

Driving Urban Transitions to a Sustainable Future

Proposal for a European partnership



Our future relies on tackling complex grand challenges here and now, many of which must be addressed within cities and by urban communities. The DUT partnership addresses this complex set of urban challenges with an integrated approach to offer decision makers in municipalities, companies and society the means to act and enable the necessary urban transformations. The partnership will create a portfolio of measures and critical mass beyond joint calls to enhance its impact, build capacities in all stakeholder groups and contribute to the European mission on Climate-neutral and smart cities.

Contact: Margit Noll, margit.noll@jpi-urbaneurope.eu

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The Vision

The **Driving urban transitions to a sustainable future (DUT)** vision:

The DUT partnership steps up the game to tackle urban challenges. We enable local authorities and municipalities, business and citizens to make global strategies into local action. We develop the skills and tools to make urban change happen and boost the urgently needed urban transformations.

JPI Urban Europe has identified a set of key dilemmas in the overall complexity and wicked issues entailed in sustainable urbanisation that are crucial to consider for transformations¹. At the same time these dilemmas are expressed and play out differently in the various contexts and sectoral strategies. In order to operationalise them and develop concrete approaches and support cities along their specific strategies, the partnership focuses on three prioritised sectors (and their interrelationships) along the Green Deal for sustainable urbanisation: urban energy, mobility and circular economies.

Urban use of energy, cities and urban mobility and transport planning, and a greatly increased circular use of resources are all vital to drive urban transformations to planetary sustainability. Particularly in order to reach the vision of European (and global) urban areas, going beyond mere sustainability to become regenerative hotbeds, to serve and help heal the planet the human species is now responsible stewards for.

With this vision, the partnership aims to contribute to global and European policies, in particular the Agenda 2030 & UN-Habitat's *New Urban Agenda*, the strategic priorities of the European Commissions' *Strategic Plan for Horizon Europe*, with a special focus on the European Green Deal, the Paris Agreement, the Leipzig Charter and the Urban Agenda for the EU.

In this sense, the partnership wants to step up the ambition and address the sectors with an integrative and holistic approach in a more comprehensive, continuous and connected way. It will also create knowledge and evidence along the recommendations of the report on Global Sustainable Development by addressing the interrelatedness of urban systems, strategies and goals and thus contribute to changing key systems of our cities with a significant impact on our urban economies and societies².

Expected Impacts

Addressing these policies, the partnership aims to create impact in three dimensions - in cities and municipalities, on urban policies from local to international scale and on innovation policies and the European Research Area (Figure 1).

Impact in urban areas

The partnership will support liveable, inclusive and attractive neighbourhoods and urban areas by the mobilisation and inclusion of citizens (urban inhabitants, urban publics, and civil society) in the transition work. The stakeholder engagement model developed in the JPI Urban Europe AGORA will

¹ JPI Urban Europe: Strategic Research and Innovation Agenda 2.0, <https://ipi-urbaneurope.eu/app/uploads/2019/02/SRIA2.0.pdf>

² Independent Group of Scientists appointed by the Secretary-General, Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development, United Nations, New York, 2019. [cited above as: UN (2019) 'The future is now: Science for achieving sustainable development', Global Sustainable Development Report 2019, < https://sustainabledevelopment.un.org/content/documents/24797GSDR_report_2019.pdf >]

be a key implementation measure, together with the urban living labs in the local contexts for sociotechnical urban development.

By supporting spaces and approaches to urban experimentation in urban neighbourhoods and areas, while at the same time providing and supporting the exchange and translation of these types of approaches across urban settings, a transnational multi-stakeholder community of practice in urban living labs and integrated urban development is enabled in effect. This will support the exchange of knowledge and experiences for decision makers and local urban governance to create new transition pathways that correspond to the city authorities' needs, strategies, and priorities in urban transformations.

Crucial in this impact area is to also to connect, by way of an open multi-stakeholder platform and adequate R&I funding instruments, business and industry in urban transitions and the transnational community of practice to ensure that new solutions and business models are developed to co-create and support urban transformations through innovative technologies, tools, methods, and services.

Impact on urban policy

Cross-sectoral and inter-silo connections and knowledge for integrated urban development will be developed out of the current sectoral specific land-winnings, specifically in and around the prioritised transition pathways of clean and efficient urban energy use, zero-emission urban mobility, and increased resource circularity including Nature-Based Solutions. Through this synthesis, policy makers receive adequate evidence and experience-based advice on urban energy, mobility and circularity.

Urban policy will become more effective, using solutions and processes for urban transitions and systemic change, achieved through disruptive innovation and putting available knowledge and solutions into practice. The DUT partnership will support the continuous dialogue between policy makers (local, regional, national, transnational), business and industry, civil society and the urban R&I actors. This dialogue will be on how to tackle wicked issues and dilemmas related to urban liveability, digitalisation, robustness, resilience, infrastructures and land-use in between domains and sectors. A key element in this support is to connect global ambitions with local action across levels and scales in urban policy, through establishing relationships, cooperation, and alignment between related and relevant partnerships and networks.

Impact on urban innovation and ERA

The DUT will foster inter- and transdisciplinary R&I that includes a diverse set of stakeholders in the process – from city authorities, civil society and entrepreneurs to commercial actors. Building capacities this way, the partnership supports the planning processes of city administrations. Also, civil society's ownership is strengthened by citizens and urban entrepreneurs being included and given an active role in the development of new business models and in the innovation processes.

The partnership will safeguard an open approach in terms of welcoming new countries and partners. Emphasis will be given to align to widening countries' conditions and priorities. Furthermore, the partnership will act as a hub for transnational and international state of the art R&I for sustainable urbanisation in order to contribute to a strengthened European Research Area and create benefits for all EU countries and beyond.

These impacts require actions for capacity and community building to drive urban transformations, efforts towards integrated approaches to tackle the complex urban issues and joint forces to tap the

full potential of urban R&I. Along these three dimensions, the objectives of the partnership are described and the overall intervention logic developed (Figure 1).



Figure 1: Impact dimensions of the DUT partnership

The Partnership Objectives

The overall objectives of the DUT partnership are:

Capacity and community building

- Support urban R&I to co-create approaches and solutions with city authorities and urban communities to meet the actual needs and tackle challenges identified by problem-owners
- Support city authorities and urban communities to base their planning and development on research-based evidence and solutions
- Enable city authorities and local governance / municipalities to create new transition pathways that correspond to their needs

Integrated approaches to tackle complex urban issues

- Co-create evidence and solutions for urban transformation
- Increase effectiveness of urban solutions and processes

Joining forces to tap the full potential of urban R&I

- Contribute to a strong European Research Area, creating benefits for city authorities and municipalities, in Europe and beyond.
- Establish as the European hub for international cooperation on sustainable urbanisation.

The partnership programme and its key areas

The partnership's objectives will be addressed through a comprehensive programme management approach that on the one hand invests in challenge-driven research and innovation activities along an agreed Strategic Research and Innovation Agenda (SRIA), and on the other hand organizes a portfolio of accompanying measures to create and manage a wider innovation eco-system involving all relevant stakeholder groups and strengthen impact creation³.

The role of R&I to achieve these objectives, impacts and the overall ambition related to global and European policies, lies not only in creating new technological solutions, but also in creating capacities and co-creation processes to implement these in full scale. This requires research and science-policy cooperation in the fields of new governance models, public sector innovation, social, socio-economic and socio-technical innovations and new kinds of business models, to ensure sustainable investments and a substantial transformation of urban systems.

To achieve these objectives and impacts the DUT partnership builds upon the *Strategic Research and Innovation Agenda 2.0* developed by JPI Urban Europe and published in February 2019. The SRIA 2.0 responds to the urgent need for ambitious, sustained and truly inter- and transdisciplinary research and innovation to create knowledge- and evidence-based policies, methods, tools and technologies for sustainable urbanisation. It aims to support Europe's cities in their transition towards a future that maximizes their sustainability and their liveability in this era of global competition for commerce, industry, tourism, labour and investment; to take highest use of technological solutions and drive urban innovation. It has been developed in a comprehensive co-creative process, involving manifold stakeholders across Europe. In this sense, the SRIA priorities highlight the needs voiced by municipalities, public authorities, local initiatives and research.

In addition, the SRIA 2.0 does not only indicate key areas for action. Moreover, it offers a framework to identify key issues for research and innovation for sustainable urban development. Following the call for a much stronger consideration of interlinkages across the three dimensions of sustainability and the various urban related goals and strategies⁴, the SRIA 2.0 proposes an approach to identify such critical issues for urban transition pathways and for achieving sustainability targets⁵. To this end, it proposes a methodological approach towards a continued debate on urban transitions and helps to prioritize key issues to be addressed by the partnership.

Four key areas / dilemmas have been identified in order to support urban transitions. Need for action has been specified around:

- **Digital transitions and urban governance:** Digitalisation offer potential for economic development and innovative urban planning such as i.e. innovative digital-based and citizen-centred governance approach to support urban regeneration. 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 sovereignty is clear, and regulations are in place. Digital

³ This approach corresponds strongly with the concept for missions as proposed by Marianna Mazzucato. JPI UE has already established several elements of such a programme management. The DUT partnership will offer the framework for widening the portfolio of activities and instruments.

⁴ Independent Group of Scientists appointed by the Secretary-General, Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development, United Nations, New York, 2019, page xxi

⁵ The SRIA 2.0 is available at <https://jpi-urbaneurope.eu/app/uploads/2019/02/SRIA2.0.pdf>

transition needs to support, explore and resolve the theme of urban data in terms of big data. In the current digital transition, urban governance may also risk implementing suboptimal or segregating 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, gender, education, and marginalised neighbourhoods. The legal framework is one of the main obstacles in enabling digital transition as key element for supporting innovative urban governance.

- **From resilience to urban robustness:** Cities and urban areas need to 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, clean-tech development, rewards, awards, and business models that fully address social and environmental targets is central in this respect. Urban resilience can be in synergy with overall well-being and robustness as long as climate change action entails an integrated approach to adaptation that facilitates more liveable cities for people. This includes a good balance between mitigation and adaption measures. This also requires to empower local authorities to take their role of transition leader and enhance the political commitment towards roll out of *sustainable urban areas*.
- **Sustainable land use and urban infrastructure:** Cities and urban areas in general attract people and create positive effects out of agglomeration, density, and diverse and intersecting infrastructures and facilities. These positive effects of urbanisation are underpinned by integrated urban planning and management by public administrations and across diverse public and private actors. This is particularly supported by public engagement and participation in decision-making relating to land-use management, flows of people, flows of information, goods, and resources, place-making, and impact on existing settlements and environs. Consequently, at the same time there are also risks involved and currently increasingly wicked problems around e.g. congestion and accessibility, transformation of the built environment and the urban energy system, 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 limited progress towards sustainable urbanisation will ensue. Added to this, increased spatial and social inequalities between different types of urban areas may be caused by increasing economic polarisation, segregation and gentrification dynamics, suburban sprawl, and shrinking cities in functional regional contexts.
- **Inclusive public spaces:** Public spaces should be ideally attractive to all, these are spaces for wellbeing and health (stimulating people to move), increasingly green public and shared places for people, where different groups and communities meet, preconceived ideas of the Other are challenged, and where citizens control their streets and shared spaces. Urban development and planning can be used to increase urban quality of life by design, public space management, walkability and cycling. Public spaces may also retain and emerge as second living rooms (as housing living areas get smaller). However, a dilemma regarding everyone's right to the city is that public spaces are constantly influenced by power balances and the needs of different groups and communities. A high quality, accessible and reliable public transport system is key to reducing car traffic, congestion and related emissions.

Each of these key areas is not only worth to be investigated in principle to create knowledge and evidence how to tackle the underlying dilemmas or exploit the potential of innovative solutions, tools, methods and approaches, but they are also key for transforming any urban sub-systems. Thus, in order to operationalize the SRIA 2.0, the partnership will cover three main sectoral concerns – namely the

urban energy transitions, circular economy and sustainable urban land use as well as inclusive urban mobility and connectivity, each of them an essential area towards urban transformations and at the same time highly interlinked.

The four key dilemmas addressed through three sub-programmes

For the partnership to maximize impact for the European and global policies, the following three priority areas have to be approached in an integrated manner and with a firm commitment to urban regional and city authority capacity building in terms of ambitious policy-making and implementation.

To address these domains and the challenges identified within each sectoral concern, the partnership will foster challenge-driven R&I and technological development to address the specific issues related to the four cross-cutting key areas. This will allow to shape thematic innovation eco-systems that take the particularities of the respective domain into account. The efforts towards co-creating integrated transition pathways and strategies will be pursued to tackle the wicked issues of sustainable urbanization. Evidence will be created with and for city administrations, municipalities, business and society, aiming at all kinds of innovation and capacity building needed to transform our neighbourhoods and urban areas. The partnership will offer a framework for innovation, demonstration and preparing larger scale implementation of solutions (Figure 2).

The bold vision to be accomplished by this support is not merely sustainable urbanisation but transformations to regenerative urban areas which supports and replenishes as far as possible the planetary resources they consume and enhance the various ecosystems they are part of and live by.⁶

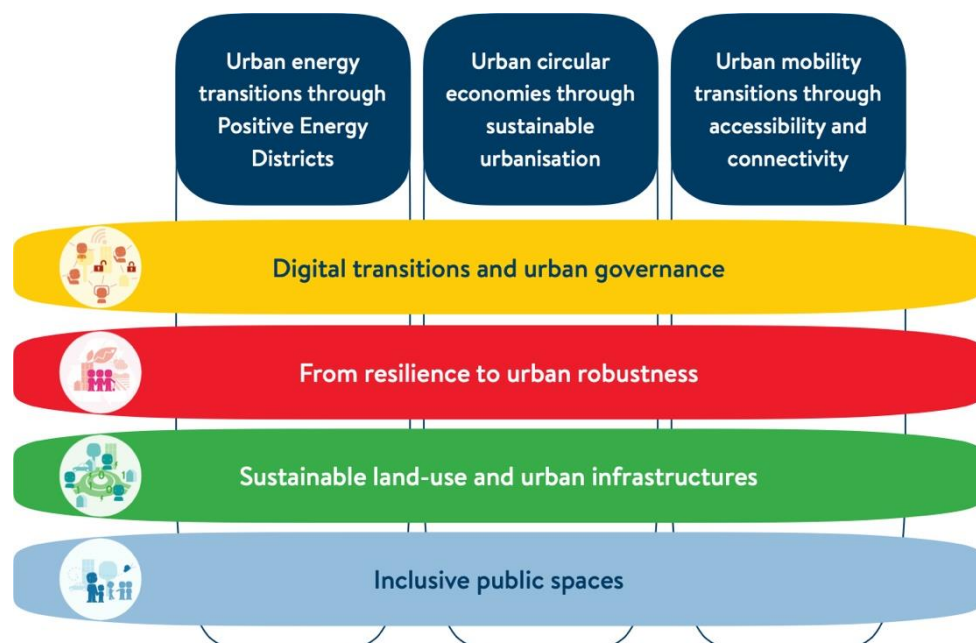


Figure 2: Sectoral priorities and identified key issues for urban transitions

⁶ Cf. UN Habitat (2014) 'The city we need',
<<http://mirror.unhabitat.org/downloads/docs/The%20City%20We%20Need.pdf>>

Urban energy transitions through Positive Energy Districts

Urban areas are key actors in achieving climate change mitigation targets, decarbonization and the energy transition. Cities are the hubs of communication, commerce and culture. They consume more than two-thirds of the world's energy and account for more than 70% of global CO₂ emissions.

Positive Energy Districts (PEDs) are key tools to urban energy transition. PEDs are a subsystem within cities that aim towards energy efficiency and generation of an energy surplus. As an integral part of comprehensive sustainable urbanisation strategies, PEDs shift the focus from the individual positive energy building towards neighbourhoods and thus a comprehensive level of impact on sustainable urban development and the energy transition process.

The focus on the urban neighbourhood as the “nucleus” for urban sustainability creates opportunities and requires systemic approaches regarding technological, social and economic innovation. Neighbourhoods offer a manageable size in terms of integrating urban planning and energy planning, including technological, spatial, regulatory, financial, legal, environmental, social and economic perspectives. Resulting in a network of sustainable urban neighbourhoods, PEDs will substantially contribute to a sustainable urban future in general.

Urban mobility transitions through accessibility and connectivity

Mobility and freight transport are essential for individual development opportunities, access to work, education, social contacts, health provisions, a variety of amenities and access to products. But physical transport of people and cargo have impact – directly and indirectly – on liveability, health, spatial and air quality and other aspects of the living environment.

The mobility sector is heading into a new era: Automation, digitization and electrification will give us new mobility and transport services. New types of private actors will enter the domain of transport and mobility, and relations between the sectors of mobility, energy provision, ICT and land-use will become more and more intertwined. The functioning of urban mobility, accessibility and connectivity deeply affects wellbeing, prosperity and urban development opportunities, and at the same time influences the living environment. Therefore, well-balanced developments are crucial for almost all other domains and aspects of urban life, including financial, legal and governance requirements.

The tools, methods and approaches developed to support the necessary urban transition will be useful for all kinds of stakeholders to get insight in potential development directions, in the consequences of their choices in the complex and dynamic setting of urban mobility, access and connectivity, and gives arguments and inputs for decision processes in urban, regional and national investment programmes.

Urban circular economies through sustainable urbanization

75% of global natural resources are being consumed in cities which makes cities and urban areas attractive starting points for the global transition to a circular economy. Through targeted governance measures, city authorities have great potential to define and implement measures and regulations for public procurements, for business activities, consumption and resource management.

Most of today's industrial production needs to be reshaped at all levels for it to become more circular: From uptake and use of resources, design and production processes to logistics and distribution – the focus needs to be on circularity and sustainability. Consumers do not operate in a vacuum, but in a cultural context that mirrors the behaviours and practises amongst producers, regulators and

administrations. The urban form, setting, land-use, public spaces, mobility, transport and digitalisation strategies set the game plan. It is not just the circular economy that needs to be built into the complex urban webs of power, interests and dilemmas, but also the culture of working and actors' capacity to deal with the urban dilemmas.

The transition to circularity requires systemic change at all levels. For the circular economy to become reality, the transition must be equally driven in the public as well as the private sector. Public purchasing and development strategies must play along with the business sector's process to become climate-neutral, circular and clean. Regulative frameworks, such as taxation policies, play a pivotal role. Also, strategies such as "plastic free Europe" have the potential to boost the commitment of private as well as public bodies. The challenge is to make sure these efforts and solutions are knowledge-based, tested and made available to all.

Implementation

In the SRIA 2.0 an urban transition arena is proposed as the overarching concept for implementing the agenda and reaching the ambition (Figure 3). Following such an approach, not only new knowledge or innovations will be created but a programme management put in place that monitors, synthesises, communicates and makes available such results, evidence, guidelines, tools or case studies for wider use and strategic reflections. The partnership aims to build upon and advance the transition arena initiated in JPI Urban Europe.

Programme management efforts will be increased by enhancing capacities for synthesis, stepping up the dissemination and exploitation activities, connecting research and policy, establishing a European knowledge hub on urban transitions that connects existing R&I networks in the three sectors and other connected domains. The critical issue of replication will be addressed as this is still seen as one of the most critical issues in increasing the impact of R&I investments. Although various efforts have been and are taken regularly to support replication of good practice, effects are still limited. Formats and capacities need to be put in place to allow a variety of opportunities for peer-to-peer learning, trainings, experimentation and scaling-up.



Figure 3: Urban Transition Arena – highlighting the key implementation actions needed to achieve the ambition of the partnership;

Accordingly, the following portfolio of implementation measures is proposed for the partnership (Figure 4):

- **Joint calls for challenge-driven R&I**, addressing critical issues for urban transitions with integrated and multi-stakeholder approaches will provide the backbone of the partnership. In this context, the concept of Urban Living Labs or Innovation Labs will be advanced to ensure that such approaches are not only used for experimentation but are introduced as the ‘new normal’ in urban transition management.
- A **multi-stakeholder community of practice** will be continued, managed and extended to facilitate science-policy-business-society dialogues, share experiences, disseminate results and reflect on key issues for urban transition and sustainable urban development. Emphasis will be given to mobilise representatives of cities as core partners for the design of the programme. This is crucial to leverage public and private investments made not only through urban R&I programming but also in ESIF actions and programming such as URBACT, UIA, etc. Through urban living labs beyond 'projects', actors previously involved in various projects may increase the impact by new transnational exchange and tackling challenges in sharing experiences and know-how.
- **Communication and dissemination** measures are taken to not only make R&I results accessible for all stakeholder groups but also prepare guidelines, references or tools for replication and mainstreaming. Various communication channels will be used to reach out to the different stakeholder groups, including social media, videos, printed material. Events and workshops, trainings, guidelines and references will be organised and prepared to reach out to different target groups and make new solutions and approaches available.
- A key element of programme management is **synthesis** of R&I results and achievements. Drawing conclusions for a cluster of projects, connecting projects across calls and themes as well as progressing from individual project results to wider outcomes and recommendations for practitioners will be enabled through dedicated synthesis activities.

- **Models for replication** will be investigated to design and implement formats, guidelines, actions to support replication of good practice, building upon experiences from lighthouse projects and other replication efforts.
- A **knowledge hub** will be established to support capacity building on integrated approaches for sustainable urban development. Various disciplinary or sectoral research networks do exist, among others the Urban Europe Research Alliance UERA, ESPON, the Smart Cities programme of the European Energy Research Alliance, COST actions, etc. To create such a knowledge hub on urban transitions, support will be given to connect these networks, strengthen alignment across the participating research organisations and helping to overcome fragmentation of our European R&I landscape on urban transitions.
- **Trainings** on new approaches for sustainable urban development, fostering ULLs, experience exchange on new approaches and solutions, strengthening public sector innovation, awareness raising of new public and private business models and their consequences for municipalities
- **Standardisation, certification** or legislative issues to be addressed wherever necessary to create frameworks for new business models and the uptake of innovative solutions. The manifold investment capacities of cities will be harnessed by seamlessly linking pre-commercial and innovative public procurement into the innovation cycle set into motion by the joint calls of the programme.
- **Monitoring** systems will be advanced to not only follow the progress of projects but also to take stock of diverse urban solutions, good practice cases and the contribution to achieving related policy targets. Such information and references will be made available on the website and through dedicated promotion material or workshops to allow the wider community to benefit and make use of them.
- Interfaces to **public procurement and investment programmes** will be investigated to support take-up and larger scale implementation of tested approaches and solutions by links to UIA, ESIF, private funds, etc.⁷ Regarding the links with the urban dimension in ESIF, particularly ERDF and S3 is complementary to the DUT challenge-driven approach as it helps the partnership to identify local and regional urban needs, where the seven year timeframe presents an opportunity to shape synergies.
- The scope of activities will be regularly evaluated and reflected upon to ensure that it serves the entire urban community, from municipalities and public authorities to infrastructure providers, utilities, planners and developers, industry, social entrepreneurs and of course society at large.

⁷ cf. Fioretti, C., Pertoldi, M., Busti, M. and Van Heerden, S. (eds) (2020), *Handbook of Sustainable Urban Development Strategies*, EUR 29990 EN, Publications Office of the European Union, Luxembourg.

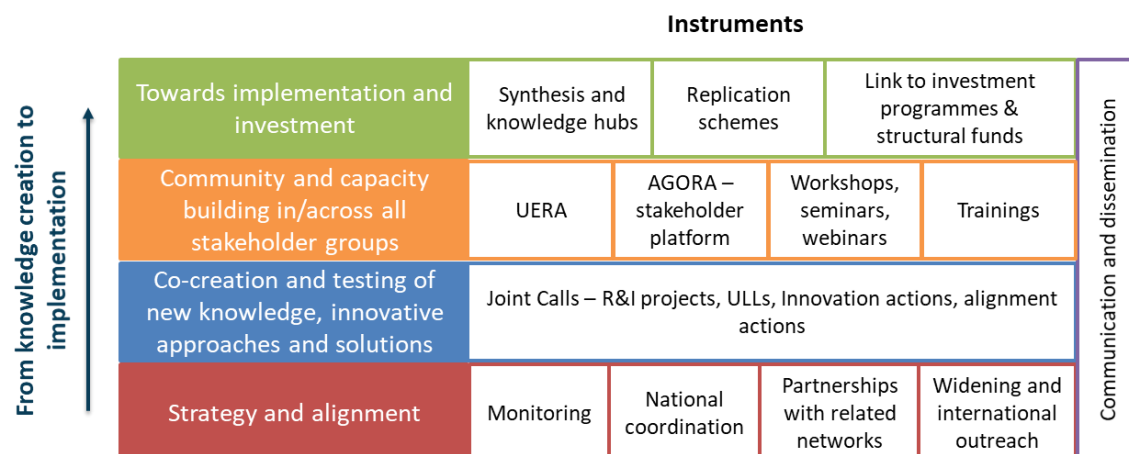


Figure 4: Portfolio of proposed implementation measures of the DUT partnership

The DUT partnership will use the portfolio of implementation actions as a mechanism to shape synergies, create interfaces, and complementary actions to offer it as the platform for urban related sociotechnical systems for urban transformations and to avoid unnecessary duplication of efforts among Horizon Europe partnerships and missions and other urban development related EU initiatives.

In this sense, the partnership allows to take advantage of regional and national R&I investments and achievements, connecting them to the European level to take highest advantage of the available competences, capacities and results across Europe and beyond (Figure 5).

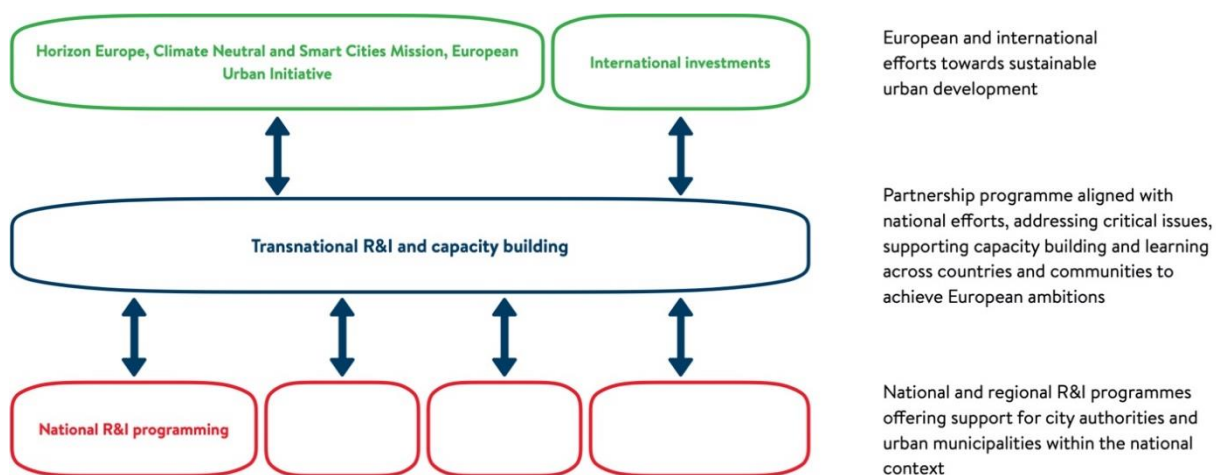


Figure 5: Overall European R&I efforts and resources addressing urban innovation and transformation

Annex: Existing Member States networks

Since 2010, 20 Member States and Associated Countries have been cooperating in **JPI Urban Europe**, a R&I initiative addressing the challenges of sustainable urban development with an integrated, inter- and transdisciplinary approach⁸. The success of the JPI Urban Europe is based on

- a shared vision, put down in the form of a Strategic Research and Innovation Agenda (SRIA 2.0),
- a multi-annual R&I programme set out to implement the SRIA,
- a Funding Agencies Working Group (FAWG) to set up and run the annual joint R&I calls,
- a Stakeholder Platform (AGORA) to keep in touch with the problem owners, industry and research,
- a network of R&I institutions under the name of Urban Europe Research Alliance (UERA),
- and a Programme Management Team, which forms the hub of all activities and keeps the evolution of the network going.

Through all these measures a community of practice has been developed to address key issues such as how to benefit from smart city approaches, nature-based solutions or innovative mobility systems, how to encourage local co-creation and experimentation to build the ground for change on organisational and individual level or how to support decision making and urban governance. With the ambition to create scientific evidence and good practice not only research projects were funded but actions were taken to mobilise stakeholders, make research results accessible for decision makers, and improve funding formats to better meet the needs of urban stakeholders. So far about 100 million Euro have been spent in 7 calls for R&I projects, resulting in more than 80 research and innovation projects funded since 2012, involving almost 500 project partners. Experiences have been made with different forms of Urban Living Labs to strengthen co-creation of new solutions throughout Europe.

In addition to these joint efforts, the research and innovation programme on **Positive Energy Districts and Neighbourhoods** (PED) was started in 2018, as one of the actions related to the **SET Plan implementation**. This programme which aims at initiating 100 PEDs is jointly implemented by JPI Urban Europe and the SET Plan Action 3.2. Additional formats are under development considering the establishment of a cities panel, mobilizing stakeholders from municipalities, planners, real estate, construction industry, etc. With its focus on a particular thematic area in the context of sustainable urban development and its holistic approach towards PEDs, the PED programme covers a specific area within the wider JPI Urban Europe ambition and agenda. At the same time, it widens the portfolio of activities and mobilises new stakeholder groups.

⁸ More information on activities and projects is available at www.jpi-urbaneurope.eu