JPI Urban Europe

Strategic Research and Innovation Agenda 2.0

Outline

Draft 2018–09-03

Content

Preamble

The Joint Programming Initiative Urban Europe is an intergovernmental and strategic partnership of countries addressing the challenge of sustainable urban development through coordinated research and innovation. The initiative was established following the Council recommendation of 2010[1], with a formal launch by the European Council in 2011[2]. The attractiveness of Joint Programming lies in its structured and strategic process, whereby countries voluntarily agree to work in partnership towards common visions, encapsulated in a Strategic Research and Innovation Agenda and implemented through joint actions. From 2012 to 2018 JPI Urban Europe has

- Published the Strategic Research and Innovation Agenda 2015-2020
- Established a programme management and governance structure
- Implemented seven joint calls for research and innovation projects, spending about 85 million Euro public investment and engaging more than 25 funding agencies
- Funded more than 70 projects with about 450 project partners
- Created a community of urban research and practice across Europe, involving researchers, municipalities, societal organisations, business, entrepreneurs and other stakeholders
- Organised a variety of scientific and policy conferences, workshops and dissemination activities for strategic and thematic exchange
- Started international cooperation with the Belmont Forum and China
- Established relationships to other regional, European and international networks, programmes and initiatives

In 2016, JPI Urban Europe agreed on its long-term vision and reinforced its ambition to address the sustainable urbanization challenge in its complexity taking into consideration the latest research, innovation and policy developments and debates[3]. There is agreement among all partners that the next development phase of JPI UE has to focus on activities that strongly fosters challenge driven innovation and amplify the cooperation of research with cities and urban stakeholders.

The related research & innovation objectives have been defined as

- Setting common research priorities according to the EU Urban Agenda and SDGs (SDG 11)

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[1] CEU, Conclusions concerning various issues related to the development of the European Research Area, 10246/10, Brussels, 26 May 2010, .

[2] CEU, Council conclusions on the launching of the joint programming initiatives on 'Healthy and Productive Seas and Oceans', 'Urban Europe – Global Urban Challenges, Joint European Solutions', 'Connecting Climate Knowledge for Europe', 'Water Challenges for a Changing World' and 'The Microbial Challenge – An Emerging Threat to Human Health' – Adoption, 17424/11, Brussels, 29 November 2011,

[3] Such as the SDGs, in particular SDG 11, the UN-Habitat III report and the European Urban Agenda

- Address and connect fragmented socio-technical approaches to sustainable urban solutions and enhance knowledge, research capacity and impact of research on urban transitions
- Within the strategic framework, being responsive to urgent urban issues by creating and promptly translating relevant knowledge and evidence

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Vision of JPI Urban Europe:

JPI Urban Europe establishes as the European platform to create, combine, discuss and make available knowledge and robust evidence for sustainable urban solutions by setting common research and innovation priorities, improving and aligning R&I instruments, moderating science-policy processes and supporting transnational collaboration for local capacity building.

Policy and scientific context for SRIA2.0

In 2015 JPI Urban Europe published its Strategic Research and Innovation Agenda (SRIA) *Transitions towards sustainable and liveable urban futures*.[4] In this agenda, the main ambitions, strategic priorities, and key activities for the implementation of the joint programme were specified. Since then, the JPI Urban Europe countries teamed up in joint actions to achieve its goals. Joint calls were launched addressing research questions of the identified thematic priorities. So far, more than 70 projects were funded, projects that create new insights, approaches and solutions to support sustainable urban development and to drive urban transitions.[5] In addition, efforts were taken to enhance capacities on urban transitions in research and policy, strengthen science-policy cooperation and disseminate research results in Europe and beyond. The first international cooperation involving countries from Asia, The Americas and Africa was started to connect to related global programmes and developments.

The SRIA 2015 was developed to guide efforts on a long-term perspective and its main intention and focus are still valid. As JPI Urban Europe has the ambition to support the transition of European urban areas towards sustainable, resilient and liveable ones the SRIA 2015 addresses cities' sustainability, in all its complexity; *to better understand how we can create economic growth and social and economic equality – vibrancy and accessibility, within carefully defined and measurable environmental limits[6]*.

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[4] See < https://jpi-urbaneurope.eu/app/uploads/2016/05/JPI-Urban-Europe-SRIA-Strategic-Research-and-Innovation-Agenda.pdf >

[5] More information about our calls and funded projects is available at the JPI Urban Europe website www.jpi-urban-europe.eu

[6] SRIA 2015, p.19

However, as more and more projects gradually finish, an increasing amount of research results and transdisciplinary learnings become available. At the same time, new urban-related European and international policies were launched in the years following the SRIA 2015 publication and yet more European strategies and programmes are under development. All this represents important references for the future JPI Urban Europe programme and thus calls for a reflection of the current JPI Urban Europe strategic priorities. With this update JPI Urban Europe wants to ensure a strong alignment of the research and innovation programme with these policies and specify in which areas and through which key activities the programme can contribute best to achieve the international goals and strategies.

The latest developments considered for this update are in particular:

- The United Nations *Transforming our world: the 2030 Agenda for Sustainable Development* with the 17 Sustainable Development Goals (SDGs) published in 2016 was ground breaking with an explicit urban goal – *SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable* – and with this positioning urban development as one of the priorities for our future global sustainable development. According to its main intention, the JPI Urban Europe programme highly correlates with the Agenda 2030. In the update an even stronger relation will be given to SDG 11 as an entry point towards the achievement of all SDGs.

- The UN Habitat (2016) *New Urban Agenda* and the UN (2015) *Paris Agreement* complement the UN Agenda 2030 with more detail aims and priorities for urban development and climate change mitigation. As the European strategy related to the New Urban Agenda, the *Urban Agenda for the EU* (UAEU) was agreed among the European Union member states in 2016. In this development process JPI Urban Europe was referred to as an initiative to provide scientific evidence to implement the agenda. Accordingly, JPI Urban Europe is establishing relationships with the UAEU and its partnerships. With the SRIA update, JPI Urban Europe has the ambition to better connect to the priorities and activities of the UAEU and support the implementation through research and innovation.

- The development of the ninth European Research and Innovation Framework Programme (Horizon Europe) started in 2018. Urban issues continue to be an integral part of some priorities of the global challenges pillar. The relevance and role of cities in harnessing the forces the change is also addressed in the BOHEMIA report, a foresight study carried out to inform future European R&I policy, in particular the development of Horizon Europe[7]. Anticipating the cross-sectoral nature of sustainable urban development JPI Urban Europe is ready to team up with the European Commission and continue the

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[7] M. Weber, et al.: Transitions on the Horizon: Perspectives for the European Union's future research and innovation policies, Final Report from the BOHEMIA project, June 2018

cooperation in Horizon Europe. In addition, the development of European missions for research and innovation is under discussion as one possible key element of Horizon Europe. The implementation of the SRIA has allowed European countries and transnational funding to gain experiences in challenge-driven research and innovation and to test different formats, instruments and supporting measures to create the type of long-term programme required to implement missions. Based on such experiences and with the updated priorities, JPI Urban Europe is prepared to contribute to Horizon Europe in general and the development of urban missions in particular. Concrete proposals for such missions are provided.

- To reflect the consequences of the Agenda 2030 SDGs for research and innovation the JPI Urban Europe Scientific Advisory Board (SAB) developed a position paper as a reference for the future strategic development of JPI Urban Europe[8]. The SAB emphasises the importance of *urban transitions as global task to fulfill the SDGs.* However, more integrated approaches for urban transitions are called for, considering not only different sectoral pathways or interests but also different scales, from neighbourhoods' level up to cities' or regions' scale. To achieve this the SAB recommends to consider new urban imaginaries for urban sustainability, investigate the limits and potentials of urban integration and strengthen challenge-driven innovation that not only *develops new solutions, but also creates new coalitions between societal actors and business, build new markets and disrupt existing systems, all of which are important aspects of a transition*.

- JPI Urban Europe projects from the first calls are finished, more results and scientific evidence is created continuously. Such results and experiences are considered in the update, not only regarding content and research priorities but also in terms of requirements to improve instruments and framework conditions for research funding, science-policy cooperation and uptake of research results in urban practice (see Annex 1).

The JPI Urban Europe strategy process

JPI Urban Europe started the strategy update with the development of a long-term vision setting out the main objectives for JPI Urban Europe until 2026. This long-term vision was presented to the High Level Group for Joint Programming (GPC) in May 2017. Consecutively, the process was started to update the SRIA. Since one of the guiding principles of the JPI Urban Europe programme is a strong stakeholder involvement, JPI UE seeks to ensure this involvement also in the process to develop strategies. One crucial reason for this involvement in strategy development is that our priorities need to correspond to those of urban practitioners and global as well as

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[8] S. Kabisch, et al: New Urban Transitions towards Sustainability – Challenges for science and implementation from the perspective of the Scientific Advisory Board (SAB) of the Joint Programming Initiative (JPI) Urban Europe,

European urban policies in order to enhance policy, business and societal impact of our activities and investments. This is why the strategy process:

(1) strongly builds upon wide stakeholder consultations and dialogues;

(2) connects to ongoing policy and strategy debates, in particular the implementation of Agenda 2030 SDGs and the Urban Agenda for the EU;

(3) considers results of JPI Urban Europe projects, selected other projects and learnings from the first implementation phase of the JPI Urban Europe SRIA.

The main steps that led to the SRIA 2019 were (Figure 1):

- The development of a position paper of the Scientific Advisory Board of JPI Urban Europe[9]. Main focus of the position paper was to propose a strategic reference on how to connect to the SDGs and other international policies and to provide recommendations for key elements of the SRIA.

- An open consultation to collect input and views of urban stakeholders on thematic priorities as well as on strategic elements addressed in the SAB position paper, related to the implementation of the research and innovation agenda, such as enhanced science-policy cooperation, capacity building in research and policy as well as benefits of and conditions for transnational and international cooperation. Responses were received from researchers, city administration, public bodies and business from across Europe and beyond. In addition, the Urban Europe Research Alliance, a network of European research organisations addressing urban research issues and supporting the implementation of the JPI Urban Europe SRIA, provided a consolidated response to the consultation[10].

- A Stakeholder Dialogue was organised to reflect and consolidate the consultation results towards key issues for the SRIA. Again, the Stakeholder Dialogue brought together urban stakeholders from most of the JPI Urban Europe partner countries, involving policy makers, researchers, city administration, city networks, societal actors and research funders.

- All this input was used to develop a SRIA concept which was not only discussed with the Scientific Advisory Board and the Governing Board but is also put forward for national consultation. This allows to reflect the SRIA concept and its proposed priorities against national ones, to align the agenda with national, regional and municipal strategies and programmes and to mobilise urban actors.

- To receive a solid feedback from the cities point of view, city networks are asked to comment on the agenda. In order to align the SRIA with the action

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[9] Reference SAB position paper

[10] Reference to UERA position paper

plans and implementation measures of the UAEU a consultation workshop is planned with the coordinators of the UAEU partnerships.

- All this input is considered in this the SRIA concept, its thematic priorities and key implementation activities.

Figure 1: The process of SRIA 2.0 update.

In this sense, the SRIA 2.0 is developed around three guiding questions (Figure 2):

- What is the main aim and focus? How does it connect to European and international policies?
- What are the proposed thematic priorities?
- How are we going to implement the agenda? What are the main principles for R&I?

Figure 2: Three guiding questions for the SRIA 2.0 update.

Urban transition pathways – creating synergies among the plurality of urban goals, strategies and actions

The Sustainable Development Goals represent a comprehensive set of targets and ambitions, that demands urban transitions that address a wide variety of urban challenges. The importance of urban areas for achieving the SDGs becomes evident when looking at the roles they are assigned in the document - the SDG 11 Sustainable Cities and Communities is entirely dedicated to urbanisation but also the remaining 16 SDGs comprise an urban dimension (Figure 3). The 17 SDGs and their targets clearly underline the importance of sustainable urban development for the future of humanity and the planet, and 90 out of the 169 indicators encompass urban areas (for more details see Annex 2).

The urban setting is characterised by complexity and approaches 'on the ground' to urban development based on quite different understandings of how cities and urban areas work.[11] Running in parallel these related strategies and priorities may risk counterproductive or cancelling each other out in urban development practice. On the other hand, Agora dialogues in the Urban Transitions Pathways Symposia have identified a need to treat this dilemma of urban practices similarly to the UN Agenda 2030 SDGs: by an entry point in urban transformations, the various transition pathways require connecting tissue but not a new overarching paradigm.[12]

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[11] de Jong, M., Joss, S., Schraven, D., Zhan, C., & Weijnen, M. (2015). Sustainable–smart–resilient–low carbon–eco–knowledge cities; making sense of a multitude of concepts promoting sustainable urbanization. *Journal of Cleaner Production*, *109*, 25-38.

[12] JPi Urban Europe (2017) 'A community of practice to enhance urban transformations in-between?' at < https://jpi-urbaneurope.eu/news/a-community-of-practice-to-enhance-urban-transformations-in-between/ >
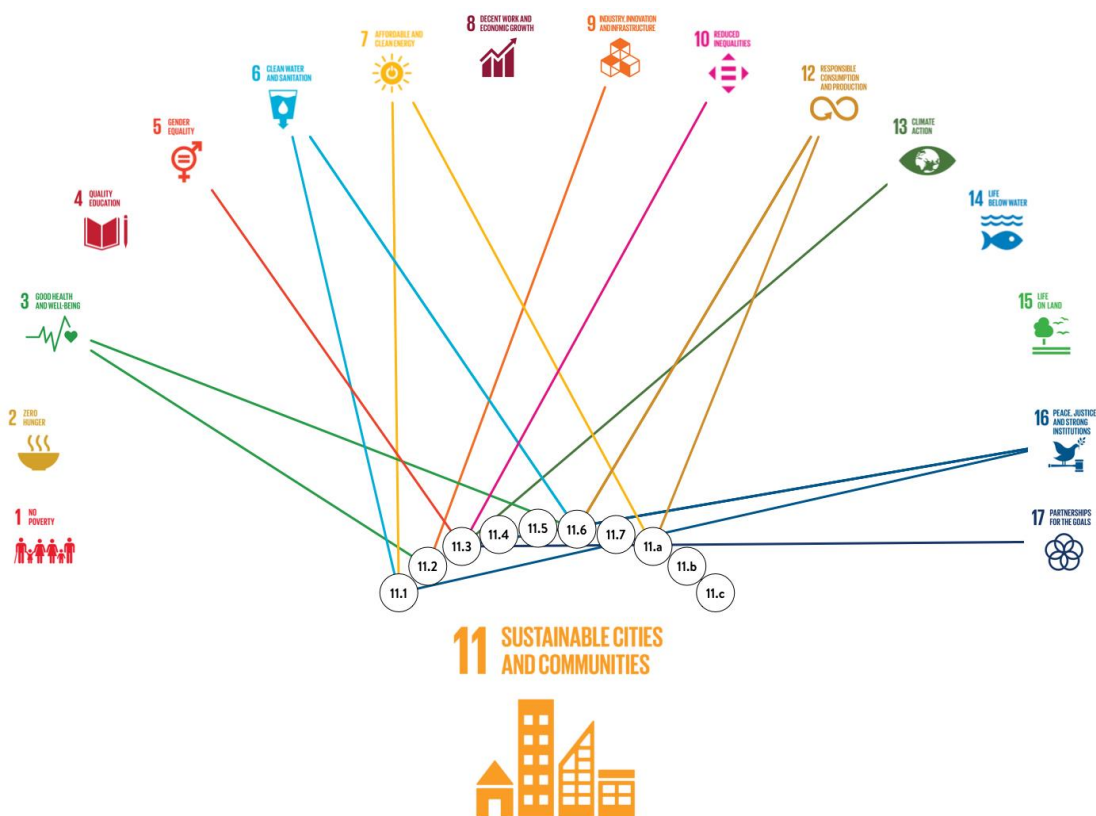
Figure 3: UN Agenda 2030 SDGs with no. 11 as entry point, drawing on the SAB position paper.

However, while some of these targets are supporting each other, other compete or conflict across administrative departments, sectors or societal groups. To successfully achieve change, urban transition pathways need to anticipate such divergent targets and/or wicked issues created by the portfolio of urban implementation actions. Current efforts often stay within silos and sectors, pushing for implementing specific solutions, in many cases missing a more adequate integrative approach.

Urban research and innovation can contribute to create evidence on how to address these dilemmas and turn them into synergetic potential, develop ways to balance or attune competing aims, connect single scattered strategies into integrated approaches. Identified conflicts and dilemmas provide strong cases for research and innovation, to gear up for new insights in sustainable urban development and how change can be more effectively realised.

By building upon existing (national or European) programmes that might focus on specific sectors, creating technologies and solutions for different parts of urban systems, JPI UE brings knowledge and robust scientific evidence to support policy makers in their implementation approaches and transition efforts. Hence, we use dilemmas as focal points for research and innovation. In this sense JPI UE addresses research issues that build upon and connect current pathways and solutions but that

also imply barriers for implementation, calling for innovation to successfully achieve urban transitions.

Figure c: Example of an elaborated dilemma

This resulted in a transition from SRIA 2015 priorities to SRIA 2.0 priorities as indicated in Figure 4. Each of the priorities is shortly described in the following. It also connects directly to the SDG 11 sub-targets as shown in Figure 5.

The update on thematic priorities proposed is at this stage merely indicative and requires additional 'ironing out', alignment with national priorities as well as a consideration of further input and reflections by the SAB and Urban Transitions Pathways Symposium 2018.
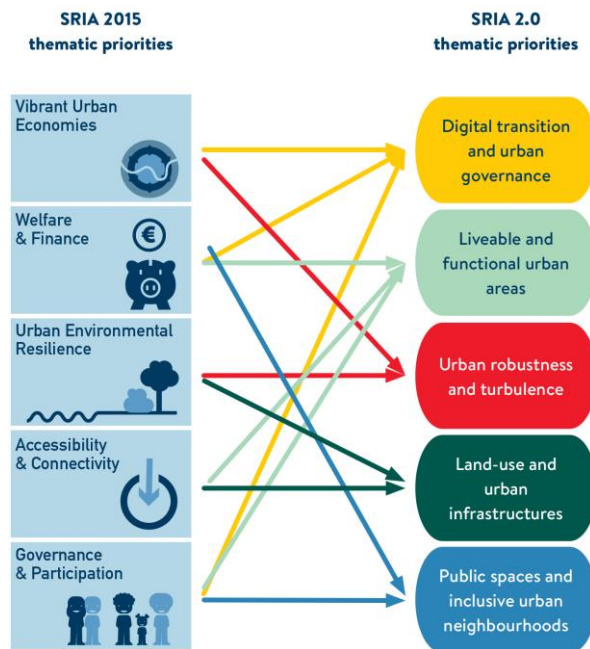
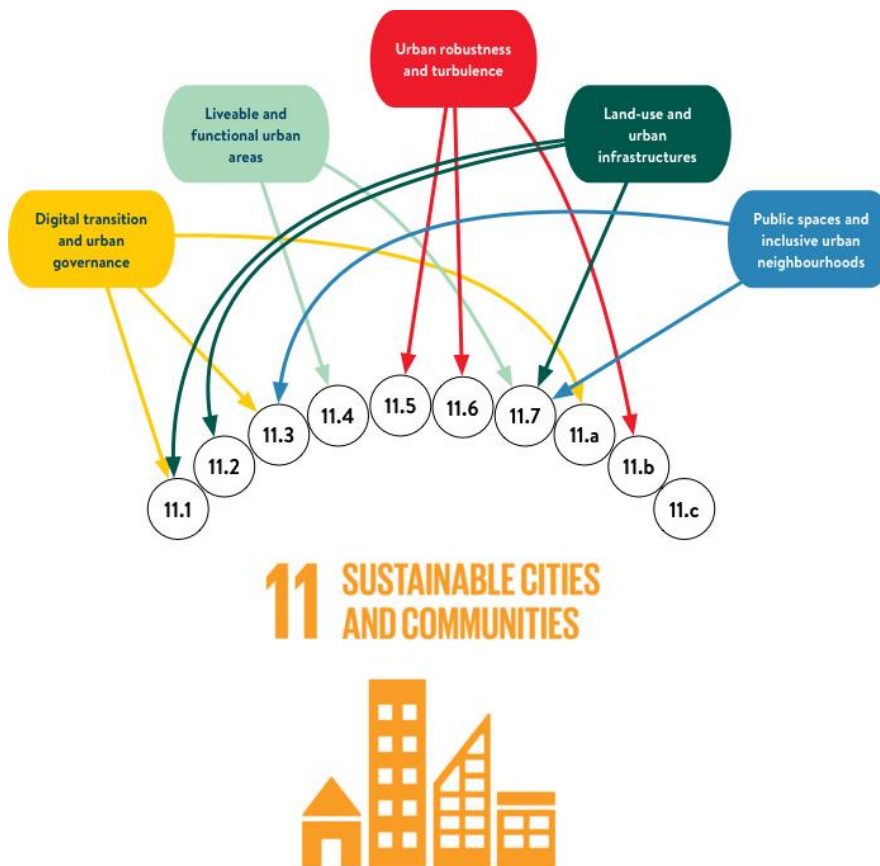Figure 4: Transition from SRIA 2015 to SRIA 2.0 priorities

Figure 5: Indicative contribution of SRIA 2.0 priorities to SDG 11 subtargets

Digital transition and urban governance

Digital transitions and urban governance

Dilemma

Digitalisation offers potential for economic development and innovative urban planning. Digitalization and related technologies are implemented in an accelerating pace across Europe and in many parts of the world's urban areas. Digitalisation also enables more connections to citizens and empowers and engages them to shape their urban environments through digital democracy. It improves social policies, presents major opportunities to support sustainable solutions, while data sovereignity is clear and regulations are in place.

However, it comes with the risk of increased inequalities and exclusion in European cities and urban areas. Since not all people are able to access services in the wake of digitalisation, transitions may solely benefit the already successful citizen. Urban governance may also risk implementing suboptimal technical solutions unless city administrations work with capacity building in public innovation governance and integrated urban planning to expand the current policy scope in many urban digitalisation efforts to include issues such as poverty, education, and marginalised neighbourhoods.

Digital transitions may not eliminate the access issue and solely relying on digitalisation solutions further excludes the 'have-nots' and 'cannots' – even from basic desicion making.

Context

European as well as many other of the world's cities and urban areas both drive and are 're-built' by digital transitions. It is picking up speed. Digitalised tools are increasingly used by urban planners and analogue available data is becoming digitalised. It is instrinsic to new urban economies, not least since digital transitions also present resources to enable circular economy elements such as sharing cities/economies and other social innovations. Digitalisation is also a driver for e.g. energy and mobility transitions.

At the same time, urban governance has an increasingly networked character (in contrast to the 'government' ideal in the 20th Century). In general, but with different pace and dynamics in different regions, urban governance processes are 'flattening out' and assuming a less vertically hierarchical structure. Power is decentralising. And as data shapes decision-making to a greater extent it ideally also prevents silo-thinking and silo-decision making.

This networked character means more multi-actor/multi-stakeholder settings and implementation becoming ever more complex by networked actions rather than implementation by command-and-control. Crucial for contemporary urban governance to deliver on policy are experimental, co-creative, and public participative approaches. Although these approaches are not new, there is also a need to understand and to increase know-how in the new dynamics of digital transitions concerning potentials and risks to inclusion and democratic deficits or intentional disruption in urban settings.

Without doubt, digital transitions comes with significant changes in the future of urban life and work. Related to fourth industrial revolution, the urban dimension of such changes requires investigation into the consequences for job losses, the impact of automation and robotics on urban economies and work to inform urban governance and urban national and transnational policy. As urban life and public services might be significantly influenced by autonomous systems (vehicles, home devices, robotic social care, and so on) the challenges and potentials this creates need to be analysed and reflected upon.

Topic examples

The sociotechnical scope of digitalisation

How can urban governance enable synergies from smart city, big data, and new conceptualisations of urban planning that includes diversity and inclusion, highlighting gender issues, and urban agriculture as key drivers for sustainable urbanisation and transformations?

The topic would include remedies to the current lack of overview of what new ICT technologies might mean for European city authorities, urban areas and their citizens (robotisation, further digitisation, autonomous vehicles etc.). Adopting new kinds of governance for sustainability based on synergies may lead to successful collaboration on urban sustainability.

Urban public innovation governance

How can city authorities and urban public innovation governance make use of collective learning and capacity building to tackle the digital divides and engender/work towards increased quality of life across all types of urban areas?

Urban public service innovation for integrated urban development: tackle the dilemma when involving new technologies, data access and behavioural patterns to changing services and infrastructures in order to reinforce the means of urban planning.

Urban digitalisation and challenge-driven co-creation

How can digital transitions enhance transparency, legitimacy, and accountability, as well as increase citizen participation in urban governance and challenge driven co-creation of urban planning among a broad set of stakeholders?

Foster access to infrastructure, tools and information to tackle the current risk in inclusiveness both for governance and demography (digital divide).

SRIA 2015 legacy
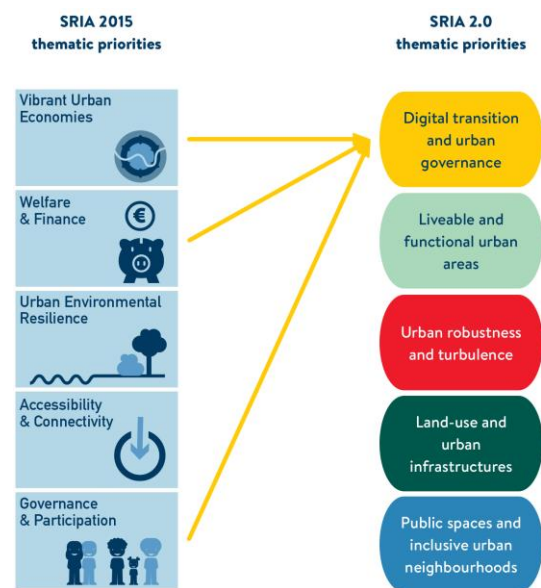
Thematic priorities crossings:

- *Vibrant urban economies*: Uneven development among European (and global) cities and urban areas; impact on living conditions and employment opportunities; labour market turbulence consequences; new urban economies in collaboration across sharing cities

- *Urban welfare and finance*: social entrepreneurship, local sharing economies and changing roles of public services in collaboration with community-based activities;

- *Urban governance and participation*: governing transitions depend on collaborative processes among a broad range of stakeholders; increased use of big data and digital support; governance in the face of genuine uncertainty and proliferation of wicked issues; participatory devices and infrastructures;

Projects and activities in portfolio [TBA, planned mapping and analysis October 2018]

 Expected impact in policy context

By tackling this dilemma, Urban R&I will support city authorities transition work by harnessing digitalisation towards sustainable urbanisation. Support urban and innovation policy by shaping better understandings of the pertinent challenges to urban digitalisation processes and local/urban innovation ecosystems.

Contributions to the following SDGs and the UAEU priorities are expected:

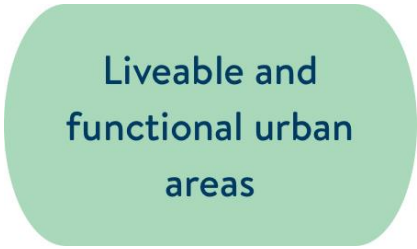| UAEU related	SDG related
10.11 Digital transition.	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
10.12 Innovative and responsible public procurement	
12.1 Effective urban governance, including citizens participation and new models of governance.	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable

12.2 Governance across administrative boundaries and inter-municipal cooperation: urban-rural, urban-urban and cross-border cooperation; link with territorial development and the Territorial Agenda 2020 (well-balanced territorial development).

12.4 Integrated and participatory approach.

12.5 Innovative approaches, including Smart Cities.

12.6 Impact on societal change, including behavioural change, promoting, among other things, equal access to information, gender equality and women empowerment.

12.10 Provision of adequate public services of general interest (within the meaning of Article 14 TFEU in conjunction with Protocol Number 26).

human settlement planning and management in all countries

11.a Support positive economic, social and environmental links between urban, periurban and rural areas by strengthening national and regional development planning

Key Instruments for Implementation

Urban living labs / policy labs. Inter-urban transnationally networked.

Challenge driven R&I.

Urban innovation platform (mission #2).

URBAN EUROPE

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Liveable and functional urban areas

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Liveable and functional urban areas

Dilemma

Technological inventions/solutions and their standardisation bring the potential of economies of scale and drive change. These relate primarily to areas and issues around efficiency, housing needs, environmental impact, infrastructural development, the large technical engineering oriented solutions to contemporary sub-optimal urban functions.

However, increased urban functional development does not necessarily contribute to its liveability. It many times neglects the characteristics of cities and their specific needs, and hence risk implement the 'wrong' functionalities. In the quest for affordable and systemically working cities, the aesthetic and other place-making values stand down to practicalities.

Context

Urban liveability is a basic need around the world. It also shapes the baseline to place-making, urban attractiveness and sound creativity which requires (besides other factors) accessibility and affordable housing, urban green spaces, and is influenced by demographic change (e.g. ageing societies themes and challenges such as generational segregation) and participatory governance. Hence, much of urban metabolism, flows, and infrastructural functionality ideally underpins liveable cities and urban areas.

The implementation of standardised technological solutions (including social innovation) has to be based on objectively analysed city-specific needs. This means that liveability requires a challenge driven approach to urban R&I. While taking advantage of technological advancements, it is important that the shape of these are steered by a genuine challenge-driven and sociotechnical approach to tackle core issues in urban liveability and productivity. Related to the dilemma in *Digital transitions and urban governance*, the transition period risk a situation where not everybody has accepted the technological solutions – e.g. 50 percent uses Automated Vehicles, 50 percent do not.

Hence, crucial is to change the way cities implement technological solutions. To give prominence to the many citizen-led and community-based initiatives. Local authorities should be able to do (or buy) this independent analysis to state the need for a solution. Invest in citizens' engagement (analogous and digital) to realise inclusive and grassroots and broad participation.

Another way to prioritise function over liveability is by promoting service driven city centres and relegate inhabitants to live only in the suburbs. At stake in this dilemma is a focus on cities and urban areas' cultural and aesthetic development, their citizens' and inhabitants' wider accessibility to resources and increased equity. An ever increasing disconnect between functionality and liveability may generate loss of culture, gentrification, spatial concentration of wealth, empty city centres and urban sprawl, prioritisation of capitalism, loss of community, increased social inequality, loss of green spaces and environment.

A synergistic integration of functionality and liveability creates the possibility of providing better access to people and communities that are now excluded. It could empower vulnerable groups – e.g. women in transportation. Integration in this matter also depends on a focus on urban areas and functional regions, not just cities and towns in their individual administrative territorial capacity. For instance, better and context dependent understanding of peripheral areas as well as on the city centres. Administrative and other kinds of links between suburban areas. Collaboration between planners, counties and the public.
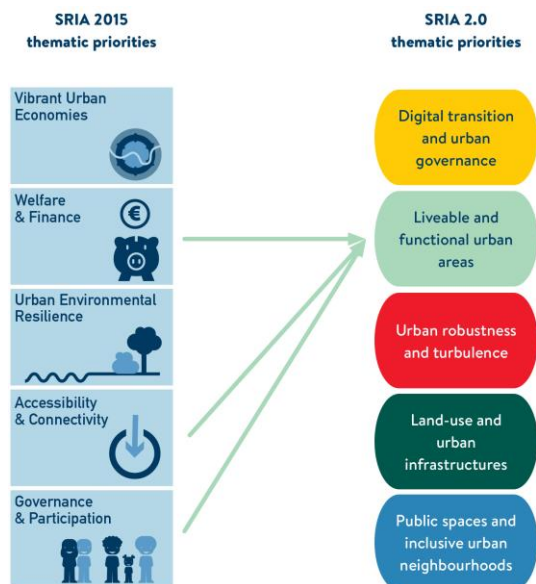
Expected impact in the policy context

By tackling the dilemma, urban R&I support city authorities and urban policy in the development of attractive cities and urban areas. Innovation policy supported in directionality and better understanding of urban systems' needs.

In addition the following SDG 11 sub-goals and UAEU priorities are addressed:

UAEU related	SDG related
10.4 Housing. 10.6 Jobs and skills in the local economy. 10.12 Innovative and responsible public procurement. 12.3 Sound and strategic urban planning (link with regional planning, including 'research and innovation smart specialisation strategies' (RIS3), and balanced territorial development), with a place-based and people based approach. 12.8 Urban regeneration, including social, economic, environmental, spatial and cultural aspects, also linked to the brownfield redevelopment with the objective of limiting greenfield consumption.	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

SRIA 2015 legacy

Thematic priorities crossings:

- *Urban welfare and finance*: participatory budgeting and policy-making; new business models for urban transitions and smart city development;

- *Urban accessibility and connectivity*: increase accessibility, but not always equalling more person mobility; increase connectivity, but not always increase velocity; travellers' needs;

- *Urban governance and participation*: ICT support in urban governance and planning; innovation-driven transitions to improved resource efficiency to go hand-in-hand with public participatory approaches;

Projects and activities in portfolio [TBA, planned mapping and analysis October 2018]

Topic examples

New urban economies

How, in times of increasing urban socio-economic polarisation, can better access to jobs, services, and affordable housing be fostered?

The topic includes approaches to the development of new requirements to conventional administrative structures facing the transitions of the urban-rural interaction, with the aim of fostering sustainable development. For instance, in mapping/characterizing sustainable urban performance; and changing roles of public services related to health issues.

Urban collective intelligence for liveability

How to increase/foster urban development and its various actors to align around and co-create common good? How to operationalise new financing models to increase urban governance capacity to guide in these uncertain and complex settings?

The key issues for sustainable urban development are very diverse all over Europe in their drivers and manifestation. In itself, this is already a research topic, but it means also that importance and urgency of key issues will differ significantly across Europe. It is strongly advocated to actively tie in local and regional variations in drivers, manifestation and impact of urban dynamics.

Quality of life in sustainable urbanisation

How to develop and provide quality of life / liveability during increased urbanisation and density in urban areas? How to safeguard quality of life / liveability in urban and peri-urban areas loosing populations in current migration?

This topic also includes approaches to move from technocratic solutionism towards challenge-driven and transdisciplinary urban R&I.

Key Instruments for Implementation

Social innovation oriented challenge driven R&I.

Sociotechnical innovation approches.

Urban living labs / policy labs. /piloting

Urban robustness and turbulence

Urban robustness and turbulence

Dilemma

Cities and urban areas drive sustainable urban development and realise green agendas, as well as tackle climate change and safeguard urban eco-economies. A widespread recognition of good practice, rewards and awards, and business models that fully address social and environmental targets is central in this respect. As long as e.g. climate change action entails an integrated approach to adaptation that facilitates more liveable cities for people, and a good balance between mitigation and adaptation measures, urban resilience can be in synergy with overall well-being and robustness.

Hence, they need to ensure that various actions to secure urban robustness and resilience, understood in a wide sense, does not lead to further or new inequalities. For instance, climate change mitigation may risk de-prioritisation as climate change adaptation dominate in city authorities' responses, which could leave cities and urban areas in various kinds of turbulence generated by climate change.

Context

Urban areas and policy are challenged not just with resilience in a technical sense, but with the robustness of their ethical value base around democracy and human rights by increasing turbulence and shifting grounds in terms of climate as well as societal dynamics.

Although there is already considerable action and awareness on the need for mitigation and adaptation (combined approach) among political actors and citizens (e.g. H2020, C40, Covenant of Mayors), this requires further efforts to make integrated approaches in urban development. For instance, Nature-Based Solutions (NBS) provide both mitigation and adaptation if the principles are adhered to.

Still, these developments and conditions presents a challenge characterised by urban turbulence: Increasing economic uncertainty and climate as well as ecological change (impact by environmental shocks, sudden events, changes in flora and fauna) means a more uncertain and unpredictable context for urbanisation. Climate change will further impact urban areas through mitigative efforts, such as low carbon cities, or adaptation, by preparing for change and roller-coaster climates and swings. Urban resilience, in terms of dynamic re-organisations after crisis, will have uncertain effects on communities and neighbourhoods.

Health and welfare can be greatly supported through well-conceived and managed urban built environments and communities. To safeguard this, these kinds of infrastructures, many times urban commons, require a robust co-design with multi-stakeholder approaches as well as long-term technical provision of technical expertise. New developments around urban food and agriculture, e.g. in controlled environment agriculture and the growing of meat in labs, might reshape our understanding of the food potential of cities. It might also redefine the relations between urban and rural areas.
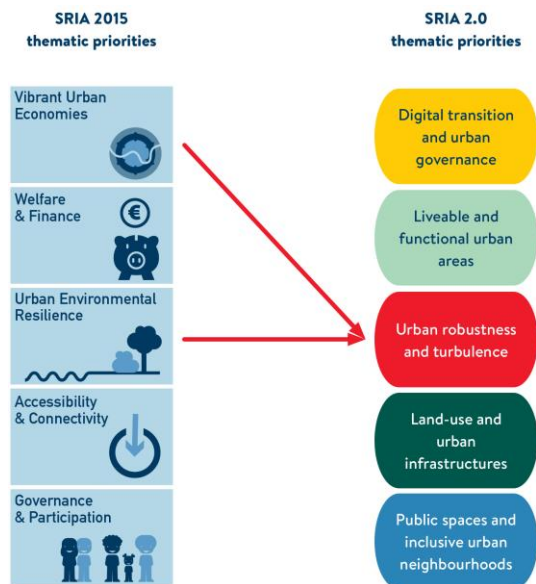
In terms of urban circular economies and new urban economies, a challenge is the need to vastly increase urban climate change adaptive capacity and to improve urban resilience, with special attention to urban equity. This entails the challenge of how local urban innovation ecosystems are made robust and sound in the face of global and 'intrinsic' emergencies and crises, such as volatile financial as well as natural and political events.

Expected impact in the policy context

City authorities and local level governance work with climate actions as well as with overall urban robustness will be supported by urban R&I.

UAEU related	SDG related
10.5 Circular economy.	11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels
10.7 Climate adaptation (including green infrastructure solutions).	
10.8 Energy transition.	
10.9 Sustainable use of land and Nature-Based solutions.	
12.2 Governance across administrative boundaries and inter-municipal cooperation: urban-rural, urban-urban and cross-border cooperation; link with territorial development and the Territorial Agenda 2020 (well-balanced territorial development).	
	11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water related disasters, with a focus on protecting the poor and people in vulnerable situations
12.8 Urban regeneration, including social, economic, environmental, spatial and cultural aspects, also linked to the brownfield redevelopment with the objective of limiting greenfield consumption.	
	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
12.9 Adaptation to demographic change and in- and out migration.	
12.10 Provision of adequate public services of general interest	

SRIA 2015 legacy

Thematic priorities crossings:

- Vibrant urban economies: disruptive innovation and new urban economies; labour market and other turbulences affect quality of life and city attractiveness;

- Urban governance and participation: 'real-time' events and less predictable conditions;

Projects and activities in portfolio [TBA, planned mapping and analysis October 2018]

Topic examples

Robustness as integrative principle

How can climate change adaptation and mitigation be integrated in the overall urban sustainability transformation while improving liveability? How to e.g. develop manageable and non-gentrifying financial models to retrofit housing for urban energy transitions? How to use of the energy/environmental transition as a catalyst for urban sustainable transformation?

Tackle the lack of progress in transition to clean, affordable and secure energy systems and circular economies, while keeping a healthy economic basis of local economies. As a result the adverse effects of climate change and pollution are insufficiently combatted.

The topic can support energy transition-sensitive urban design and green infrastructure, including interaction between local environmental requirements, for instance on air pollution, and long term strategies of the energy transition. Trials of innovative business models for funding energy transition and other urban sustainability aspects, e.g. as developed by Climate-KIC programme

Global urbanism and planetary boundaries around the corner

How to reconcile urbanisation pressure, inequality and poverty reduction with global ecologies and resilience for a safe operating space in terms of planetary boundaries? How do urban areas cope with increasingly and unpredictable turbulent economic and environmental conditions? Is the ability to manage turbulence a competitive advantage?

Sustainable production-consumption relationality and circular Economy and Smart Cities (including focus on medium-sized cities). New business models, economic opportunities, and social innovation for urban transitions pathways. Urban frugal innovation as a new global trend?

In and around issues of information, education, there is a need to increase interoperability between data at city scales. Incentives for new businesses with social and environmental benefits. Monitoring and feedback to the process.

More-than-human and diverse urban functional areas

How to engender synergistic relations between urban and rural areas in proximity or within functional regions including the wellbeing and liveability across many hybrid forms in-between?

This also connects to the lack of protection of biodiversity, national and cultural heritage, and identity of areas, not only in Europe, but also in other parts of the world, as both directly and indirectly affected by European consumption and urbanisation.

Instruments

Policy labs, incl. procurement and business models

Socio-techno innovation

Land-use and urban infrastructures

Land-use and urban infrastructures

Dilemma

Cities and urban areas in general attract people and create positive effects out of agglomeration, density, and diverse and intersecting infrastructures. These positive effects of urbanisation are underpinned by integrated urban planning and management by public administrations and across diverse public and private actors, particularly public engagement and participation in decision-making relating to land-use management, flows of people, flows of information and resources, place-making, and impact on existing settlements and environs affected.

At the same time there are also consequently risks involved and currently increasingly wicked problems around e.g. congestion and accessibility, loss of identity or demand/waste of natural resources. Furthermore, urban areas may succumb to conflict and clashes between powers, mismanagement of transportation flows, existing tensions intensify and severely delimited progress towards sustainable urbanisation will ensue. Added to this, increased spatial and social inequalities between city centres and suburbs may be caused by increasing economic polarisation, segregation and gentrification dynamics, suburban sprawl, and shrinking cities in functional regional contexts.

Context

From a land-use and infrastructures perspective, contemporary European (and global?) urban land-use develops beyond zoning and towards strategic uses of comprehensive planning, towards inter-city and larger functional urban areas. Urban, peri-urban, suburban, and related built environments face increasing tensions between relatively fixed or steady parts and increasing flows of information, data, matter, food, energy, and people. Not least, the urban sub-surface posits a challenge here – a huge space to be exploited and consequently planned but that has to cope with tremendous problems, such as high costs, increased complexity, etc.

The global achievement of the UN Agenda 2030 SDGs and implementation of the UNFCC Paris Agreement – both a strong urban dimension – raises multiple questions regarding the development of low carbon urbanism that is socially just and equitable or what socially equitable and climate sensitive infrastructure might look like.

For instance, regarding energy efficiency, energy transitions, and low carbon districts, transforming the urban housing stock into positive energy districts requires not only major investments in energy and building technologies that includes new urban design
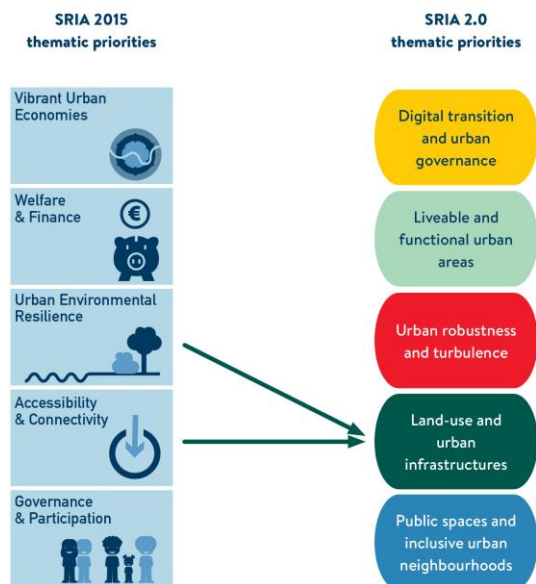
and planning procedures, but also puts demands on the socio-economic aspects of such developments. Creating role models for inclusive and affordable low carbon or positive energy districts remains a challenge.

Land-use and urban infrastructures also entails a challenge around urban materials. For instance, cement/concrete is the largest climate emitting sector in 2025. Provision of materials needed for urbanisation has to comply with environmental limits which calls for new materials and new urban design as well as for refurbishment in existing built environments.

Expected impact in the policy context

UAEU related	SDG related
10.2 Air quality	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
10.4 Housing	
10.7 Climate adaptation (including green infrastructure solutions)	
10.8 Energy transition	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
10.9 Sustainable use of land and Nature-Based solutions.	
10.10 Urban mobility	
12.2 Governance across administrative boundaries and inter-municipal cooperation: urban-rural, urban-urban and cross-border cooperation; link with territorial development and the Territorial Agenda 2020 (well-balanced territorial development).	
	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
12.3 Sound and strategic urban planning (link with regional planning, including 'research and innovation smart specialisation strategies' (RIS3), and balanced territorial development), with a place-based and people based approach.	
12.8 Urban regeneration, including social, economic, environmental, spatial and cultural aspects, also linked to the brownfield redevelopment with the objective of limiting greenfield consumption.	
12.9 Adaptation to demographic change and in- and out migration.	

SRIA 2015 legacy

Thematic priorities crossings:

- Urban environmental resilience: reduced emissions through long term planning for climate change adaptation, improve water and air qualities, and ecosystem services; near carbon neutral and increased circularity in urban metabolism throughout food, water, and energy networks and their intersections; Nature-Based Solutions in the built environment and infrastructure development;

- Urban accessibility and connectivity: improved accessibility through better network connectivity; multi-modal or combined mobility (MaaS); dethrone the single person or personal car use in urban areas;

Projects and activities in portfolio [TBA, planned mapping and analysis October 2018]

Topic examples

Integrated urban infrastructures planning

How to integrate seemingly competing land-use approaches by silo and sectoral policy and action in urban areas?

A need to pick up the challenge of inertia in the built environment and lack of systems thinking, since these are counterproductive to sustainable urbanisation. Insight into changing population dynamics and its impacts and relevance to urban form, resulting in highly divergent urban transformations, and different consequences for infrastructure and use of local resources, social status and equality.

Urban equity in sustainable urbanisation

How can cities provide affordable housing and commuting integrated in and across city administrative territories while at the same time decrease private car use and decarbonise urban mobility?

This topic tackles for instance congested, crowded and cluttered cities, in particular for mobility and accessibility, poor quality of local living environment and public space, and unaffordable housing. Also 'scale Jumping' to increase quality of life by connecting neighbourhoods. Urban planning issues such as tackling the norm of the privately owned car in urban settings.

Challenges in and around sustainable mobility are e.g. how to externalise internal costs, e.g. budgeting reserves (redundancies) for unplannable events, e.g. monetarize transport delays (e.g. TGV pricing model, road tolling); create redundancies through multimodal offers; urban Infrastructures – "Grey-to-Green" transition through nature-based solutions.

Intersecting infrastructures and NBS

How can urban areas develop green infrastructures (NBS) and urban agriculture in increasing urbanisation urban density?

Regarding land-use and urban infrastructures, there is a strong potential for the Global North to learn from Global South developing regions and their management of the temporary city and maintenance of urban infrastructure and frugal innovation.

Increasing polarization between urban and rural areas, where most attention goes to growing cities and demographic unbalance is not taken into consideration. Transition policies need to overcome invisible barriers and to find a best and common model for different cities.

Instruments

Challenge-driven R&I

Regulations, new participative processes, KPIs that reflect these priorities.

Strategic projects

Public spaces and inclusive urban neighbourhoods

Public spaces and inclusive urban neighbourhoods

Dilemmas

Public spaces are ideally attractive to all, these are spaces for wellbeing and health (stimulate people to move), increasingly green public and shared places for people, not cars, where citizens control their streets and shared spaces. Urban development can be used to increase urban quality of life by design, public space management and e.g. walkability. Public spaces may also retain and emerge as second living rooms (as housing living areas gets smaller).

Although this requires balance by different needs by different groups and how to cater for safety/security concerns without widening exclusive spaces. Furthermore, strategies and policy to progress and enhance city status and attractiveness does not always support liveability. Hence, public spaces risk being dragged down in (Orwellian) security concerns, autonomous cars occupy public space, generate fences, no more privacy in public space, and a diminishing exposure to green areas for urban dwellers.

Context

Urban public spaces are reshaped not only by consumption and urban conviviality. The augmentation by digital public spheres, urban material commons, as well as other developments, means a reconfiguration of these material spaces as well. These developments open towards co-design and creative place-making opportunities.

As diversity as well as segregation increase in urban areas (depending on scale of perspective and regional location) and people also tend to move around more and more, either by forced displacement or by desire of decent livelihoods or more, liveability is many times most acutely and concretely organised on a neighbourhood level.

In these developments, a challenge is to develop strong civil societies with a sense of community and baseline trust among urban actors. This also points to ways of making the current and coming diverse urban contexts workable in terms of cultural values and shared spaces. Urban integration hence presents questions and begets further understanding in what is already integrated and what needs to be integrated? What techniques, knowledge practices are needed? Is it a city-wide capacity or in bounded enclaves? How might we develop notion of inclusive integration?

Expected impact in policy context

UAEU related	SDG related
10.1 Inclusion of migrants and refugees.	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
10.3 Urban poverty.	
10.11 Digital transition.	
12.1 Effective urban governance, including citizens participation and new models of governance.	
12.4 Integrated and participatory approach.	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
12.5 Innovative approaches, including Smart Cities.	
12.6 Impact on societal change, including behavioural change, promoting, among other things, equal access to information, gender equality and women empowerment.	
12.9 Adaptation to demographic change and in- and out migration.	

SRIA 2015 legacy
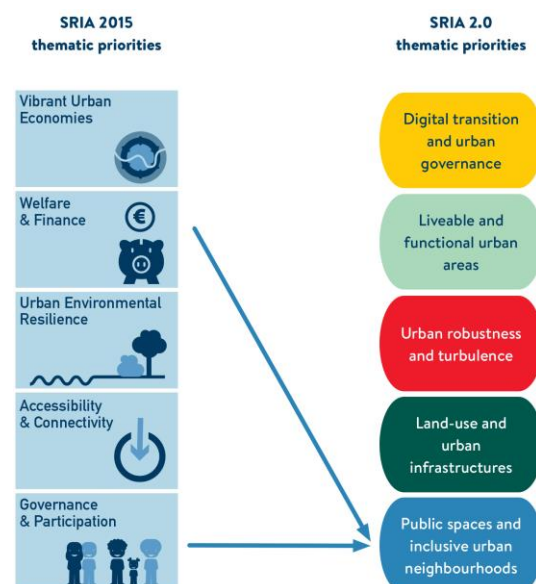
Thematic priorities crossings:

- Urban welfare and finance: innovation in design and delivery of public services such as green and more vibrant public spaces to improve urban liveability; placemaking with attention to inclusive urban spaces and design in demographic change by increased diversity, migration and forced displacement, and ageing; urban planning, design, and governance to support creative and inclusive communities;

- Urban governance and participation: increase trust in urban societies at large by transparent and open governance approaches; support for political infrastructuring and cohesion by participatory devices;

Projects and activities in portfolio [TBA, planned mapping and analysis October 2018]

Topic examples

Place-making in times of strong urbanisation:

How to foster and develop urban place-making including cultural heritage and tackle gentrification and segregation in times of strong urbanisation including tourism pressure on urban centres and everyday life?

Urban communities and public space to enchance liveability

How can urban communities and public spaces (physical, digital, open hybrid spaces) facilitate liveability and provide possibilities beyond citizenship to participate in urban governance and tackle democratic deficits?

Open urbanity

How to design and maintain open public spaces accessible to all people?

Instruments

Urban living labs, policy labs, piloting and experimentation, actively involve different groups. Share good practices (e.g. co-creation) inspiration.

Social innovation

Socio-techno R&I

Principles for SRIA 2.0 Implementation

JPI Urban Europe is committed to challenge-driven research and innovation with the aim to not only create new knowledge and scientific evidence but to co-design new solutions and support capacity building among all stakeholders to act accordingly. This requires a comprehensive programme management and a portfolio of implementation measures, including advanced funding instruments, community building and formats for dissemination and mainstreaming of good practice.

The need for instruments and formats attuned to challenge-driven and mission-oriented research and innovation are nowadays widely recognized in Europe. In the frame of the development of Horizon Europe, debates have started about future European R&I policy, relevant frameworks and appropriate models. While Marianna Mazzucato proposed *A problem-solving approach to fuel innovation-led growth* through a mission oriented approach[13], the BOHEMIA project identified *Perspectives for the European Union's future research and innovation policies* to make transformative change happen [14]. Both papers provide recommendations for advanced policies to ensure that research and innovation can unfold its full potential for societal and economic benefits.

Fostering experimentation, engaging a wide set of stakeholders in R&I from early stages on, offering a portfolio of instruments supporting all phases on innovation up to a programme management including dissemination and exploitation actions[13] are seen as essential to not only achieve missions but address societal challenges at large.

Similar recommendations are provided by the BOHEMIA project[14]. It recognises the importance of policy experimentation to allow new approaches, solutions and markets to unfold. In particular, if policy makers have to cope with high uncertainties caused by the complexity of situations and challenges. The project also highlights the relevance to include policy, business and society in such experimental settings as this allows to create ownership on all sides, connect demand and supply and with that accelerate transition processes.

JPI Urban Europe has been working along those lines already in its first implementation phase. Creating an urban innovation ecosystem or transition arena for sustainable urban development requires not only efforts and investments to develop new knowledge for such urban innovations and solutions but also new knowledge on innovation in terms of improved R&I systems and instruments. Along those lines, there is agreement among all partners that JPI Urban Europe has to continue efforts for advancing the portfolio of instruments, strengthen programme management and exploitation of research results, intensify capacity building as well

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[13] M. Mazzucato: Mission oriented research and innovation in Europe - A problem-solving approach to fuel innovation-led growth, European Commission, March 2018

[14] M. Weber, et al.: Transitions on the Horizon: Perspectives for the European Union's future research and innovation policies, Final Report from the BOHEMIA project, June 2018

as stakeholder involvement. The guiding principles for the SRIA 2.0 implementation are therefore as follows:

- Joint investments in urban research and innovation building upon the current portfolio of instruments for R&I projects, innovation actions and alignment of national projects.
- Continued 'labbing' – taking Urban Living Labs to the next generation/phase and fostering capacity building in science, policy, public administrations, and society at large
- Co-creation and science-policy cooperation throughout all activities and instruments
- Strategic partnerships with major European (and international) initiatives and networks
- International cooperation and widening participation
- Strategic synthesis to strengthen programme management, dissemination and exploitation

Following the model of transition arenas as described by Sarasini et al[15] such an arena has to include four functionalities – strategic, tactical, operational and reflexive ones. Translated into the JPI Urban Europe programme Figure 6 summarizes the portfolio of activities proposed to implement the SRIA 2.0.

Figure 6: The JPI Urban Europe Transition Arena – the portfolio of instruments and activities to implement the Strategic Research and Innovation Agenda

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[15] Sarasini, S. Diener, D., Sochor, J. and Vanacore, E. (2018) 'Stimulating a transition to sustainable urban mobility: JPI Urban Europe programming in the field of Mobility as a Service', RISE Viktoria / JPI Urban Europe.

Tactical measures:

National coordination and alignment

For achieving the JPI Urban Europe vision the SRIA does not only require joint actions but as laid out in the following paragraphs but also measures on national level. To drive urban transitions mobilisation of urban stakeholders is needed as well as coordination among different policy actors on national, regional and municipal level. Funding agencies and national programme owners with their different portfolios should be connect and involved to allow alignment. Depending on the national context and responsible actors this requires national coordination across ministries, involvement in or contributions to related national strategy processes and/or dedicated actions to promote results and involve cities.

Some countries have already JPI Urban Europe-specific national coordination mechanisms in place, such as mirror groups involving key stakeholders on national level to prepare decision and implementation measures or a coordination among different national funding agencies to align participation in joint actions. Such efforts need to be stepped up if JPI Urban Europe wants to enhance its impact.

Co-creation and capacity building at the AGORA

Usually a variety of different urban stakeholders and interests is involved in any urban sustainability problem, and these stakeholders are often highly dependent upon each other for solving the problem. This raises several issues, such as lack of awareness, priorities and value orientations of stakeholders leading to less sustainable choices, private versus public targets. Reconciliation of all these different interests requires new ways of working: co-design and co-creation, creating a common vision on the problem and viable solutions, instead of traditional participation, but also different power balances.

In this sense and following the challenge driven approach cities, business and societal actors need to be mobilized and engage together with researchers with the aim to exchange on research needs, discuss research results, promote good practice and reflect future R&I priorities and strategies. For this reason the Agora – The JPI Urban Europe Stakeholder Platform was developed. Events of different size and format have been organized so far, from thematic workshops to elaborate recommendations for future calls or pressing urban issues up to a symposium series to continuously drive the discussion on urban transition.

However, the complexity of urban matters also manifest in the complexity to manage or support the diverse landscape of urban actors. Not all groups of society can be mobilized equally or have the skills or resources to engage. City administration or business is not always strongly connected to research, driven by their own sectoral interests and needs. JPI Urban Europe will thus continue its efforts to create and shape an environment that provides interfaces to these various groups, anticipates their requirements better, offers a wider set of options to engage and benefit from the JPI Urban Europe programme and thus mutually align strategies. The formats of the

Urban Transition Pathways Symposium to build communities of practice will continue as well as Agora activities to foster exchange between a diverse set of stakeholders or shape city panels to strengthen the policy-science dialogue.

Strategic partnerships

The main ambition to establish as the platform for urban transitions opens manifold opportunities to cooperate and liaise with other organisations, initiatives and city networks. Climate issues, the water-food-energy nexus, cultural heritage or an aging urban society are matters that need to be jointly addressed with all involved parties. Right from beginning, JPI Urban Europe put emphasis on establishing relationships with European and international urban networks and platforms and fostered a regular exchange on policy developments, opportunities for joint actions and events or promotion of results. JPI Urban Europe is committed to continue such cooperation and start new ones when opportunities arise.

Besides this, JPI Urban Europe sees particular potential for strategic partnerships with other JPIs and the UAEU partnerships. As indicated in Figure 7, the SRIA 2.0 thematic priorities provide strong interfaces to several JPIs and partnerships as well as to other European networks.

Cooperation with the other JPIs on strategic issues is ongoing but in terms of the SRIA implementation, this needs to be translated into joint actions to leverage funds and gain synergies whenever possible. Tackling issues such as urban agriculture, built environment, demographic development or urban resilience in cooperation enhances the capacities to address these challenges. In addition, a dialogue with the UAEU partnerships has started and efforts will be taken to align the JPI Urban Europe action with the partnerships action plans, not only in the course of the SRIA 2.0 development process but also throughout its implementation.
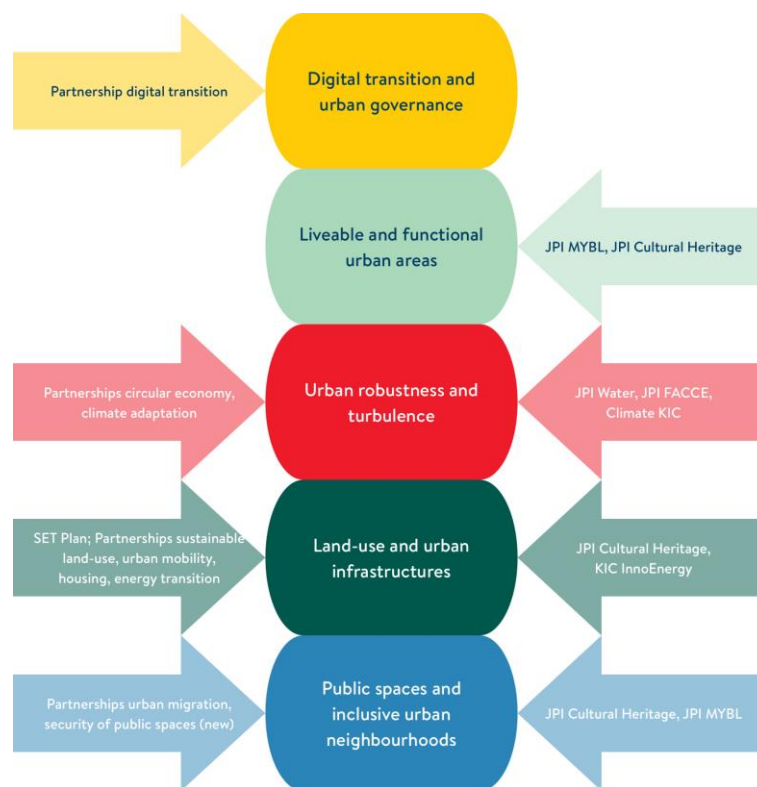
Figure 7: SRIA 2.0 thematic priorities and other related activities, current UAEU partnerships and JPIs

Internationalisation and widening participation

Sustainable urbanisation is a global issue, with global policy references and a high potential of Europe to contribute to urban transitions in developed and less developed regions and countries. Benefits from international cooperation do not only arise from global scientific exchange but also from city-city partnerships if co-creation and validation of approaches in different local situations are supported.

Along the European ambition to be a role model in sustainable development, JPI Urban Europe can strengthen this case, gain international visibility of European activities and achievements, offer access to results internationally and team-up with research programmes and urban stakeholders globally. In light of the SDGs, combing local research and practice with global learning and exchange is needed to benefit from different perspectives and diverse experiences. In this sense, the JPI Urban Europe strategy towards 2026 clearly indicates the international dimension and relevance of the JPI Urban Europe programme.

JPI Urban Europe has already gained experiences in international cooperation and implemented a joint call with the Belmont Forum, another one with NSFC, China. Based on these experiences a framework for international cooperation was developed which is described in more detail in Annex 4. According to this, the proposed priorities for continuing international outreach and collaboration comprise

- cooperation with global and international research funding networks to align strategies and research agenda

- promoting scientific evidence and good practice for urban policy on international level and in cooperation with international networks
- gradually open up cooperation with new countries outside of Europe, with particular focus on establishing entry points on all continents

In this sense international cooperation with selected countries and regions will be continued along the internationalisation strategy to compare approaches, test solutions, exploit results, exchange experiences and needs and support transfer of knowledge across continents and regions.

Operational measures:

Joint investments in urban R&I

Since 2010 JPI Urban Europe has built up its portfolio of research and innovation projects and it will continue to jointly fund projects along the defined priorities. At the same time it was recognised in previous calls that existing instruments and framework conditions only partially meet the needs for inter- and transdisciplinary urban research and innovation. Not all agencies or national programmes are able to fund non-university partners but a strong stakeholder involvement is seen as key to enhance impact. Attention need to be given to balance knowledge creation, innovation and implementation efforts through carefully choosing the most appropriate instrument for the various activities and calls. This is insofar of particular importance as learning and science-policy cooperation from early stages onwards should be prioritised to support co-creation and uptake of research results in urban practice.

In the community JPI Urban Europe is already known for testing new frameworks and developing new instruments. The Innovation Action piloted in the Making Cities Work call[16] as well as the concept of Alignment Actions[17] will be used to complement the portfolio of funding instruments. In this sense JPI Urban Europe will continue to act as a testbed for piloting new instruments and advancing framework conditions, if needed, that might be mirrored on national level.

Finally, around Europe, the dangers in what is called 'projectification' resonates among city authorities as they are increasingly taking part in transdisciplinary projects. Experiences show that 'projectification' may be quite counter-productive as it does not allow public administrations to fully capitalise on the investments (resources) brought into these projects.[18] To this end longer-term models should be put in place, allowing all actors to build upon findings and R&I results and take them into validation

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[16] MCW call reference

[17] An Alignment Action connects nationally funded projects to

[18] cf. Fred 2018 in Dagens Samhälle; reference to Vinnova programme

and implementation. A well-structured support framework including connected calls (e.g. from national to transnational level or R&I calls followed by Innovation Actions) and related programme management activities should be looked into.

Urban labs and experimental approaches

In all related policy recommendations [19], experimentation and science-policy cooperation is highlighted as one of the main requirements for addressing societal challenges. As transition processes have to be accompanied or guided by appropriate policy frameworks, such policies must deal with uncertainties and fast changing futures. However, policy and governance tend to prioritise low or calculable risks. At the same time administrative structures and planning procedures don't change easily and might not be able to keep pace with market changes or societal developments. Thus, space for policy experimentation is needed, for participatory development of new approaches, for testing new roles and new governance models under real-life conditions but still within manageable frameworks.

Urban Living Lab approaches have proven as flexible and innovative ways to create arenas for co-creation and experimentation in science-policy-business-society cooperation. Since the SRIA was launched in 2015, comprehensive experiences and knowledge was created by implementing Urban Living Labs in JPI Urban Europe projects. Living Labs may address a wide range of specific challenges in urban transitions, such as in JPI Urban Europe project portfolio of inter alia urban governance, water management, e-participation, mobility management, interethnic co-existence, stakeholder involvement, etc.[20] A number of projects such as GUST, URB@EXP, SmarterLabs among others developed guidelines and handbooks which give recommendations to researchers, city administration, civil society, business and all other stakeholder who consider implementing such labs (for more information see Annex 3).

At the same time, these results are very valuable sources for JPI Urban Europe to continue developing the concept further and for experimenting with new formats to deepen and intensify science-policy-business-society cooperation. In addition, it seems to be right time to take Urban Living Labs to the next level, towards models that support scaling up and mainstreaming of results.

Still, as a method, the types of interaction and the perceived benefit from such collaboration is likely to be highly context specific, grounded in the specific region and its community's need for solutions and new knowledge. As such, an issue that resonates among many JPI Urban Europe funded urban living lab projects is that the implementation of the urban living lab concept must seek to ensure that results can

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[19] Mazzucato, BOHEMIA project, …

[20] https://jpi-urbaneurope.eu/app/uploads/2018/01/Urban-Living-Labs-info-sheet-draft-171123-version-8.2-PRINT.pdf

be translated and generate impact beyond the local setting and support transitions in urban societies and governance at large.

Managing the project portfolio and targeted communication

To provide robust evidence for urban transitions and create impact beyond the single projects and cases, programme management is required. Synergies can be developed by connecting projects, project results have to be communicated and disseminated to the various target groups, policy briefs shall inform future decisions and the dialogue between research, policy, society and business has to be facilitated. With the development of the JPI Urban Europe project portfolio, the efforts to establish such a programme management have been intensified. A variety of communication and networking events was organised, from high-level policy conferences and strategic stakeholder dialogues to thematic workshops, projects meetings and a symposium series (Figure 8). In the sense of alignment it is essential to involve also national and European projects in such activities, e.g. through alignment of national projects[21], to take highest benefit of R&I investments on all levels. In this sense, joint events were organised with EC-funded projects or connected to international conferences.
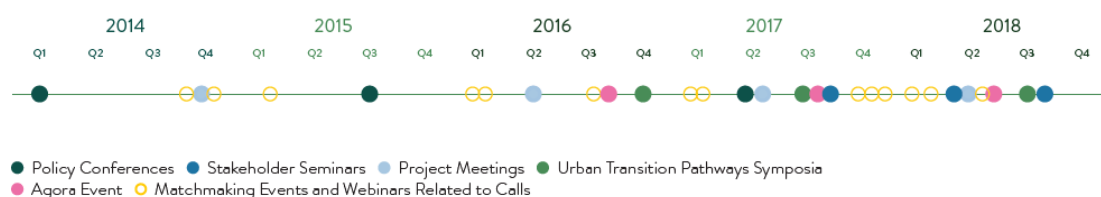
Figure 8: JPI Urban Europe events organised since 2014, indicating different settings and target groups

Such efforts will continue. The AGORA will provide the platform for many of such activities, complemented by projects meetings and exploitation activities. Results will be communicated towards specific target groups, e.g. by developing policy briefs or recommendations for policy makers, city administration and other urban actors. Targeted communication will be needed to not only raise visibility of JPI UE and its activities but to also contribute to the dissemination and exploitation of results and good practice.

For such communication, it is usually more cost efficient to target larger actors and 'multipliers', although they seem to be in most cases actively engaged already and well in the picture. The hardest case, however, is to work with the plurality and diversity of smaller stakeholders, such as small and medium sized cities and different smaller citizen groups and entrepreneurs.

Strengthen community building across such stakeholder groups, mobilise cities and civil society organisations is therefore a priority for the SRIA implementation. New

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[21] A pilot action on setting up a framework for aligning national projects is currently under development focusing on urban migration.

formats might be needed to engage cities, one of which could be the establishment of city panels for some of the thematic priorities, identifying and working together with cities interested in particular strategic issues.

Reflexive activities:

Strategic synthesis

In support of managing the project portfolio and targeted communication, strategic analysis of projects and their activities and results is needed. Advanced communication in terms of strategic synthesis could help to promote research results in terms of policy recommendations, good practices, policy briefs, case studies, etc. A strategic synthesis framework is thus to be developed to help create and prioritise appropriate formats, target groups and communication aims.

Monitoring and evaluation

In its long-term vision, JPI Urban Europe has laid out its objectives and expected impacts for the next development phase. To keep track of the progress in terms of SRIA implementation and its contribution to achieve the defined goals requires monitoring and evaluation. So far, a monitoring and evaluation framework has been developed and piloted. It will be put in place over the next years and thus accompany the SRIA implementation, provide strategic and operational feedback about the appropriateness of selected instruments and the results of specific implementation measures. In addition, evaluation processes will be set up to create evidence about the mid- to longer-term impact of the JPI Urban Europe programme and the SRIA.

Proposition for European missions

In support of the preparation of Horizon Europe, the ninth European Research and Innovation Framework, JPI Urban Europe proposes topics for urban missions that correspond to the overall SRIA concept and address the societal challenge of sustainable urbanisation from different perspectives.

1) 100 Positive Energy Districts in European cities (connected to the SET plan Implementation Plan on Smart Cities)
2) 100 Urban Innovation Platforms for SDG 11 in European Cities

Details are under development and will be provided in Annex 5.

Expected Impact

According to the particular setting of JPI Urban Europe, the programme aims to create impact in three dimensions (Figure 9):

- **Impact on cities**: With the proposed thematic priorities and implementation measures JPI Urban Europe wants to offer cities room for experimentation, a network of like-minded urban actors and concrete references that might help them to start similar actions in their own cities. The portfolio of implementation measures is oriented towards shaping an environment to create new transition pathways that correspond to the city's strategies and priorities.

- **Impact on national urban policies**: With the Agenda 2030 SDGs and the New Urban Agenda of UN-Habitat international and national frameworks for urban development have been reinforced. With the scientific evidence created in the JPI Urban Europe projects input and references for such policies or related actions can be provided.

- **Impact on R&I policies**: By going beyond state-of-the-art instruments JPI Urban Europe creates new insights for future instruments and framework conditions that fit the needs of challenge-driven approaches. The programme management established and further developed by JPI Urban Europe can be used as a reference for national ones. At the same time the participating programme owners and funding agencies use the cooperation to share experiences, jointly test new approaches and create references for their own programmes.

Impact on cities	Impact on national urban policies	Impact on national innovation policies
• Concrete results and cases • Mobilisation of city administration and urban actors • Platform for exchange and mutual learning	• Contribution to national strategies • Concrete cases and policy recommendations • Cooperation with urban policy actors	• Contribution to innovation strategies • Environment for research, business, stakeholders • Entrepreneurship, exploitation

national/regional research & innovation programmes and agencies

Figure 9: Dimensions of expected impact created by the JPI Urban Europe programme

In particular urban actors and policy makers can benefit from:

- JPI Urban Europe delivering on key issues to catalyse urban transitions in Europe, particularly among small and medium-sized cities and in other regions around the world.

- support with much needed conceptual and practical work on the hardest cases as reflected in thematic dilemmas, trans-silo and complex nexus issues by developing and re-working/shaping them into synergies.

- understanding the internal and external dynamics of the transition and translating them into a tangible experience.

- transnational cooperation that leverages a sort of European way of urban development that enhances the urban sustainability and takes into account the cultural differences.

- facilitating the exchange and adoption of best practices and harmonizing policies transnationally based on such success stories

- educating each other in the different institutional frameworks in which similar cities with similar problems develop different types of policies.

Annex 1: The JPI Urban Europe project portfolio – results and findings

Until 2017 about 100 million EUR have been spent and 67 projects funded (Figure 10). Although most of these projects are still under implementation or even early phase, the MB carried out a preparatory quick-and-dirty project mapping in December 2017 with the aim to get a first overview of the current project portfolio in relation to international urban policies. As main references the Urban Agenda for the EU (UAEU) and SDG 11 were used.

WELFARE AND FINANCE
ResSegr
SimsCity ValueCap
SubUrbanLab
SoHoLab
Interethnic Coexistence in European Cities

VIBRANCY IN CHANGING ECONOMIES
Gentrification 2.0
Resilient Cities
BRIGHT FUTURE
IMAGINATION
G@together
3S RECIPE
Urban Education Live
Cities of making
Incubators of public spaces

ACCESSIBILITY AND CONNECTIVITY
me²
SmarterLabs
IRENE
CONCOORD
E4-share
IP-SUNTAN
Smart Commuting
TRANS-FORM
Smart Pedestrian Net

URBAN TRANSITIONS PATHWAYS

ENVIRONMENTAL SUSTAINABILITY AND RESILIENCE
DESENT
CODALoop
CIVIC
BREATHE
SURECITY
FLOODLABEL
play!UC
PARENT
Smart Urban Isle
SPACERGY
Green Blue Cities
FloodCitiSense

CITYFOOD
Creating Interfaces
CRUNCH
ENLARGE
FEW-meter
FUSE
GLOCULL
IN-SOURCE
M-NEX
Urban Vertical Green 2.0
WASTE FEW ULL

URBAN GOVERNANCE AND PARTICIPATION
URB@Exp
UrbanData2Decide
APRILab
IntegrCiTy
GUST
SMART-U-GREEN
SmartGov
Smart-FI
SmartCityHospitality
C3Places

CAPA.CITY
CASUAL
PLACED
Smart Urbl
GLIMER
LOOPER
b-Part
IFWEN
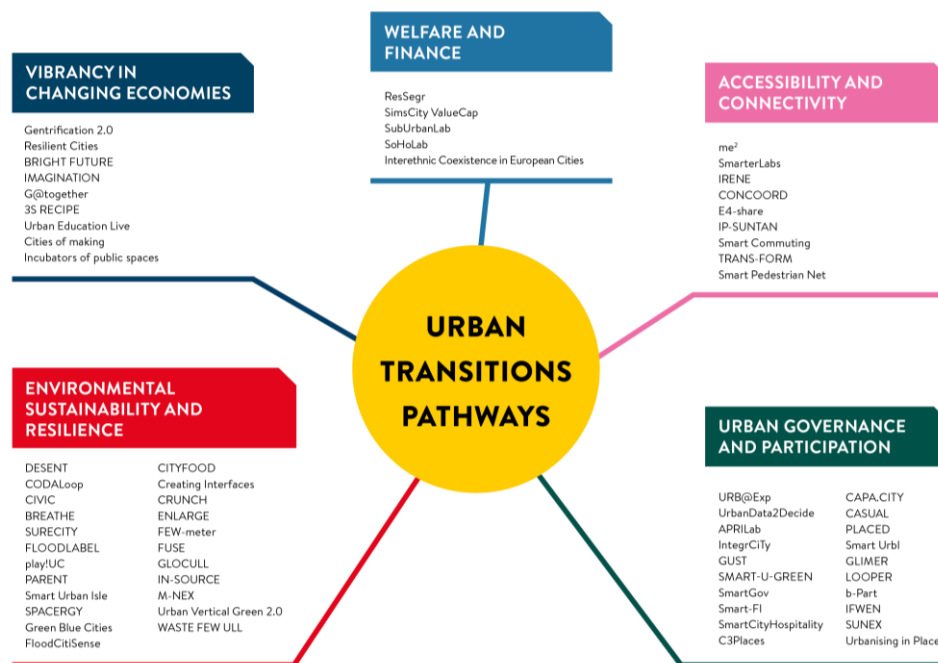SUNEX
Urbanising in Place

Figure 10: Clustering of the JPI Urban Europe project portfolio according to the SRIA 2015 thematic priorities

For the UAEU, a large part of the projects clearly work towards the cross-cutting issues with innovative approaches for urban development (including smart cities; 12.5), but also on integrated and participatory as well as on effective urban governance for participation and new governance models (12.4 and 12.1 respectively). At the same time a quite large share of JPI UE projects relates to the thematic priorities on sustainable land-use and Nature-Based Solutions (NBS), a share considerably increased by the SUGI projects even if projects from the early pilot calls and ENSUF cover these topics (Figure a).

The portfolio so far is not strong regarding public procurement (10.12), urban poverty (10.3), and the cross-cutting thematic around urban regional and urban-rural collaborations (12.2).

Regarding the UN Agenda 2030 and specifically SDG 11, the portfolio was considerably strengthened by the recent addition of SUGI projects considering the SDG sub-target on cities to reduce the per capita environmental impact, particularly air quality and

waste (11.6). However, the overall portfolio strongly supports the target on developing urban planning and management for inclusive and sustainable urbanisation (participatory and integrated urban development; 11.3). The portfolio shows a weak, if any, focus on heritage issues (natural/cultural; 11.4) and crisis effects and aftermaths (11.5) as well as support for least developed countries' sustainable urbanisation (11.c) (Figure b).

Legend 20180301
Minus seven (7) projects from pilot calls not accounted for (no report)
Value refers to number of projects in JPI Urban Europe portfolio relevant to UAEU (Pact of Amsterdam)
thematic areas (partnerships plus cross-cutting areas)

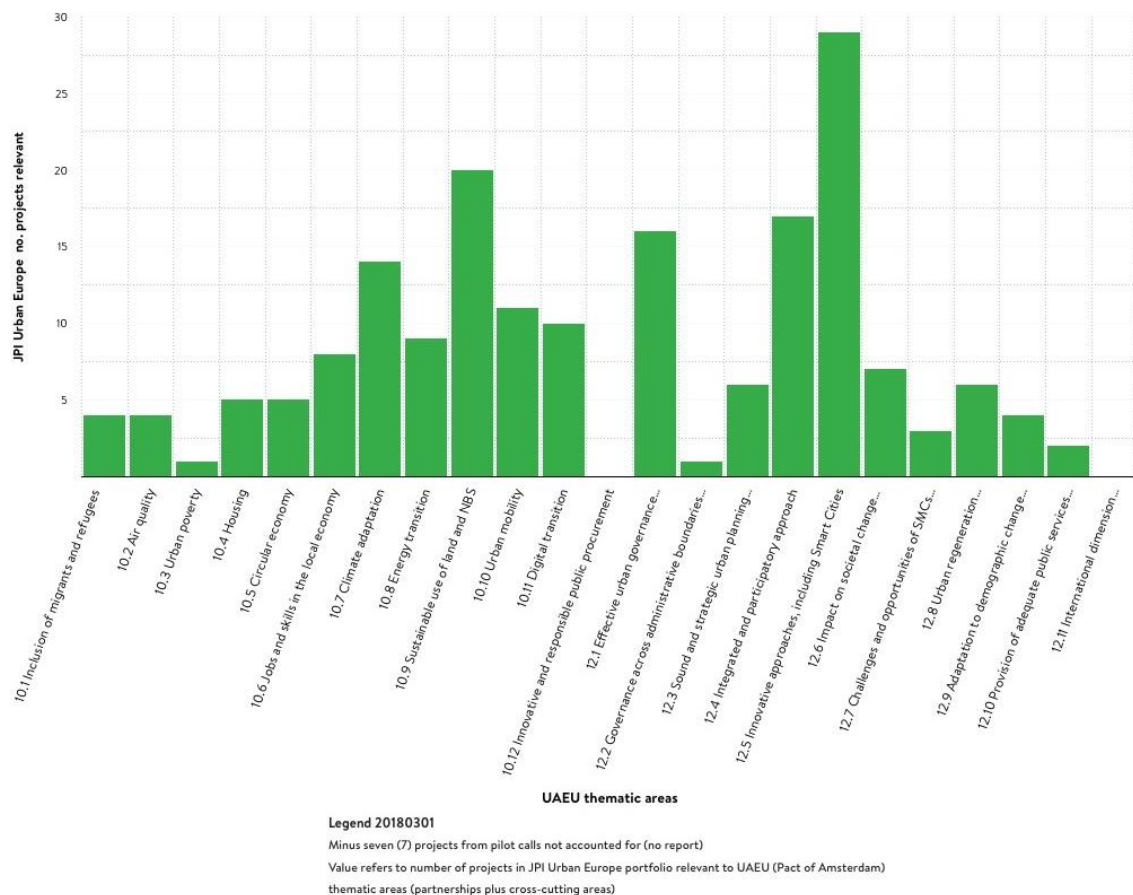*Figure a: Mapping of JPI Urban Europe projects to the thematic (10.x) and cross-cutting (12.x) issues of the Urban Agenda for the EU*

SDG 11

Legend 20180301

Minus seven (7) projects from pilot calls not accounted for (no report)

Value refers to number of projects in JPI Urban Europe portfolio relevant to SDG 11
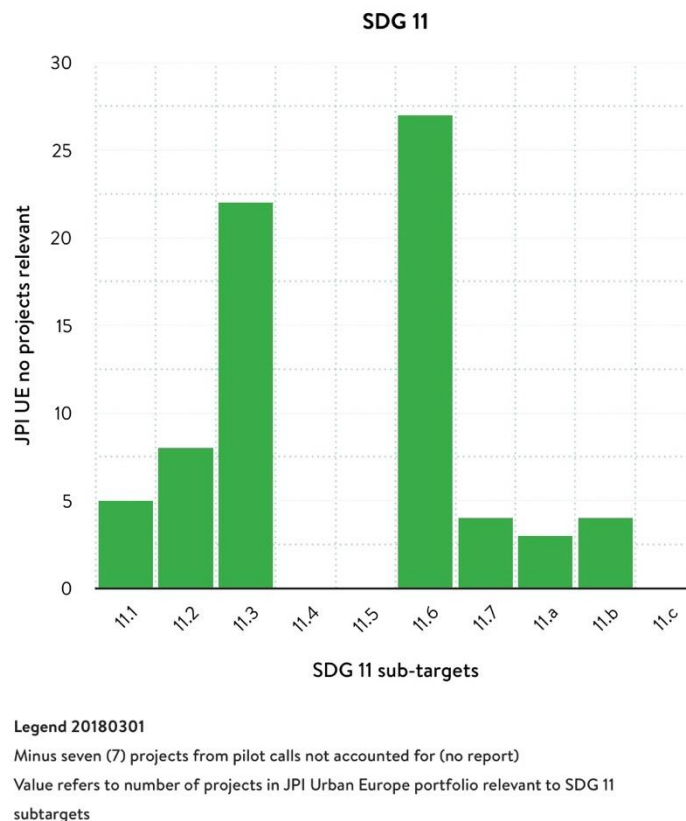
subtargets

Figure b: Mapping of JPI Urban Europe projects to SDG 11 sub-targets

Besides this first mapping, a comprehensive analysis will follow and present a baseline in the SRIA 2.0 update. MB foresees a synthesis on project portfolio to be executed in fall 2018. But already now, some characteristics emerge concerning the profile shaped by SRIA 2015 in terms of approaches and kinds of achievements so far. This profile can loosely be considered an assessment of instrument performance.

Centrepiece in the current profile are the Urban Living Labs (ULL). With about 25 projects applying living lab formats in different ways, ULLs can be seen as an important methodological part of a core approach in urban transitions: urban experimentation. This is mainly grounded in the need of challenge driven programmes to work with non-linear approaches. In this regard, JPI UE has generated strong support to such method developments in different topical areas, e.g. related to improving energy efficiency, fostering behaviour changes, developing and testing new urban governance approaches, or co-creating policies supporting interethnic diversity. Even more, some JPI UE projects did not only apply living lab methods but investigated ULLs and urban experimentation approaches (projects such as GUST, URB@Exp, Casual, etc.).

Although a more comprehensive analysis of the project results is needed for exploitation and dissemination, the project portfolio and its results are important references to offer evidence for policy making, strengthening science-policy cooperation and improving instruments to meet real needs in urban transformation.

However, caution against the update to simply build further upon on these achievements. As JPI Urban Europe is *challenge driven,* the priorities and issues to be tackled need to be firmly based on the challenges articulated by the 'demand side' – by city authorities, civil society, and urban research and innovation advice.

Annex 2: Policy Context

Since the JPI Urban Europe published its SRIA in 2015, transitions towards sustainable and livable urban areas have been gained in relevance. Sustainable urbanisation has been recognized as being key to support tackling a wide range of the societal issues of our time. These policies resonate very well with the ambitions, vision and strategic priorities of JPI Urban Europe. In all of the global/international policies discussed below, research and innovation is recognized to play an essential role to implement the agendas, localize the goals and to bridge between actions/activities on local, national, international and global scale. Research and innovation can contribute information, knowledge and expertise and translate it between different geographical contexts. This chapter briefly points out the global and international policy context for sustainable urban transitions, discusses the key elements and ambitions and draws the relevance for JPI Urban Europe's SRIA 2.0.

The policy agendas discussed below provide a solid frame for JPI Urban Europe's Research and Innovation strategy and activities. The SRIA 2.0 provides the basis for contributing evidence based knowledge to these policies and connect them to national innovation policies and national actors, strategies and action plans. At the same time, the consequences and requirements for research, technology and innovations are reflected in the approach and thematic priorities of the SRIA 2.0.

United Nations' Agenda 2030 and the 17 Sustainable Development Goals

In 2016, the UN published "Transforming our world: the 2030 Agenda for Sustainable Development"[22], an agenda identifying 17 Sustainable Development Goals (SDGs) which aim at mobilizing global efforts to achieve sustainable development world-wide. The resolution containing the goals was signed by 193 countries which committed report on the progresses made regarding the SDGs on national level. In contrast to UN's Millennium Development Goals, the SDGS do not primarily target developing countries but are universal.

Urbanisation in terms of speed, trajectories, amount and consequences is one of the predominant phenomena determining the future of the planet. With the majority of the global population living in urban areas, and this number continues to rise, urban development plays a significantly important role to achieve the SDGs. SDG11 – Sustainable Cities and Communities, being the most obvious, has 10 targets defined which highly connect to other SDGs. Thus, by addressing SDG11 several contributions to achieving several other SDGs are made. Figure 11 highlights the connection between the targets of SDG11 and other SDGs and underlines the importance of sustainable urban development on a global scale.

JPI Urban Europe considers urban transitions as fundamental and multi-dimensional alterations of urban development to reach the ambitious targets concerning ensuring

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[22] Link

livelihoods of citizens by avoiding greater stress on environment and fair distribution of economic and natural resources. These phenomena are also broadly discussed and conceptualized by using the concept of "Urban Transformations" (e. g. Kabisch et al. 2018).
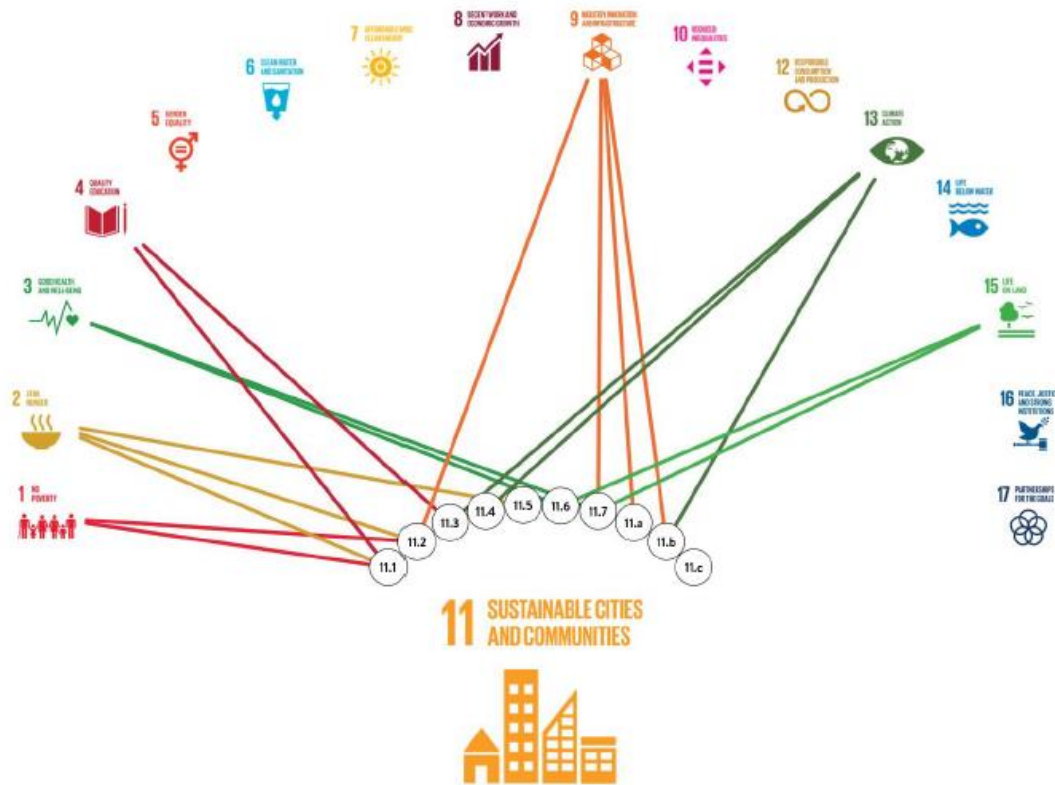

Figure 11: SDG 11 as the entry point to the SDGs overall

UN-Habitat's New Urban Agenda: Rethinking global urban policy

The aim of the New Urban Agenda is to guide the efforts of actors and stakeholders on urban development from nation state, city administration, civil society, research and innovation, funding organisations, etc. for the years 2016-2036. Although not binding, the agenda provides important guidelines for policy makers, researchers, innovators, politicians, etc. on global urban development. It highlights a vision which strongly connected urbanisation with sustainable development and thus, asks for urban transition.

The principles to achieve the vision of the New Urban Agenda are resonating with JPI Urban Europe's approach and thematic orientation. The transformative power of urban areas are recognised as driving force for integrated global sustainable development by leveraging on agglomeration benefits, high productivity, competitiveness and innovation, as well as environmental sustainability by promoting clean energy, sustainable use of land and resources.

Research and innovation play a significant role for implementing the New Urban Agenda and JPI Urban Europe can contribute with evidence-based knowledge, experiences stemming from co-creative, transdisciplinary research projects. JPI Urban Europe provides the science-policy interfaces in its research projects and other activities which help meeting the vision laid out in the New Urban Agenda.

The Pact of Amsterdam: An Urban Agenda for the EU (UAEU)

The Urban Agenda for the EU is the European Commission's approach to better connect urban dimensions with EU and national policies. JPI Urban Europe is mentioned in the Pact of Amsterdam, the resolution signed by the member states ministers responsible for urban development, as a provider of scientific knowledge and expertise which "will be used to promote and exchange evidence based proposals for urban policy and urban projects"[23]. In the scope of urban development, UAEU focusses on the three pillars of EU policy making and implementation: Better regulation, better funding and better knowledge.

So far, twelve thematic partnerships were launched which bring together various governmental levels and stakeholders were established. These partnerships are coordinated by cities, which voluntarily work together on the priorities laid out in the Pact of Amsterdam: jobs and skills in the local economy, urban poverty, housing, inclusion of migrants and refugees, sustainable use of land and nature-Based solutions, circular economy, climate adaptation, energy transition, urban mobility, air quality, digital transition, innovative and responsible public procurement. Two new partnerships are under development

Four main European transitions – the BOHEMIA project

Starting from the SDGs the BOHEMIA project investigated future requirements for European research and innovation policy to support transformative change. They identified four main transitions Europe needs to manage in order to achieve the SDGs:

- Social needs: Providing for the needs of people;
- The biosphere: Safeguarding a hospitable planet;
- Innovation: Harnessing the forces of change;
- Governance: Joining forces for a better world.

While the urban challenges is seen as part of the Innovation transition, an urban dimensions is enclosed in all the four transitions, in particular with regard to

- An improvement of quality of people's lives, *ensured through access to public services and reduced inequalities of various kinds.* Might it be access to food, housing, health systems, water supply, safety/security, social security, infrastructure, all these issues are a concern on cities as well as regional or national scale.

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[23] Pact of Amsterdam, p. V.

- environmental sustainability of our economic model, dealing with the nexus of energy, climate and environment. Ecosystems resources and services, circular and low-carbon economies, climate change mitigation measures or land management are all issues urban development and planning has to deal with.
- Cities as spaces where change happens in how societies relate to innovation; where social and economic dynamics can unfold as cooperation and co-creation can easily occur; referring to ' *truly smart cities*' that *'can become laboratories for the study of new models of urban development*'.
- Shift towards governance systems where decisions are built upon cooperation and collective global values, where strategies and actions of major actors are coherent and aligned, applying long-term, *reflexive, participatory and anticipatory governance models,* that also applies for urban governance.

Annex 3: Urban Living Labs

Urban Living Labs (ULL) can change the way in which we think of urban planning and development. Urban living labs are testing grounds for innovation and transformation in a real-world environment. They can play an essential role in developing new urban solutions, and applying them on a broader basis. They are a place and mode for experiments involving multiple stakeholders and on different suitable scales.

In the first JPI Urban Europe *Strategic Research and Innovation Agenda[24]* an urban living lab is defined as: *'A forum for innovation, applied to the development of new products, systems, services, and processes in an urban area; employing working methods to integrate people into the entire development process as users and co-creators to explore, examine, experiment, test and evaluate new ideas, scenarios, processes, systems, concepts and creative solutions in complex and everyday contexts.'* However, other definitions and concepts, especially in the different member countries of the European Union exist, and they also might be suitable in international context.

Urban living labs have been implemented in cities all over Europe. Of the JPI Urban Europe projects portfolio, about half apply an Urban Living Lab approach. Some projects have explored the concept of urban living labs and mapped existing urban living labs.They generated new insights on what urban living labs are and when and how they can be used. Such results and recommendations have been summarized in reports, handbooks, games and even a prototype inspiration kit for urban lab practitioners to guide and support interested actors in their endeavours to establish and run a living lab.

Examples for JPI Urban Europe funded projects which develop guidelines, handbooks and toolkits for applying ULLs:
GUST - Governance of urban sustainability transitions: advancing the role of living labs
Urban Living Labs in: Graz, Malmö, Newcastle, Rotterdam
GUST brings together leading European research partners and practitioners to investigate urban living labs and enhance their potential for contributing to sustainability transitions.
The project has studied a number of urban living labs in Europe in order to understand how they work across different national contexts and how we can scale-up their impact or share lessons across European cities. Outcomes include a handbook with practical knowledge and expertise for all parties that can be involved in ULLs including an introduction into the basic concepts and principles of urban living labs and checklists for the design, operation and evaluation of urban living labs.

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[24] JPI Urban Europe (2015) Transition towards sustainable and liveable urban futures: The Strategic Research and Innovation Agenda of JPI Urban Europe: https://jpi-urbaneurope.eu/app/uploads/2016/05/JPI-Urban-Europe-SRIA-Strategic-Research-and-Innovation-Agenda.pdf

www.urbanlivinglabs.net

URB@Exp - Towards new forms of urban governance and city development: learning from urban experiments with living labs & city labs
Urban Living Labs in: Antwerp, Graz, Leoben, Maastricht, Malmö
URB@Exp develops guidelines concerning types of problems for which urban labs are most suited, can best be organized, and how they can be integrated into urban governance systems.
Results show that urban labs show er critical space for experimenting with new forms of collaborative governance. Their hybrid position at the boundaries of local administration, research and society proves benefi cial for activating and facilitating urban stakeholders. The insights have been translated into a prototype inspiration kit for urban lab practitioners.
http://www.urbanexp.eu/

SmarterLabs - improving anticipation and social inclusion in living labs for smart city governance
Urban Living Labs in: Bellinzona, Brussels, Graz, Maastricht
The 'Smart City Living Lab' is an emerging approach in European cities. It brings together citizens, policymakers, businesses, and researchers to test smart, ICT-based solutions to urban problems in real-life contexts. By conducting action research in Urban Living Lab experiments in four cities (Bellinzona, Brussels, Graz and Maastricht) the project analysis urban mobility projects retrospectively. One of the projects results will be generic implementation guidelines for Smart City Urban Living Labs for addressing barriers scaling up results and approaches. The project aims to overcome the citizens' resistance to large-scale socio-technical change which might exist due to the exclusion in the development phase.
www.smarterlabs.eu

Annex 4: International dimension of the SRIA[25]

The challenge of sustainable urban development is a global one, recognised also by the United Nations by including an urban goal in the UN SDGs and creating a global framework for monitoring progress. Urban development is place-based and always embedded in the local context and specific urban situations. However, the multi-dimensional complexities of urban development are beyond any single geographical scope and thus international exchange and cooperation can offer benefits in terms of good practice, capacity building and overcoming lock-in thinking at local level.

In support of the European ambition to be a role model /play a leading role in sustainable development JPI Urban Europe can strengthen this case, gain international visibility of European activities and achievements, offer access to results internationally and team-up with and strengthen related efforts globally. In light of the SDGs, combing local research and practice with global learning and exchange is needed to benefit from different perspectives and diverse experiences. As an intergovernmental research and innovation network JPI Urban Europe is well equipped to position as a strategic partner on international scale.

Since the JPI Urban Europe RDI priorities match widely with the internationally agreed challenges for sustainable urbanization – integrated urban management, public sector innovation, participatory approaches, new urban economies, inclusive urban societies, socio-technical solutions driving urban transitions, etc. – JPI Urban Europe projects results could influence also international developments and debates. Opening up to international collaboration on urban transitions could help to validate European approaches under different conditions, benefit from integrating new perspectives and create additional scientific and economic gains. Co-creating and demonstrating new approaches under different local conditions is already one of the key principles of JPI Urban Europe projects. Extending this to international scale can be beneficial for the exploitation and spreading of such concepts and solutions, contributing commonly to the achievement of international strategies.

In this sense, the JPI Urban Europe strategy towards 2026 clearly indicates the international dimension and relevance of the JPI Urban Europe programme. Connecting the initiative to the urban aspects of the SDGs, SDG 11 in particular, opens the floor towards international cooperation in terms of

- influencing regional, national, European and international policies for urban development
- establishing and managing an international forum for co-creating, communicating and validating approaches and solutions for urban transitions pathways

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[25] International cooperation refers to cooperation with countries and regions outside of Europe

- demonstrating and showcasing achievements and solutions for urban challenges of national and transnational research activities worldwide

To achieve this, the internationalisation strategy has the following aims

- foster multilateral international cooperation that adds value to existing bilateral partnerships of individual countries with international partners
- establish a strategic framework for international cooperation that supports relationship building and cooperation with selected countries and regions with a longer-term perspective and serves the needs of the urban research and innovation community
- connect European urban researchers and stakeholders to international ones to mutually inspire innovation
- promote JPI Urban Europe research results globally and support co-creation and validation of new approaches and solutions against different local urban situations
- offer a platform for city-city exchange and partnerships to benefit from different solutions and experiences

To implement this we are not building of scratch. Since 2013 JPI Urban Europe is active in building up international relationships, on the one hand with selected regions and countries, on the other hand with global research and policy networks. First international calls have been implemented with the Belmont Forum in 2016 and with China in 2018. From both experiences it became quite obvious that long-term international cooperation has to consider three pillars:

Strategic policy cooperation	Community building	Joint funding
• Establish strategic relationships with urban policy actors, networks and other strategic partners • Gain knowledge about urban priorities and strategies	• Facilitate an environment for researchers and urban stakeholders to establish relationships • Implement supporting measures, such as networking and conferences, to maintain sustainable partnerships and exchange on research results and policy measures	• Establish relationships with national/regional R&I programmes and create knowledge about R&I frameworks • Set up joint calls with international partners considering the JPI Urban Europe and partners' portfolio

Figure 12: JPI Urban Europe framework for international cooperation

Along those lines JPI Urban Europe will continue its international outreach with the following priorities:

- **Cooperate with global and international research funding networks** to (1) align strategies and priorities, (2) assess interests of international agencies to join certain JPI Urban Europe calls and (3) establish a platform for exchange on international policies and research. Using such global networks allows to reach out to a large number of potential international partners. At the same time the established instruments and frameworks of such global networks provides an efficient starting point for multilateral cooperation. Such networks comprise in particular Belmont Forum, Inter-American Institute, START,…

- Position JPI Urban Europe as network **creating scientific evidence and good practice for urban policy on international level**. Science-policy cooperation is at the core of the JPI Urban Europe programme, not only on local level to support cities' urban transition efforts, but also on European and international level to provide references for the Urban Agenda. Based upon established contacts to e.g. Future Earth, UN-Habitat or ICLEI, additional efforts will be taken to communicate results and policy recommendations to a wider international audience.

- Gradually **open up cooperation with new countries outside of Europe**, with particular focus on establishing entry points on all continents. Caution is needed to not dilute available capacities as the potential for international cooperation is huge. At the same time, the dynamics of urban development in Asia, South America and Africa makes it most interesting and relevant to explore cooperation opportunities. Therefore a step-by-step approach will be applied, assessing opportunities in different regions, identifying potential partners and programmes matching the JPI Urban Europe one.

  The cooperation framework and partnerships established in China will be continued, including an evaluation of the pilot activities to improve cooperation formats and frameworks. According to the longer-term roadmap follow-up activities will be discussed. In addition, first contacts to Brazil show already the potential for a longer-term engagement. According to a survey among JPI Urban Europe funding agencies the top ranked regions and countries for a further outreach are Latin America as a whole, India, Middle-East and South Africa. Based upon existing bilateral partnerships between JPI Urban Europe countries and the mentioned international ones, interests and opportunities will be explored. For each selected country the 3-pillar model will be applied and related priorities and activities defined.

Annex 5: Propositions for European missions

The headlines to indicate possible urban missions by JPI Urban Europe in *Horizon Europe* are:

3) 100 Positive Energy Districts in European cities
4) 100 Urban Innovation Platforms for SDG 11 in European Cities