URBAN EUROPE
Joint Programming Initiative

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Preamble

The 21st century is often referred to as 'the urban century'. The year 2007 proved to be a pivotal moment in the long history of urbanisation; for the first time in human history the city took over 'power' from its hinterland. As of 2007 more than 50 percent of the world population was living in urban areas. And the structural urban development is still continuing, with urbanisation rates exceeding 70 percent in various European countries and elsewhere (Mega 2010). This is no mean feat, considering that a few centuries ago, only 20 percent of the population on our earth lived in cities. There is no reason to assume that this trend towards further urbanisation will come to a standstill. What is more, it is even anticipated that in less than one generation time more than two thirds of the population on our planet will live in urbanised areas. In Europe – but also in other regions of our world – the urbanisation rate is expected to rise to 83 percent (557 million) by the year 2050 (European Commission 2010) gradually making non-urbanites a minority. This development already calls for urgent action from the policy side to respond from a strategic and sustainability point of view.

This long-term megatrend in population movement towards the city is the result of two underlying force fields: the exponential growth in world population (with an average growth rate of approx. 1.2 percent per annum) and the rural-urban drift (due to the relatively more favourable socio-economic opportunities in urban agglomerations). This leads to new challenges for policy makers, like social deprivation and segregation, urban sprawl and congestion, environmental degradation and effects of climate change, posing a formidable and unprecedented challenge to the resilience, management and governance of urban systems in our world. At the same time, European countries, wishing to be attractive places to live and work in, within the context of a global village, should exploit the advantages of urbanised space.

The above sketched megatrend clearly means a dramatic transformation in settlement patterns in our world. This emerging re-positioning of cities may be interpreted as a third settlement revolution. The first revolution was essentially marked by a rural to urban shift instigated by safety and political motives, which led to the first demarcated cities (often with walls and fortifications) (see Tellier 2009). A second revolution took place in the period of the Industrial Revolution (19th century) when large-scale industrialisation and far-reaching labour specialisation led to the emergence of unprecedented scale advantages in large urban industrial agglomerations. We are currently witnessing the rise of urban networks and mega-cities – comprising not only urban centres and suburban areas, but also edge cities, new towns and urban sprawl areas – that together form connected agglomerations (see also Castells 1996). The trend towards global city networks is imminent (see Sassen 1991, 2010; Scott 2001). Moreover, metropolitan development nowadays increasingly turns into mega-cities development, and it appears to be hard to find a conclusive answer to Alonso's (1964) challenging question "How big is big enough?" and "How big is too big?". Suffice it to say that it seems plausible that ongoing urban dynamics will remain a landmark in a modern open society in the future.

This urban evolution which reflects a drastic quantitative change in the share of inhabitants in urban areas at the national territory level, calls for novel socio-economic and technology research initiatives as well as political actions. Modern network cities have turned into spearheads of (supra-)regional and (supra-)national power, not only from a socio-economic perspective (business, innovativeness, jobs, wealth, migration, entrepreneurial dynamics), but also from a geo-political perspective ('cities as global command and control centres'; see Sassen 1991) and a technological perspective (mobility, transport and energy systems, ICT).

In this view, the future of Europe will be an increasingly urbanised future. European urban areas must respond accordingly and urgently to avoid degradation in 'liveability' and decline in attractiveness for creative talents and firms. This leads to a new '*urban imperative*': European urban areas must attract, retain and even nurture highly mobile, creative, innovative firms and talent (the 'pluriformity' approach), as their aggregate efforts will become the primary drivers of Europe's socio-economic development and competitive advantage. Urban agglomerations are not necessarily a source of problems, but offer the integrative geographic action platform for creative solutions and new opportunities.

An urbanised future requires a rethinking of existing policy measures to steer urban development. New models of strategic planning, urban governance and management (in terms of finance, infrastructure, etc.) as well as civil participation measures are not only necessary, but have the potential to completely redesign urban policies so as to contribute to European cities' competitiveness.

THE JPI URBAN EUROPE has a clear focus on urban areas as key elements for smart, sustainable and inclusive growth. As urban areas are the main drivers of growth in the European economy, URBAN EUROPE therefore provides an important contribution to the EU 2020 strategy (European Commission 2010). The initiative aims to develop innovative approaches to adequately address the above-mentioned challenges and to create urban places of vitality, liveability and accessibility. Only joint efforts from policy makers, firms, civil society and scientists can make it possible to reach these aims. URBAN EUROPE provides a systemic long-term and strategic approach which takes advantage of *emerging technologies*, assessing their potential and socio-economic impacts and utilising them in fundamentally *new urban policies and design* strategies. The starting point of this systemic and innovative approach lies with reviewing and designing a Strategic Research Agenda.

1 Executive Summary

1.1 URBAN EUROPE Vision

Against the backdrop of an increasingly interconnected network of European and international cities, the future of URBAN EUROPE lies in facing urban challenges head-on and subsequently generating European solutions by means of coordinated research. The aim is to create attractive, sustainable and economically viable urban areas, in which European citizens, communities and their surroundings can thrive.

Global trends, such as (rapidly) increasing urbanisation, put pressure on the urban system, giving way to negative externalities such as pollution, congestion, security issues, and social degradation. Demographic and climate change further impact the system, making it a necessity for scientists and policy makers alike, to look at effective ways in dealing with a fast-changing societal, economic and environmental reality.

At the same time our urban areas are also innovation hubs themselves, where knowledge, policy and practice come together to create innovative ideas, employ new technology and benefit from fresh insights into challenges, drivers of urban development as well as into solutions. Traditional roles of cities are constantly being redefined as demands for high-quality amenities and public services change. A thriving urban area must be able to ensure the sustainable accessibility and mobility of urban systems (including logistics) and simultaneously develop effective measures to minimise its ecological footprint.

The competitiveness of European urban areas in a globalised world depends largely on how fast innovative knowledge can be created, deployed and implemented. Addressing the whole innovation cycle, from the creation of ideas to the actual deployment of these initiatives into relevant and feasible products and (policy) tools, will boost the speed of innovation. In this way European urban areas can continue to be the motors of Europe's economic growth and vitality.

European urban areas are diverse and distinctive in their history and cultural heritage as well as in their ways in dealing with economic, social and environmental challenges. A focus on social participation is key, when facing urban challenges. The coordination of individual research actions in the urban field will ensure that European urban areas are not only aware of their own strengths and weaknesses, but are also confident, able to adapt and prosper in the international setting. It is crucial not only to understand the urban future, but to help shape it by making research on the European level more efficient and comprehensive.

1.2 Mission Statement

The Joint Programming Initiative (JPI) URBAN EUROPE is a research and innovation initiative of EU Member States and Associated Countries[1]. It was established in 2010 within the concept and framework of Joint Programming which was proposed by the European Commission[2] and established by the Council of the European Union[3] in 2008. URBAN EUROPE aims to rethink and manage the increasing urban orientation and concentration in Europe in order to create and exploit synergy in an urbanised Europe, from an economic, social, environmental and transport-related perspective, leading to a strengthened global position of Europe.

URBAN EUROPE

- represents a forward-thinking and long-term oriented, coordinated research initiative to shape urban development in times of global shift.
- is an integrative, interdisciplinary and horizontal approach across the interfaces of economy, society, transportation, and ecology, serving society by raising public awareness and acceptance, and consequently putting expertise into practice.
- promotes intensive interactions between researchers, policy makers, business and civil society, resulting in an innovative and impact-oriented approach.
- endeavours to become recognisable as the EU entry point open to all relevant stakeholders with an interest in urban development, in order to access, generate and share innovative knowledge, to provide pilot initiatives for innovations and link resources to regional and structural funds.

1.3 Added Value of URBAN EUROPE

URBAN EUROPE will use integrative (human-centred) approaches across disciplines, involving a variety of stakeholders, integrating economic, social and spatial aspects and thereby allowing for new research impulses (see Vision and Mission). URBAN EUROPE:

- complements and adds to multiple existing research activities, including new initiatives, in different scientific and technological research domains but at the same time covers new research domains and activities
- sticks to a concrete urban orientation, focusing on the uniqueness and diversity of European urban areas and their demands; it endeavours to be an operational, strategic and systemic research programme on future urban issues in Europe, while at the same time, respecting the great diversity in urban developments in Europe

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[1] 'Associated country' means a third country which is party to an international agreement with the European Community, under which it makes a financial contribution to FP7;

[2] COM(2008) 468

[3] 16775/08

- follows a human-centred approach looking explicitly at the impacts on (different groups) of society

- is oriented at a long-term perspective of urban demands and developments (2050), taking into account European and worldwide demographic changes and other developments

- promotes an integrated approach and interdisciplinary orientation in order to create synergy in the fragmented field of European urban research, by looking at the interfaces between the four pillars that address the challenges and demands of European urban areas:

  - economic vitality,

  - smart logistics & sustainable mobility,

  - social participation & social capital, and

  - ecological sustainability

- contributes to increasing the efficiency, effectiveness and comprehensiveness of urban policy in Europe

- builds a common understanding between stakeholders and experts in the urban field on the future of an URBAN EUROPE

- adds to technological, breakthrough R&D related to the improvement of specific urban subsystems, like intra- and interurban mobility and transportation, energy systems, urban infrastructure, etc.

- takes account of the entire innovation cycle from basic research up to commercialization to ensure economic and urban growth

- approaches the management of urban transformation by means of integrated solutions

2 Part I: Strategic Research Agenda of URBAN EUROPE

2.1 Future Trends and Challenges

It is important to position the role of cities against the background of underlying mega-developments in our world. The future of our planet is characterised by global dynamics and by a great diversity at the local level. The Scoping Report URBAN EUROPE discussed urban agglomerations and how they will play a pivotal role in socio-economic, cultural, technological and political development, in particular, since our world will be increasingly orientated towards an urbanised future. In our modern knowledge society and competitive economy, creative strategies, radical new approaches to the governance, planning and management structures are increasingly required by cities, business companies and organizations in order to become truly competitive in a globalised world. The SRA Outline of URBAN EUROPE (JPI URBAN EUROPE, 2011) focuses on the urban-specific future challenges that need to be overcome in order to pave the way for a new trend for city development (see Table 1).

Table 1: Trend-challenge matrix of URBAN EUROPE

	Trends	Challenges
1.	- structural urbanisation in past centuries leading to: *2007*: 50% of world population in cities *2050:* 83% of the European population – nearly 557 million people – will live in cities, increase of migrants - double urbanization: big cities are growing into mega-cities (becoming the hub of political power) and medium-sized cities are growing even faster into big cities - shrinking cities	- to turn the mass population movement towards urban agglomerations into new opportunities with make use of the great potential of diversity - to develop a balanced national (or supra-national) strategy for emerging connected city systems - to reconcile rural and urban developments, e.g. to explore the possibility of promoting mixed rural/urban polycentric metropolis models – replacing/restoring natural and agricultural spaces at the city cores while accommodating urban growth.
2	- intra-urban accessibility and inter-urban mobility is under permanent stress - increasing levels of traffic congestion, a considerable number of accidents, and high levels of air pollution place mounting pressure on cities	- to manage sustainable accessibility and mobility of urban systems through new logistic and infrastructural concepts - to foster the innovative organizational concepts, new sources of funding and new notions of social acceptance which are needed for the state-of-the-art in public transport systems and mobility services. An effective and broad-spectrum urban policy needs to be developed in order to ensure that the benefits of agglomeration advantages are higher than their social costs. This can be done through appropriate urban amenities, effective institutions, safety measures and citizens' participation

	Trends	Challenges
3	▪ urban mass concentrations are accompanied by many negative externalities: greenhouse gas emissions in cities and water quality are still worsening	▪ to initiate wide implementation of technical solutions, strong emphasis on the acceptance of new technologies by citizens and at the same time on change of behaviour and attitude
4	▪ climate change does not only affect coastal settlements, but all cities world-wide (e.g. through the phenomenon of urban heat islands) ▪ increased frequency of extreme weather events (e.g. storms, hurricanes, typhoons, floods, droughts, and heat waves) causing significant damage to urban infrastructures and resulting in growing maintenance and reconstruction costs	▪ to develop effective measures for monitoring and forecast towards eco-friendly and climate-neutral metropolitan areas ▪ to develop systemic vulnerability and risk assessment analyses and design mitigation and adaptation strategies benefiting the entire infrastructure spectrum
5.	▪ structural urbanisation tendencies are directly reflected in drastic changes of land-use and infrastructures	▪ to design a spatially-integrated and balanced urban land use strategy that is compatible with ecological sustainability
6.	▪ urban economies become pivotal vehicles for future economic progress and welfare through their productivity enhancing potential	▪ to manage production and investments to the benefit of sustainable economic development of urban areas ▪ to ensure the development of people, skills and capacities for innovative ideas and growth
7.	▪ socio-economic exclusion and tension is rising in specific districts of urban agglomerations	▪ to provide conflict management and pro-active inclusion strategies for less privileged groups in urban areas
8.	▪ uncontrolled urbanisation leads to urban sprawl at an unprecedented level and with a high ecological footprint	▪ to design fit-for-purpose institutional mechanisms and structures in a multi-layer dynamic system of urban areas
9.	▪ rapid urbanization leads to drastic changes in the demand for public amenities	▪ to satisfy the socio-economic demand for high-quality urban amenities of an increasingly large share of urban population
10.	▪ global economic restructuring leads to new and different ways of competition and collaboration of cities and city networks	▪ to establish metropolitan governance and collaborative arrangements between cities ▪ to initiate a shift from government to governance

All these trends prompt a series of serious challenges which ought to be addressed pro-actively and call for appropriate responses of all (urban) stakeholders. In addressing these challenges, the JPI URBAN EUROPE would at the same time contribute to "developing an economy based on knowledge and innovation", "promoting a more resource efficient, greener and more competitive economy" and "fostering a high-employment economy delivering social and territorial cohesion". Thus, it would contribute in producing smart, sustainable and inclusive growth, the three priorities of the "Europe

"2020" strategy (European Commission 2010). In this vein, it will provide major inputs for various flagship initiatives of the EU 2020 Strategy. For example, in the context of the flagship initiative "Innovation Union" it will help identify and create sources and means for "smart specialisation" (which is predominantly a phenomenon of specialisation of urban areas). In the context of the flagship initiative "resource efficient Europe" it will help develop "smart, upgraded and fully interconnected transport and energy infrastructures and make full use of ICT" and will have strong focus on the "urban dimension of transport where much of the congestion and emissions are generated". Finally, in the context of the flagship initiative "platform against poverty" it will contribute to promote "shared collective and individual responsibility in combating poverty and social exclusion" against the background of urban settlements, segregation and exclusion (all quotations from European Commission 2010).

2.2 Strategic Research Agenda: Contours and Outline

2.2.1 Existing Research Approaches

Existing Conceptual Approaches

Spatial urban constellations have been studied in the urban scientific literature from a variety of different analytical perspectives (see Nijkamp 2010 for a review). These perspectives are largely dependent on the appearance of and view on cities in the various conceptual frameworks used in the literature. Examples are: isolated cities (Von Thünen), hierarchical city patterns (Christaller, Lösch), village cities (de Noronha Vaz), global cities (Sassen), world cities (Friedman), e-cities (Salomon, Cohen), network cities (Castells), city networks (Reggiani), or incredible cities (Kourtit). The most important concepts are outlined in the Scoping Report of the JPI URBAN EUROPE. In short they are the following:

Urban Systems Science

The class of urban systems science comprises a wide diversity of different analytical approaches aiming to arrive at a basic understanding of drivers of urban dynamics, against the backdrop of one or more stylised paradigms. They stem from different disciplinary backgrounds, but have in common that they aim to offer a proper and theoretically founded explanation for the complexity of the urban system.

Proximity Externalities

The proximity externalities perspective takes for granted that urban size has no limits, as long as the economies of density are higher than the diseconomies. In particular, our modern age cities offer spatial advantages related to knowledge spill over effects and an abundant availability of knowledge workers in the labour market (Acs et al. 2002). Spatial concentration of activities, involving spatial and social proximity, increases the opportunities for interaction and knowledge transfer, while the resulting spill over effects reduce the cost of obtaining and processing knowledge. It should be added that cities are also faced with negative externalities. Cities have clearly many shadow sides, such as congestion, low-quality environmental conditions, social stress and segregation, high crime rates etc.

Resource Base

Cities are strongly dependent on their resource base. In the past, it was mainly the physical geography that determined the location of cities (riverbanks, seashores, geographically strategic areas in a country, presence of natural resources such as coal or water). In the past decades, industries have become much more footloose, and consequently, the meaning of the physical resource base for cities has declined. But in the meantime, cultural and knowledge resources have assumed a more prominent position.

Learning, Creativity and Evolution

Since the early 1990s concepts such as learning regions, smart cities, creative cities, science-based regional development, etc. have received an increased attention among regional economists, urban planners, economic geographers and regional policymakers. This development goes hand in hand with the recognition that factors determining economic growth of regions (cities) are increasingly intangible, like institutions and culture, and increasingly mobile, like capital, codified knowledge, and – in part – human capital. The learning regions approach has the advantage over other approaches that it explicitly addresses the quality of policymaking and of other institutional conditions in the local economy and society.

The various trends sketched above point to a variety of promising directions in urban economic research: increase in realism, systemic complexity, and spatial networks orientation. However, there seems to be a need for a new wave of analytical efforts that must study cities from an applied equilibrium perspective, with a balance between (i) growth-inducing and growth-hampering factors, (ii) multiple (from micro- to macro-) layers of actors and structures in a city, and (iii) intra-urban and extra-urban force fields and networks.

Analysis of existing Research Agendas

As part of the preparatory work on the Specific Research Agenda, an overview of research agendas of the main existing European initiatives on the relevant topics of JPI URBAN EUROPE has been created. The initiatives were number-coded and analysed in terms of their main thematic focus and time scope. Although no exhausting list of initiatives could be drawn up, the picture of analysed agendas reveals the research demand for URBAN EUROPE in the future. This screening of research initiatives was focused on time horizons, scope and themes of the different programmes.

Time Horizon of Programmes

Many of the existing research programmes on urban-related issues are oriented to current actions. However, there are some programmes that focus on future developments (Figure 1). The medium-term outlook to 2030 is dominantly represented in the programmes. Only two of the programmes have an outlook towards the far future of 2050. These two programmes focus on transport and energy themes and are only partly related to urban issues. Figure 1 also indicates the programmes with a clear urban perspective (marked red). As can be deduced, there is still a need for an RD&D programme with a concrete urban and integrated orientation combined with a long-term outlook.
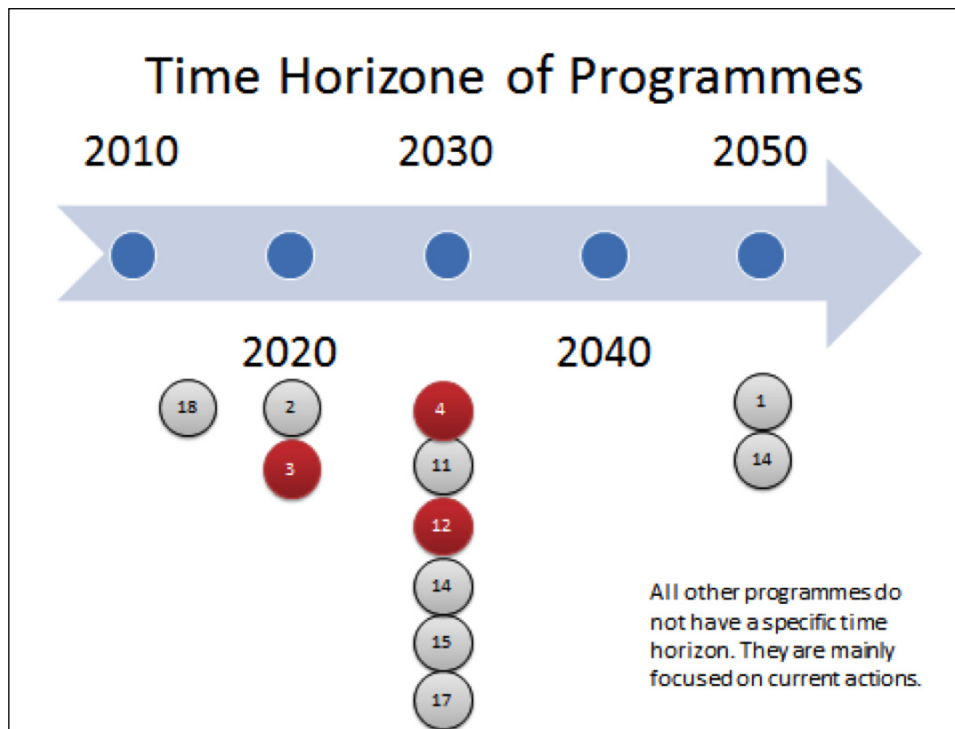
Figure 1: Comparison of programmes regarding their time horizon; Note: Research programmes have been coded, each number refers to a programme listed in Table 4 in the annex

Scope of Programmes

All of the programmes identified and evaluated are research programmes, some of which also strongly aim to actively address policy makers and industry. The scope of the programmes can be divided into four categories:

- Focus on **knowledge generation** to solve problems and reach solutions/targets (first and foremost through research)
- Focus on **knowledge implementation and diffusion to public and private firms and organisations** (research and knowledge sharing or cooperation with the applicants)
- Focus on **knowledge implementation and diffusion to policy makers**
- Focus on **knowledge networks** (accumulate knowledge, create networks and synergy effects)

Looking at these four categories, it is easy to see that a specific programme can fit into one or more categories. Figure 2 shows that many programmes aim at pure knowledge generation. Other programmes aim at pooling knowledge in networks to gain synergy effects. There exists only a small amount of overlap of circles, which indicates that many programmes have a clear focus on one of the issues, but are not equally targeting more than one simultaneously. If overlaps exist, knowledge generation (research activities) is combined with the extension of knowledge networks. Moreover, some programmes aim to develop novelties which are ready for implementation by industry or policy makers. However, industry and policy actors are hardly ever addressed within the same programme.

In conclusion, then, there is a need to combine the generation of knowledge with a strong emphasis on joint implementation by and diffusion to policy and industry actors (Figure 2 and Figure 3).
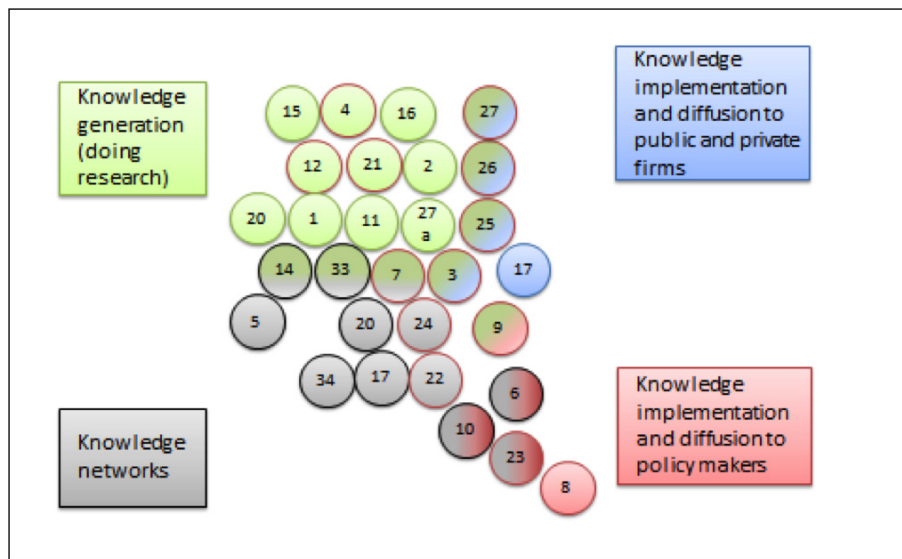
Figure 2: Comparison of programmes regarding their scope and aims
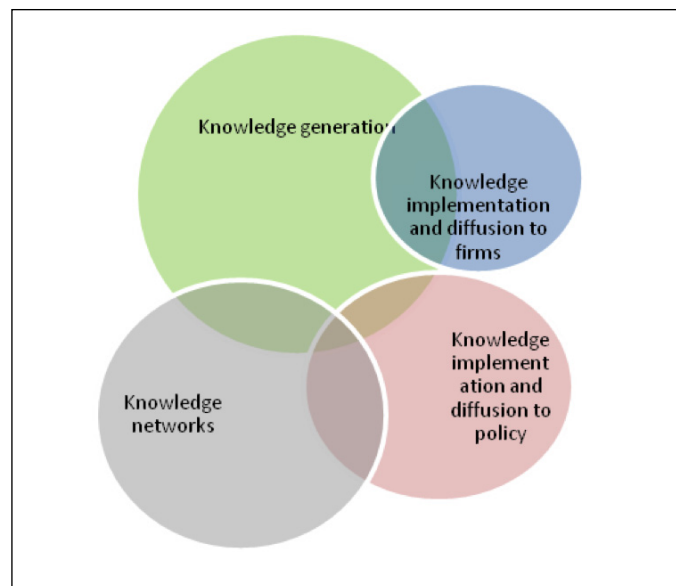
Figure 3: Research programmes and the innovation chain; Note: the size of the bubbles indicates the share of the evaluated programmes or activities with the focus in question

Themes of Existing Programmes

About one third of the analysed programmes have a clear focus on urban issues. As can be expected, mobility, energy and environment themes are very much technology- and infrastructure-oriented, whereas socio-economic themes focus on the development of concepts, models and network building. There is hardly any programme focusing on covering the entire spectrum, that is, from the development of technology- and infrastructure-oriented research to the design of appropriate business, governance and policy models taking into account a human-centered perspective.

Although currently several (research and implementation) efforts are ongoing, so far no overall concerted and coherent approach has been designed to address future urban development as a complex network system with high interdependencies of the related social, technological and ecological subsystems. This will require substantial research efforts in developing a joint view and common understanding of future urban areas, their functionalities and conditions, as well as new instruments, tools and methods for assessing and realising new urban design, governance and management approaches. Figure 4 presents the research needs identified from the screening of conceptual approaches as well as existing research initiatives. They, however, provide substantial input for the orientation of the SRA of URBAN EUROPE.

Theory: Screening of existing conceptual approaches on urban research

Empiricism: Screening of existing research initiatives on urban issues

Research needs in Urban Europe include:

- a long-term perspective to 2050, attention for conceptual/theoretical thinking over a longer time horizon
- identification of growth-inducing and growth-hampering factors
- emphasis on the need to develop a strategic but operational research apparatus and/or methodology
- Access to multiple (from micro- to macro-) layers of actors and structures in a city
- a strong focus on research and its diffusion to and implementation by policy makers and firms
- broad perspective to cover the entire spectrum from technology- and infrastructure oriented research to business, governance and policy models with a human centered perspective

Figure 4: Screening of existing approaches and identification of research needs for the SRA of URBAN EUROPE

2.2.2 JPI URBAN EUROPE: Research Orientation

Building Capital for the City of the Future

The exposition offered above clearly demonstrates that urban areas are subject to a great variety of forces that influence their morphology and functioning in a drastic and irreversible way. As a consequence of these mega-trends, urban agglomerations are faced with a broad spectrum of challenges, which demand smart and sustainable responses. A rather representative – but by no means exhaustive – overview of such trends and challenges is offered in Table 1[4]. This diversity in challenges and response calls for a systematic analysis framework by which 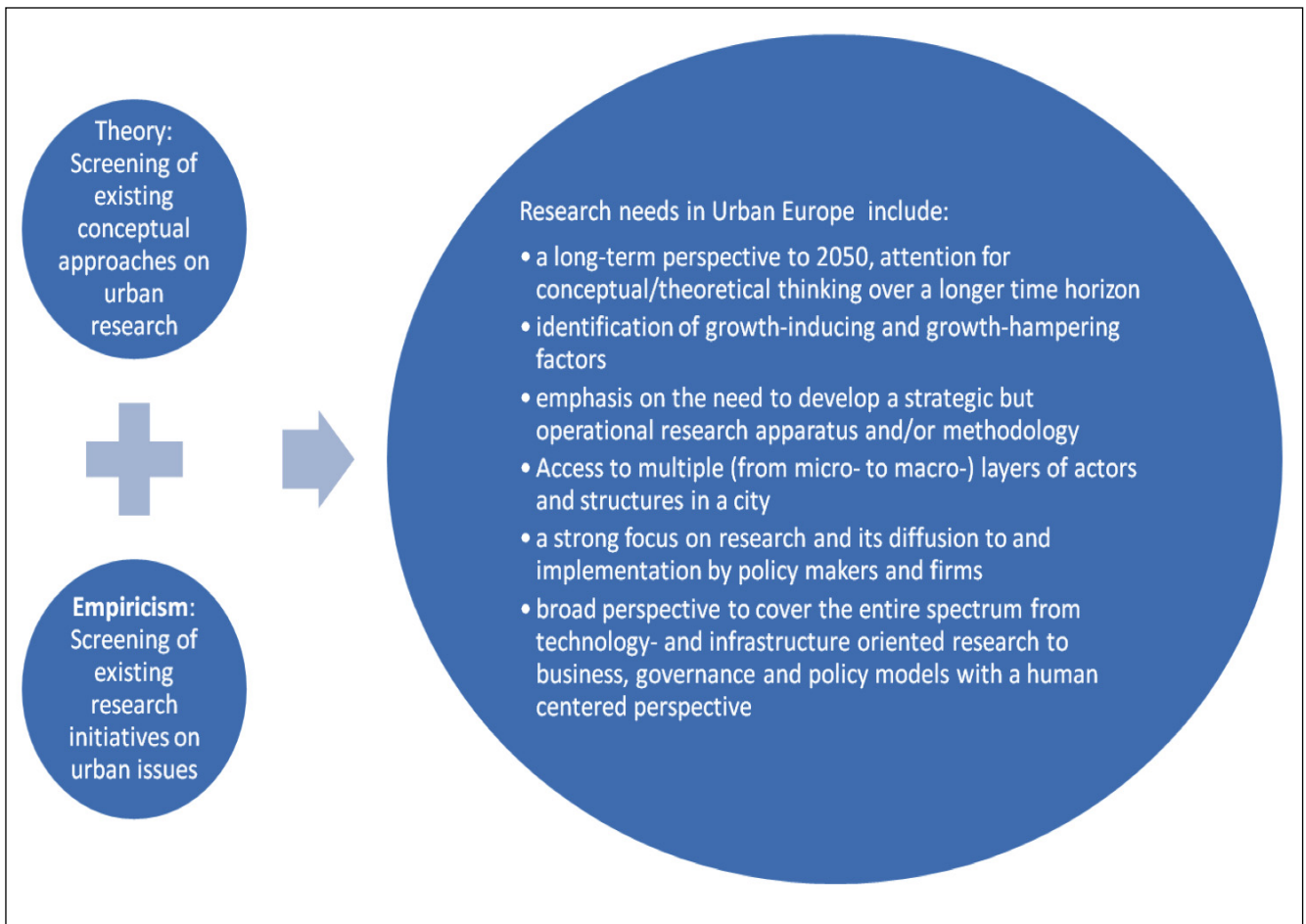anchor points for effective action can be identified. The JPI URBAN EUROPE proposal document highlighted four significant goals when creating a strategy for the future, namely economic vitality, smart logistics & sustainable mobility, social participation & social capital, and ecological sustainability. These pillars provide the principles through which URBAN EUROPE stakeholders may manage the increasing concentration of people in Europe in urban agglomerations, the ultimate goal being the design and implementation of a liveable, sustainable, accessible and economically viable environment and settlement pattern for European citizens. URBAN EUROPE should build capital for the future. In this sense, "capital" is characterised by the resources of a city and what the city is able to offer to its citizens and firms. URBAN EUROPE contributes to optimising this urban capital and should comprise:

- **Human and Economic Capital**: Cities and city networks as sources of economic vitality, resulting in successful competition in the international knowledge economy through the development of people, skills and capabilities.
- **Technology and Logistics Capital:** Cities as nodes for smart logistics and sustainable mobility, at both intra-city and inter-city levels, and for technological solutions that support the changing needs of citizens
- **Environmental Capital:** Cities as centres for sustainable ecological development and for sustainable energy production and use
- **Social and Cultural Capital:** Society as a seedbed for a broad socio-economic participation and cultural diversity in an ethnically segmented urban system.

JPI URBAN EUROPE: Managing the interfaces between the Pillars

These four pillars have individually received extensive attention in various distinct disciplines, such as social and economic geography, urban and regional economics, transportation and logistics, urban demography, political science, planning theory, urban ecology, business administration and environmental science. But the interfaces between these pillars have received far less attention, even though it is very likely that new perspectives and achievements can be found especially on these interfaces. Research on the edges of these four pillars is, however, difficult, as it needs a clear interdisciplinary orientation that is centred around the future sustainability (ecological, social, economic, logistic) of urban areas. But precisely at these interfaces one may expect breakthrough innovations on the functions of cities in the future (ranging from 2020 to 2050). Scientific research in this area needs long-range strategic foresight experiments, multi-component modelling based on non-

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[4] For a general identification of 'grand challenges' see the Lund Declaration (July 2009) on 'New World – New Solutions', prepared under the Swedish EU Council Presidency.

linear dynamic (complex) systems analysis, and the use of advanced research tools from different disciplines, based on solid information systems.

It goes without saying that the related policy and research tasks – especially on the edges of these anchor points – are formidable and call for evidence-based scientific underpinnings of urban development strategies both from a short-term and long-term perspective. Europe has a strong tradition in urban research, often playing a pioneering role in the global research community. Notwithstanding this high-level profile and excellent reputation, European urban research is also fragmented and needs more synergy. A more integrative perspective is a *sine qua non* for understanding and shaping a sustainable future for an urbanised Europe. To this end, appropriate and accessible information and research tools for European urban policy also have to be developed. And therefore, the creation of a learning urban community of experts and stakeholders is needed, through which an enhancement of strategic research on European urban areas and mega-cities can be realised with a view to increase the efficiency, effectiveness and comprehensiveness of urban policy in Europe.

URBAN EUROPE aims to lay the foundation for an operational, strategic and systemic research programme on future urban issues in Europe, while at the same time, respecting the great diversity in urban developments in Europe. As outlined above the URBAN EUROPE research programme is based on four interlinked cornerstones: economic vitality, smart logistics & sustainable mobility, social participation & social capital, and ecological sustainability.

To extract from these cornerstones novel ideas for a systematic and coherent research programme, four related thematic city images on stylised appearances of urban agglomerations in the year 2050 have been identified, which are connected to the above-mentioned cornerstones of URBAN EUROPE. In the next chapter, the four different strings are presented and interrelated within each city type, as depicted in Figure 5.
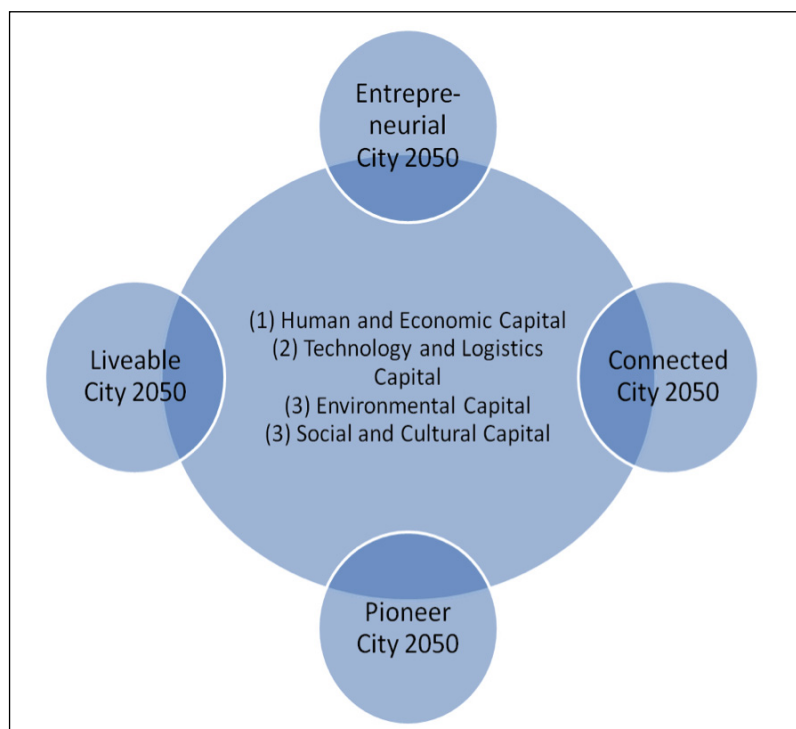
Figure 5: The four city images

2.2.3 JPI URBAN EUROPE: The four city image

The four city image highlights the strategic dimensions of urban futures in Europe. They all need operational geo-science information and behavioural data to map out or understand uncertain urban futures. They also reflect the need for strategic thinking on the governance of urban agglomerations in Europe.

The rationale behind research on the four city image, is to produce innovative research results from a scientific point of view while at the same time taking new perspectives on the interrelation and benefits of urban systems using a human-centred approach. Consequently, research activities need to be based on an integrative and holistic perspective including a broad range of different scientific disciplines and knowledge from relevant stakeholders, *inter alia*, social and behavioral sciences, economics, geography, planning, psychology, and engineering. Public-Private partnerships must be considered, as well as the innovation capacity of SMEs and the active involvement of policy makers, in order to create solutions that are efficient for and accepted by all groups in society. It is essential to identify and involve all relevant players in order to develop successful solutions and systems.

2.2.3.1. Entrepreneurial City

The metaphor of an 'entrepreneurial city' refers to the basic image of a city as an incubator and innovation hub of economic activities due to its high density and diversity. The high density and diversity of a city results in the potential emergence and facilitation of a constant stream of knowledge and innovation: the pool of (specialised) talent and a fertile test-bed for new ideas gives an urban area a considerable edge in the production and diffusion of new knowledge leading to new products and processes. Hence, by relying on the entrepreneurial spirit of its population, a city may constantly produce new economic activities best suited to the locational endowments of an urban environment at a particular point in time (i.e. technological state of the art).

However, these advantages of urban concentration come at a price. Ultimately the concentration will lead to certain diseconomies of agglomeration: land prices will soar as land becomes increasingly scarce, workers will earn more than their more dispersed peers in rural areas, increased population density will lead to traffic congestion and the sheer amount of economic activities will drive up pollution. Eventually, these diseconomies of agglomeration will drive out more and more economic activities, especially those which consume relatively scarcer urban resources like land or clean air. This is a process which many of the core cities of the industrial era had to endure when industrial activities were relocated ('decentralised') to cheaper locations. Urban dynamics may be understood as being influenced by these two opposing forces of concentration and decentralisation. Thus, to overcome the fate of agglomeration diseconomies, a city has to constantly reinvent itself by relying on its superior innovative potential. Given this dialectic dilemma, urban regions are facing the following challenges:

- o Maintaining a vibrant knowledge production resulting in a constant stream of new ideas principally suited for 'commercial' exploitation

- o Balancing the risks and rewards of putting ideas into practice (i.e. establishing a 'culture of success and failure' / 'trial and error')

- o Attracting human capital with the potential for knowledge creation as well as knowledge exploitation

o Translating the potential of urban diversity (e.g. ethnic diversity, minorities, subgroups and subcultures) into a creative milieu fostering the innovative output

o Fostering formal and informal networks of the urban business environment ('cooperation culture') while maintaining a competitive environment

The metaphor of an Entrepreneurial City creates room for a broad and attractive strategic research area covering a wide, yet interconnected array of different research traditions, methodological approaches and theoretical concepts from various different scientific disciplines. The main research areas:

o **Measuring entrepreneurial activities over time and space**: A concise understanding of the nature of the various types and forms of entrepreneurship is a necessary prerequisite for any further analysis. We follow a very broad definition of entrepreneurship, encompassing a wide range of creative and innovative activities. By developing different measures and indices describing these various forms of entrepreneurial activities we aim for a 'mapping' of these activities both over time (i.e. the dynamics of entrepreneurship over the long run) and space (i.e. the regional differences of entrepreneurship in the European urban system). Thus, it will be possible to derive 'hot spots' of creativity and entrepreneurship in certain times and spaces.

o **Explaining entrepreneurial activities** aims to explore the underlying causes of the empirical observable **time-space pattern of entrepreneurship**. Relevant research questions include the following: What are the reasons why some places have an outburst of creativity and entrepreneurship? Why are these dynamic periods often restricted to just a few spaces (i.e. hot-spots)? Why are these dynamic outbursts often restricted to limited time periods? What are the common characteristics (if any) of urban regions / cities experiencing bustling entrepreneurial activities?

o Analysing **the impact of entrepreneurial activities on the urban system**. First of all, entrepreneurial city activities may lead to increased economic growth through the development of new firms or even a whole set of new economic sectors. However, new firms may also out-compete older incumbents leading to structural changes which, in turn, eventually may produce 'winners' as well as 'losers' (both in the same city as well as in other, competing regions). The European urban system is characterised by a complex web of a large number of small and medium cities and relatively few very large cities. The role of entrepreneurship for urban development may be somewhat different between cities of different sizes and economic specialisations. Some of the small and medium-sized cities in particular have a distinct specialisation profile in certain economic activities – often based on the (industrial) history of the city/region.

o Identifying and assessing **policies to stimulate entrepreneurial activities**. Entrepreneurship is influenced by a wide array of institutional framework conditions; different policy measures ranging from education to (local) tax policies. Some policies might influence entrepreneurial activities explicitly; others may have only an implicit impact. Analysing the role and importance of various policy measures (and institutional settings) is pivotal for a better understanding of how to improve the conditions for entrepreneurship and to foster entrepreneurial activities and their positive influence on urban development. Entrepreneurial policies might even compete with other economic policies. For example, established, large firms and industries (incumbents) in large cities are not helped much by entrepreneurial policies. Given this observation, promoting small firm dynamics, even if it provides economic opportunities to cities both in aggregate dynamics and welfare over the long term, might receive fierce opposition by

existing power structures / groups in the short term. Hence, the critical analysis of existing power structures within urban systems and the power struggles between various sub-groups might provide stimulating new research questions and topics.

2.2.3.2. Connected City

Research on connected cities considers urban connectivity from an urban networks perspective. Sustainable connectivity of cities depends critically on the current and future development and functioning of physical and virtual networks (transport-, logistics-, ICT-, energy-, knowledge-, social networks), which themselves are both closely affected by and closely affect spatial development and locational choices of firms and households. These networks have been and will be decisive for determining and defining the opportunities for spatial accessibility and interactions, both physically and in terms of communication and information flows, and therefore have been and will remain crucial for the formation and development of cities. Research on the connected city aims to understand how the different networks are interrelated and how the system of networks as such, can be optimized under special consideration of people's demand and behavior on the one hand and integrated policy implications on the other. Understanding the functioning of these networks, and formulating strategies and policies on their development and management to maximize their contribution to the city's prosperity and sustainability, requires a deep understanding of their possible role and potential in contemporary and future cities. This requires a broad interdisciplinary perspective. Only then can we provide answers to the most pressing questions in this field, including themes such as:

- **Examining different types of urban networks**, notably transport, logistics, ICT, knowledge and energy networks; and **mutual interactions** between these networks (including complementarity and substitutability) to better prosper from urban networks
- **Understanding the spatially differentiated urban development** due to the existence and dynamics of physical and virtual networks in its broadest sense – both within and between cities, up to the international level, and from a **static as well as longer-run dynamic perspective**
- **Designing and evaluating governance, management and demand models** for urban networks, for example involving questions on institutional set-ups, private versus public provision and control, cooperation versus competition between different governments; but also a wide array of questions on the role of access, pricing and land-use concepts
- Describing the actual functioning and effects of networks, encompassing themes such as **robustness and reliability**, quality of **service**, **social interaction** and **knowledge exchange**, and social inclusion/exclusion; paying ample attention on **behavioral aspects** of network use, taking a **human-centred approach** (including user acceptance of changes in network structures and/or management)
- Understanding the role, **functioning and potential of hubs and gateways** as key focal points in **intra- and inter-urban networks**.

The societal relevance of this programme is immediate because of the themes it addresses. The networks mentioned are decisive for the functioning of urban areas, systems of cities, and regions and countries in which cities play central roles. Research will address the determination and enhancement of social benefits derived from these networks, but also issues of accessibility and social inclusion/exclusion. On the individual level, the understanding of behavior and identification of user

demand and acceptability are themes with a high societal relevance. A deeper insight into the optimization of the functioning, management and interrelations of networks may bring significant gains to society.

The policy relevance is immediately clear in those topics that address the organization and responsibility of the supply and management of these networks. Moreover, the connectivity within and between cities is highly relevant to city managers. Building sustainable city networks requires the involvement of the different departments of the city (planning, infrastructure, economic and social development) on different scales (local, city, national, international). New governance and management structures of cities are needed to ensure an integrated implementation of new connection and to support changing patterns of human behavior.

2.2.3.3. Pioneer City

The image of the pioneer city refers to cities as attractors for creators and makers as pioneers, tapping into the diverse skill sets of migrants and native citizens. Pioneer cities are also hotspots for the assessment and implementation of new (technological) solutions and provide innovative environments to take the utmost advantage of these solutions by constantly implementing adapted or new processes and systems. For a comprehensive understanding of the impact of such new technologies, their user acceptance, the implications for new business scenarios, the changes in the urban innovation system as well as the increasing cultural diversity and fragmentation of lifestyles in European cities have to be considered and integrated into new urban models and governance systems.

Urban areas with a pioneer character offer the general conditions for cutting-edge innovations and developments beyond conventional approaches. In this respect, pioneer cities benefit from interactions among companies, universities and research institutes as well as governmental institutions and organisations, as these shape the urban innovation system and highlight their role as centres of excellence. Pioneer cities aim at taking advantage of currently unused capacities and resources as well as of the heterogeneity of European urban areas in order to create pioneer mindsets and environments through a holistic and integrated perspective. This will prompt great opportunities for smart and creative initiatives in future cities, through which Europe can become a global pioneer.

Research on the prerequisites and conditions for establishing European pioneer cities considers the multi-dimensional character of innovation-building urban agglomerations. The development of new technologies and the investigation of their impacts are essential elements of pioneer cities. To further these developments, creative actors with a variety of backgrounds, cultures, ideas and motivations need to form the appropriate social capital of such cities. Urban areas which aim to become pioneer cities must therefore provide the necessary drivers for pioneers, since an appropriate infrastructure is essential for cities´ attractiveness to companies and people alike and therefore for their economic development.

Additionally, the importance of services is steadily increasing. Such services have to take advantage of the new technological opportunities, be accessible for all citizens, and provide added value for enterprises and people in the context of the overall city challenges (e.g. emission reduction, congestion reduction, safety, resource allocation). Their availability and quality are furthermore related to new business scenarios and the next generation of intelligent cities. In this respect, the following research themes are of particular relevance in this area:

- Identifying the attractors and motivators for urban pioneer actors for creating stimulating environments
- Developing new urban design, management and governance concepts for facilitating and enabling innovative and creative developments
- Understanding the key characteristics of pioneer cities and their impact in order to actuate the generation of globally competitive European innovation areas
- Establishing model cities and living labs as evaluation test beds for improving the introduction and efficiency of new technological solutions

2.2.3.4. Liveable City

The image of the liveable city addresses the view that cities are not only energy consumers (and hence environmental polluters), but may – through smart environmental and energy initiatives (e.g., recycling, waste recuperation) – act as engines for ecologically-benign strategies, so that cities may become climate-neutral agents in a future space-economy and thus become attractive places to live and work. Liveability itself denotes an integrating concept which emphasizes the necessity of combining different perspectives. Particularly the interdependencies between technological and social developments are to be seen as mutually reinforcing. Potential risks have to be systematically assessed and new potentials and opportunities can be identified and used. Social issues are put at the forefront in order to take best advantage of technological developments and innovations for improving the quality of live and all related aspects in order to create a "city for all" (health, security and safety).

Environmental issues have to be particularly considered, as developments and growth in multiple areas such as economy, mobility, energy, and society are constrained by environmental limits. General goals as the carbon neutral city 2050 are therefore defined by the necessity to achieve climate change adaptation and mitigation with respect to demographic trends and resilience concepts. Technology (especially ICT) and infrastructures are viewed as enabling functionalities for achieving the goals of liveable cities. Liveable cities should use their potential in reinforcing efficient processes particularly through new or adapted governance and management systems strongly supported by education. Urban planning and design has to understand and consider these potentials and integrate them into future urban concepts. This requires appropriate models, tools and concepts that allow for a fast evaluation of potential solutions and their efficient and sustainable integration into existing infrastructure and concepts.

Research on liveable cities must be based on a human-centred perspective and has to include all aspects for creating sustainable, attractive and safe, i.e. liveable urban environments. In particular, this demands a thorough understanding of what makes a city "liveable", how it can be measured and what can be done in order to achieve an environment attractive for all groups of citizens. Technologies and systems need to be developed for analyzing the characteristics and determinants of sustainable and attractive urban environments. That knowledge can then be used for building efficient management and planning tools in order to improve urban systems such as mobility and logistics solutions, energy supply, or water and waste management. Research topics must contribute to the long-term goal of an ecologically sustainable and socially balanced city with a prosperous economy and dynamic interconnections to other regions. The most relevant research questions in this field refer to themes such as:

- Understanding the main characteristics of liveable cities with respect to the demands of different target groups
- Determining significant indicators for assessing the quality of life in a city
- Identifying main determinants and examining interdependencies of determinants in order to understand the impacts of particular factors
- Assessing major challenges and opportunities for achieving liveable cities
- Designing and evaluating governance, management and planning models for implementing sustainable and human-centred systems and solutions

2.2.4. JPI URBAN EUROPE: Research Themes

As stated before, the exploratory workshop on the contours and contents of the Strategic Research Agenda (SRA) (Amsterdam, 2-3 February, 2011) was centred on four *Urban Images 2050*. These images offer long-run strategic and complementary perspectives on the future of urban systems. As of yet, they are not meant to be blue print models for research programme topics, but rather constructs through which important policy and research challenges and ideas could be distilled and further elaborated. They are systematically linked to the four URBAN EUROPE pillars and act as an innovative 'prism' highlighting the most important and prominent dimensions of the future of urban systems in Europe.

The current creative process – based on contributions from world-renowned scholars and intensive dialogues with stakeholders – has already led to a wealth of original and feasible research ideas and proposals. These ideas reflect the broad interest in research issues related to URBAN EUROPE. They also show a wide range of perspectives, levels of detail, specific and general topics, methodologies and analytical frameworks. It is clear that such a fascinating list of innovative research topics does not yet form a systematic research agenda that may directly be transformed into an operational research programme on URBAN EUROPE. To this end, a strategic and systematic filtering process has to be designed, based on the following a priori agreed principles:

- research should be strategic and long-range in nature, based on societal and policy relevance and scientific innovation;

- research should be concentrated on the interfaces and linkages between the four basic pillars of URBAN EUROPE, so as to offer a scientifically novel contribution;

- research should address common interests of participating member countries and have some sort of meso level of generality;

- research should be responding to the various grand challenges identified in the scoping document (Nijkamp, Kourtit, 2011) prepared for URBAN EUROPE;

Input for the SRA has so far been received from stakeholders of URBAN EUROPE, participants of various (formal and informal) preparatory and brainstorm workshops, and the participants of the URBAN EUROPE SRA workshop on February, 2nd and 3rd, 2011, specifically from an analysis of the results of the various break-out sessions. A closer inspection of all relevant documents put forward until now leads to the conclusion that the SRA workshop can be summarized along several major questions, which originate from the identification of the above mentioned grand challenges in relation

to the research perspectives emanating from the four Urban Images 2050. Based on this filtering process the following three prominent cross-cutting research questions which will have to be tackled in all of the four 'city images' have been identified by the Governing Board of URBAN EUROPE:

- What are the prominent demographic, economic and technological megatrends that are decisive for the future of urban systems? This calls for an *urban megatrend analysis*.

- What are new mobility, logistic and land use developments and policies that are needed to create vital and attractive cities and networks of cities in the decades to come? This prompts the need for a *connectivity impact analysis for urban systems*.

- Which ecological and social constellations have to be met and implemented in order to shape sustainable and balanced long-run urban development patterns (including energy systems) in Europe? This question calls for a *socio-ecological sustainability analysis*.
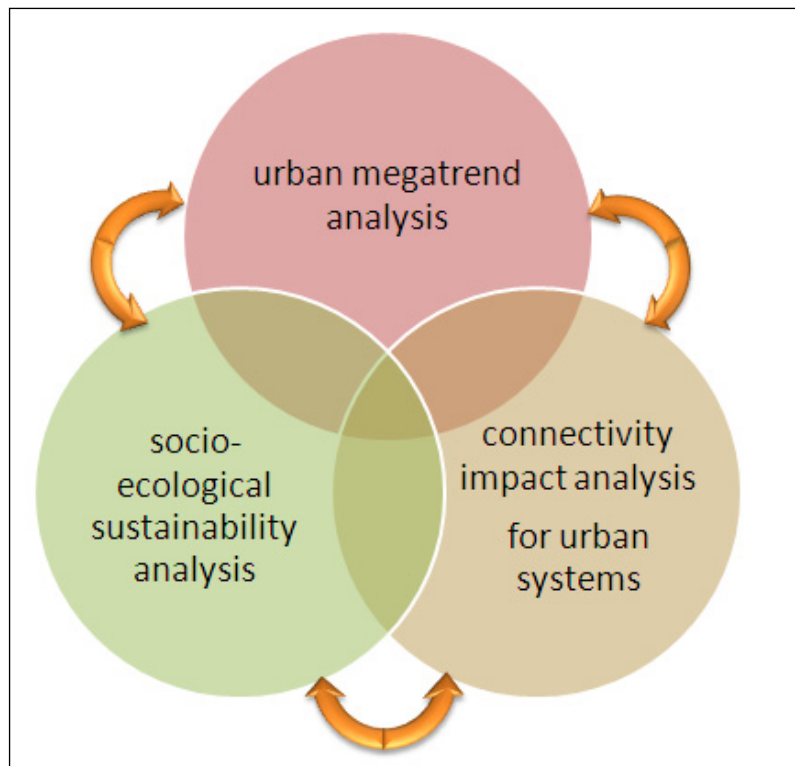
Figure 6: Architecture of the research programme themes

2.2.5. JPI URBAN EUROPE: Research Approach

Systemic Approach

The JPI URBAN EUROPE aims to develop innovative approaches to adequately address the above-mentioned challenges which help to create urban places of vitality, liveability and accessibility. To reach these aims URBAN EUROPE provides a systemic approach which takes advantage of *emerging technologies*, assessing their potential and socio-economic impacts and utilising them in fundamentally *new urban policies and design* strategies. JPI URBAN EUROPE aims to contribute to the

entire innovation cycle from basic research up to commercialization, to ensure economic and urban growth. It identifies new roles, functionalities, services and infrastructures of cities and provides models for urban transformation.

*Principles for implementation*Creativity and sustainability do not only play a role in the management of urban resources, but may be seen as action-oriented guidelines. They demand a rigorous commitment on the part of planners, architects and professionals by encouraging them to give up their 'comfort zone' and corporate attitudes. They also represent a great challenge to which public officials, built environment professionals, managers, urban promoters and investors are expected to respond. Clearly, – in the spirit of the Triple-P principles (people, profit and planet) – these concepts (the triangle of sustainability) prompt the need for new visions and actions on attractive cities that are desirable places to live and work, especially in terms of recreating those community values which are believed to produce a sense of citizenship and entrepreneurial spirit. Strong local economies are the foundation of strong communities that can grow and withstand the pressures from an increasingly urbanized world (World Watch Institute 2007).

Covering the entire innovation cycle

URBAN EUROPE aims to strengthen urban areas and support them in their development and transformation to meet the broad set of challenges. This requires not only the development of new solutions within the scope of the four city perspectives but also their evaluation under real conditions and finally their implementation. For this reason stakeholders and organisations covering the entire innovation cycle – from universities, research and technology organisations, companies, public bodies up to cities and their citizens themselves – are invited to participate in the URBAN EUROPE endeavour. Only such an integrative approach ensures that research will result in applicable solutions that are tested under real-life conditions. Special emphasis will therefore be given to the implementation of technological improvements, the investigation of new business models, services or infrastructures, as well as the assessment of the implications of these solutions on human-centered networks and other agents of behavioural change. A key element in this context can be the concept of living labs, as these allow the demonstration, evaluation and customisation of new solutions according to specific city requirements.

New methodological research

Identifying and monitoring new urban development requires the development of new indicators and models. For example, new methodological research directions in urban economic address urban dynamics by using ideas from spatial complexity theory, in which inter alia non-linear evolution, chaos principles, synergics, evolutionary biology, and learning algorithms play a critical role (see Nijkamp and Reggiani 1999). The various trends sketched above point to various directions in urban economic research: increase in realism, systemic complexity, and spatial networks orientation. There seems to be a need for a new wave of analytical efforts that would study cities from an applied equilibrium perspective, with a balance between (i) growth-inducing and growth-hampering factors, (ii) multiple (from micro to macro) layers of actors and structures in a city, and (iii) intra-urban and extra-urban force fields and networks.

Role of Stakeholders

In line with the necessity to contribute to the entire innovation cycle, the various stakeholders must be actively involved in the research and implementation programme of URBAN EUROPE according to their specific roles. This already starts with the integration of stakeholder organisations in the development process of URBAN EUROPE and the SRA itself and continues with their participation in

research projects and implementation measures. All four city concepts are defined in a way that this involvement is ensured and stakeholder specific activities, like policy concepts, business models and technological solutions are seen as essential outcomes. The opportunities of public-private partnerships will be considered in this context as well as the specific innovation capacity of SMEs and the active involvement of policy makers in order to create solutions that are efficient for and accepted by all different groups of citizens.

Organisational Resources

The integrative approach to research within URBAN EUROPE implies a high level of complexity both in the planning and conduct of development and implementation activities. As a consequence a high amount of "organisational capital" is needed. The successful implementation of research activities will require strong stakeholders at the interface between science, industry and society. In addition to cities and public bodies, research and technology organisations as well as universities can actively contribute to this task. To this end in the further development of the SRA, these stakeholders' inputs will be mobilised via their involvement in the Scientific Advisory Board and the URBAN EUROPE Forum of the JPI URBAN EUROPE respectively. In general, a good positioning of the SRA of URBAN EUROPE is sought vis-à-vis the emerging European Innovation Partnerships especially the Innovations Partnership on smart and liveable cities, but also to other JPIs, such as the JPIs on "More Year, Better Lives" and "Connecting Climate Knowledge for Europe".

Worldwide Scope but European Uniqueness

JPI URBAN EUROPE makes use of European uniqueness in urban patterns, culture and heritage to develop European solutions. Besides, URBAN EUROPE also looks beyond Europe by paying attention to (urban) developments outside of Europe. Integrating an 'outside point of view' may show more depth, flexibility and creativity than only focusing on metropolitan structures within EU Member and Associate States. Thus, comparative research on urbanization trends in Europe, BRIC countries (Brazil, Russia, India, China), and LDC (Least Developed Countries) settings will enhance the overall understanding of the complex process of urbanization and its implications on social, economic and ecological processes. Topics in which transnational comparative research may be particularly beneficial might be 'delta estuary metropolitan urbanization'; 'urbanisation, demographic trends and international migration'; a possible new interaction / symbiosis between urban and rural areas (e.g. 'ex-urbs' as a new 'urbanisation' trend following (or even removing?) the suburbanization mega-process of the last 50 years); and the 'megalopolis' as a new paradigm for social cohesion and public governance.

2.3. Smart Objectives

In short, Urban Europe aspires to rethink and manage the increasing urban orientation and concentration in Europe in order to **create and exploit synergy in an urbanised Europe, from an economic, social, environmental and transport-related perspective, leading to a strengthened global position of Europe**. Its broad objectives are:

- o to make use of European uniqueness in urban patterns, culture and heritage to develop European solutions
- o to focus on long-term scenarios and research demands and by that complement existing city-related initiatives
- o to address urban development with a human-centred approach
- o to contribute to the entire innovation cycle from basic research up to commercialization, to ensure economic and urban growth
- o to use integrative approaches across disciplines, involving all stakeholders, integrating economic, social and spatial aspects
- o to identify new roles, functionalities, services and infrastructure of cities and provide models for urban transformation
- o to identify, conceive and/or monitor new urban developments which may require the elaboration of new indicators and the use of novel urban scenario modelling approaches
- o to foster intelligent management of urban transformation by integrated solutions

Thus, Urban Europe brings together creative strands of thoughts to develop future-oriented strategies, initiatives and instruments that can be successfully implemented. In order to make the above-mentioned vision and strategy concrete and tangible, strategic objectives and long-range operational research strategies need to be formulated, so that it becomes clear which activities must be undertaken in order to implement the future-oriented strategies referred to above.

In order to achieve the objectives outlined above, Urban Europe will develop strategic research areas which will be clustered around the following requirements / framework conditions:

- Analyse the strength and weaknesses of the European urban system and develop scenarios and models for "attractive" European cities and their transformation
- Develop new categories of data and indices to detect and assess new developments,
- Monitor urban development in a global context from different perspectives (e.g. economic, social and ecological and their respective interrelations)
- Analyse the impact of global networks and connectivity on the socio-economic development of urban systems (global-local interrelatedness)
- Analyse new economic development trends and business scenarios and assess their impact on the social system, the required infrastructure and on the urban environment
- Identify new services, functionalities and resources urban areas have to provide to be competitive and attractive and support their development
- Design sustainable connectivity and accessibility infrastructure provisions combined with smart land use policy models to enhance socio-economic performance
- Promote the development of knowledge-intensive advanced technologies fostering economic growth, mobility and social integration; propose strategies for supporting the broad and efficient deployment of these new technologies
- Perform risk analysis to ensure an effective implementation of new (technological) solutions

2.4.   Modular approach

Research in the JPI URBAN EUROPE should be carried out in close cooperation with scientists, policy makers and companies so as to arrive at high levels of knowledge diffusion and implementation strategies for policy makers and public/private firms. An interdiciplinary perspective ensures the entire coverage of urban research issues as such, but also provides the opportunity to work on single research topics from different angles. The goal of the JPI URBAN EUROPE is to integrate issues starting from (1) understanding urban systems (interrelation of different urban dynamics, human-centered perspective, demand and user behavioural issues), to (2) pondering the implications of urban policies for new technological advances and socio-economic opportunities, and (3) reaching for the utilisation of new technologies and governance solutions. The outlined modules to be studied have a spatial (local, regional, national, international) and a time dimension (short-term to 2050). The three interrelated modules of output/outcome stress the applicability of research in URBAN EUROPE for the entire programme, but also for each of the four urban image themes.

Module 1: 'Understanding urban systems' addresses the analysis of urban systems and the processes of urban development. The emphasis lies in studying how different urban systems and networks are interrelated, which driving forces lie behind them, what future challenges affect the system and how urban areas have responded until now. The analysis of behavioural, acceptance and user issues are basic principles for understanding urban systems. Scenario and foresight for future development are pivotal in a first phase of the JPI URBAN EUROPE to discover arising potential contingencies and build the framework for module 2 and 3 (for further elaboration see SRA outline).

Module 2: 'Implications for urban policies' focuses on the policy implications derived from the analyses in module 1. Urban policies cover the entire spectrum from land-use planning, infrastructural development, ICT and energy issues, economic growth to social development and housing. The development of tools for new planning, management and governance models for future cities will be based on (i) a multidisciplinary analysis of social and economic developments to reduce and avoid social tensions in urban areas and (ii) the concept of "cities as service centres" to successfully operate cities, by providing efficient and resilient infrastructures such as energy, ICT, water, waste treatment and management, etc. (for further elaboration see SRA outline (JPI URBAN EUROPE, 2011).

Module 3: 'Utilisation of new technologies and governance solutions' addresses the application of this new understanding of urban systems to reshape urban development towards the broad goals of economic dynamics, ecological sustainability and social cohesion. Enhancing the diffusion and implementation of new technologies and concepts for socio-economic changes (which offer solutions to current urban problems like congestion, energy inefficiency etc.) is central for achieving the general aim of sustainable cities (for further elaboration see SRA outline).

2.5. Impact and Benefits

Benefits and Impacts on current / future RTD: The complexity of urban systems results in a cacophony of contributions from different research traditions (from a wide variety of different disciplines) while the 'local/regional' nature of the research object 'city/urban system' often implies (nationally or even regionally) segmented research (i.e. studying French cities, studying Nordic cities etc.). That is why URBAN EUROPE aims explicitly to integrate the various research strands and sets as its focus not only single cities but also the (European) urban system as a whole and the relations and interactions between cities within the system. URBAN EUROPE will *build upon activities and knowledge* of existing research programmes and initiatives to gain highest benefit. Thus, instead of focusing on specific subtopics and subsystems of urban development, URBAN EUROPE adopts a systemic and integrated perspective. In its focus on researching the socio-economic and governance dimensions of urban development and the design of respective tools and approaches (foresight, planning, simulation, assessment etc.) it will complement the current and ongoing technology-oriented initiatives (SET plan, various ERA-nets).

- A *multi-stakeholder approach* integrating local and national policy makers, governmental agencies and research organisations guarantees a multidimensional and complex coverage of urban development. URBAN EUROPE fosters the *establishment of a clearing house* for urban professionals aiming at well-coordinated and organised research structures and encouraging cooperation instead of competition.
- *Pooling and sharing of interdisciplinary and international experience and competence* will contribute to an efficient and optimal development of products and processes. Problems can be identified and solutions developed; a feat which no Member State is capable of resolving on its own.
- URBAN EUROPE aims at setting up a new *basis for future joint research projects* with close links between science, industry and policy.
- This requires the *establishment of a European learning community* on urban development for identifying best/worst practice examples and transferring it into European knowledge.

Benefits and Impacts on European Competitiveness: URBAN EUROPE emphasises the *specific uniqueness of European urban systems* (urban design and history) and the interrelation *between urban areas.* However, despite their great diversity, European cities and urban systems still encounter common future challenges. URBAN EUROPE approaches the *European network of urban centres* instead of only paying attention to selected cities. URBAN EUROPE will develop applicable and feasible tools and concepts for general use, but with specific adaptability. Specialisation and division of labour provides the freedom to conduct large-scale projects and pilot tests for specific solutions with a high transferability. The *European added value* lies in the fact that this initiative, through its systemic and trans-national nature, aims at creating a leading role of the unique European urban system in order to *strengthen competitiveness on a global scale*. Thus, enhancing the innovative milieus of European cities can result in a higher European competitiveness as a whole.

Social benefits and impacts: URBAN EUROPE explicitly addresses the problem of social cohesion within the rapidly changing social fabric (e.g. driven by economic & technological change, demographic change, migration etc.) of urban systems. Achieving the principal long-term aim of a liveable city contribute to various social benefits, such as reduced social tensions (and reduced costs to deal with these tensions), a general high quality of life and thus, a higher attractiveness of European

cities and urban areas. This will ultimately lead to a reinforced and beneficial cycle of urban development (via positive feedback-loops).

Ecological benefits and impacts: Through smart environmental and energy initiatives (e.g. smart grids, recycling, waste recuperation) and new transport logistics, cities may act as engines for ecologically-benign strategies, so that cities may become climate-neutral agents in a future space-economy. Thus, a broad diffusion and implementation of new technological solutions in these areas aiming at achieving "sustainable cities" will eventually result in huge beneficial ecological impacts, especially by strengthening the ability of urban areas to reduce and mitigate diseconomies of land-use and resource consumption.

3. Part II: Governance & Member State Participation

3.1. Governance structure (for development phase)

The structure of URBAN EUROPE has largely been made concrete after the endorsement by the Council on the 26th of May[5]. As illustrated below in Figure 7, the current structure adheres, to a large extent, to the plans outlined in the URBAN EUROPE concept report 'Global Challenges – Local Solutions'[6] as delivered to the High Level Group for Joint Programming (GPC). On the basis of this concept report, the GPC recommended the identification and substantiation of URBAN EUROPE, as one of the 'second wave' of JPIs to be endorsed by the Competitiveness Council in May. The bodies have remained the same as proposed in the concept report mentioned above, in some instances the names have changed[7].
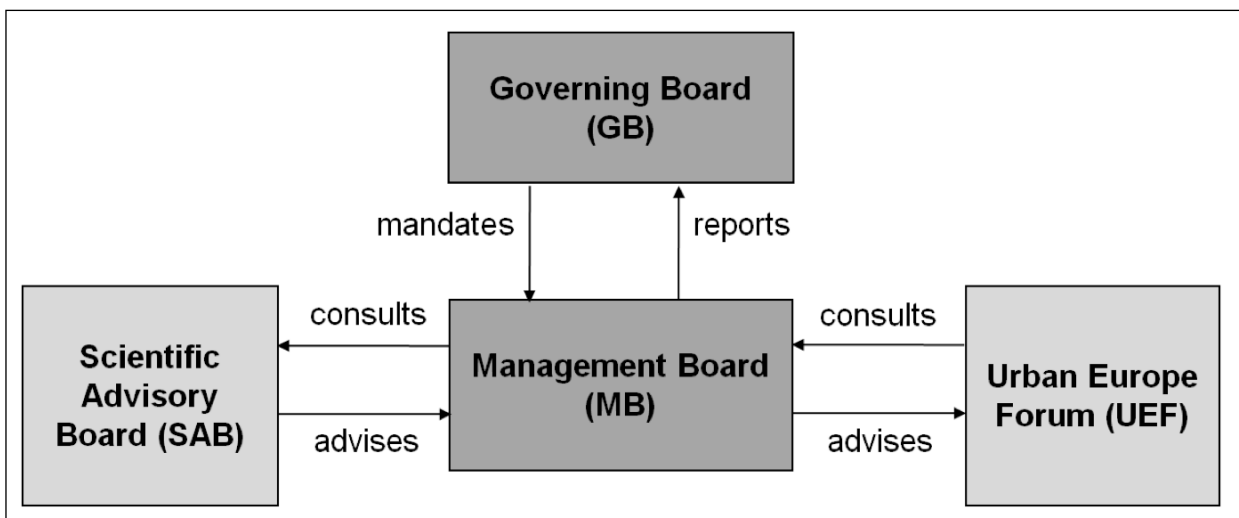

Figure 7: Governance structure URBAN EUROPE

On the basis of this structure, the Terms of Reference for the different bodies were drafted and subsequently presented to the Governing Board (GB) at its 2nd meeting in Stockholm on the 16th and 17th of December 2010. During this meeting the Governing Board unanimously adopted the Terms of Reference for the GB and Management Board (MB), and provisionally adopted the Terms of Reference for the Scientific Advisory Board (SAB). It was decided by the GB that with respect to the URBAN EUROPE Forum (UEF), Guidelines would be drafted instead of formal Terms of Reference in order to ensure a maximum amount of flexibility during the development phase of this particular body. In the next paragraphs further details on each of URBAN EUROPE's bodies will be given, with a special focus on development and (further) implementation.

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[5] See 3016th Competitiveness (Internal Market, Industry and Research) Council meeting - Brussels, 25 and 26 May 2010, Conclusions 10246/10.

[6] Joint Programming Initiative Urban Europe Global Challenges – Local Solutions, 20 April 2010.

[7] The 'Stakeholders Consultative Board' has been renamed the 'Urban Europe Forum (UEF)'.

3.1.1. Governing Board (GB)[8]

So far the Governing Board (GB) has held three meetings, each hosted by different participating URBAN EUROPE members. A brief overview of the goals, discussions and outcomes of these meetings is given below.

Inaugural Meeting, 28th of September 2010 held in Paris

The inaugural meeting of the GB in Paris marked the official launch of the governance structure of the JPI URBAN EUROPE. The main purpose of this first GB meeting was to establish a working structure capable of building and facilitating the development of a common vision and Strategic Research Agenda for the JPI URBAN EUROPE, whilst at the same time accommodating decisions by all participating countries. Participants identified a preparation or 'start-up' phase (from Jan 2011 – July 2011) during which most of the work would be done by means of task-sharing, including in-kind contributions from participating countries. During the subsequent implementation phase (from August 2011 onward) further preparations and execution will include (amongst others) a pivotal role for national funding institutions. In conclusion, this inaugural meeting paved the way towards (intensified) commitment of participating countries and the implementation of a roadmap towards joint programming.

For establishing the SAB a nomination and selection process was defined and all UE countries were asked to nominate candidates according to a defined set of criteria (international reputation, coverage of UE themes, etc.).

Second Meeting, 16th and 17th of December 2010 held in Stockholm

Steady progress on URBAN EUROPE was made in the time between the inaugural and second GB meeting. For example, the Management Board (MB) drafted Terms of Reference documents for all the respective URBAN EUROPE bodies, a Policy Visioning Workshop was held in Vienna on the basis of which draft vision and mission statements were composed. These and other issues, such as official appointments of member- and leadership roles in the structure, needed to be discussed and decided upon during this second GB meeting. Results of the meeting:

- **Structure**: The GB elected its Chair, Ingolf Schaedler (AT), and three Vice Chairs, Roel Gans (NL), Inger Gustafsson (SE) and Hélène Jacquot-Guimbal (FR). In the same way, the Director of the MB (Peter Nijkamp (NL)), two MB Vice Directors (Margit Noll (AT) and Hester Menninga (NL)) and all MB members were appointed by the GB (see Annex,

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[8] See Terms of Reference of the Governing Board (GB)

Table 6). Last but not least, a search committee was set up to identify and propose possible members of the Scientific Advisory Board (SAB) based on the set of criteria for SAB nomination and selection. The members of the search committee are representatives from Italy (Flavio Corradini), France (Gérard Hégron), and Sweden (Inger Gustafsson).

- Vision and mission statements were adopted for the JPI URBAN EUROPE[9], as well as the Terms of Reference for the GB and the MB. The Terms of Reference for the SAB were provisionally adopted for the start-up phase until June 2011, whereas it was decided that the UEF would be provided with Guidelines instead of formal Terms of Reference (see below).

- The GB also adopted the Work Plan and Budget[10] for the MB for the timeframe January – July 2011.

- **Commitment**: Those present during this second meeting stated their country's current position with respect to this joint programming initiative (i.e. member, observer) and their expected future roles within this initiative. Several members offered their services in hosting upcoming events and meetings.[11] In addition to these in-kind contributions of members, the GB invited all participating countries to contribute a sum of €5000 for the out-of-pocket costs of the MB during URBAN EUROPE's development phase (Jan-Jul 2011).

- Financial contributions of all URBAN EUROPE countries are under evaluation and will be discussed in the near future, as well as the budget proposal for the first implementation phase.

Third Meeting 22ⁿᵈ and 23ʳᵈ of February 2011 held in Rome

During this third meeting a variety of aspects were on the agenda, including the state of play of URBAN EUROPE in general, the draft outline of the Strategic Research Agenda and a general update on the (further) establishment of URBAN EUROPE bodies (URBAN EUROPE Forum and the Scientific Advisory Board). Dates for future GB meetings were set and important next steps were discussed.

3.1.2. Management Board (MB)[12]

The structure, responsibilities and activities of the Management Board (MB) during the development phase have been included in the MB Terms of Reference, as approved by the GB in Stockholm. In essence, the structure during the development phase will be the same as during the implementation phase. However, for clarity purposes it was deemed necessary to include the specific tasks and responsibilities of the MB during the development phase (or start-up phase, as it is coined in the MB Terms of Reference) in a separate article[13]. By including this specific article on tasks of the MB during the start-up phase, a clear message and mandate has been given to the MB as to its role and tasks

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[9] See Guidelines for the JPI URBAN EUROPE

[10] Work Plan and Budget, as presented by the MB in Stockholm, see also chapter 4.1.1 and 4.5.1.

[11] Besides the fact that the 1st GB meeting was already hosted by France (Sept. 2010), the 2nd by Sweden (Dec. 2010), the 3nd GB by Italy (Feb 2011), next GB meetings will be hosted by Turkey (April 2011) and Finland (June 2011). Ireland offered to host the SAB meeting on the Strategic Research Agenda (SRA), while Sweden and France offered to host additional meetings, as needed.

[12] See Terms of Reference of the Management Board (MB)

[13] Article 3 of the Terms of Reference of the MB

during the development phase, and has the added advantage of giving the MB enough leeway to undertake all (foreseen and unforeseen) activities necessary during the setting up of this joint programming initiative. Responsibilities are naturally related to the key ingredients of a joint programming initiative: the Strategic Research Agenda (SRA), Framework conditions for the implementation of the SRA, vision and mission, communication tools, and the (joint) development and implementation of research programmes.

On the basis of the approved Work Plan, the MB made further preparations for the Strategic Research Agenda (SRA) Workshop[14], Foresight activities, Framework conditions and for the setting up of the UEF and SAB. Tasks and responsibilities identified were divided into a total of six Work Packages (WPs):

- WP1 Strategic Research Agenda
- WP2 URBAN EUROPE Forum
- WP3 Foresight
- WP4 Framework Conditions
- WP5 Scientific Advisory Board
- WP6 Communication

As illustrated in Figure 8 individual MB members are each responsible for a specific Work Package. These individuals bring in a broad set of expertise in URBAN EUROPE-related research topics as well as management competences and back-office resources. During the development phase, the MB is especially organised by means of in-kind contributions and shared tasks giving countries the opportunity to engage directly in the development of the initiative. The composition of the MB in the development phase shows that participating countries of URBAN EUROPE have already bestowed a substantial amount of trust and given their commitment to the initiative in this first phase.

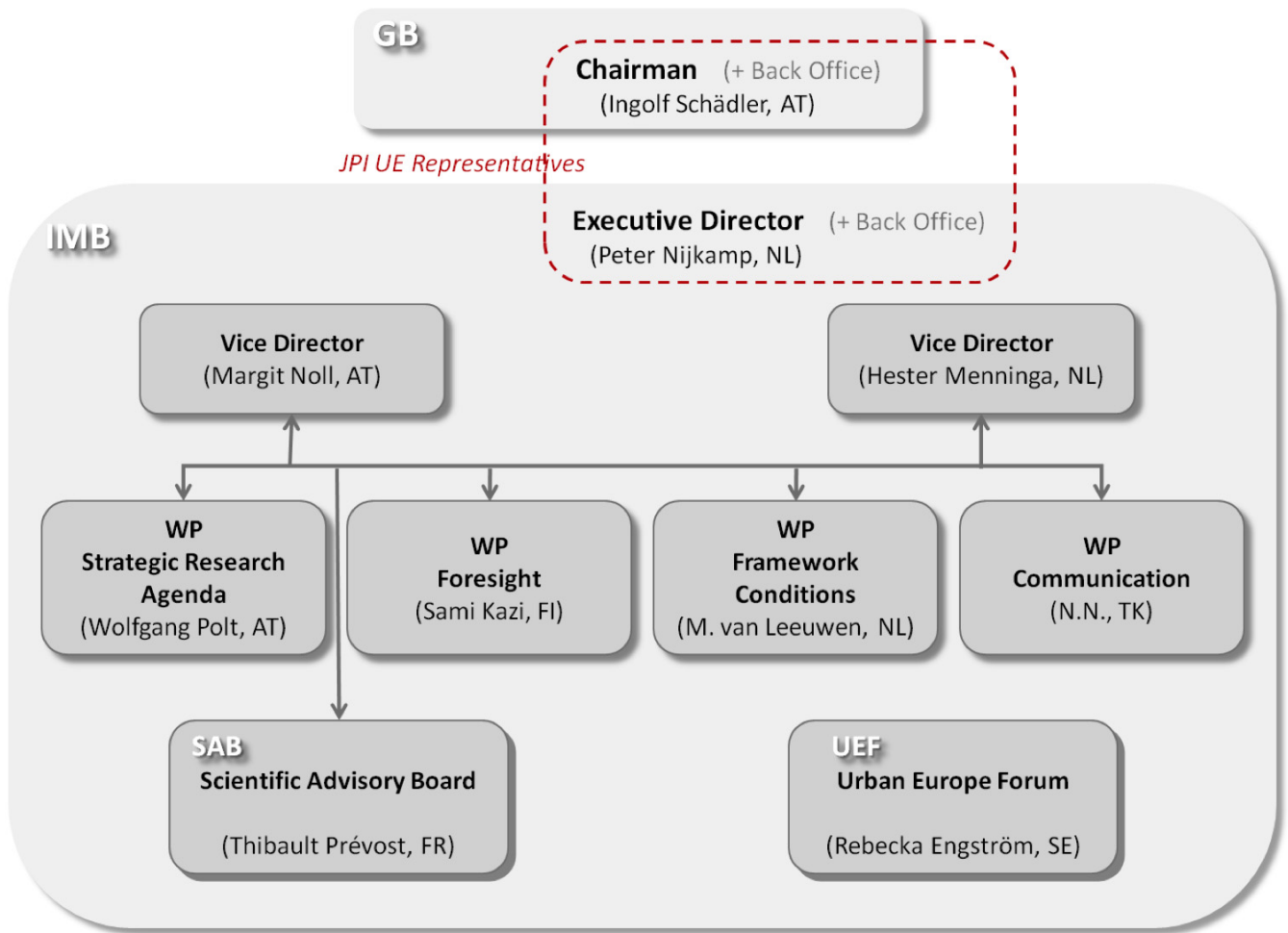[14] Held in Amsterdam on the 2nd and 3rd of February 2011.

Figure 8: Organisational structure of the Management Board for the development phase Jan – Jul 2011

3.1.3. Scientific Advisory Board (SAB)[15]

The Scientific Advisory Board (SAB) will play an important role for the JPI URBAN EUROPE by giving advice and feedback to the SRA and thematic development strategy. As such, the proposal of candidate members as well as the selection requires special attention. It was agreed upon during the 2nd GB meeting (in Stockholm) that members of the SAB would be responsible for the following tasks:

- advising the Governing Board and the Management Board regarding the general orientation of the strategic research agenda (SRA) in terms of scientific approach and thematic direction

- advising the Governing Board and the Management Board as to the strategic progression of the JPI URBAN EUROPE

- advising the Governing Board and the Management Board as to the evaluation and set-up of the JPI URBAN EUROPE

- supporting the Management Board and the URBAN EUROPE Forum with advice regarding their ongoing work whenever requested.

In order to select members of the SAB, a search or selection committee consisting of representatives from Italy, Sweden and France was set up during the GB meeting in Stockholm. The specific task of this committee is to propose a short-list of potential SAB members, to be discussed during the 3rd GB meeting on the 22nd of February in Rome. In preparation for this short-list, the MB was given the task to elaborate on certain selection criteria, paying particular attention to to the expertise needed for URBAN EUROPE: demography, migration research, urban economics, urban sociology/geography, intra- and inter-urban transport & mobility research, urban energy management, building planning and design, urban planning and design, urban technology and environment, innovation & sustainability research.

Representatives from the participating countries of Urban Europe were asked to each propose three experts from industry and science (research organizations and universities) as potential members of the Scientific Advisory Board of Urban Europe. So as to guarantee an unbiased selection procedure, members were asked to nominate international experts from countries other than their own and to additionally consider a balance in age, gender, expertise and geography with respect to their nominations. Criteria for SAB members included that candidates have excellent knowledge and are highly-established as experts in one or more fields of Urban Research[16] to support the vision of Urban Europe, have a proven track-record in interdisciplinary research activities, are able to engage in systemic thinking and have experience in strategy development in one or more of the Urban Europe pillars, have an excellent reputation and actively participate in relevant networks and, last but not least, have experience in combining basic and applied, policy-relevant[17] research.

The selection procedure will be concluded shortly and an inaugural meeting of the SAB is expected to be held before the end of the development phase in June 2011.

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[15] See Terms of Reference of the Scientific Advisory Board (SAB)

[16] e.g. urban economics; urban sociology/geography; intra- and inter-urban transport, mobility, supply chains and logistics; urban energy management, building planning and design, urban planning and design, urban technology and environment)

[17] e.g. advice of urban, regional or national administrations/governments and/or international bodies

3.1.4. URBAN EUROPE Forum (UEF)[18]

The URBAN EUROPE Forum is seen as the key element for establishing a sound relationship with the various stakeholders in the field of urban related research and as an important means for implementing the Research Agenda and the research results. According to the UEF Guidelines[19] the UEF has as its mission to '*contribute to creating awareness and the general positioning of* URBAN EUROPE *(UE), thus embedding and enhancing the relevance, innovation output and policy impact of the initiative.*' It focuses on the following activities within URBAN EUROPE:

- Definition of the role of UE in the context of other national, European and/or international initiatives relating to the field, especially in terms of providing input to the Scientific Research Agenda and other core documents or activities
- Establishment and management of an inclusive and efficient network of relevant stakeholders involved in the development of an URBAN EUROPE

- Exchange of information and best practices, raising awareness of UE and the results from activities within the initiative; UEF is the stakeholders' voice with respect to UE

- Evaluation, validation and implementation of outcomes and recommendations of UE

The UEF represents a platform of a broad spectrum of organisations and initiatives dedicated to one or more of UE research areas. European organisations have been approached with the view to cover the entire spectrum of the innovation chain, from European Technology Platforms or research associations of the various research fields (e.g. transport and energy related partnerships) to organisations representing civil society, cities and industry. This ensures that the URBAN EUROPE SRA is building upon the existing research and implementation measures and is providing additional and complementary efforts for the transition of European urban areas.

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[18] See Guidelines of the Urban Europe Forum (UEF)

[19] Governing Board meeting held on the 22nd and 23rd of February in Rome, Italy.

3.2. Involvement and commitment

The JPI URBAN EUROPE has quickly managed to engage and receive the commitment of the following Member States and Associate States (in alphabetical order): Austria, Denmark, Finland, France, Ireland, Italy, Malta, Netherlands, Sweden, Switzerland and Turkey. Table 2 shows these committed countries, their delegates and their respective institutions. As has been explained above, the GB is composed of high-level national representatives mandated to represent their countries (with one voting voice per country) and typically coming from a background of ministries, research councils and/or research organisations. This ensures that decisions taken in the Board are based on a national commitment and that implementation measures can finally be put into practice on national level.

The following additional countries have declared their interest and might join the JPI URBAN EUROPE at a later stage: Belgium, Estonia, Germany, Norway, Spain, and the United Kingdom.

Members of the initiative realize the importance of a JPI URBAN EUROPE being open to all interested European countries, and thus decided to renew the invitation to South-Eastern European countries to join and/or support URBAN EUROPE. In this way URBAN EUROPE acknowledges the need to gain broad support for the initiative, thereby engaging with countries from a wide range of research traditions and different research bases.

3.3. Involvement of stakeholders

3.3.1. URBAN EUROPE's own network of relevant stakeholders

The building of a proper network is a mutually-reinforcing course of action and URBAN EUROPE heavily relies on input from relevant stakeholders. As such, related stakeholder organisations have been involved continuously over the entire development process of this initiative. Emphasis has been given to continuously increasing the significance of stakeholder organizations, not only in number but also in thematic orientation. For example, when URBAN EUROPE held its first workshop[20] with the aim to further develop its vision and mission, careful attention was given to selecting and inviting as many relevant stakeholders as possible. Besides creating awareness of the initiative and generating an identity, this Policy Visioning Workshop was a highly interactive workshop where participants were specifically asked for their input. Stakeholders from a wide variety of professional backgrounds but all with a particular interest in the topics related to URBAN EUROPE, were able to meet, exchange ideas and give valuable insights into the design and content of this joint programming initiative. The outcome of this first workshop, besides already creating a valuable URBAN EUROPE stakeholder community, was a vision and mission statement[21] of the JPI URBAN EUROPE, adopted by the GB at the end of last year[22].

This first workshop consolidated the network of URBAN EUROPE stakeholders on which the Strategic Research Agenda (SRA) Workshop held in Amsterdam on the 2nd and 3rd of February, could build and elaborate. The development of the URBAN EUROPE SRA is drawing on the outcome of this workshop and continued participation of all relevant stakeholders. The interactive formula applied during the Policy Visioning Workshop in 2010, that is, engaging all stakeholders and participating Member and Associate States, was again successfully applied during the SRA Workshop, resulting in a first draft SRA.

To gain broad commitment on national level for URBAN EUROPE, stakeholder consultation processes have already been started in various participating countries. These processes involve information sharing and discussions with the numerous players active in the innovation chain – from universities, research organisations, public bodies, funding agencies to industry-driven stakeholder organisations and city administration. This development of the national URBAN EUROPE communities is seen as crucial for the initiative's further development as its success relies heavily on the interplay between all these organisations as well as on the mobilisation of their research and innovation potential.

3.3.2. URBAN EUROPE Forum (UEF)

The URBAN EUROPE Forum has been explicitly set up to intensify cooperation and collaboration with existing and new players in the urban stakeholder community on the national, international and EU levels. The UEF is currently under implementation; however several potential members of the UEF have already been involved in the development process of the JPI from the very beginning, such as

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[20] Policy Visioning Workshop held on the 30th of November and 1st of December 2010, in Vienna.

[21] See vision and mission

[22] GB meeting on the 16th and 17th of December 2010, in Stockholm.

the European Energy Research Alliance EERA, POLIS, the European Construction Technology Platform ECTP, URBAN-NET, transport-net, etc.

As a starting point for a more formal establishment of the Forum a first meeting was held during the SRA Workshop on the 3rd of February 2011. Participants of this fist meeting form a small inner circle of representatives from European organizations and networks expected to have a future leading position in UEF. Once the final framework of the UEF has been decided upon and approved by the GB, a wider range of stakeholders (from organizations and industry with technological urban focus to organizations representing civil society) will be selected and subsequently be invited for future consultations and other such events. A strong relationship and active involvement of cities and urban areas themselves should play a crucial role in a successful joint programming initiative URBAN EUROPE (i.e. through test beds, data generation, experience exchange, etc).

3.4 JPI URBAN EUROPE Outreach Activities

The JPI URBAN EUROPE is fast becoming an important player among the networks and organizations active in the urban field. A variety of stakeholder networks and organizations have already shown (and continue to show) a marked interest in (the further development of) this initiative. On invitation, presentations have been given at a variety of workshops and events, both at national and European levels; In May 2010, for example, URBAN EUROPE was presented at the RealCorp 15th international conference on urban planning, regional development and information society, in Austria. This is an ongoing relationship, as URBAN EUROPE will again be present in the 2011 conference to be held in Germany. The European Automotive Research Partners Association (EARPA) 2010 conference was another occasion where URBAN EUROPE was presented. On invitation URBAN EUROPE participated in an Exploratory COST Workshop dedicated to "The Futures of the City" on the 24th and 25th of November 2010 and in the yearly conference of URBAN-NET 2010 and has been invited to give a presentation during the final URBAN-NET conference to be held in Malmo, Sweden on the 23rd and 24th of March 2011[23].

The development and implementation of the JPI URBAN EUROPE research plan will run parallel to various complementary activities that serve to make the work visible to a much broader audience, also outside Europe. At present, the following outreach activities are foreseen:

- Development of a close cooperation with China, which might lead to an URBAN CHINA initiative.
- Development of scientific cooperation through the bi-annual Conference of African geographers, which might lead to the concept of URBAN AFRICA (September 2011)

- Organization of a special URBAN EUROPE session at the annual European Conference of the Regional Science Association International (Barcelona, August 2011), exploring an URBAN WORLD vision

- Organization of a special URBAN EUROPE at the Joint Institute of Innovation Policy 2011 Symposium "Making Cities and Regions Fit for Innovation" in Brussels (18.04.2011)

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[23] http://www.urban-net.org/Events_Meetings/Stakeholder_Workshop_5

- Organization of a joint workshop with the Sections Sociology and Economics of the Academia Europaea on the theme of 'Urban Mobility and Cultural Diversity', at their annual conference (Paris, September 2011)

- Organization of an annual international HOLLAND lecture on URBAN EUROPE by an international urban top-star

- Organization of international URBAN EUROPE thematic expert group for one year at the Netherlands Institute for Advanced Studies (NIAS) in Wassenaar (near The Hague)

- Organization of international URBAN EUROPE launching conference (2011-2012)

This process of engaging with other networks, organizations and initiatives is ongoing and open. It is URBAN EUROPE's explicit ambition to cooperate and collaborate with existing programmes, networks and organizations, and find the added value in working together, thereby avoiding inefficient and costly overlap in research and activities. Consequently, (interactive) events such as the Policy Visioning Workshop and the SRA Workshop are crucial in gathering information on existing research themes and programmes, as well as for identifying at so-called 'black holes' where additional research is required.

3.3.3. Communication

During the GB meeting held on the 22nd and 23rd of February, URBAN EUROPE officially launched its website (www.jpi-urbaneurope.eu). At this stage the website is mainly aimed at informing URBAN EUROPE members, stakeholders and other interested parties of the progress of URBAN EUROPE. In doing so, Member and Associated States currently not yet committed to the initiative can closely follow the development of the JPI URBAN EUROPE and be in direct contact (by means of e-mail address info@jpi-urbaneurope.eu) in case of any questions and queries. This of course also applies to any other interested party who visits the website.
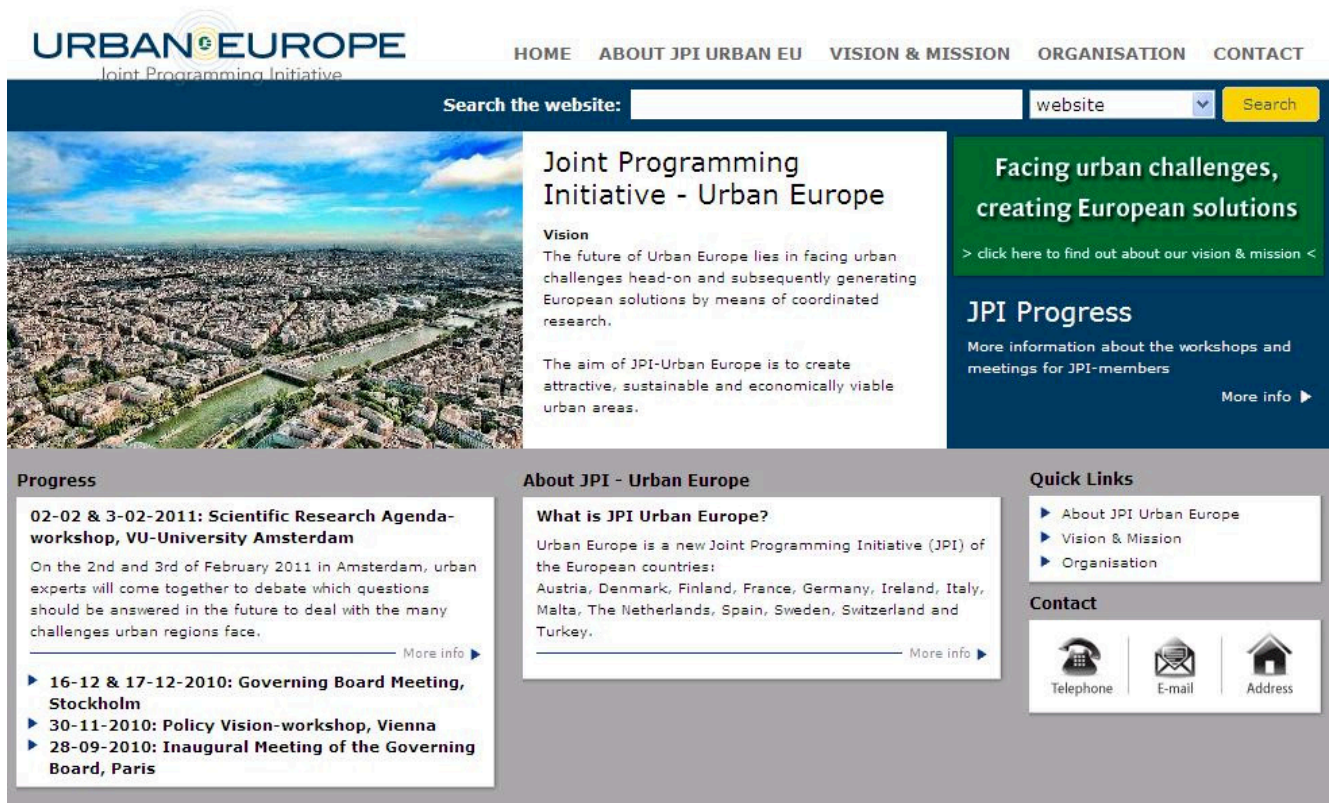
Figure 7: URBAN EUROPE homepage

The current draft layout and functionality will be expanded step by step and refined towards a professionally designed web-presence.

Internal and external communication is seen as essential since URBAN EUROPE aims at being an open initiative with well established links to national, European and international stakeholders – the research and innovation community, cities, policy makers, companies, etc. The communication strategy includes therefore various measures to inform on the objectives, the research agenda and the progress of URBAN EUROPE and to outline opportunities for joint activities and cooperation, with special emphasis on integrating interested parties in the development and implementation of the research agenda. A detailed communication concept that is currently under development takes the following elements into account

- internal communication measures for implementing efficient workflows and information exchange for all URBAN EUROPE bodies

- communication material informing on the progress of URBAN EUROPE, its strategic research agenda, research programmes, etc.

- publications and public information of research results

4 Part III: UE Roadmap and implementation plan

4.1 Overall work programme & roadmap

The URBAN EUROPE Work Programme has been specifically drafted to
- establish URBAN EUROPE as a key research initiative in the European Research Area
- pass the EC and Council assessment as part of the 2nd wave before summer 2011 and by that
- enter the implementation phase by mid 2011.

The proposed work programme for the development phase of URBAN EUROPE specifically covers the timeframe January to July 2011, scheduling all the activities required to reach these objectives and achieve URBAN EUROPE's goals. In relation to the given targets, the work programme 2010-2011 comprises the following main activities:

- Implementation of all management and decision making bodies
- Development of the Strategic Research Agenda (SRA) with a special focus on the pilot implementation phase of the first 2 years

- Establishment of and liaison with the Scientific Advisory Board (SAB)

- Establishment of and liaison with the URBAN EUROPE Forum (UEF)

- Elaboration of framework conditions for the pilot implementation phase

- Communication measures – internal and external – addressing stakeholders and interested parties

- Development of a joint EC (European Foresight Platform) – URBAN EUROPE concept for URBAN EUROPE Forward Looking Activities

- Liaison with the EC with special emphasis on the relationship with the European Innovation Partnerships

4.1.1 URBAN EUROPE Roadmap

Figure 9 summarizes the overall URBAN EUROPE Roadmap for 2010 – 2011, depicting the development process pertaining to all relevant concepts, decisions in the various URBAN EUROPE bodies and subsequently leading to the implementation phase. The respective Governing Board (GB) decisions and milestones are also indicated.
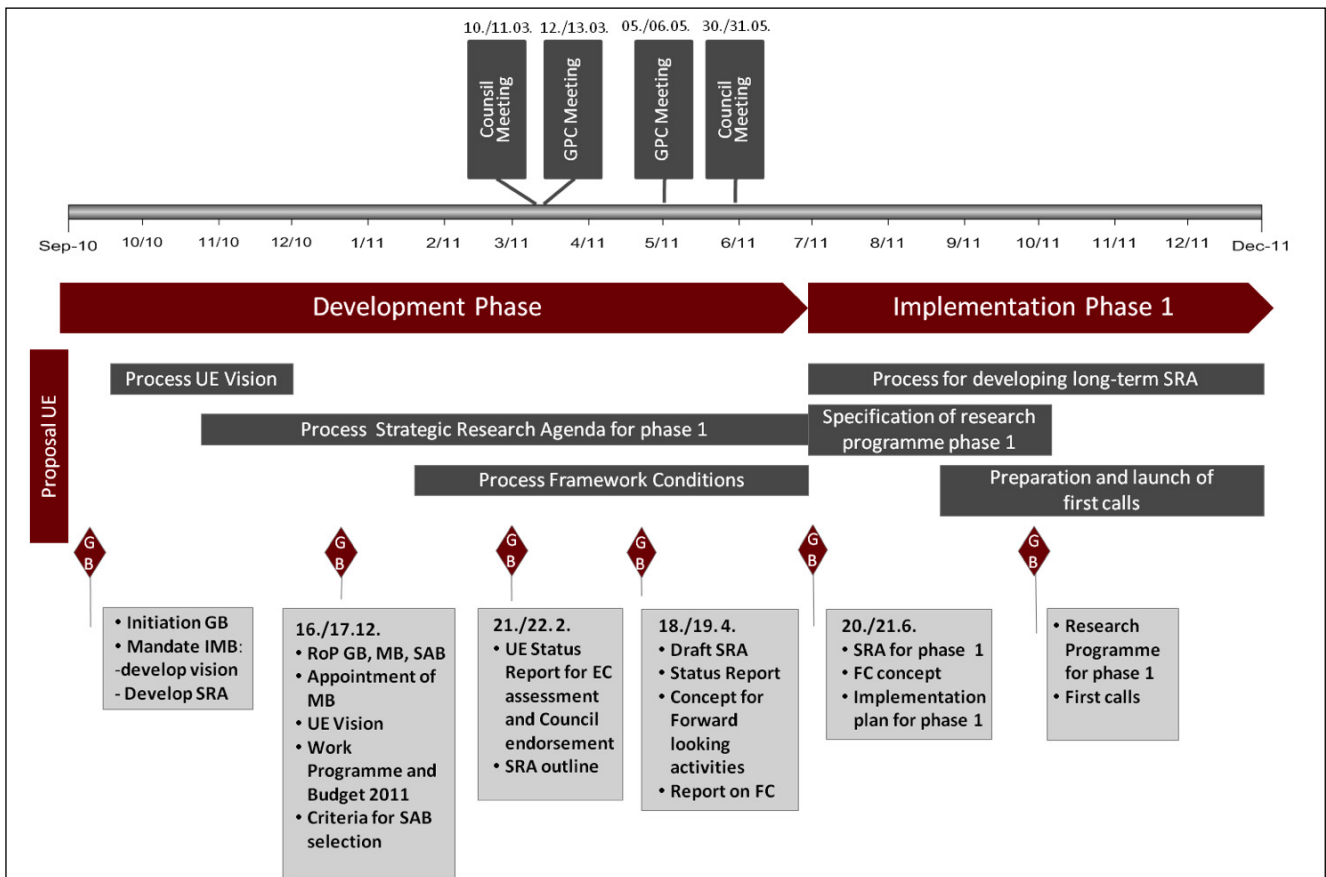
Figure 9: UE roadmap 2010-2011, indicating the main phases, tasks and milestones leading to the first implementation phase

The main purpose and goal of this work programme is to put in place an efficient and effective governance structure and to develop the main strategies and frameworks in order for URBAN EUROPE to successfully enter the pilot implementation phase by the 2nd half of 2011. This requires – besides the development of a Strategic Research Agenda – the development of an 'implementation concept', including the identification of relevant instruments, the definition of the further strategy process and the specification of particular pilot projects.
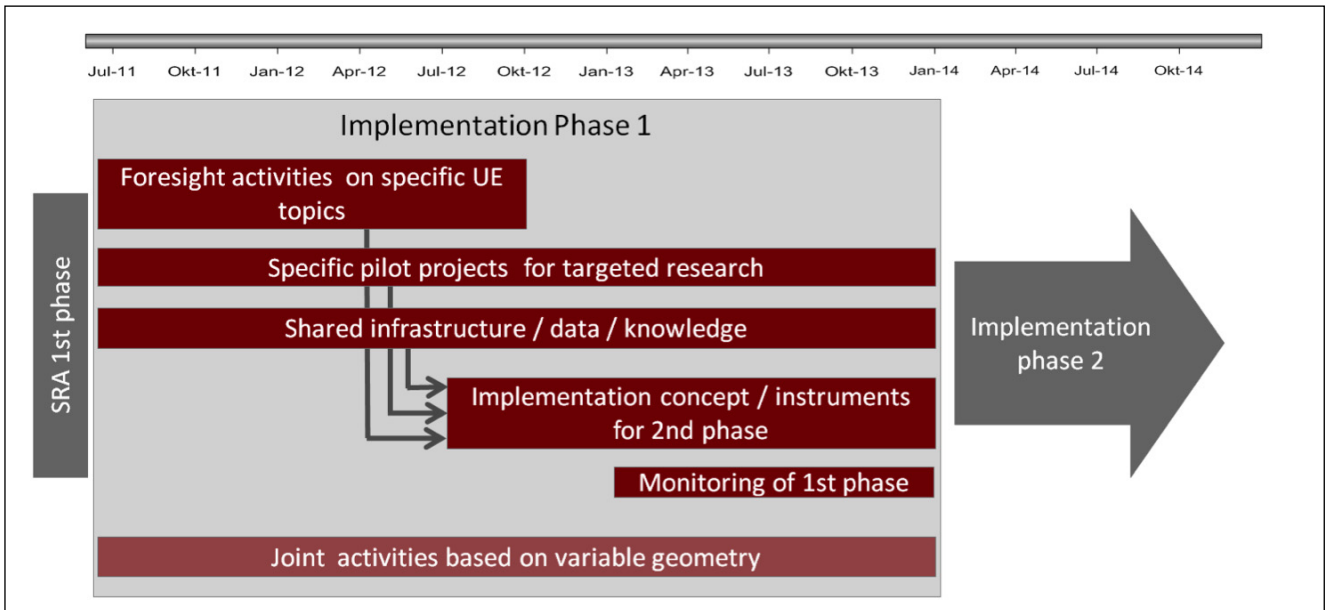
4.2   Implementation roadmap

The participating members of the JPI URBAN EUROPE are fully aware that a full-fledged Strategic Research Agenda cannot be developed within a few months; the drafting and re-drafting process leading to a high-quality SRA requires substantial time and effort. At the same time, these members also acknowledge the need for the initiative to become operational sooner rather than later, as urban issues are high on the national and international political agenda. Therefore the participating countries agreed on developing a first SRA that provides the baseline for further expansion and a joint understanding of the main research areas in the context of URBAN EUROPE. This first SRA should be based on URBAN EUROPE's vision and mission and must identify those research needs that have to be addressed in the short-term within a 2-year pilot phase.

The overall implementation concept therefore comprises a first phase of 2 years based mainly on the SRA Outline and – drawing on the results of this pilot phase – (at least) a second phase of 4 to 5 years. Multiple elements and instruments will be applied during the pilot phase to ensure an efficient implementation of the Research Agenda by taking highest advantage of existing instruments, national and European research strategies and involvement of all relevant stakeholders (see section above). The first implementation phase will entail the following activities:

- **Module 1 – Forward-looking activities:** foresight processes outlined to develop long-term scenarios in core areas of URBAN EUROPE and designed and organised with the main target of developing a long-term Strategic Research Agenda
- **Module 2 – Specific pilot projects:** According to the identified research needs, a call will be issued for pilot projects allowing for a deepening of the understanding of urban areas in relation to the Research Agenda, a development of a common knowledge basis across URBAN EUROPE countries and the provision of substantial research results for formulating the long-term SRA

- **Module 3 – Sharing existing infrastructure, data and knowledge** within URBAN EUROPE to enhance the broad utilisation of existing research results and infrastructure as well as to establish a platform for the research and innovation community.

- These three modules will feed into **Module 4 – the development of the long-term implementation concept** including the long-term Strategic Research Agenda and the selection and/or development of appropriate instruments for the 2nd implementation phase starting in 2014.

- These core activities of the pilot implementation phase are supplemented by **Module 5 – implementing first joint activities and strategies** on a bilateral or multilateral basis using a variable geometry even among the participants of the JPI. Those first joint calls or programmes can be developed on an a-la-carte basis, involving bilateral or multilateral collaborations, and refer to both, the URBAN EUROPE SRA and national strategies and core research areas.

Figure 10 illustrates the implementation roadmap and the interplay of the different elements and instruments that would be used in the first phase in preparation of the second phase.

Figure 10: URBAN EUROPE Implementation Roadmap 2011 – 2014

For an efficient implementation of the roadmap, appropriate framework conditions must be applied. Therefore, based on the defined SRA, URBAN EUROPE will identify the relevant instruments, cooperation and funding rules. Special emphasis will be given to existing instruments and procedures, in order to take advantage of them as much as possible, especially in the pilot implementation phase. ERA-NET types of framework conditions will most likely be applied during this first phase. Based on the concept for the pilot call, detailed requirements for the specific submission, evaluation and funding conditions will be developed.

In the long run more specific framework conditions may be required to implement the long-term SRA and will be developed for the second implementation phase.

4.3　Pilot phase

As indicated in the implementation roadmap (Figure 10) the first 2-year phase of URBAN EUROPE will begin during the 2nd half of 2011 and is seen as a pilot phase with the objectives

- to develop a common ground for further research strategies and activities by addressing some basic research questions identified in the SRA outline,
- to accomplish foresight processes for elaborating long-term scenarios for urban areas and a long-term strategic research agenda
- to start aligning existing national research programmes and instruments on a bilateral or multilateral basis for funding research activities according to national strategies
- to improve broad utilisation of existing infrastructure, data and knowledge by fostering information exchange and establishing a knowledge platform
- to establish a solid partnership with the various stakeholders in such a way that all relevant players are connected within URBAN EUROPE and can participate in the implementation activities
- to integrate cities by evaluating model cities, collecting new real-time data for improved scenarios, and assessing the requirements for new concepts, and finally
- to prepare the second implementation phase of URBAN EUROPE with dedicated instruments and specific research programmes along the long-term SRA

To achieve these multiple objectives, a variety of instruments and modules will be applied, which are interrelated by feedback loops in preparation for the second phase. These modules are described in more detail in the following sections.

The main deliverables of this pilot implementation phase are:

- scenarios of long-term urban developments, their boundary conditions and related research and innovation demands
- an improved understanding of future trends and research needs along the defined research themes
- first research results closing knowledge gaps, evaluating new research approaches and assessing good practice examples
- a strengthening of the European research and innovation community by joining forces and aligning national programmes
- a URBAN EUROPE platform for the related research and innovation community integrating the various stakeholders and disciplines
- an update of the first SRA outline towards a long-term research strategy
- a concept for the second implementation phase for 2014+ including adapted or newly developed instruments that support the realisation of the research strategy

All these results and experiences provide substantial input for the second phase. Although the first phase will be focused on existing instruments as far as possible, specific framework conditions may be required for the long-term, implementation.

Finally, continuous monitoring is critical in order to ensure a high quality of the programmes, instruments and research activities as well as to assess whether the objectives have been met accordingly. For this purpose a monitoring process will be installed on both a strategic and operational level together with the first forward looking activities.

4.3.1 Foresight

Foresight activities are seen as a highly relevant instrument for developing and assessing long-term scenarios and developing strategies for implementing the research agenda of URBAN EUROPE. The key element will be a broad stakeholder participation of R&D actors and companies, public authorities and politicians. In the context of URBAN EUROPE such a foresight process offers the possibility of supporting the transition process of urban areas by

- considering and integrating technological, social, economic and ecological perspectives and their respective stakeholder groups
- developing a common understanding of all stakeholder groups on the needs and opportunities for European cities in an international context and the related paradigm shifts regarding innovation and urban systems

- elaborating perspectives and scenarios to overcome the complex set of existing challenges, and

- providing substantial input for long-term research agendas.

A foresight process will therefore be launched by mid 2011, to allow for a detailed investigation of urban scenarios and the deduction of long-term research demands according to the mission statement of the JPI URBAN EUROPE.

The forward-looking activity "URBAN EUROPE 2050+" aims to deliver its main results around mid-2012 in order to support the long-term strategic research agenda. The activity will be focused on long-term scenarios of urban areas and, as such, be geared towards investigating the' demands and opportunities of urban areas and formulating key research questions accordingly. This process will be performed in cooperation with the European Foresight Platform and (therefore) with support from the EC.

A concept for this foresight exercise is under development and will be based on the following elements:

- Screening and analysis of existing FLAs (pre-foresight)
  By systematically analysing the results of relevant and already existing FLAs, drivers for scenario development, possible future challenges and needs, and opportunities for action can be synthesized.

- Scenario development
  Urban scenarios will be developed so that possible and desirable future development paths of urban areas can be explored. These scenarios will be differentiated according to the different types of urban areas that exist. Formulating scenario pathways will be part of this activity, applying a combination of qualitative and quantitative methods. In particular, the scenario development will build on long-term trends and drivers identified in the pre-foresight phase, and will be refined in subsequent scenario development workshops.

- Identification of specific urban challenges and needs

  For realising the scenarios, specific challenges will be tackled and identified. The screening results of the pre-foresight phase will provide first inputs for this activity.

- Identification of urban future opportunities

  Technological and non-technological opportunities for tackling the specific urban challenges and needs derived from these challenges, will be identified. The FLA screening will be of great value in this step, but will not be the main ingredient. At its core it will be based on a portfolio approach in which "packages" of options will be identified for addressing complex urban challenges. An assessment of these packages will point to those research needs that must be addressed in order to make these options a reality.

- Priority-setting and programming

  The assessment of portfolios of options will deliver a fairly broad list of research needs. Priority-setting will then be applied to this list, taking into account criteria such as the "robustness" of these packages and their relevance for different urban scenarios, but also their suitability for being addressed in the context of joint research actions by several countries. The priorities then will be made further operational for developing a joint SRA and programme.

4.3.2 Pilot projects

While the *foresight* module is aimed at specifying long-term research needs and strategies, the *pilot projects* module is aimed at creating a deeper understanding of urban complexity and addresses specific short-term research questions that have been identified in the first SRA. According to the SRA and its research themes, these pilot projects will focus on

- the assessment of good practice solutions and their potential for broader implementation
- the generation of new data, respectively the integration of existing and new data for validating new concepts and providing essential input for new models and solutions
- the assessment of user demands as well as (technological) risks for new urban (technological) solutions
- the development of first integrative concepts along the defined URBAN EUROPE research themes

Within this frame a concept for the pilot projects will be developed that allows for targeted research within a two-year time span. The pilot call aims at integrating all URBAN EUROPE countries and supporting first joint activities as well as contributing to the development of a common knowledge basis.

4.3.3 Shared infrastructure, data and knowledge

In the context of urban-related research, manifold research results are already available, research infrastructure has been established all across Europe, comprehensive sets of data have been generated and experience is continuously being gained with respect to successful or less successful

approaches and solutions. Urban Europe puts high emphasis on the broad and comprehensive utilisation of this existing data, infrastructure and knowledge, which requires awareness and availability of this stock of resources. Therefore an Urban Europe exchange platform will be developed by organising thematic workshops and conferences to foster information and experience exchange, link various disciplines and initiate new partnerships and cooperation.

According to the strategic themes, the relevant areas that especially require such a platform and structured stock-taking will be identified. Based on these results appropriate measures can be developed to provide European-wide access to such infrastructure and data.

4.3.4 Joint bilateral activities

All the above mentioned modules represent core activities of Urban Europe in the first (pilot) implementation phase. Based on existing instruments and on a first dedicated Urban Europe budget these joint activities will be launched around the end of 2011 or beginning of 2012. However, for a broader implementation additional measures are required. The development and launch of bilateral or multilateral research programmes and calls using a variable geometry will speed up the implementation of joint activities and strengthen the Urban Europe community. First current joint initiatives on such a bilateral basis have already been identified, however, in the context of the Urban Europe strategy the potential for aligning national research and innovation programmes and strategies is much higher. In line with national research foci and a variable geometry, high priority will be given to establishing first bilateral cooperation communities under the umbrella of Urban Europe.

Various instruments seem possible in this context, like streamlining national research programmes, providing in-kind contributions for joint research activities or developing ERA-NET-like programmes. Although these activities have to be triggered and performed on national levels, Urban Europe will support these initiatives with respect to relevant framework conditions, best practice examples or strategic guidelines.

4.4 Framework conditions

The overall aim of Joint Programming is to pool national research efforts in order to make better use of Europe's precious public R&D resources and to tackle common European (societal) challenges more effectively within a few key areas. JPI URBAN EUROPE aims to create attractive, sustainable and economically viable urban areas, in which European citizens, communities and their surroundings can thrive. The coordination of individual research actions in the urban field will ensure that European urban areas are not only aware of their own strengths and weaknesses, but are also confident and able to adapt and prosper in the international setting. It is crucial not only to understand the urban future, but to help shape it by making research on the European level more efficient and comprehensive.

Based on the URBAN EUROPE Vision, the Strategic Research Agenda provides a framework to describe the key elements for achieving the strategy. In the long-term perspective (starting with implementation phase 2) these will result in the formulation of research programmes which can be realised in several ways. In some cases existing programmes will be available in a few or all of the participating countries. In this case connecting and pooling of research capacity will be a necessity as well as a great added value. Workshops and conferences can be organised to bring researchers together and initiate joint research within the framework of URBAN EUROPE. Common projects on (geographical) data gathering, data sharing and interlinking of existing data are much needed actions and therefore a priority for URBAN EUROPE. Cooperation of researchers in different countries will be stimulated as much as possible before looking at financing new researchers. For this type of joint programming, coordination (and actions geared towards coordination) is key, and must be given sufficient attention. Drawing on the experience of existing cooperation on programme and institutional levels will be key to the implementation. Therefore the document on "Voluntary guidelines on framework conditions for joint programming in research 2010", as agreed by the GPC at its meeting on 4 November 2010 will serve as a basis for any further discussion within the JPI URBAN EUROPE[24].

At the same time, however, there will some cases in which there is very little existing knowledge on the subject and where no national programmes on specific subjects exist. In this case a joint call is needed to bring together individual researchers from different countries together to participate in collaborative research projects. This may be done in a number of different ways.

- Countries may decide to finance researchers engaged in internationally-orientated projects in their own countries. In this case URBAN EUROPE will still review and assess proposals.

- Another way is to organise a virtual common pot (on the basis of 'juste retour'), or a real common pot, to finance big research and development projects on the trans-national level. Joint calls may be organised to implement pilot-projects in cities (development). In this case researchers, urban professionals and possibly also corporations will need to cooperate in research projects.

- Joint calls may also be organised specifically to yield scientific breakthroughs by means of fundamental research. In this case funding for PhD's and Post-docs especially may be required.

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[24] http://www.era.gv.at/space/11442/directory/19999/doc/21643.html

All these instruments will be assessed as well as their principal applicability for Urban Europe, after which, according to the specific research programme, the appropriate instruments will be chosen.

The first phase of Urban Europe will be based on instruments and framework conditions that are already available in (most of) the participating countries. A quick implementation is considered crucial for the first phase, which requires utilizing already existing framework conditions as far as possible.

In the longer run the demands for new instruments, joint national or European programmes or additional implementation measures will be investigated within the context of the long-term SRA and the framework conditions will be aligned with this new context and be developed accordingly.

4.4.1 Instruments for the pilot phase

The pilot phase for implementing the Urban Europe Strategic Research Agenda (SRA) by organising joint calls of new or existing research programmes as well as institutional collaboration across borders (based on the experience of the European Energy Research Alliance – EERA) will already start in 2011. A pilot call will be organised in the Autumn of 2011 to start off cooperation between the participating countries. This first pilot call, although relatively small in size, will have the ambition to integrate (activities of) all countries. The participation of all UE countries is seen as an essential step for developing a common understanding, view and baseline with respect to future (joint) research programmes.

The first joint call aims to support high quality multidisciplinary research and cover specific research questions that have been defined in the SRA. The conditions for project submission are under development and will draw on the standard conditions of FP7 or particular national programmes as outlined in the Framework Conditions guidelines of the GPC.

A proposal for evaluation and selection procedures will be developed according to international standards, e.g. FP7 procedures. Existing procedures will be used as much as possible. Interplay with national funding agencies and their well-established processes, as well as a role of the SAB in this evaluation procedure, is currently under discussion. In addition, funding conditions – national funding based on international evaluation, common pot or virtual common pot – are also under development.

The funding conditions for the projects will require all involved scientists to engage actively in networking among various existing and/or new projects, in order to build a proper programme. This will create scientific synergy and added value for Urban Europe. Networking, collaboration and dissemination activities to facilitate cross-project communication of funded projects, exchange of information and the presentation and discussion of results will be essential elements of the programme.

4.4.2 Monitoring of Urban Europe

Establishing Urban Europe as a key research initiative in the European Research Area demands a highly efficient management structure, high quality research programmes and scientific output as well as the utmost effectiveness of available funding. Urban Europe will therefore implement monitoring

and evaluation procedures on a strategic as well as on an operational level. The following elements will be elements of the monitoring system:

- The current governance structure ensures continuous reporting from the Management Board to the Governing Board.
- On a strategic level the Scientific Advisory Board acts as an evaluation panel by reviewing the Strategic Research Agenda and evaluating the achieved results according to the defined strategy.
- On an operational level an evaluation of the research programmes and calls will be performed focusing on efficiency and effectiveness of the provided funding.

Accompanying the development of the framework conditions and the first call, a monitoring concept will be elaborated on in more detail, defining the monitoring criteria and the relevant bodies and their roles.

4.5   URBAN EUROPE Budget

4.5.1   Budget for development phase

The development phase of Urban Europe started already in June 2010 with a kick-off meeting with all interested countries. From that time on, all the activities have been financed by in-kind contributions provided by a constantly increasing number of countries.

Table 2 summarizes the estimated costs for the development phase June to December 2010 that have come up to set up the governance structure, develop the Terms of Reference for all the governance bodies, organise the first GB and MB meetings as well as the Vision Workshop and develop the URBAN EUROPE vision and mission statement.

For the development phase 2011 a budget has been proposed comprising again substantial in-kind contributions from all participating countries (Table 3). The members of the Management Board are provided in the form of secondments made by various countries, the efforts of the Governing Board are based on in-kind contributions as well. As mentioned in the section on Governance, meetings are organised and financed by voluntary hosts in the participating countries. This shows the commitment of the countries to URBAN EUROPE and allows the involvement of many different stakeholders and partners in the process.

However, in addition to these in-kind contributions, a sufficient amount of cash will be needed for the development phase, such as for creating a homepage, establishing and maintaining a communication infrastructure and covering some travel expenses for experts invited to workshops. For this purpose the Governing Board decided to invite all members to pay a "fee" of EUR 5.000,- as an additional commitment of the countries.

Table 2: Estimated in-kind contributions for the development phase Jun – Dec 2010

in-kind contributions	country	estimated costs
MB	NL (5 persons)	250.000
	AT (5 persons)	250.000
	SE (1 person)	50.000
	FR (1 person)	50.000
	FI (1 person)	50.000
GB	all countries	150.000
travel costs	all countries	60.000
organisation of meetings and Vision Workshop	NL, AT, FR, SE	30.000
total		**890.000**

Table 3: Costs of work programme Jan – Jul 2011

Contributions	Tasks	Costs in €	Costs in €
cash	SRA development	60.000	174.500
	Framework conditions	32.000	
	Foresight (preparing activities)	16.000	
	Communication	30.000	
	Scientific Advisory Board	24.000	
	URBAN EUROPE Forum	12.500	
in-kind	Management Board	1.197.500	2.114.150
	Governing Board	444.000	
	Scientific Advisory Board	240.000	
	URBAN EUROPE Forum	232.650	
total budget			**2.288.650**

4.5.2 Budget for pilot phase

According to the implementation roadmap a budget will be proposed that will be used to

- finance the pilot call
- perform the foresight activities
- manage and further develop the initiative during the pilot phase through
    - management capacity for strategy development
    - SAB meetings
    - administration of pilot call
    - organisations of workshops and conferences
    - communication

4.6   Resources

The resources required to implement URBAN EUROPE on a broad scale are manifold:

- Governance and management capacity has to be provided to strategically develop and operationally manage the entire initiative. According to the profiles of the members of the Governing Board as well as those of the Management Board of the start-up phase comprehensive scientific and management capacity is available (Table 7).
- Stakeholder organisations and initiatives are involved as partners for implementing the SRA by building upon the different strategic orientations and technological / methodical approaches.

- For developing the framework conditions and implementing the SRA national funding agencies will be involved in order to administer and support the calls for projects.

- The European research and innovation community will be directly involved by engaging in the various projects and implementation measures . Several countries already started consultation and engagement processes on a national level. This development of the national UE community is of high importance since the success of URBAN EUROPE relies to a large extent on the interplay of all these organisations and the mobilisation of their research and innovation potential in the course of the implementation of the SRA.

Finally, for implementing the SRA, URBAN EUROPE is focusing on joining and cross-linking forces of various disciplines and research areas where high level expertise is available in all the related fields. Therefore URBAN EUROPE will use this pool of expertise to add new research approaches and push and strengthen urban-related research along the SRA.

5 References

Acs, Z.J., *Innovation and the Growth of Cities*, Edward Elgar, Cheltenham, 2002.

Alonso, W., Location and Land Use, Harvard University Press, Cambridge, MA, 1964

Bertolini, L., Fostering Urbanity in a Mobile Society. Linking Concepts and Practices, *Journal of Urban Design*, vol. 11, no. 3, 2006, pp. 319-334

Bögenhold, D., U. Fachinger and R. Leicht, Self-employment and Wealth Creation, *International Journal of Entrepreneurship and Innovation,* vol. 2, 2001, pp. 81-91.

Borgatti, S.P, and P. Foster, The Network Paradigm in Organizational Research - A Review and Typology, *Journal of Management,* vol. 29, 2003, pp. 991-1013.

Cairncross, F., *The Death of Distance,* Harvard Business School Press, Cambridge MA, 1997.

Castells, M., *The Rise of the Network Society, The Information Age: Economy, Society and Culture Vol. I*. Blackwell, Cambridge, MA., 1996.

Cohen G., P. Nijkamp and K. van Montfort, Modelling ICT Perceptions and Views of Urban Front Liners, *Urban Studies,* vol. 41, 2004, pp. 2647-2667.

Cooke P., and D. Wills, Small Firms, Social Capital and the Enhancement of Business Performance, *Small Business Economics*, vol. 13, 1999, pp. 219-234.

European Commission (2010): Europe 2020: A strategy for smart, sustainable and inclusive growth. COM(2010) 2020

Geenhuizen, M.S. van, and P. Nijkamp, Cities and Footlooseness: In Search of Place-bound Companies and Effective Location Policies, *Environment & Planning C*, vol. 25, 2007, p. 692-708.

Gertler, M., Tacit Knowledge and the Economic Geography of Context, or The Undefinable Tacitness of Being (There), *Journal of Economic Geography,* vol. 3, 2003, pp. 75-99.

Hoang, H., and B. Antoncic, Network-based Research in Entrepreneurship: A Critical Review, *Journal of Business Venturing,* vol. 17, 2002, pp. 1-23.

JPI Urban Europe, *JPI Urban Europe: Global Challenges – Local Solutions*, GPC Document, from April 2011 on URL www.jpi-urbaneurope.eu, 2010

JPI Urban Europe, *JPI Urban Europe: Global Challenges and Local Responses in the Urban Century: Strategic Research Agenda Contours and Outline*, from April 2011 on URL www.jpi-urbaneurope.eu, 2011

Kourtit, K., P. Nijkamp, S. Lowik, F. van Vught and P. Vulto, From Islands of Innovation to Creative Hotspots, *Regional Science Policy and Practice,* 2011 (forthcoming).

Malecki, E., Entrepreneurs, Networks, and Economic Development, *Advances in Entrepreneurship, Firm Emergence and Growth,* vol. 3, 1997, pp. 57-118.

Mega, V., Future Belongs to Cities, Regional Symbiosis, vol. 18, 2010, pp. 1-13.

Nijkamp, P., Megacities: Lands of Hope and Glory, *Megacities: Exploring a Sustainable Future* (S. Buys, W. Tan and D. Tunes, eds.), 010 Publishers, Rotterdam, 2010, pp. 100-111.

Nijkamp, P., K. Kourtit, JPI Urban Europe: Global Challenges and Local Responses in the Urban Century: A Scoping Document, from April 2011 on URL www.jpi-urbaneurope.eu, 2011

Ohmae, K., *The Borderless World,* Harper Business, New York, 1999.

Reggiani, A., and P. Nijkamp (eds.), *Complexity and Spatial Networks,* Springer-Verlag, Berlin, 2009

Romein, H., and M. Albu, Innovation, Networking and Proximity, *Regional Studies,* vol. 36, 2002, pp. 81-86.

Sassen, S., Global Inter-city Networks and Commodity Chains: Any Intersections?, Global Networks, vol. 10, no. 1, 2010, pp. 150-163.

Sassen, S., *The Global City*, Princeton University Press, Princeton NJ, 1991.

Schiller, D., *Digital Capitalism*, MIT Press, Cambridge MA, 1990.

Scott, A.J. (ed.), Global City Regions: Trends, Theory, Policy, Oxford University Press, New York, 2001.

Sexton, D.L., and R.W. Smilor (eds.), *The Art and Science of Entrepreneurship*, MIT Press, Cambridge MA, 1986.

Taylor, P., *World City Network. A Global Urban Analysis*. Routledge, London, 2004.

Tellier, L.-C., Urban World History: An Economic and Geographical Perspective, University Press of Quebec, Quebec, 2009.

Travisi, C., and R. Camagni, Sustainability of Urban Sprawl, FEEM Working Paper 2005-102, FEEM, Milan, 2005.

Wegener, M., and F. Fürst, *Land-Use Transport Interaction: State of the Art*, IRPU, Dortmund, 1999.

6 Annex

Table 4: List of strategic research agendas published by stakeholder organisations thematically related to URBAN EUROPE

Code	Organisation	URL
	Mobility	
1	ERTRAC European Road Transport Research Advisory Council	http://www.ertrac.org/
2	eMobility - Mobile and Wireless Communications Technology Platform	http://www.networks-etp.eu/fileadmin/user_upload/Publications/SARA/Emobility-SARA-100731.pdf
3	UITP International Association of Public Transport	http://www.uitp.com/eupolicy/pdf/SRA-EN.pdf
4	eSafety Forum	http://ec.europa.eu/information_society/activities/esafety/doc/rtd_projects/fp7/sra_ict_mob.pdf
5	ENT Era Net Transport	http://www.transport-era.net/about-ent.html
6	ECTRI European Conference of Transport Research Institutes	http://www.ectri.org/Documents/Publications/Strategic-documents/ECTRI-Strategic-Paper_September-2008.pdf
7	EURFORUM European Research Forum for Urban Mobility	http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_RCN=8823126
8	EC	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0551:FIN:EN:PDF
9	EC	http://ec.europa.eu/transport/publications/doc/2009_future_of_transport_en.pdf
25	Siemens – Green light for sustainable urban development	http://www.siemens.com/entry/cc/de/urbanization.htm
26	IBM – Smart Cities	http://www.ibm.com/smarterplanet/at/de/sustainable_cities/visions/index.html
	Environment	
10	Urban net	http://www.urban-net.org/
11	ECTP European Construction Technology Platform	http://www.ectp.org/documentation/ECTP-SRA-2005_12_23.pdf
12	WssTP Water supply and sanitation Technology Platform	http://www.wsstp.eu/files/WSSTPX0001/stakeholder%202010/WssTP%20SRA%20version%20final.pdf
	Energy	
14	EERA European Energy Research Alliance	http://www.eera-set.eu/Research_Fields
15	ESTTP European Solar Thermal Technology Platform	http://www.estif.org/fileadmin/estif/content/esttp/downloads/SRA/ESTTP_SRA.pdf
16	Smart Grids Technology Platform	http://cordis.europa.eu/technology-platforms/pdf/smartgrids.pdf
17	European Wind Energy Technology Platform	http://www.windplatform.eu/fileadmin/ewetp_docs/Bibliography/Synopsis_2008.pdf
18	Photovoltaic Technology Platform	http://www.eupvplatform.org/fileadmin/Documents/PVPT_SRA_Complete_070604.pdf

Code	Organisation	URL
Socio-Economic		
20	JPI More Years, Better Lives	http://www.era.gv.at/attach/12010_03_10_JPIMoreYearsBetterLives_GPC-Proposal.pdf
21	Globalization and World Cities Research Network (GaWC)	http://www.lboro.ac.uk/gawc/
22	European Urban Research Association (EURA)	http://www.eura.org/
23	European Urban Knowledge Network (EUKN)	http://www.eukn.org/
24	Urban Affairs Association (UAA)	http://www.udel.edu/uaa/about_uaa/index.html
27	Philips – Livable Cities/ Philips Livable Cities Award	http://www.newscenter.philips.com/main/standard/news/publications/201004_livable%20cities.wpd http://www.because.philips.com/
27a	ESPON	http://www.espon.eu/main/Menu_Programme/
Technology Oriented Initiatives and Platforms (industry led)		
28	Artemis	https://www.artemisia-association.org/downloads/SRA_MARS_2006.pdf
29	Photonics21	http://www.photonics21.org/download/SRA_2010.pdf
30	ENIC European Nanoelectronics Initiative Advisory Council	http://www.eniac.eu/web/SRA/SRA_HR2.pdf
31	EPoSS European Technology Platform on Smart Systems Integration	http://www.smart-systems-integration.org/public
32	ECPE European on Power Electronics	http://www.ecpe.org/download/power_electronic/ECPE_SRA_EnergyEfficieny.pdf
33	NEW OSH ERA	http://osha.europa.eu/en/about
34	CRUE ERA-NET	www.crue-eranet.net/about_CRUE.asp
35	JPND	

Table 5: Countries and delegates in the Governing Board URBAN EUROPE

Country	Role	Mr./ Ms.	First Name	Last Name	Institution	Function
AT	delegate	Mr.	Ingolf	Schädler	Federal Ministry of Transport, Innovation and Technology (BMVIT)	Deputy Director General for Innovation
AT	alternate	Ms.	Isabella	Eiselt	Federal Ministry of Science and Research (BMWF)	Social Sciences Research
CH	delegate	Mr.	Daniel	Wachter	Federal Office for Spatial Development (ARE)	Head of Section Sustainable Development
CH	alternate	Mr.	Kay	Axhausen	Institute for Transport Planning and Systems (IVT) Swiss Federal Institute of Technology (ETHZ)	Head of Institute
DE	delegate	Mr.	Christian	Bodensteiner	German Project Management Agency Jülich	Environment Directorate
DK	delegate	Mr.	Bjørn Lykke	Jensen	Danish Technological Institute, Building Technology	Director
DK	alternate	Mr.	Thomas	Trøst Hansen	Danish Agency for Science, Technology and Innovation	Head of Administration
ES	delegate	Mr.	Fernando	Rico Rios	Centre for the Development of Industrial Technology, EU R&D Framework Programme Department	Head of Unit
FI	delegate	Mr.	Mika	Lautanala	TEKES	Technology Manager
FI	alternate	Mr.	Anssi	Salonen	RYM Ltd. Corporation	Chief Technology Officer
FR	delegate	Ms.	Hélène	Jacquot-Guimbal	IFSTTAR (French institute of science and technology for transport, development and networks)	Director
FR	alternate	Mr.	Henri	Van Damme	IFSTTAR (French institute of science and technology for transport, development and networks)	Scientific Director
IE	delegate	Mr.	Fionn	Murtagh	Science Foundation Ireland	Director, Information, Communication & Emergent Technologies
IE	alternate	Mr.	Peter	Clifford	Science Foundation Ireland	Associate Scientific Programme Manager, IC&ET Directorate

Country	Role	Mr./Ms.	First Name	Last Name	Institution	Function
IE	alternate	Mr.	Stewart	Fotheringham	National Centre for Geocomputation	Director
IT	delegate	Mr.	Federico	Cinquepalmi	Ministry for Education, Universities and Research	Head of Unit
IT	alternate	Mr.	Flavio	Corradini	University of Camerino	Pro Rector for International research and the transfer of knowledge, skill and technology
MT	delegate	Mr.	David	Sutton	Transport Malta, Integrated Transport Strategy Directorate	Chief Officer
MT	alternate	Mr.	Stephen	Camilleri	Transport Malta, Integrated Transport Strategy Directorate	Senior Manager EU Affairs
NL	delegate	Mr.	Roel	Gans	Ministry of Infrastructure and the Environment	Dep. Director-General for Civil Aviation and Maritime Affairs, Director for European affairs
NL	alternate	Mr.	Ad	van Ommen	Ministry of Infrastructure and the Environment	Senior advisor on International and European Affairs
SE	delegate	Ms.	Inger	Gustafsson	Vinnova	Transport and Environment, Head of Policy and Systems Department
TK	delegate	Mr.	Gurcan	OZAN	TÜBITAK	Deputy Director, Bilateral and Multilateral Relationships
TK	alternate	Mr.	Serhat	MELIK	TÜBITAK	
TK	alternate	Ms.	Melike	SEVIMLI	TÜBITAK	

Table 6: Members of the UE Management Board

Role	Mr./Ms.	First Name	Last Name	Country	Institution
Executive Director	Mr.	Peter	Nijkamp	NL	Free University of Amsterdam, Department of Spatial Economics
Vice Executive Director	Ms.	Hester	Menninga	NL	European Metropolitan Network Institute
Vice Executive Director	Ms.	Margit	Noll	AT	Austrian Institute of Technology
Coordinator Strategic Research Agenda	Mr.	Wolfgang	Polt	AT	Joanneum Research, POLICIES - Centre for Economic and Innovation Research
Coordinator Forward Looking Activities	Mr.	Sami	Kazi	FI	VTT
Coordinator Framework Conditions	Mr.	Marcus	Van Leeuwen	NL	Netherlands Organisation for Scientific Research (NWO)
Coordinator URBAN EUROPE Forum	Mr.	Rebecka	Engström	SE	Vinnova
Coordinator Scientific Advisory Board	Mr.	Thibault	Prévost	FR	Ministry of Ecology and Sustainable Development, Directorate of Research and Innovation
Framework Conditions	Ms.	Catherine	Daumas	FR	IFSTTAR French Institute of Science and Technology for Transport, Development and Networks
Communication	Ms.	Valentina	Stefanini	IT	Italian Ministry for Education, Universities and Research

Table 7: Profiles of the Management Board members (in alphabetical order)

Name	Country	Profile
Catherine Daumas	FR	Catherine Daumas is specialised in European Affairs and Strategic management of R&D European programmes. She is currently in charge of European Affairs within the International and European Affairs Division at IFSTTAR (French Institute for Sciences and Technologies for Transport, Development and Networks). Catherine studied Economics at the University of Lyon III and the Quebec University at Montreal. She then got a M.A in International Politics at the free University of Brussels and a master's Degree in Development Cooperation in the University of La Sorbonne in Paris. After several internships within European Institutions and lobby offices in Brussels, she was employed by CEA within CLORA Offices in Brussels (French Umbrella Association for R&D organisations). She then joined CEA head offices near Paris to support CEA research teams for participating to FP7 projects. She was also FP7 NCP for 2 years on administrative financial and legal issues. Catherine has experience in several European projects proposal and implementation like EIT pilot actions, EERA, Cofund programme called Eurotalents and Climate KIC.
Rebecka Engström	SWE	Rebecka Engström is Senior Programme Manager for Clean Tech at VINNOVA, the Swedish Governmental Agency for Innovation Systems. She works with support to green innovations in all sectors, but with special focus on cities. A typical example is support for enhanced innovation in Stockholm Royal Seaport, a city development project with ambitious environmental objectives. Rebecka holds a PhD in Environmental Strategies Analysis from the Royal Institute of Technology in Stockholm. Previous to her job at VINNOVA, she has been at the Swedish Energy Agency, working with the National Environmental Quality Objectives in the energy sector, and at IVL, the Swedish Environmental Research Institute, working with issues of Environmental Management.
Sami Kazi	FIN	Dr. Abdul Samad (Sami) Kazi is a Chief Research Scientist and Research Coordinator for Processes and ICT in the Built Environment at VTT Technical Research Centre of Finland. He is also Visiting Professor at Hanken School of Economics in Helsinki. He has been an active participant in more than 35 large scale EC funded projects in the areas of Construction IT, Virtual Organisations, Knowledge Management, Systemic Innovation, and Strategic Roadmapping and Implementation Action Planning. Sami has been involved in more than 10 international strategic roadmapping and implementation action planning initiatives related to IT, the Built Environment, and Energy Efficiency in Buildings. He is both a roadmap champion and co-chair of FIATECH's academic and research council. Sami has authored more than 100 scientific peer-reviewed publications including more than 10 edited books.
Marcus van Leeuwen	NL	Marcus van Leeuwen is currently in charge of developing the NWO- theme *Connecting Sustainable Cities.* This is one of six major research themes for NWO in the next strategic period (2011-2014). Marcus has studied environmental studies and Human Geography at the University of Utrecht. After his study he was employed at the same university as a researcher investigating eco-industrial parks and sustainable business areas. Marcus is working at NWO since 2004. He has been responsible for several programmes, among others the *City Innovation Programme* (together with Nicis) and *Conflict & Security*. Marcus has also experience with international calls, including the ERANET *Norface* and is involved in developing European research infrastructure in the social sciences.

Name	Country	Profile
Hester Menninga (Vice Director)	NL	Hester Menninga is Director of the European Metropolitan network Institute (EMI). EMI is a hub for knowledge and innovation management of European cities and metropolitan areas, with a mission to enhance the social and economic strength of cities and metropolitan areas through innovative knowledge. In her previous position, Hester was Deputy Secretary-General of the Dutch Senate. She also worked as an advisor to the President of the Parliamentary Assembly of the Council of Europe. During her studies, in her publications and in her professional work, Hester has always been involved in international relations, and especially in European affairs.
Peter Nijkamp (Executive Director)	NL	Peter Nijkamp is a Professor in regional and urban economics and in economic geography at the VU University, Amsterdam. He has a broad expertise in the area of public policy, services planning, infrastructure management and environmental protection. In 1996, he was awarded the most prestigious scientific prize in the Netherlands, the Spinoza award.
Margit Noll (Vice Director)	AT	Margit Noll is responsible for the corporate strategy at the Austrian Institute of Technology including exploitation strategies, international cooperation and stakeholder liaison. In her professional work she has gained experience in managing innovation and strategy processes as well as expertise in mobility and energy related research issues. In addition she is involved in European initiatives on automotive research, e.g. since 2008 she is chairing the EARPA task force on Advanced Electric Components.
Wolfgang Polt	AT	Economist and Policy Advisor; Director of the Centre for Economic and Innovation Research of Joanneum Research Ltd. (since 2010) and authorized representative of Joanneum Research Ltd. Lecturer for Industrial Economics and Technology Policy at the University of Economics and Business Administration in Vienna. He participated in and coordinated large innovation research and policy studies both on national and international level. Recent focus of work includes: International Cooperation in Science and Technology Policy, 'Grand Societal Challenges' and Science and Technology Policy, (comparative) analysis of National Innovation Systems and STI policy strategies.
Thibault Prévost	FR	Thibault Prévost joined the Directorate of Research and Innovation of the French Ministry of Ecology, Sustainable Development, Transportation and Housing in October 2010. As a project manager, he is currently involved in the research and innovation programmes of the "Réseau Génie Civil et Urbain" (Civil and Urban Engineering Network) – scientific platform of the French Ministry of Ecology supporting civil engineering and construction projects pertaining to the conception, design, development, maintenance and management of rural, urban and industrial infrastructures. Thibault holds an engineering degree from Ecole Polytechnique (Palaiseau France) and a doctorate in Materials Science and Engineering from the Massachusetts Institute of Technology (Cambridge, USA).
Valentina Stefanini	IT	Valentina Stefanini is a temporary project officer of the General Directorate for International Research at the Italian Ministry for Education, University and Research, charged with following the JPI process. She is a PhD student in Energy management of La Sapienza University of Rome carrying out a PhD research project on how to minimize environmental risks on and near the coast in the event of oil spills (elaborating Environmental Sensitivity Index Maps). She holds an Environmental Engineering degree from the University of Florence and a MSc in Environmental Science with Legislation and Management from the Centre for Environmental Research of the Brunel University of London (UK). Valentina has been member of the National Technical board of Marine Protected Areas of the Italian Ministry of Environment Land and Sea for about 5 years, in charge of the institution of new Protected Areas and for the support of the existing areas at national scale. She also collaborates with the Cambridge Centre for Landscape and People of the University of Cambridge both as a lecturer and scientific support of the summer schools.