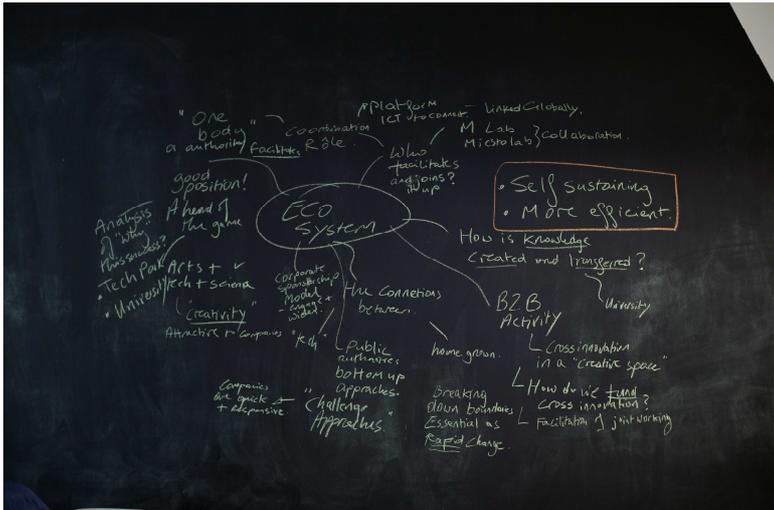


# URBAN Manufacturing - Policy Clinic Overview



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# URBAN Manufacturing - Policy Clinic Overview

## 1 An overview of the Policy Clinic Process and context within the Urban M Project

Urban M is an Interreg Europe funded project designed to *support policies which stimulate Innovation through Collaborative Maker Spaces.*

The policies covered relate to the European Structural and Investment Fund (ESIF) 2014-20, links to the Horizon 2020 Research Programme and to city and regional policies supporting innovation.

The common challenge of Urban Manufacturing is to better support and develop a particular type of innovation infrastructure: collaborative maker spaces. These spaces are characterised as places where people from different disciplines work together to produce new products and services, and have sprung up throughout cities and regions. Examples include Fab Labs, Living Labs, Open Innovation Centres and Cross Sector Incubators. However, such facilities often struggle to maximise their impact, due to issues such as segregated ecosystems, poor governance and challenging business/financial models.

*The overall objective of Urban Manufacturing is to ensure that these spaces thrive. This will be achieved through identifying good practices in Urban Manufacturing; Improving the related policy instruments in partner city/regions, and monitoring the effects.*

*The partnership has identified three specific development themes in relation to collaborative maker spaces:*

- 1) *Collaborative incubation*
- 2) *Investment in collaborative R&D*
- 3) *Commercialisation of collaborative innovation*

*Each theme has a grouping of cities/regions, who share that interest and will work together to make improvements through an interactive process of exchange of experience, peer review and action plan writing.*

*The expected changes are: an increase in the amount of ESIF funding for collaborative innovation; an increase in the number of enterprises engaging with collaborative maker spaces; greater integration for innovation infrastructure; and indicators to measure the impact of policies, ensuring sustainability.*

*The main outputs of the project will be 24+ Good Practices; 14 Study Visits; 8 Policy Clinics; 13 Peer Review Sessions; 8 Local Stakeholder Groups; and 8 city/region Action Plans. These will be delivered alongside a comprehensive programme of dissemination.*

*The beneficiaries of the project will include innovation actors, policy makers, enterprises, cluster managers and Fab Labs.*

*The nine partners in the project are as follows;*

- *Birmingham City University (Lead partner)*
- *Birmingham City Council*
- *Lisbon City Council*
- *Lazio Region*
- *San Sebastian, Economic Development Agency*
- *Zagreb Region*
- *Municipality of the City of the Slovak Republic, Bratislava*
- *Vilnius City*
- *Business Support Centre Ltd., Kranj*

The Policy Clinics took place over a 12 month period from late 2017 to 2018. Their purpose was to enable the cities to better understand the comparable policies of partners within the Urban M Interreg Europe project to better implement policy change for mutual benefit. The Policy Clinics were hosted by a partner city on a particular theme important for them welcoming two other partner cities keen to understand how to implement change in a similar policy area. The Clinics were facilitated by Birmingham City University the Advisory and Lead Partner on the project.

BCU was active in the pairing of cities prior to the visits and to the choice of case studies to be visited to ensure the topic was effectively tackled. The University then facilitated the interactions during the visit and helped record the outcomes. This report is a summary and analysis of these visits. Throughout, the intention was to create an atmosphere of trust within the partners to share and better understand policy making. The Policy Clinic approach enabled partners to respond and contribute to an iterative approach to policy development. Each policy clinic report captured the feedback from the visiting cities to the host city with regards to their specific challenge. We also recorded what each visiting city would take away as learning to their home cities. This was a key tool in capturing the learning undertaken throughout the project.

This report has six sections:

- 1 The Policy Clinic methodology – how the approach was developed and utilised in the Urban M project
- 2 Policy Clinic themes – set out as prototyping the eco system, makers as entrepreneurs and cross innovation approaches
- 3 Reflections on the Policy Clinic process and how policy makers can benefit from working with makers
- 4 The future of maker spaces
- 5 Feed-back from the policy clinics for each city
- 6 List of the maker spaces and innovation centres visited in the Policy Clinics

## 1.1 The Policy Clinic Methodology

The Policy Clinic was hosted by a partner city presenting the policy challenge it wished to explore and to seek feedback in order to modify policies to enable maker spaces and collaborative working to better develop.

Policy Clinic meetings were then established in the partnership with the “host city” and typically two visiting cities with a common interest in the policy area facilitated by BCU as the Lead Partner. The participants in the Policy Clinics all had a direct interest in a deeper understanding of the specific challenge to support the host city and to learn lessons for their own city- a mutual learning process.

The Policy Clinic themes were:

- San Sebastian – Eco systems
- Lazio – Routes to market, including supply chains and market potential
- Zagreb – Enterprise, including start -ups and entrepreneurship
- Lisbon – Routes to market
- Bratislava- results of investment, including regeneration
- Birmingham – STEAM approaches to innovation
- Kranj – Local communities
- Vilnius – Eco systems, including location

Each city hosted one Policy Clinic and chose to attend a minimum of two Policy Clinics, but many were able and willing to attend more.

Each Policy Clinic considered:

- The Policy instrument to be changed
- The Policy Theme, for example routes to market or eco-system development
- The change the city was seeking to make which related to the challenge the partner city wished to explore in the clinic.

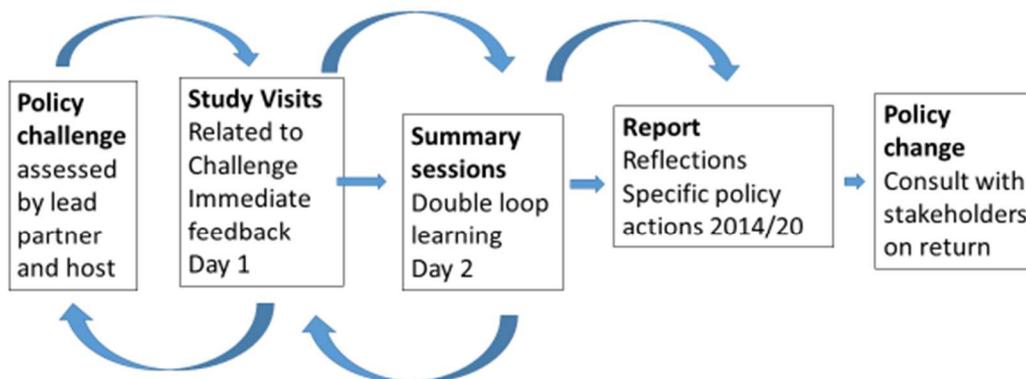
The Policy Clinic was then organised over a two day session in the host city. The challenge was explained and presented to the visiting partners to give the background to the change and why it was important. Case study visits were then undertaken by the visiting cities chosen to specifically address and give insights to the policy change sought by the host. The Lead Partner devised a template for the Study Visits to record impressions and to answer specific questions related to the policy to be changed. Immediate feedback was given at the end of each study visit to ensure specific learning points were recorded.

POLICY CLINIC REFLECTION TEMPLATE

Urban Manufacturing Policy Clinic ZAGREB: 12 Dec -13 Dec	Zagreb Entrepreneurship Programme	Zagreb Technology Park	RADIONA Maker Space	Croatian makers	Summary
<p><b>THEME:</b> ENTERPRISE (including startups &amp; entrepreneurship)</p> <p><b>CITY CHALLENGE:</b> How to improve the programme of incentives for entrepreneurs with a particular focus on makers?</p>	What stands out, for you?	What stands out, for you?	What stands out, for you?	What stands out, for you?	What action could Zagreb take to progress their policy challenge?
	How could this be applied?	How could this be applied?	How could this be applied?	How could this be applied?	
Your City/Region	What stands out, for you?	What stands out, for you?	What stands out, for you?		What action could you take to progress your policy challenge?
	How could this be applied?	How could this be applied?	How could this be applied?		

The Policy Clinic concluded with a session where the partners fed back to the host in a structured way on the Policy Challenge and the key underlying factors to be considered. Visiting partners then gave their feedback on what the insights from the Study Visits meant for them and how their own policies could be refined.

Urban M Policy Clinic Process



## 2 Policy Clinic Themes

Following the completion of the Policy Clinics, the resulting observations from all 8 policy clinics have been structured around three key themes:

- Prototyping the eco system
- Makers as entrepreneurs
- Cross innovation

These three themes are now discussed as focal areas for policy development in the Urban M context.

### 2.1 Prototyping the eco system

The ability of makers to develop new ways of looking at innovation at the level of prototyping is a key aspect for the eco system. This enables makers to play a number of distinct roles:

1. Maker spaces as Research & Development catalysts
2. Commercialisation – from ideas generation to prototyping and product/service/development
3. Makers in the context of university engagement and the triple helix

#### 2.1.1 Maker spaces as R&D catalysts

The Policy Clinics showed an appetite from all partners to grow the number and the scope of maker spaces.

The emphasis on prototyping in maker spaces – bringing early ideas into a product or service to be tested in the market is seen as a really desirable feature of maker spaces.

This is in response to the role these spaces can play in connecting to the assets in the innovation eco system and complements a focus on spatial planning and economic development policy which is a feature for all partners.

Partners are seeking to invest in the maker space provision in the city, although the financial sustainability of these maker spaces is a key policy concern.

However, the nature of the eco system is in many cases fragmented and connecting the different parts of the system is a priority for all the partners. One approach being considered by Vilnius to better understand the process of knowledge and innovation and the role of maker spaces is to map the knowledge flows in the city.

Another approach is to focus on the role of the brokers in the knowledge system of the city/region and how best to connect. This manifests itself across the partnership as an organic series of relationships but may need to be

formalized in terms of innovation policy to ensure visibility to policy makers. The city of Bratislava is considering how to integrate this approach.

The focus on spatial policy has led to zones in the partner cities as designated innovation districts or sometimes clusters of innovation activity within the city. The notion of a maker zone or a spatial policy which encourages “Challenge based” and STEAM driven innovation (The analytical aspects of STEM with the creativity in Arts) organisations is a feature of several partners’ plans (led by Birmingham).

An approach which starts by focusing on what is already working well and building on this is seen as a good methodology (Lazio). There is an aspect of mapping the knowledge flows in the eco system, moving from physical assets to how the eco system works and retaining the informal way these spaces have evolved is also important.

### 2.1.2 Commercialisation – from ideas generation to prototyping to product/service development

The ability to prototype through Maker Spaces is an important element in policy. All partners in the project are seeking sustainable growth in terms of economic activity and in jobs (new jobs and retention). This means the issue of commercialisation is a key policy aspect across all partners. How to best focus on local and global markets with makers and move into scaleable production? This also reflects the need for maker spaces to be less dependent on the public sector for support and to grow their own income.

A paradox to address is the informal almost organic nature of the makers and the companies and university sector around them. This means that breaking down silos in the ecosystem through “meta” networks and through meetings is a desirable policy outcome. (San Sebastian as an example). How can partners make the ecosystem for makers and innovators accessible for all stakeholders in the city/region?

Networking the brokers in the ecosystem was seen as important and links with the need to connect with the assets in the system such as large companies, SMEs and universities.

A programme of events and support for pump priming of funding and commercialisation for Maker Spaces is seen as a positive development across the partnership.

Developing specific support programmes based on clusters is a consideration for Lisbon.

Other partners have well developed programmes which target enterprises at different stages of growth. Here Lazio Innova’s ladder of support is a good example.

The issue of awareness on the web and branding of clusters is a policy issue for most cities in the partnership, including Lisbon and Kranj.

Some cities favour “challenge” events – linking makers with established/corporate business.

Cross sector events, awards and mentor programmes also featured at the project level as techniques and mechanisms to support commercialisation.

Establishing an Umbrella group for crafts organisations is a feature of Kranj’s policy development.

### 2.1.3 Makers in the context of university engagement and the triple helix

Links to organisations supported from the Horizon Research Programme and seeking links with makers is favoured by Lazio Innova.

This approach focusses on the larger organization setting out a challenge it is facing and to attract suggestions to tackle this challenge in the nature of a competition with successful smaller organisations then developing ideas to meet this challenge. This can be seen as an awards process and utilises a voucher system part funded by a public authority to catalyse joint working and innovation between makers and companies.

Given the importance of the Horizon 2020, soon to be the Horizon Europe Programme and Erasmus Plus, where mobility of key actors is a feature, it should be possible to extend mobility schemes to makers and innovators to better connect at the city, national and international levels.

## 2.2 Makers as Entrepreneurs

### 2.2.1 Connecting up the enterprise and maker ecosystems

Connecting the enterprise and the maker eco systems is a key policy axis for development across all the partners.

All the cities have invested to a lesser or greater degree in supporting their start up ecosystems – the Lazio example of an intervention structure/framework of entry points for entrepreneurs is good example here. Working out how makers fit in with existing enterprise support systems is a way to link makers with generic entrepreneurs for mutual benefit.

The notion of serendipity – unplanned and unforeseen collisions- is seen as a relatively resource light way to better connect entrepreneurs from different sectors. This could be through maker networks meeting in new spaces for them in the ecosystem. For example, crafts based entrepreneurs meeting in a hub for digital businesses. Silo thinking and behaviour focused on narrow sector lines is still evidenced which could be seen as an unfortunate

consequence of Smart Specialisation with its necessary focus on World Class clusters.

Groups of entrepreneurs meeting up and sharing experiences is seen as a good method to break down these silos.

### 2.2.2 Skills for making

Maker skills as competences for young people to seek employment in 21<sup>st</sup> century environments is a growing policy issues. Curriculum development is being discussed at the city level to focus education debate in the city. This is an important policy direction.

Specifically the skills and competences embedded in the Fab Lab charter and maker movement are seen as a way to engage young people in critical thinking. This is a realisation by the Urban M partners that maker skills need to be seeded early in the lives of young citizens to help them with their ability to think critically and creatively to work in teams and to interact in positive ways in their city to make it a better place to live and work.

This impacts on the curriculum in schools and also in universities in the partnership.

It manifests itself in the interaction with innovation agencies and the university system (San Sebastian) and in developing skills for challenge based approaches (Lazio) and directly in curriculum development (Birmingham).

At the technical level, new technology training for crafts is also a key issue – how to enable traditional sectors to engage with the potential for ICT without which the benefits of working across sector and with makers is difficult (Kranj).

## 2.3 Cross innovation approaches

This, the third broad category emerging from the Policy Clinics and can be seen as challenge led approaches focused on customer and citizen need and in STEAM where the creative thinking of the arts interacts with the analytical approaches of technology.

### 2.3.1 Challenge led approaches

This is a broad and growing area for makers to interact within city policy making for innovation. It has the advantage of being responsive to company and citizen needs and makers can play an important part in this dynamic. It is wider than the maker movement but has many synergies with the way makers operate.

In terms of grass roots innovation maker spaces should be able to provide an effective platform at the level of the local community to interact with the innovation assets in the wider ecosystem.

Challenge events are becoming increasingly popular as a means of addressing so called “wicked” problems at the company and at the city level. The format is often based on a design thinking approach to focus on “real” problems with users and designers and to work through possible solutions together. This approach is becoming increasingly common in the Urban M partnership. For example San Sebastian has an approach where the city is the customer and stakeholders are invited to interact and comment on certain key policy areas and provide guidance on the direction of travel – active participation in the innovation ecosystem. This also extends to collaborative budget planning and in this respect San Sebastian is a leader in the partnership.

The notion of the city conference to gather together a range of stakeholders is becoming a feature in policy making in Urban M. The rapid growth in the innovation system in terms of physical assets and new networks has seen Vilnius adopt a similar approach – to “ask the eco system”, through public events. Birmingham too is engaged in working with the Mayor’s office in running a Mayor’s Challenge event based on environmental issues. Zagreb are keen to extend this approach to their ITA and from the start have input from the ecosystem and citizens on policy options for innovation.

This movement in challenge based design thinking approaches fits extremely well with the maker movement in terms of philosophy and in the physical spaces where events can happen. Challenge based activity utilises World Café techniques to share perspectives and then workshop events to work out early stage prototypes for new services or products identified from the World Cafe.

### 2.3.2 Grass roots innovation

Challenge events and tackling city problems connects directly with the way the maker movement interacts at the level of the suburb and connects to the wider eco system not only the innovation assets in the centre or in science parks.

The maker movement can be seen as an excellent example of bottom up, citizen led, grass roots innovation. Examples of “grassroots innovation” are a feature across the partnership, particularly for Birmingham, San Sebastian, Vilnius and Kranj, with all the Urban M partners having some examples of community based innovation in what is a fast growing aspect of urban development.

In terms of grassroots innovation, the Fab lab movement based on a charter is an inclusive model to get started in making. A key factor here is the relatively low cost of getting started unlike top down research based innovation – it can be done quickly and relatively cheaply.

An ecosystem which embraces makers and innovators is seen as a positive message for cities to present themselves to the world as desirable places to live and work in (Markusen calls these so called “sticky places”<sup>1</sup>).

The inclusion of makers chimes well with the wider societal issues as referenced in the work life balance of so - called Millennials and Generation Z seeking a new definition of “work” and economic growth.<sup>2</sup>

An example of grass roots innovation can be seen by the inclusion of maker spaces in libraries. Vilnius has placed a maker space in the newly refurbished national library as a statement of the importance of making as an inclusive public service for citizens.

### 2.3.3 STEAM

Interdisciplinary thinking  
Learning through doing  
Cross sector working

The role of STEAM is seen as an excellent way to connect the eco system – how the Arts can catalyse change with Science, Technology Engineering and Maths (STEM).

The development of “Maker skills” runs as a link between all the partners whether at school, university or enterprise levels. STEAM approaches have an interdisciplinary emphasis and focus on a bottom up approach to problems. Maker spaces particularly STEAMhouse in Birmingham, are well placed to develop STEAM approaches favouring an inclusive approach emphasizing open innovation where different perspectives from the arts and sciences combine to suggest new solutions.

The technical facilities in maker spaces such as 3 D printers, wood and metal forming offer practical ways to take ideas generated from STEAM thinking into prototyping.

The nature of the curriculum for Makers in schools and universities comes through as a policy area particularly for Birmingham, San Sebastian and Vilnius.

Developing STEAM thinking and tools is a focus for Birmingham – pedagogical approaches to interdisciplinary working.

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<sup>1</sup> Markuson, Ann, 1996 "Sticky Places in Slippery Slopes." *Economic Geography* 72 (3):293-313.

### 3 Reflections on the Policy Clinic process for policy makers - linking Urban M to global trends

The Policy clinics highlighted the fast rate of change in each of the partner cities. How policies for makers can be designed that respond to a quickly changing sector (Policy clinics, policy labs – change of culture) especially digital making was a key factor. Responsiveness is a key factor. Essentially, as evidenced in Urban M, policy makers can improve the connectivity, the links to R&D, and the focus on city challenges by harnessing the energy and commitment evidenced in the maker movement.

Part of the solution to rapid external change is to have responsive internal mechanisms in the public system and a culture which welcomes change. This results in a need to be able to create a method for policy makers to understand and apply knowledge generated by radical or “fringe” organisations often at the forefront of such change but not yet recognized by the wider eco system. Early incorporation of these organisations through stakeholder groups and adopting a policy clinic co development approach is a practical and effective step in capturing experience and knowledge and responding quickly.

This approach then allows for the building of trust leading to better connectivity to then be able to respond to change – a virtuous cycle.

Events for collaboration are another way to be responsive –through challenge led approaches. This methodology now widely in place needs to include makers particularly when prototypes are required to test out early stage solutions. In order for the innovation eco system to succeed there needs to be a responsive approach to developing and building early stage prototypes which arise from challenges. This is a key role for makers to undertake and needs to be enabled by policy makers.

The spatial aspect for innovation is also important. Proximity matters in city eco systems. Maker spaces can catalyse new approaches through serendipity and as event spaces – promoting collaboration. There specifically needs to be facilities where discussion can take place and where ideas can be safely discussed. These lab spaces provide essential meeting spaces for informal meetings as well as hack type approaches.

Maker spaces can also be seen as hubs in local communities. Fab Labs in particular can be established by local groups.

Policy makers shouldn't try to over manage these spaces, rather focus on the conditions for growth and let local people, entrepreneurs, academics, makers and artists combine for new ideas.

Sustainability and how maker spaces can help address key topics

Connected to open challenges in the city is a recognition of the importance of Cross-innovation at the sector level with larger firms as well as SMEs. Typical examples would be found in digital and healthcare services.

## 4 The Future of Makerspaces

The Policy Clinics have highlighted trends in the maker movement, the growth of interdisciplinary and cross sector working and the wider social and societal changes in cities.

By its nature the Policy Clinics are “snapshots” of a point in time in innovation eco –system development, nevertheless, some discernible trends can be observed from the Urban M partnership.

The Policy Clinics have identified four possible trends in making and how maker spaces can support the wider eco system:

- Makers as innovators
- Coworking to comaking
- Makers as R&D centres
- Human factors and how work may develop

### 4.1 Makers as entrepreneurs- from makers to innovators – links to universities and technology led companies

It can be said that makers are a relatively new phenomenon and from the experience of the project how they react with the existing infrastructures of innovation ecosystems is a key policy area for city development.

Urban M partners are all seeking to find ways to integrate makers into challenge and citizen led policies.

The Urban M project has seen an adoption of maker space thinking characterised by seeking to address problems, being community focused and utilizing accessible technology, as factors which should be better connected with “traditional” innovation centres such as in science parks, universities and enterprise spaces.

Links to universities in particular as key stakeholders in Horizon Europe is a key area to consider how academic research can better interact with challenge based approaches particularly on so called “wicked problems”.

### 4.2 Distributed models for making and how this could stimulate innovation – from coworking to comaking

Maker spaces in communities – both geographical ones and communities of practice in companies, can be seen as catalysts for a more inclusive type of innovation.

This chimes well with the growth of the coworking movement which is now widely established in many cities and could also embrace comaking as a phenomenon.

Lisbon has such a space on the affordable fringes of the city where makers can rent a space within a community of like- minded individuals from a global talent pool.

The Lisbon example provides affordability, serendipity in terms of makers supporting each other and a critical mass of makers for some to develop beyond small scale production to high growth.

The rise of such hybrid maker spaces could see growth over the next few years in a number of urban hubs which already have a healthy coworking scene.

#### 4.3 Maker spaces at the grass roots – championing innovation locally in the ecosystem

Maker spaces provide an excellent method for the prototyping of new ideas. Start-up costs can be reasonable and can provide accessible spokes to the hub innovation assets in a system. Not all makers wish to scale up their ideas into growth businesses, but the current economic landscape would seem to favour maker spaces where communities of practice can work together to develop new ideas.

In this sense the maker movement constitutes a new form of economic development for the eco system which has positive implications for indigenous growth, local engagement and for skills development.

#### 4.4 Human factors and how work may develop

The desire for millennials in particular to seek individuality and meaning through work resonates well with the maker movement<sup>3</sup>. Urban M has witnessed many examples of societally driven innovation with individuals seeking to make a difference to their city through their efforts (Fizz Pop in Birmingham, STEAMhouse, Vilnius and Lisbon are referenced in Urban M). This can be seen in the STEAM movement where through the Arts creatives interact with others to seek new solutions to societal challenges.

This should link to the educational needs of young people in schools and universities and with start-ups.

The exploration through making and the importance of play and experimentation through making are complementary skills to the nature of work in the 21<sup>st</sup> Century where critical thinking, creativity, communications and collaboration are key.

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<sup>3</sup> Myers and Sadaghiani, 1996

## 5 Specific findings from cities and regions

This section highlights the strategic issues which each partner is seeking to address following the Policy Clinic process. Each Partner City is listed with strategic issues and policy responses against each one.

The Policy Clinic reports were analysed by BCU as lead partner and key issues identified. The thinking and the outcomes from the Policy Clinics was then fed back to the partners.

These reflections were then fed back into the policies targeted at the start of the Urban M project for implementation.

Each partner reflection has a short narrative commenting on the policy issues which each partner city is seeking to address in their ongoing policy work.

The key points from each city have been factored into the body of the report to give an overview of trends in the policy making in the Urban M project.

The eight Partner cities are presented below providing a “snapshot” of their activity around the time of the Policy Clinic process in Urban M.

The maker spaces visited in the project are listed in Section 6 with a web site for each one.

### 5.1 San Sebastian

#### Strategic Issues

Develop mechanisms to better connect the ecosystem

Business support programmes developing responses to meet innovation needs

How to attract and retain talent in the city

Skills for innovation and enterprise, to include young people, students, SMEs and innovators

#### Policy Responses

- There are significant pieces of infrastructure within the city. Incentives to share these should be considered. Fomento to be at the heart of this
- Specific support for makers is at a formative stage. Consider some early interventions to support makers
- Develop open and non-hierarchical promotional and networking events that allow sharing of knowledge around “making” which could stimulate and grow the innovation community.
- Better connect and align the city agenda to that concerning young people, students and schools to strengthen the ecosystem

## 5.2 Zagreb

### Strategic issues

Entrepreneurship – developing pathways for entrepreneurship from early stage ideas, to prototyping, incubation and growth

Focus on a common language of support in the ecosystem to allow stakeholders to develop their ideas

Explore ways to diversify in the economy and be able to meet 21<sup>st</sup> century needs

### Policy responses

- The ecosystem is developing quickly and there is a desire for data and evidence to underpin future investment. Mechanisms needed to reflect this need particularly in the ITI strategy.
- The rate of change of the maker sector might exceed the ability of policy makers to create responsive strategies. Consider the role of ZICER in supporting makers in the eco system
- Traditional forms of making are recognised, but are not developing at the same rate as other forms of making. Consider a programme of entrepreneurial skills for makers.
- The link with digital and making is prominent, consider how hi tech SMEs can be supported to grow through programmes of business development.
- Expose young people to emerging technologies such as robotics. Consider how to better link the innovation and education systems in the city
- Links to making and enterprise is a key consideration (Makers as entrepreneurs). Consider how to best work together and not in silos. Develop critical thinking skills across the ecosystem.
- “Radical making” – how policy can support the freedom and passion of these organisations, to empower and support them.

## 5.3 Lazio

### Strategic issues

#### Political change

Design thinking as an approach is favoured as a way to tackle city challenges and to energise discussions within the co system

Lazio already has a system for helping entrepreneurs through a ladder of support services. Widening the approach to makers is important.

Further focus on commercialisation moving to new products and services is a priority.

Partnerships and the need to engage in new product/service growth is way to boost the growth of innovation in the Lazio region.

#### Policy responses

- There is a need for consensus on the elements of a stable system to support innovation.
- Lazio has a sophisticated network of innovation facilities, including Fab labs. This follows a distributed model in the region, each maker space with its own specialism.
- There is an existing community of creative start-ups, including makers, but this still requires support in terms of commercialization and market readiness.
- Methods of experimentation in making could be more prominent – how can successful models be transferred in the eco system? There is an active discussion on micro innovations to be tested, evaluated and then transferred.
- Certain elements of the innovation ecosystem use knowledge sharing techniques such as challenge events and design thinking but there is a desire to expand their reach into the hi tech research sectors.
- Access to mutually beneficial data can be hard to obtain to underpin the analysis and solutions of city issues. This is a potential drag on the approach to focus on city challenges.
- Lazio is a large geographical area. This has already been thought through in terms of the links in the enterprise support system and a similar approach to innovation would be beneficial.
- A challenge the region faces is to sustain programmes that respond to the varied texture of the region.
- Successful partnerships across the innovation sector have previously been established and these should be nurtured.

#### 5.4 Lisbon

##### Strategic issues

There is a relatively mature eco system in the region with a network of maker spaces each with a specialist function. There are programmes for entrepreneurs and a ladder of support for progression.

There is an aspiration is to internationalise the network with links with other spaces.

Connections to the science base through a design thinking approach is a priority

There are a range of small makers in the region and there is a need to develop the connections between them for mutual learning

Linking to product design is important

## Policy responses

- There are already well-developed pieces of innovation infrastructure present in the city which can be better connected
- The municipality invests in the innovation infrastructure and places importance on making as an activity
- There are facilities catering to more traditional and emerging types of making. There is evidence of cross-innovation between these areas, which is ripe for development.
- There is evidence of a range of varied actors being connected to the making facilities (homeless, start-ups, women entrepreneurs)
- There are both public and commercial making facilities
- The ecosystem includes co-making facilities- groups of makers housed together in one space
- There is a global outlook and a desire to understand and connect to international markets
- The role of schools and universities in the eco system can be improved on
- The role of digital communications in promoting making could be amplified
- Events and programmes that promote the coming together of people who might ordinarily work in an isolated or precarious fashion, could be introduced
- In terms of development, support for scaling up ideas and products could be investigated.
- The routes from expressive making into sustainable production should be reviewed and tackled.

## 5.5 Bratislava

### Strategic Issues

A priority needs to be the activation of the infrastructure to support making

Different entry points need to be established

The strategy needs to develop the knowledge for innovation policy of the role making can play in the ecosystem

Brokerage is key issue to map the ecosystem and then to find ways to connect it up.

### Policy responses

- The making ecosystem is at a formative stage of development so benchmarking of other cities and approaches to making is essential
- There is thinking in place to understand how making could be supported and a need to activate existing pieces of infrastructure
- Political support is important in bringing ideas to realisation. Introducing an agency to broker the innovation process is an important step.

Developing knowledge within the policy-making base is critical in order to bring about this change.

- There are notable investments in science and technical infrastructure - similar investments in open-access, cross disciplinary making facilities would be very beneficial
- There are geographical issues in providing access to existing pieces of infrastructure. More centrally located facilities could promote greater engagement in the ecosystem's development and help create an economy of proximity.
- To stimulate conversation and a wide range of potential solutions/activities, events promoting sharing and equal treatment of knowledge should be considered.
- The hybrid maker-space model (maker cafe) is seen as a good bridge between commercial and non-commercial mindsets, providing a platform for exchange between the two.
- The points of entry into the ecosystem for makers at different stages of their development could be clearer.

## 5.6 Birmingham

### Strategic issues

Connectivity within the city ecosystem is a strategic issue for Birmingham. There are many innovation assets in the city and better visibility to enable these assets to interact with SMEs and citizens is a key priority. Maker spaces in the city centre and the suburbs are seen as one such strategic way to better connect. Bringing innovation to communities outside the science park type environments and university quarters it is felt can be facilitated through collaborative communities interacting with these innovation hubs.

STEAM approaches focusing on how the creative insights from the arts interact and combine with the analytical approaches of STEM have been evidenced in STEAMhouse. The further development of STEAM is important to this approach.

### Policy responses

- There is an emergent making infrastructure in the city, covering ideas generation, prototyping and incubation. How these ideas are then taken to market could be better served in terms of connecting up the assets.
- There is a wide range of facilities and innovation spaces, with an associated variety of approaches to foster innovation.
- There is a University Quarter within walking distance of the city centre comprising BCU and Aston as well as an ecosystem around the University of Birmingham.
- There is an established artistic community and quarter in Eastside and in the Jewelry area but they lack visibility.

- There is an established digital community but this also lacks visibility.
- Activation of the existing infrastructure is seen as key, particularly with events that promote shared approaches to challenges facing makers.
- Connectivity between existing pieces of infrastructure could be made more explicit and visible. Particularly the close proximity of the university quarter to the artistic quarter which could be further developed.
- Mobile infrastructure could be introduced – pop up events and taking innovation networks to new venues and interest groups..
- The city could develop an innovation agency of its own, with a particular focus on bridging between established tech communities and emerging creative thinkers
- Public funding streams are in a state of flux which means planning for change is made more difficult
- STEAMhouse is a prominent example of a collaborative innovation space within the city centre with the potential to develop networks of makers.
- Birmingham is a highly diverse city in terms of its population which is a key positive factor for citizen led innovation providing different perspectives to new products and developing new services.
- The role of making for providing developmental routes for the manufacturing sector should be actively considered

## 5.7 Kranj

### Strategic issues

Kranj has a thriving traditional crafts based sector. However, the crafts sectors and sub sectors are quite dispersed geographically and more linkages need to be made.

The way education interacts particularly with young people and schools is a good focus to help develop the next generation of makers.

### Policy responses

- The ecosystem supports a diverse range of traditional approaches to making
- There is a strong enthusiasm for many different types of making
- There is a programme of master makers, promoting the identification and celebration of highly skilled people
- The pieces of infrastructure, are spread across a wide and rural geographical area, bringing issues around connectivity to the fore. However, there is an urban centre nearby.
- There is significant and impressive support for school children and young people in learning the skills that could lead to careers in engineering and manufacturing

- Providing open access to existing pieces of infrastructure, could be considered
- Combination of traditional approaches with digital tech could provide an area for expansion.
- Evidence of communities requesting/developing access to co-making facilities.
- The role of making as a generator of growth for the region, is not clear. Is the sector expanding?
- Support is required for the introduction of entrepreneurial approaches to the making sector.

## 5.8 Vilnius

### Strategic issues

Vilnius is undergoing a period of rapid change in terms of innovation ecosystem development. The adoption of an Integrated Territorial Investment approach (ITI) in the context of EU Investment Funds is focusing policy thinking.

Key aspects are to include creativity in the planning of future innovation actions and to build on the diversity in the city connecting the assets of the ecosystem.

### Policy Issues

- There is a wide range of creative infrastructure in place. The role of making, specifically, in these creative spaces, is not necessarily the focus yet, but early stage making is in evidence.
- There is a leading edge technology park recently developed in the city
- The innovation landscape is changing at a rapid rate.
- As components of the physical infrastructure develop, methods of promoting equality of opportunity and access to the ecosystem assets are important.
- Public investment has resulted in an impressive platform for innovation, specific measures for exploration in making should now be considered.
- The culture is open, young and entrepreneurial
- There is a strong element of left-field/radical thinking in the city
- There is evidence of grassroots innovators creating new organisational forms
- Challenges are present around sustainability and efficiency, particularly in the new public funding environment and how grassroots organisations can thrive
- There is a desire to ensure that “art washing” does not happen where the arts is replaced by more traditional ICT led sectors and residential use. The roots of an area’s success should be nurtured in the City’s development.
- Creative activity has regenerated two areas of the city and this can be extended to new areas.

- Links between different elements of the ecosystem could be better supported and promoted
- The new library includes a maker space- a public endorsement of the role making can provide.
- Economic entry points are lower than in other cities, allowing for greater risk-taking and experimentation.

## 6 Urban M Maker Space Study Visits 2017-2019

1. Birmingham – School of Jewellery  
<https://www.bcu.ac.uk/jewellery/about-us/facilities-and-campus>
2. Birmingham – The Shed  
<http://moseleyandkingsheathshed.org.uk/>
3. Birmingham – Ingot Studios  
<https://ingotstudios.wordpress.com/>
4. San Sebastian – Talent House  
<http://www.fomentosansebastian.eus/donostiainn/en/outstanding-initiatives/talent-house-en>
5. San Sebastian –Innovation League  
<http://www.fomentosansebastian.eus/donostiaopeninn/en/>
6. Lazio – Viterbo Fab Lab  
<http://www.laziofablab.it/viterbo/>
7. Lazio – FabSpace 2.0  
<https://www.fabspace.eu/geoinformation-platforms/#italy>
8. Lazio - Fab Lab Spazio Attivo  
<http://www.lazioinnova.it/fablab/>
9. Zagreb – Zagreb Tech Park (ZICER)  
<https://www.zicer.hr/eng>
10. Zagreb – Radiona Maker Space  
<https://radiona.org/>
11. Lisbon – Fablab  
<http://fablablisboa.pt/>
12. Lisbon – Foundation Ricardo do Espirito Santo Silva  
<http://www.fress.pt/>
13. Lisbon – Creative Centre

<http://www.cm-lisboa.pt/en/mouraria-creative-hub>

14. Lisbon -Creative Hub Beato  
<https://www.hubcriativobeato.com/>
15. Lisbon – Fabrica Moderna  
<https://www.fabricamoderna.com/>
16. Lisbon - Todos Co-working Space  
<http://www.todos.pt/about>
17. Lisbon - Not Office Working (NOW)  
<http://www.no-office-work.com/>
18. Bratislava – Fab Lab  
<https://www.fablabs.io/labs/fablabbratislava>
19. Bratislava – Orange Maker Café  
<https://lab.cafe/>
20. Birmingham – STEAMhouse  
<https://www.steamhouse.org.uk/>
21. Birmingham – FizzPop  
<https://www.fizzpop.org.uk/>
22. Birmingham – Innovation Birmingham (Eagle Lab)  
<https://www.innovationbham.com/>
23. Birmingham – Melting Pot (STAX)  
<http://meltingpot.space/>
24. Kranj – Technical Colleges  
<https://slideplayer.com/slide/12553336/>
25. Kranj – Craft Centre  
<http://www.visitskofjaloka.si/en/experiences/864>
26. Kranj – Co-working Centre  
<http://kovacnica.si/>
27. Vilnius - Vilnius Tech Park Sapiegos  
<https://vilniustechpark.com/>
28. Vilnius - M- LAB  
<https://fablabs.io/labs/mlab>
29. Vilnius - Miesto laboratorija  
<http://www.miestolaboratorija.lt>

30. Vilnius - VGTU Link Menu fabrikas  
<https://www.vgtu.lt/linkmenu-fabrikas/about-us/about-us/104261?lang=2>
31. Vilnius – LOFTAS  
<http://www.menufabrikas.lt/undefined>
32. Vilnius - Užupis Art Incubator  
<http://www.umi.lt/en/>
33. Vilnius - PATS SAU Makerspace  
<https://www.lnb.lt/en/services/for-visitor/pats-sau-workshop>

