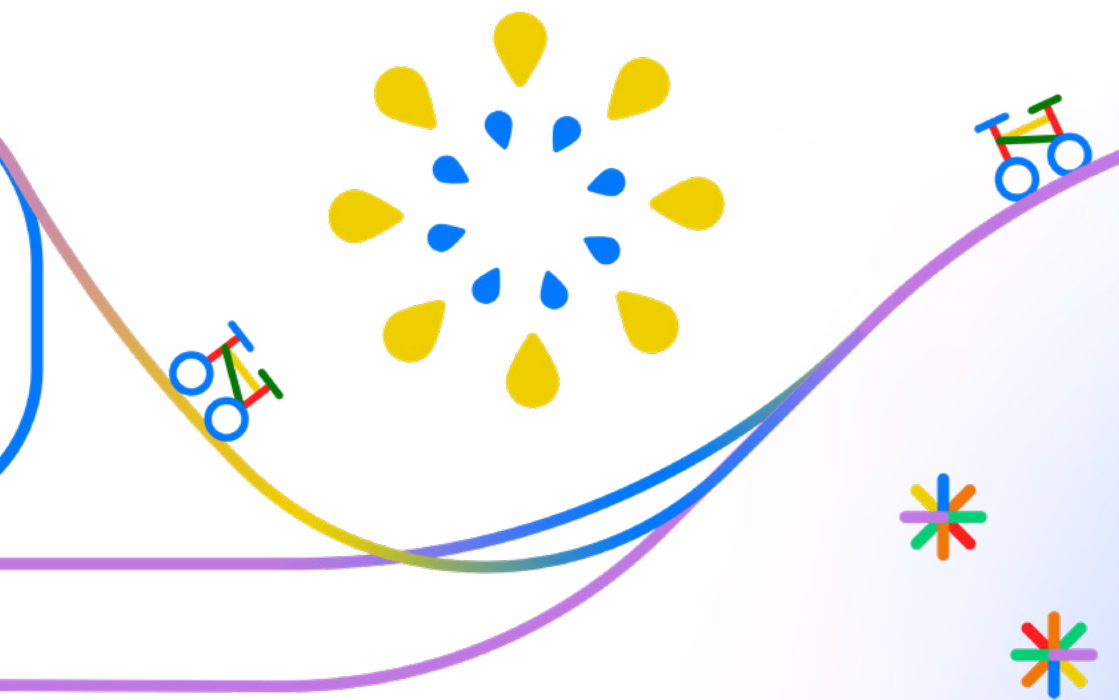
STEAM can start in schools, but it should not stop there.

Future STEAM Cities shows that STEAM can support:

- Children discovering curiosity and confidence.
- Teenagers choosing future careers.
- Teachers becoming agents of change.
- Adults reskilling or changing careers.
- Seniors gaining digital confidence.
- Job seekers entering new sectors.
- Companies finding and shaping future talent.
- Cultural institutions becoming learning spaces.
- Municipalities building more adaptive cities.



**Since the future impacts all of us,
STEAM should be accessible
to everyone.**



Who needs to be involved?

STEAM works when the right people are in the room.
A city STEAM ecosystem needs more than schools.

Bring together:

- Municipality and public services.
- Schools and teachers.
- Universities and research centres.
- Local companies and business associations.
- Vocational training centres.
- Museums, libraries and cultural organisations.

- Community groups and NGOs.
- Students, families and citizens.
- Funders, investors and policy-makers.

The URBACT Local Group should not be a meeting list. It should be a working platform for co-creation, testing and shared ownership.

What can cities test?

Start with one practical experiment.
Cities do not need to begin with a large programme.

They can start with:

- A company Open Day.
- A school-business challenge.
- A STEAM classroom.
- A coding workshop for beginners.
- An artistic residency.

- A student hackathon.
- A teacher training session.
- A museum or library STEAM workshop.
- A bootcamp for job seekers.

The best tests are small enough to manage and real enough to teach something.

**Shared ownership is
what turns a pilot into a policy.**

**Small tests reduce risk.
Good tests create evidence.**



Evaluation does not have to be complicated

Start by asking simple questions:

1. Did people participate?

Track attendance, participant diversity, and return interest.

2. Did people engage?

Observe curiosity, questions, collaboration and confidence.

3. Did people learn?

Use feedback forms, short interviews, teacher notes or participant reflections.

4. Did partners stay involved?

Check whether schools, companies, cultural institutions and city teams want to continue.

5. Can this be scaled?

Assess cost, coordination effort, equipment, time and political support.

Useful Methods

- Surveys.
- Interviews.
- Observation.
- Stakeholder meetings.
- Learning logs.

What We Learned

Lessons from five cities

The testing phase revealed common lessons.

1. Hands-on formats work.

People engage more when they can build, test, visit, code, question or create.

2. The “A” is not decoration.

Arts make STEAM more human, inclusive and engaging.

3. Teachers are agents of change.

Invest in teacher confidence before expecting student transformation.

4. Business engagement needs structure.

Companies participate when the role, benefit and time commitment are clear.

5. Recurring formats beat one-off events.

Annual Open Days, hackathons or workshops build stronger ecosystems over time.

6. Transfer is mutual.

Aveiro shares a model, but every city improves the shared knowledge.

Final Recommendations

1. Start with a real local challenge.

Do not begin with the activity. Begin with the problem your city needs to solve.

2. Build a committed local group.

A small active group is better than a large passive network. Bring together people who can act, decide and continue the work.

3. Connect schools with the city.

Use companies, museums, libraries, universities and public services as learning environments.

4. Make the “A” visible.

Arts are not decoration. They make science and technology more human, inclusive and engaging.

5. Test before scaling.

Start small enough to manage, but real enough to learn.

6. Turn learning into an Investment and Continuity Plan.

Use evidence from pilots to define priorities, partners, budgets and next steps.

7. Plan sustainability from the start.

Ask early what will keep the action alive after the project ends.

8. Monitor, evaluate and adapt.

Track participation, learning, partner commitment and scalability. Use the evidence to improve.

9. Communicate through stories.

Show what students, teachers, families, companies and city teams actually experienced.

10. Embed STEAM in policy.

Connect STEAM to strategies, budgets, staff and long-term priorities so it survives beyond any single project or person.

**Testing creates evidence.
Investment turns evidence
into change.**

First 90 Days Guide

Your city can start in 90 days.

The first 90 days are not about building a full STEAM programme. They are about running one useful test and learning what should happen next.

Days 1 to 30: Choose and align.

- Choose one local challenge.
- Identify one first target group.
- Invite 5 to 8 committed stakeholders.
- Select one simple testing action.

Days 31 to 60: Design and prepare.

- Define the format, place and duration.
- Assign roles for delivery, communication and evaluation. Prepare materials, equipment and permissions.
- Decide what evidence you will collect.

Days 61 to 90: Test, learn and decide.

- Run the pilot. Collect feedback from participants and partners.
- Discuss what worked, what was harder and what should change.
- Decide what to stop, adapt, repeat or scale.

At the end of 90 days, answer four questions: **What did we learn? Who needs to stay involved? What evidence do we have? What should we invest in next?**



**Do not use the first 90 days
to prove you were right.
Use them to learn
what to do next.**



Reuse Checklist

Before you reuse a STEAM action, ask this.

Reusing does not mean copying. It means adapting the intent of an action to your own city. Use these questions before adapting an action from another city.

Context

- What local challenge does this answer?
- Who should benefit first?
- Why this target group?

Adaptation

- What is the original purpose?
- What must change locally?
- What is the smallest useful test?

Partners

- Who must be involved from day one?
- Who can provide space, tools, access or expertise?
- Who needs to own the next step?

Evidence

- What do we need to learn?
- What will success look like?
- What evidence will support the next decision?

Continuity

- What would make this action repeatable?
- What funding, staff time or governance is needed?
- Could it feed an Investment and Continuity Plan?

**Adapt the intent.
Do not copy the format.
A good transfer does not reproduce
the same activity.
It creates the right version
for a new city.**

Our Manifesto

We believe cities can be classrooms.

We believe schools should not be separated from the real life of the city.

We believe businesses can help young people imagine local futures.

We believe museums, libraries and cultural spaces belong inside STEAM.

We believe teachers are not only educators. They are community builders.



**We believe talent stays where
opportunity is visible.**

**We believe AI and technology are
tools, and young people should
shape them, not just use them.**

**We believe the future is not
something cities wait for.**

**It is something
cities build together.**



**Future
STEAM
Cities:
Full STEAM
Ahead.**

**Future STEAM Cities is an
URBACT Innovation
Transfer Network led by
Aveiro, with Alytus,
Business Kolding, Oulu
and Płock.**

**The network explores how
STEAM can help cities
connect education, digital
skills, creativity, talent
retention, business
collaboration and inclusive
urban innovation.**

Learn More

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