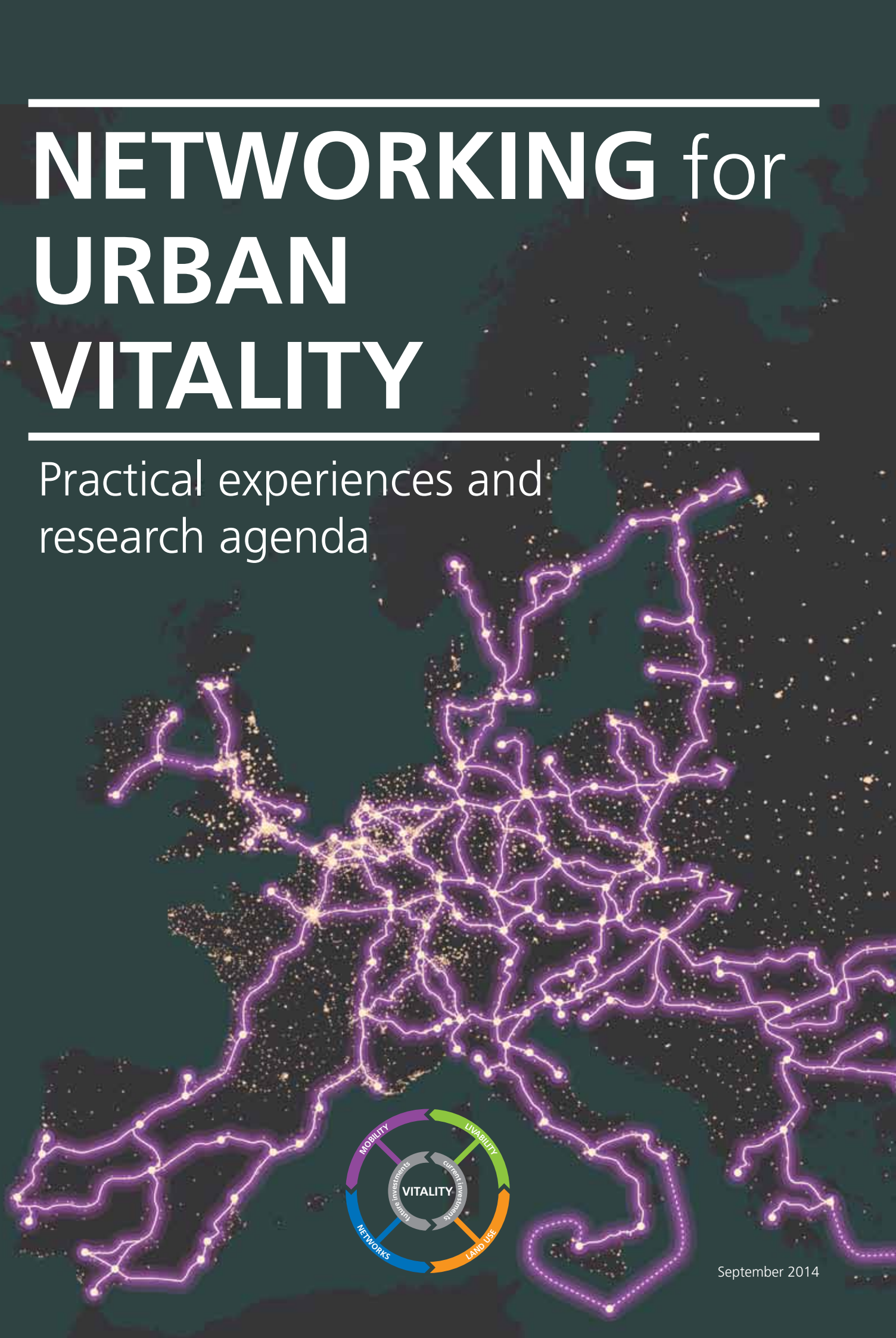
NETWORKING for URBAN VITALITY

Practical experiences and research agenda



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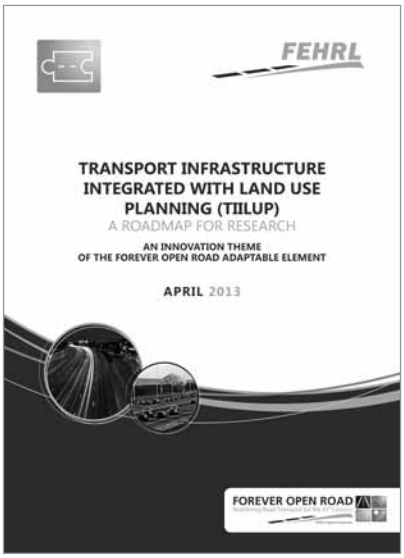
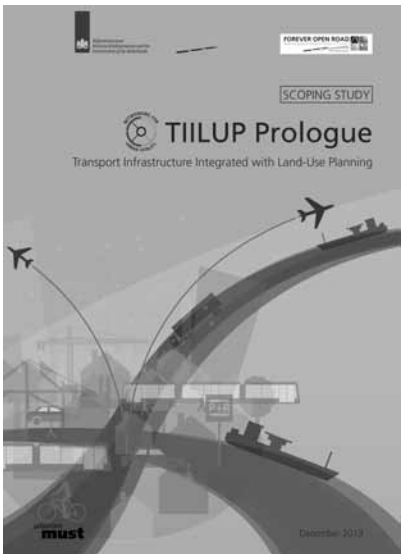


Transport Infrastructure Integrated with Land Use (TIILUP) roadmap (FEHRL, April 2013)



Rotterdam2Ruhr scoping study (Rijkswaterstaat, December 2013)

Healthy Urbanization publication (Ministry of Infrastructure and the Environment of the Netherlands, 2012)

Networking for Urban Vitality (NUVit) is an initiative which originates from the 'Transport Infrastructure Integrated with Land Use' (TIILUP) roadmap (FEHRL), the Rotterdam2Ruhr scoping study (Rijkswaterstaat, the Netherlands) and the Healthy Urbanization publication (Ministry of Infrastructure & the Environment, the Netherlands). NUVit is guided by an international core group of experts (infra-providers, authorities, knowledge institutes and consultants – see appendix) and is a platform in which knowledge concerning NUVit (Mobility, infrastructure networks, liveability and land use) is exchanged and embedded in practice.

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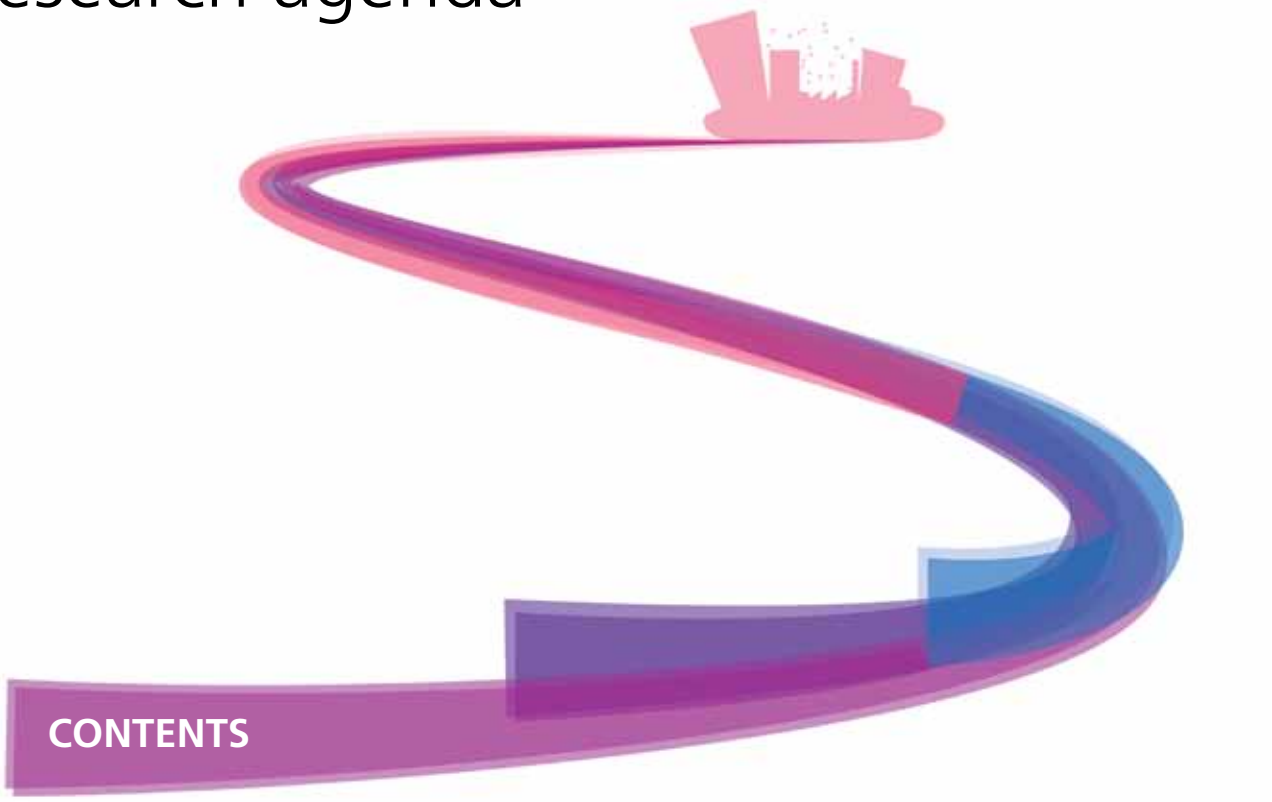
NETWORKING for URBAN VITALITY

Practical experiences and research agenda



CONTENTS

Dreirosenbrücke Basel, Switzerland

source: flickr.com/ritsch48

The challenge of **NETWORKING** for **URBAN VITALITY**

Today's investments in the physical environment are main drivers for urban economic and environmental vitality of tomorrow.

Specific challenge

Achieving a smart green and integrated transport system is key to sustaining and developing the economic, social and environmental vitality of urban Europe. Within this context the challenge is to deliver the next generation of infrastructure governance, design, management and operation. This enables optimal accessibility, liveability, health, safety and security across the scales from the local daily urban system to the wider EU-regions that cluster metropolitan areas. This challenge of consistency across different spatial scales is widespread across metropolitan regions in Europe. Deployment on a EU-regional scale should be centred around TEN-T clusters such as in the Benelux/Nordrhein-Westfalen. Fundamental in addressing this challenge is:

- The further optimisation of the daily urban system is only possible when the peri-urban system and the long distance freight transport is taken into account;
- TEN-T clusters need to be considered as a whole (the corridors and their interlinks) for regions where the TEN-T network is highly clustered and interlinked with the regional and local networks.

Scope

In order to address the specific challenge through effective deployment initiatives, a living laboratory is proposed at the scale of a TEN-T cluster. This lab will focus on the impact of governance, development, management and operation of all relevant transport infrastructure on economic, social and environmental vitality of the region considered. Goals and milestones will be set in terms of accessibility, livability, safety and security. Starting from best practices of the involved infrastructure owners, research and innovation actions will result in a practical toolbox and appropriate technology and regulations framework. In such living laboratory the integration of infrastructure planning and spatial planning will be dealt with in a manner that is consistent across the scales of subsequently: the TEN-T cluster system, the daily urban system (including the peri-urban system) and the local scale.

Networking for Urban Vitality stands for an optimisation between mobility-networks-land use-livability and thereby improvement of the return on investments.

the **BASIC FRAMEWORK**

On basis of group discussions with international experts, the basic framework of NUVit has been developed and checked (see appendix). Six dimensions have been distinguished: spatial, temporal, network, value, institutional and implementation dimension. Although many other groupings are possible, we consider these six dimensions being characteristic of land-use and infrastructure planning. It might be clear that these six dimensions are very closely related. The value of the basic framework is the synergetic integration of these dimensions. Vitality is the heart of the model.

Vitality

An integrated approach towards these dimensions can reveal synergetic aspects that may go beyond the sectorial project scope. These effects can influence the economic, environmental and social vitality of the region. NUVit stands for an integrated approach, in which vitality is discussed consistently during the planning process.

1. Spatial dimension: Spatial concepts with synergetic effects on accessibility

For this dimension, critical aspects are the ability to deal with scale issues, the role of transport analysis and spatial design. The latter is both a strategic and operational tool. This is achieved by examining integrative spatial agglomeration and transport concepts. Well-known examples of such integrative concepts are Transit-Oriented Development (TOD), Multimodal corridors, Nodal development, Area-oriented approach, Borrowed Size.

2. Network dimension: Multimodal network optimization at various spatial scales

This dimension aims at establishing the main parameters of specific transport systems (multimodality, land-use transport integration, LUTI) in relation to spatial functions and spatial density. Different levels of spatial scales are relevant: corridors at (inter)national level, daily urban systems at metropolitan level and landscaping at local level.

3. Time dimension: Time linkages and shift to strategy driven planning

This dimension aims at linking the stages in a full life-cycle of places (this also relates to renewal, redevelopment, circular economy/cradle-to-cradle (C2C) and asset management), examining paradigms and temporal changes associated with changing lifestyles and linkages to mobility and accessibility. It also consists of an analysis and review of time linkages for strategy development – regarding the analysis of development of transport infrastructure systems, transitions to multi-modality.

4. Value dimension: Combined value creation and capturing

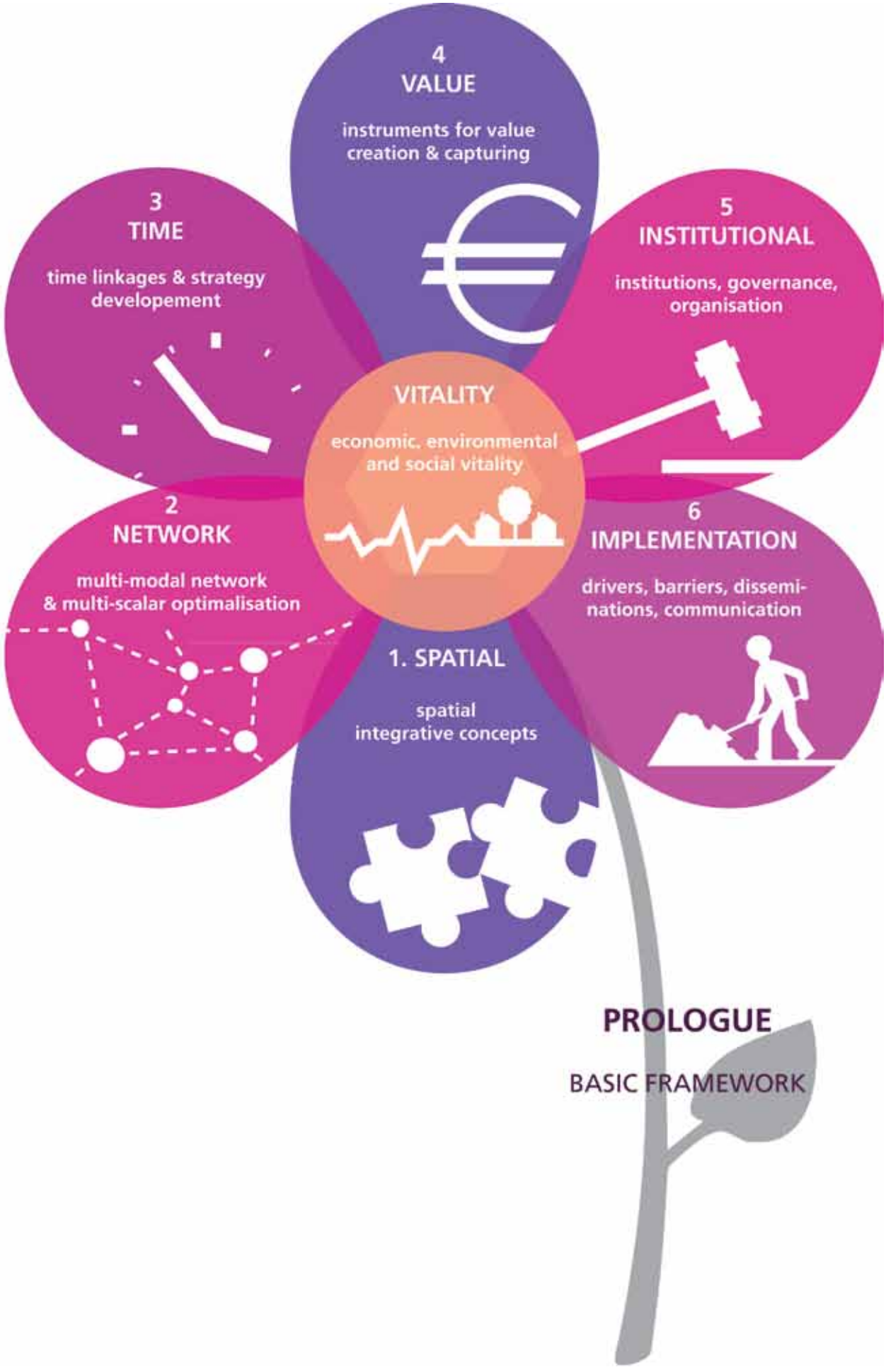
This dimension gives an overview of state of art models and approaches to assess value (e.g. Cost-Benefit Analysis; Life-Cycle Assessment; Environmental Impact Assessment), to create value (including accessibility) and capture value in combined infrastructure and spatial development (projects).

5. Institutional dimension: Organisational empowerment for integrated planning

This dimension comprises of examining and analysing existing organisational and institutional frameworks which leads to an overview of governance approaches at all levels for the implementation toolbox. This relates to a broad array of concepts regarding institutional embedding, issues of institutional capacity, culture and setting and governance models at all institutional levels. It also entails development of governance approaches for different situations (transport-land-use combinations, at different scales) related to partnerships: inter-governmental cooperation (public-public partnerships), market involvement (public-private partnerships), stakeholder engagement (citizens, interest groups), and governance of organisational networks.

6. Implementation dimension: Implementation drivers for integrated planning

Finally, a critical aspect in innovation is the deployment and the implementation. Therefore, in NUVit, explicit attention is paid to the implementation of the framework developed. This dimension includes making an inventory of implementation issues and drivers in order to tackle implementation barriers.


4
VALUE
instruments for value creation & capturing
3
TIME
time linkages & strategy developement
5
INSTITUTIONAL
institutions, governance, organisation
VITALITY
economic, environmental and social vitality
2
NETWORK
multi-modal network & multi-scalar optimalisation
6
IMPLEMENTATION
drivers, barriers, dissemi-nations, communication
1. SPATIAL
spatial integrative concepts
PROLOGUE
BASIC FRAMEWORK

THREE RELEVANT SCALES of GEOGRAPHY

Consistently addressing all (geographic) scale levels – EU Corridor, Daily Urban System, Specific Location – is fundamental for the proposed integrative approach.

1. The scale of the European corridors

In some TEN-T clusters, traffic is prospected to quadruple. This puts a strain on the related transport infrastructures. At the same time such development can result in positive spin-off effects on a local scale. Best-practices show infrastructure can be co-developed with water, climate and spatial quality issues.

The traffic within the European corridors puts a lot of pressure on the infrastructure within the regions. The crossing points of international infrastructure, offer chances for logistic and service nodes. The challenge is to embed this programmatic spin off within the existing urban fabric. Duisburg is an example of such an international node within the northwestern European network. In the Rotterdam to Rhein/Ruhr (R2R) Prologue study, for example, we can see that the Rotterdam Harbour is a crucial entry point for the "Blue Banana" stretching from the UK to Northern Italy. At the same time EU environmental regulations are becoming more strict and are increasingly implemented. This asks for solutions to be sought at the Daily Urban System level and the local level.

2. The scale of the daily urban system

The highest level of synchromodality can be seen within the so-called Daily Urban Systems (DUS). In these DUS mobility is enabled by different infra-structure networks and a variety of multimodal nodes. In the TEN-T clusters the trans-European traffic (both persons and freight) shares capacity and interacts with the DUS (e.g, urban highway ring roads). Therefore, the DUS is fundamental in optimising transport infrastructure and land-use planning. On a systems level the DUS is crucial for economic cohesion and health issues.

On the main infrastructure lines in the region, these DUS traffic flows coincide with the traffic that moves on the level of the European corridors. The regional scale is crucial to manage strategically different modalities, different infrastructure scales and the land-use around the multimodal nodes. For example, the case Rotterdam (ring road) and Luxembourg (Plateau de Kirchberg) show that the congestion on the main infrastructure can be reduced by interventions on infrastructures on a lower scale and by enhancing other modalities elsewhere in the regional system.

Sijtwende tunnel The Hague, The Netherlands

3. The scale of the specific location

On this scale, integrated land-use planning and infrastructure planning enables capture of the highest mobility, land use and economic value. Moreover, optimal spatial design and embedding of large infrastructures can improve the spatial and environmental (liveability) quality for residents and businesses by mitigating its environmental impacts – e.g. air, noise, safety, nature.

On this scale, spatial embedding and careful design can prevent the negative effects of large infrastruc-ture on the environment and thereby costly mitigation measures such as noise barriers. For example best practices in Marseille (Cité de la Méditerranée), Basel (Nordtangente), Groningen (ring road) and Utrecht (A2 - Leidsche Rijn) show that this can result in higher value, better environ-mental conditions and effective land-use.

EU CORRIDOR LEVEL

REGIONAL / DAILY URBAN SYSTEM (DUS) LEVEL

LOCAL LEVEL

Madrid Rio, Spain

source: bbcinoviajero.com

PRACTICE BASED CASE STUDIES in EUROPE

In order to address the challenges on urban vitality at the different scale levels, a living lab is proposed based on actual case studies.

In the past two years, a group of international experts from European infra-providers, authorities, knowledge institutes and consultants (see appendix) felt the urgency for an improvement in the return on investments in European infrastructure. The analysis showed (see TIILUP roadmap and Prologue study) a wide variety of investments planned for the coming years in maintenance, renewal, expansion and climate resilience of infrastructure. The group concluded that when these investments are planned, managed and designed in a traditional (sectorial-technical solution driven) manner opportunities for an increased 'Urban Vitality' are not taken. In a series of group discussions, best practice analysis and international workshops deepened the understanding of the subject matter:

- These challenges appear across Europe (see next part: five types of challenges);
- A series of prologue case studies is proposed in order to improve the parameters for implementation, knowledge dissemination and European relevance (see case studies);
- Efforts should focus on improving the return on investment in current and future investments and therefor have an implementing character such as tools, best practice analysis and practical frameworks and pilot practices (also see 'research recommendations').

Workshop Rhein/Ruhr in Dusseldorf. Experts from a variety of organisations (network authority, rail authority, municipality, consultancy, etc.) discuss the potential for an integrated approach.

FIVE TYPES of CHALLENGES

Across Europe, a broad number of regions can be identified where the five types of challenges in the field of land-use planning and infrastructure planning as described by NUVit, can be identified. These typologies are the outcome of the three TIILUP/NUVit prologue workshops and an assessment that was made by the core group.

1. Corridor challenges
Large scale infrastructure concentration which is a primary segment of the European Networks. In many situations international (freight) traffic and local traffic are competing for the same space and capacity on the infrastructure.

2. Hub development challenges
Development of Hubs will interlink different modalities. In this way capacity can be exchanged between the different networks and a more stable mobility network is developed. Giving space to hub development can lead to local environmental issues, spatial barriers and negatively impact living qualities.

3. Concurrence challenges
Concurrent growth of a region and an infrastructure corridor often leads to tension. Especially when the infrastructure growth cannot be harmonized with the available space and current spatial form (barrier). In order to create synergistic effects, co-development of infrastructure measures and urban (re)development is required.

4. Consolidation challenges
In some areas, spatial (re)development focuses on the existing urban area. Additional spatial development combined with corridor development can lead to 'cannibalization' of the (re)development potential of the existing city. This asks for a consolidation of the corridor in order to maximize spatial quality potential.

5. Transformation challenges
A declining population or economy in formerly booming areas can lead to the situation that the infrastructure lay-out does not fit the land-use anymore. A transformation of parts of the existing, but out-of-use, infrastructure is needed to generate a vital regional future.

Betuweroute dedicated freight railway, tunnel river Giessen, The Netherlands *source: panoramio.com/landa54*

1. CORRIDOR CHALLENGES

2. HUB DEVOLOPMENT CHALLENGES

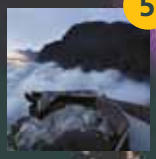
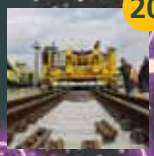
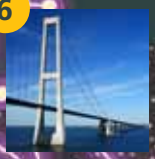
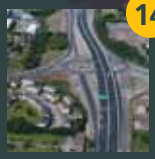
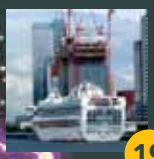
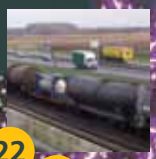
3. CONCURRENCE CHALLENGES

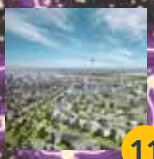
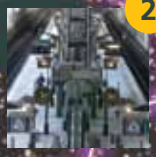
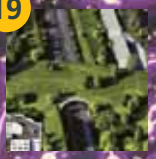
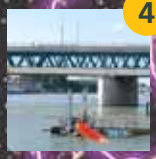
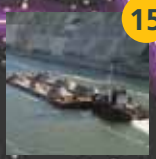
4. CONSOLIDATION CHALLENGES

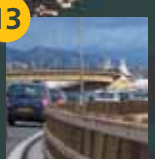
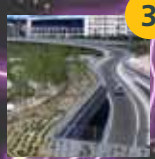
5. TRANSFORMATION CHALLENGES

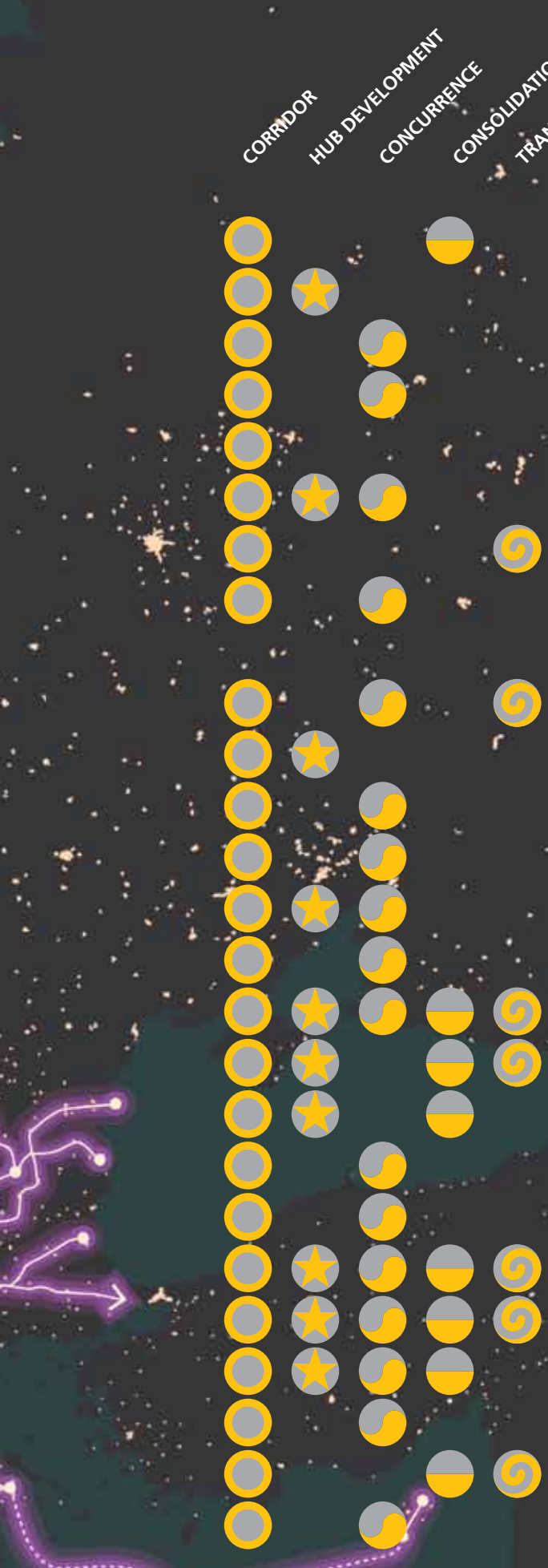
the **CHALLENGES** in **EUROPEAN CASE STUDIES**

Across Europe, a broad number of regions can be identified where the five types of challenges in the field of land-use planning and infrastructure planning as describes by NUVit, can be identified. This map of Europe shows a quick summary of these challenges. It is the outcome of the three workshops of the Prologue Study and an assessment that was made by the core group (see appendix). This explains the strong concentration of dots in the Rotterdam to Rhein / Ruhr zone. Further investigation in Europe will definitely result in a broader scope of regions where the integrative approach has a high potential.



Learning from past challenges:

1. Co-financing A4 Motorway Exit Parndorf
2. Euralille, Lille
3. Madrid Rio
4. Nordtangente, Basel
5. Norwegian highway architecture
6. Øresund link and cross-border regional development
7. Plateau de Kirchberg, Luxembourg
8. Ronda Litoral, Barcelona

Learning from current challenges:

9. A40/Ruhr Regional Master Plan and Design Manual
10. Amsterdam Zuidasdok
11. Aspern Seestadt, Vienna
12. Brainport Avenue, Eindhoven
13. Cité de la Méditerranée, Marseille
14. Cork N40 Demand Mangement Study
15. Danube Axis
16. Dublin-Belfast Economic Corridor
17. Linköping High Speed Rail link
18. Metropolitan Coastal Landscape Belgium
19. München Centre-Airport S-Bahn
20. Rail Baltic Corridor
21. Rhein-Ruhr Daily Urban Systems
22. Rotterdam-Ruhr Corridor
23. Tallinn Ring Road
24. Territorial Development Plan Limburg (T.OP Limburg)
25. Warsaw Ring Road

the **ROTTERDAM RUHR CORRIDOR** case study

City development in Rotterdam

Practice

The Rotterdam – Rhein / Ruhr zone (R2R) is one of the largest urban conglomerations in Europe, containing about 25 million inhabitants. The different kind of infrastructures along the Rhine (water, road, rail) together form one of the most important gateways to Europe, providing the basic condition for large flows of goods and people. A series of harbours, airports, industrial zones and metropolitan regions cluster around these infrastructures. The map of the regional development agenda (see figure at p.17) shows there are many developments and ambitions in different sectors such as economy, urbanization, mobility, water, energy and nature. In the near future, a broad series of projects in the field of infrastructure has been planned. A good connection between the European corridors and the regional urban system can give a strong impetus to the regional economy. For example, the growth of (freight) transport offers the possibility of international hub development on the crossings of international, multimodal corridors.

Issues

Corridor level:

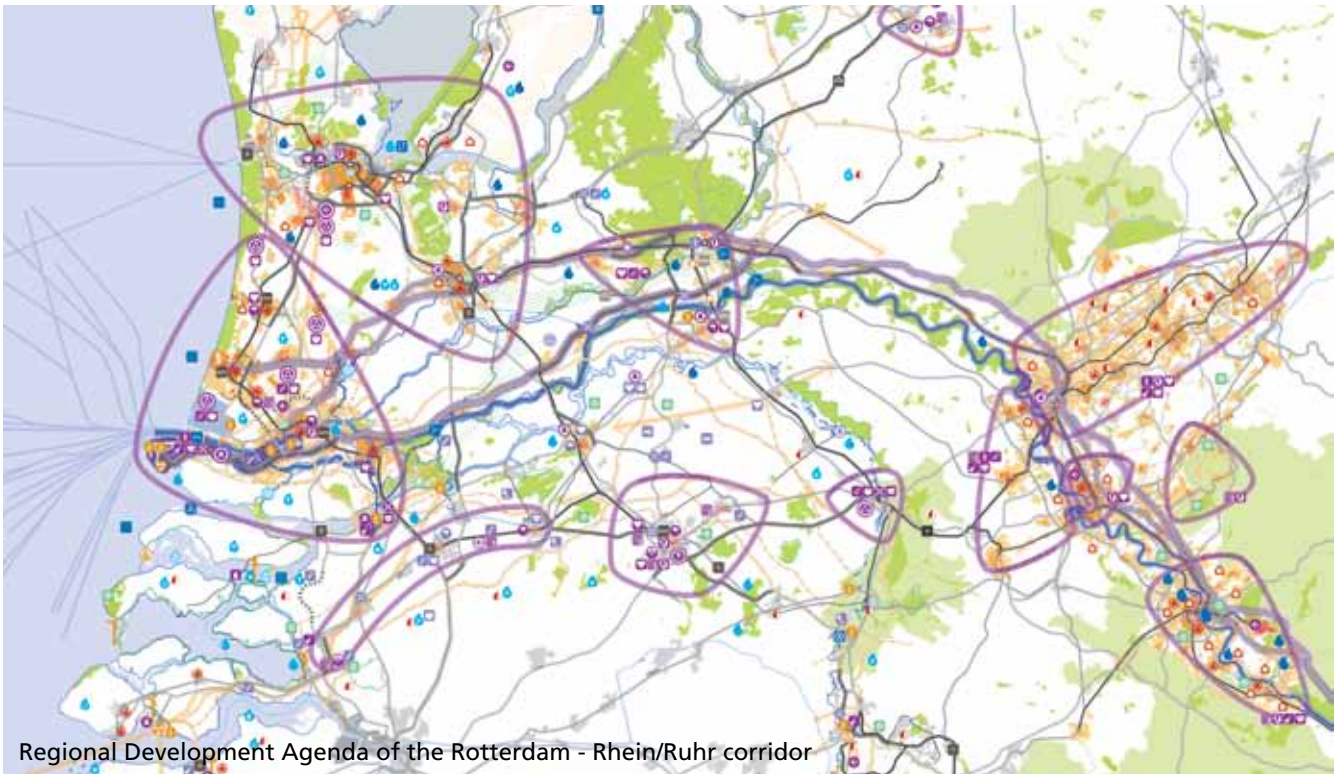
- Optimizing the connection between infrastructures across international borders in order to create a coherent, optimal multimodal system (networks);
- Strategic planning of international nodes in relationship to multi-scale networks (networks).

Regional / DUS level:

- On the main infrastructure lines in the region, the DUS traffic flows are competing with the traffic that moves on the level of the European corridors, leading to congestion (networks);
- The regional scale is crucial to strategically manage different modalities, different infrastructure scales and the land-use around the multimodal nodes (networks).

Local level:

- Giving space to hub development can lead to local environmental issues, spatial barriers and negatively impact living qualities (space).



Regional Development Agenda of the Rotterdam - Rhein/Ruhr corridor

Prologue themes

A prologue study could focus especially on the Hub development in Duisburg and Rotterdam, where the following themes are to be considered:

1. Spatial acupuncture for merging expanding infrastructure into the urban fabric (space);
2. Local interventions in different modalities that have an overall system impact (system);
3. Embedding developments of the harbour in relationship to living quality (space);
4. Capturing value of the harbour for the city (value);
5. Managing the spin-off effect of hubs on the whole urban system (value).

Stakeholders

- City of Rotterdam
- City of Duisburg
- Harbour Authority Rotterdam
- Harbour Authority Duisburg
- Rijkswaterstaat
- Strassen NRW

the **DAILY URBAN SYSTEMS RHEIN-RUHR** case study

Rhein-Ruhr Express on the first phase of the new network

Practice

The case study for the Rhein Ruhr area is directly related to the Rotterdam – Rhein / Ruhr corridor case. Within the Rhein Ruhr area, opposed developments are taking place. On the one hand, there is a strong pressure on existing urban areas, especially in some cities along the Rhine. Other cities however have to cope with a foreseen shrinkage of their population. A report by the Landtag Nordrhein Westfalen (2013) concludes that until 2030 there will be a need of 700.000 new dwellings. At the same time, 600.000 existing dwellings will not meet the requirements of the market and therefor presumably will be left empty. Both developments put the livability of existing urban areas under pressure, albeit with different consequences.

In the field of infrastructure, a mixture of investments is foreseen. On the international level, the ICE tracks Cologne – Brussels and Cologne – Arnhem will be improved, as well as the freightline between Oberhausen and the Dutch border. On a regional level some highways will be broadened (A4, A40, A43, A45, A59) but especially the maintenance of existing highways and bridges is an important issue. The Rhein-Ruhr Express will be constructed in order to improve the public transport system between the major cities along the Rhine and the Ruhr.

Issues

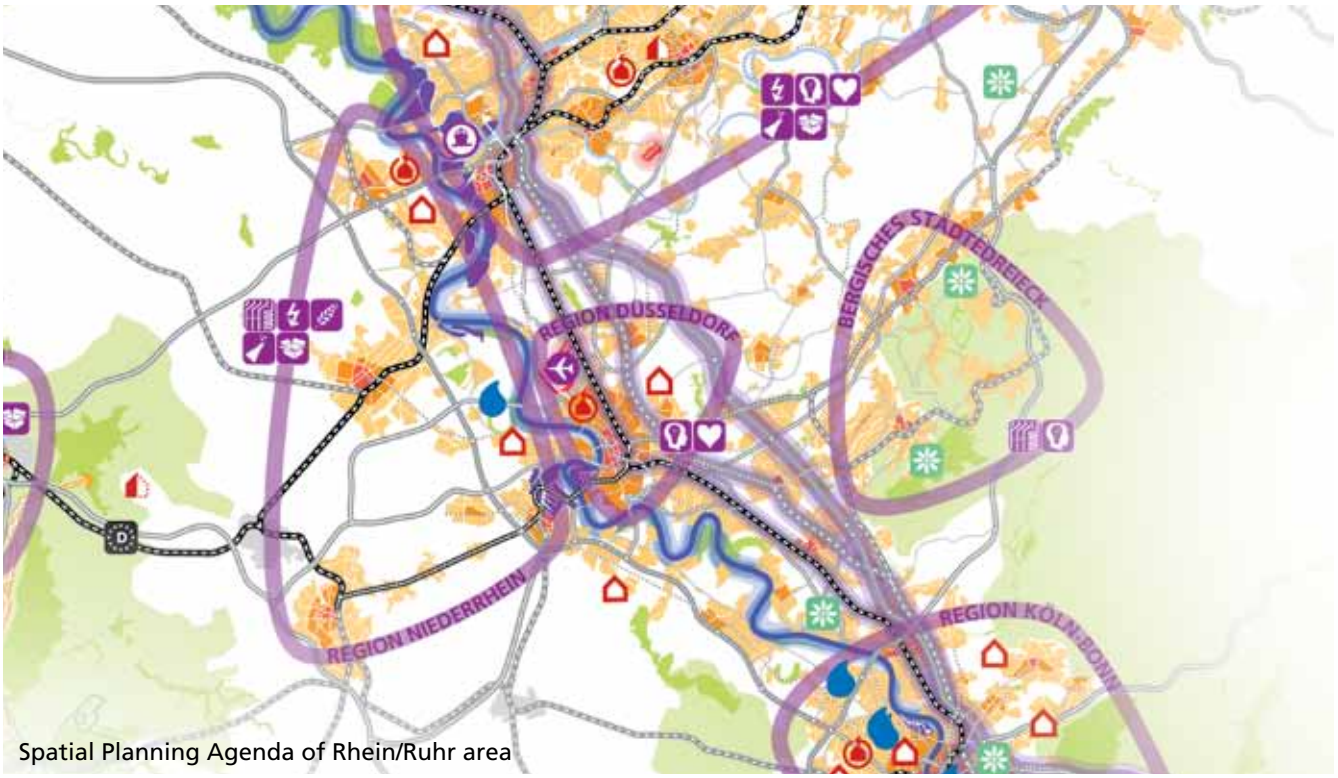
The developments in the field of infrastructure and housing result in a series of challenges:

Corridor level:

- Increasing growth of freight traffic on highways and railways (networks);
- Value capturing of the flows of goods and people between Rotterdam / Antwerp and Eastern / Southern Europe (value).

Regional / DUS level:

- Infrastructure and housing planning: isolated approaches (space);
- Housing: geographic tension. Growth in the Rhein-Sieg zone; shrinkage in the Ruhr area (space);
- Culture of collaboration between municipalities: challenge (institutional).



Spatial Planning Agenda of Rhein/Ruhr area

Local level:

- Competing interests in space: housing, infrastructure and environment (space)
- Optimizing spatial developments around multimodal nodes (network)
- Restructuring of urban areas (space)
- Strong dependency on private parties for spatial development (institutional).

Prologue themes

The prologue study could focus on different ways to improve the liveability of urban areas, both in areas where a growth of the population is foreseen as well as where a diminution of the population will take place:

1. Optimization of land use around regional, multimodal nodes, for example around the RRX stations;
2. Getting the highest value out of the existing multimodal network by a strategic planning of land use and infrastructure;
3. Realization of new type of infrastructures in pilot projects, for example the high speed bicycle lanes;
4. Mediators as a new tool to coordinate and stimulate regional collaboration.

Stakeholders

- Land NRW
- Verkehrsverbund Rhein-Ruhr (VRR)
- Regionalverband Ruhr
- Regierungsbezirk Köln
- Regierungsbezirk Düsseldorf
- Different communities
- DB Station&Service AG
- DB Netz AG
- DB Immobilien
- Regional transport authorities
- Private developers

the **AMSTERDAM ZUIDASDOK** case study

View on the Zuidas along the A10 motorway and railway

Practice

ZuidasDok (Amsterdam, the Netherlands) is an ambitious engineering project that involves expanding the Amsterdam Zuid station into a multifunctional public transport terminal: busses, metro, trams, trains and taxis will be brought together in a single, contemporary, compact station; widening the southern stretch of the A10 motorway in order to to ensure the accessibility of Zuidas and the northern section of the Netherlands' western Randstad Metropolis, both by road and public transport, until 2030.

The ZuidasDok project integrates urban development and improved accessibility to Amsterdam's Zuidas and the northern 'Randstad' The aim is to develop Zuidas further into a leading international business district: a varied and sustainable urban centre where the combination of high-end office space, housing and public amenities create an attractive environment, making Zuidas an integral part of the city and the region. It will integrate Zuidas into the urban fabric and will further enhance the quality of the living environment.

Issues

Corridor level:

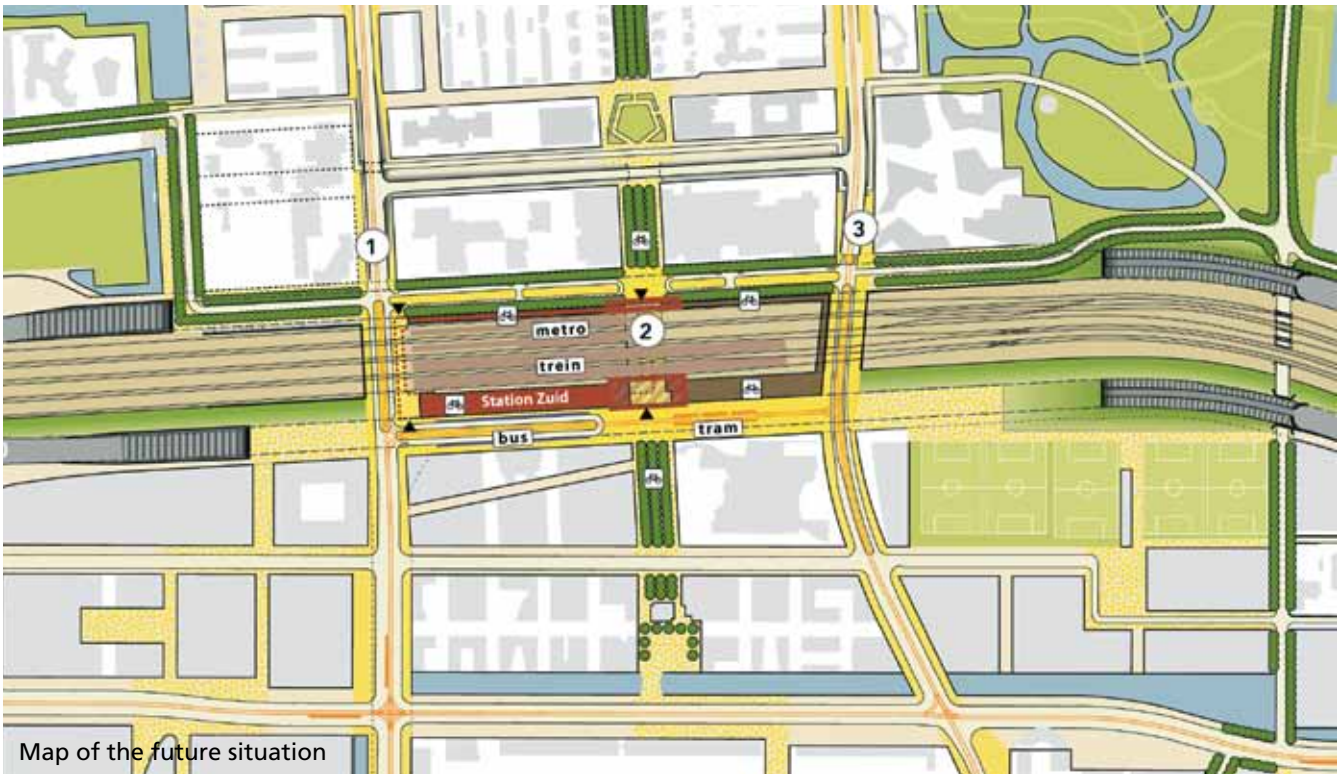
- Long term competitiveness Amsterdam Business district (value);
- Increased congestion on the A10 motorway (network).

Regional / DUS level:

- Amsterdam Zuid station is reaching the limits of its capacity: Increasing numbers of rail and metro passengers due to increased public transport use, opening of the Hanzelijn rail link to the north and east of the Netherlands, the high frequency rail programme (PHS) and the completion of the North-South commuter rail link (network).

Local level:

- Amsterdam Zuid station cannot be expanded at present due to lack of space (currently confined by A10 motorway) (space);
- The current infrastructure claims a significant amount of the space available for a new urban centre, while its location constitutes a physical barrier (space);



Map of the future situation

The living environment is severely compromised due to noise and pollution: taking the A10 underground will reduce this barrier effect and significantly cut down on environmental nuisance and create space for urban development (space).

Prologue themes

1. Improve connectivity at all levels: local, metropolitan, European
2. Develop attractive networks and nodes for all transportation modes
3. Create attractive mixed use neighborhoods, also at nodes
4. Integrated development (TOD/Nodal) of infrastructure (motorway, rail, high speed rail, metro, bycicle an pedestrian) and urban development (Business district)
5. Try to generate more economic spin off than just land value capture
6. Create an integrative vision at the beginning of the process
7. Do not make business cases too complicated.

Stakeholders

- National Government
- Province of Noord-Holland
- Stadsregio Amsterdam urban region
- City of Amsterdam
- ProRail

the **LINKÖPING HIGH SPEED RAIL** case study

View on the proposed new station in Linköping

source: metroarkitekter.se/linkoping

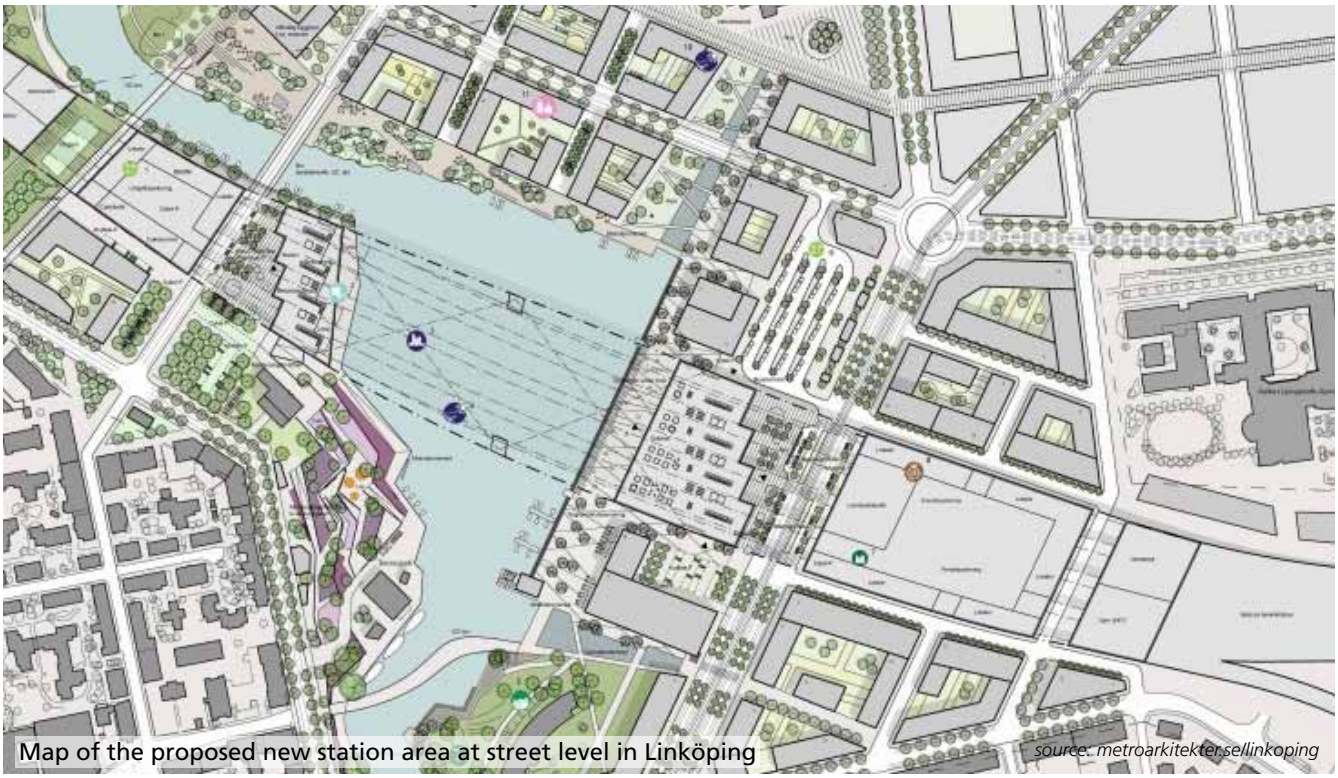
Practice

Ostlänken ('the Eastern Link') is a planned high-speed railway in Sweden, intended to run from Södertälje (just south of Stockholm) to Linköping. The time plan is to start building by 2017, with completion scheduled within the next eleven years. The construction costs for the new 160-kilometre railway is calculated to be 30 billion SEK. The Swedish rail administration established a railway investigation, which was decided upon in 2010. In 2012 the Swedish Government commissioned the Swedish Transport Administration to continue planning the expansion of the Ostlänken. The railway will allow train speeds of 320 kilometres per hour (200 mph). Long-distance trains would call at Stockholm Central Station and Södertälje Syd before joining the new line, on which there would be an intermediate stop at Norrköping, and reach Linköping about 40 minutes faster than by the existing line. Looking beyond the 'Ostlänken', a new railway connecting Linköping-Göteborg via Jönköping is planned, called Götalandsbanan. Together, the Ostlänken and Götalandsbanan railways would allow trains to travel between Stockholm-Göteborg in less than two hours. Currently it is not decided how the railway will cross the city Linköping. Several issues and opportunities concerning urban integration were being discussed in an international expert session on the 18th of June 2014 in Brussel.

Issues

Corridor level:

- Key preconditions are not yet defined: The future role of Linköping in the corridor and within the Linköping – Norrköping region. Is it an integrated part of the wider Stockholm area or one urban agglomeration in a chain? Will it include one or two metropoles? Or will it involve several smaller regional centres? (space);
- Government funding. Land ownership, urban planning and investment strategy need to be investigated (value);
- What kind of cooperative organisation can be used? Some characteristics are joint vision, joint organisation, clear mandates, risk sharing, relevant competences and decision-making proces (institutional).



Map of the proposed new station area at street level in Linköping

source: metroarkitekter.se/linkoping

Regional / DUS level:

- Do connections between Linköping and Norrköping include connections to adjacent towns? Relation with the airport? (network);
- Crucial relations and travel times are not identified (time);
- Strong focus on infrastructure while relationship with long-term urban development (and the flexibility needed) is not defined yet (time).

Local level:

- Land use, profile and physical features of developing areas within the city (space);
  Focus on priority urban development areas (space);
- Future location of main travel attractions (university, business district, hospital, cultural centres) (space);
- Local level: Connections to the university area, organisation of the station area including interchanges to local transport networks. Competing or combined/complementing services? (network).

Prologue themes

The following themes are to be considered:

1. What kind of cooperative organisation can be used?
2. Spatial correlation: links between policies (economic/mobility-spatial conditions and investments). What development models show synergy between network-mobility-land use-liveability?
3. Multi-modal analysis: Can system optimisation lead to a reduction of the infrastructure barrier?
4. Spatial communication: design guided research and communication.

Stakeholders

- Corridor: National perspective
- Regional: Relation Linköping - Norrköping
- Local : Benefiting the most: Kallerstad area, SAAB area, Urban core
- Benefiting less (or losing attractiveness): Linköping university, Mjärdevi science park, Djurgården.

the **T.OP LIMBURG** case study

Industrial heritage in Limburg

source: manifesta9.org

Practice

The Territorial Development Programme (T.OP) Limburg is an innovative planning process in which economic redevelopment and spatial reorganization serve to reinforce each other. Limburg represents a former mining region. After the closures of the mines in the 1970's, the automotive industry became an important economic force in the region. Today, the scheduled closure of Ford Genk, one of Limburg's main economic engines and Flanders' fourth largest industrial site, presents the region with a major economic and societal challenge.

The project T.OP Limburg aims at reinforcing territorial links between regional investment targets and local initiatives. The partners aim to strengthen the region into a multi-productive urban network by stimulating mixed urban business locations, industrial clusters and energy landscapes. The focus is on territorial win-wins between urban and economic dynamics. Therefore ambitions of circular economy and health care activities are at the core of the strategy. Mobility and spatial connectivity are the guiding principles for a smart densification and mixing of functions. This counts for both industrial sites and the residential fabric. In order to increase economic density and urban dynamic in a region with low demographic growth, a complementary strategy is being implemented to decrease development activities based on the landscape network.

Three action programmes have been formulated to achieve these territorial win-wins with a timeframe of 2025. The planning process could be representative for similar regions in need of socio-economic revitalisation. T.OP Limburg was winner of the EU planning award 2014.

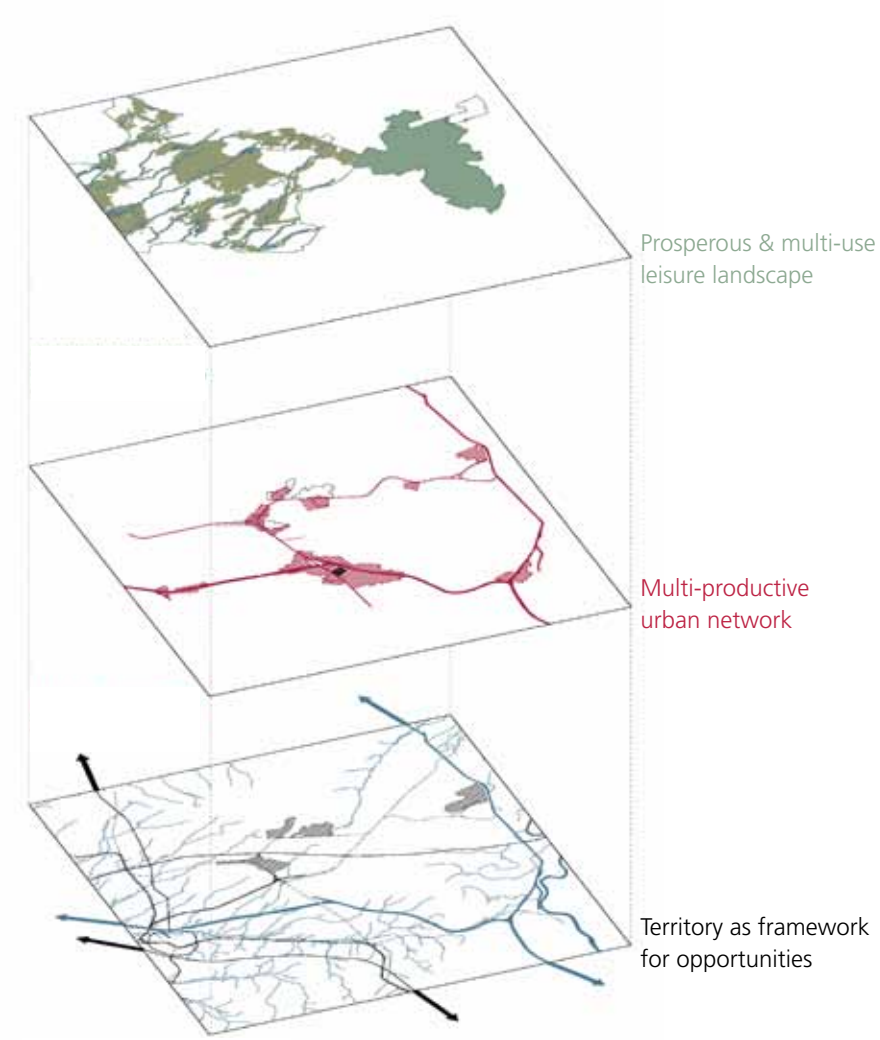
Issues

Corridor level:

- Improved North – South cross-border connectivity between Limburg and Brainport Eindhoven (network and value);
- From competition to cooperation (institutional).

Regional / DUS level:

- Improved East – West regional connectivity between economic nodes and in the urban network Limburg (network);
- Diversify development strategies based on local potential and multi-modal connectivity (value, space);



Three layers that provide the conditions for new developments

source: ruimtelijkeordening.be

Building partnerships in new functional territories (institutional and implementation).

Local level:

Integrated strategies for mixing of functions and land-uses (space);

Mobility as guiding principle for densification, clustering and connectivity (network);

Development of multimodal nodes (space, network).

Prologue themes

1. Infrastructure as driver for economic development
2. Multi modality: develop attractive networks and nodes for all transportation modes
3. Transformation of old infrastructures
4. Multiscalar: improve connectivity at all levels: local, metropolitan, European
5. Create attractive mixed use economic nodes and neighbourhoods
6. Integrated development (TOD/Nodal) of infra-structure (motorway, water, rail, light-rail, metro, bicycle an pedestrian) and urban development (Business district) (A3, B3)
7. Try to generate more economic spin off than just land value capture
8. Create an integrating vision at the beginning of the process (A2, A3)
9. Don't make business cases too complicated
10. Spatial integration of new infrastructure (motor-way, light-rail) and revitalized infrastructure (waterway, railway) in the existing landscape.

Stakeholders

- LRM (Limburgse reconversie maatschappij)
- Infrastructure providers: AWV, nv De Scheepvaart, NMBS/EIS, De Lijn
- Property owners of sites Corda, Thor, Cmine
- University of Antwerp
- Ministry of Ruimte Vlaanderen (B)
- Brainport Eindhoven
- Municipality of Eindhoven
- Province of Noord Brabant
- Province of Limburg, POM
- Ministry of Infrastructure and Environment (NL)
- INM

the **SEESTADT ASPERN VIENNA** case study

Image of the proposed new district

source: aspern-seestadt.at

Practice

In the road infrastructure system of the Vienna agglomeration, there was one missing link on the eastern side of the city. After studying different alternatives, the decision was taken to create the link by constructing the Lobautunnel. This tunnel passes under the river Danube and the Lobau park. North of the park the tunnel comes to the surface. Here, a connection to the local road system is foreseen. The construction of this link and the connection to the local system give a strong impulse to the accessibility of the Aspern location. For a long time this former airport site was abandoned. Now, with the realization of the road link, an ambitious plan has been developed for the site, called Vienna's Urban Lakeside.

Vienna's Urban Lakeside (surface 240 hectares) is the largest city construction site in Vienna and one of the largest urban development projects in Europe. In 30 minutes, the two city centres of Vienna and Bratislava, but also their international airports and railway stations are accessible. At the centre of the booming Centrope region unique site locations for companies interested in Centrope markets and the new EU member countries arise. The centre piece of the new district is the large marine park in the centre, which reflects the quality of life in Vienna. The site will be developed on basis of the smart city concept. As a first step, to give an impetus to the development of the site, the metroline U2 has been realized.

Issues

Corridor level:

- Positioning the site as part of the international infrastructure system (networks);
- Optimal value capturing on the site by attracting international orientated companies (value).

Regional / DUS level:

- ASFINAG, the infrastructure provider, is increasingly confronted with projects and measures in the interests of other (third) parties. Especially interchanges often cited as a 'magnet' for extensive business relocations. Provision of infrastructure implicates a significant rise of values in land use creation, but no adequate benefits for the infrastructure provider (value, implementation).

Aerial view of the construction site

source: aspern-seestadt.at

Local level:

The realization of eco friendly mobility first, like: public transport connections, privileged bike and walking paths, bike garages, carsharing, e-bikes, intermodal transport schemes, city of short distances, shared space, neighbourhood garages, the reduction of parking lots, short term parking zones, park-and-ride facilities, kiss-and-ride facilities and bike-and-ride facilities (network).

Prologue themes

The theme of the prologue study could focus on the governance arrangements which are necessary for the co-creation of infrastructure and spatial development:

1. Role of the network provider;
2. Strategic maintenance (ASFINAG);
3. Smart value capturing.

Stakeholders

- ASFINAG
- City of Vienna
- Austriatech
- Private developers

the **RAIL BALTIC CORRIDOR** case study

Train at Pärnu station

source: http://news.err.ee (Postimees/Scanpix)

Practice

The intention of the Rail Baltic project is to fully integrate Estonia, Latvia and Lithuania in a track gauge of 1,435 mm railway transport system widely used in Europe. The Rail Baltic axis Warszawa – Kaunas – Riga – Tallinn is set as the 27th priority project by the European Commission in 2004. On 8 June 2010 the ministers of transport of Poland, Lithuania, Latvia, Estonia and Finland signed a memorandum expressing their political intent to continue with the implementation of the Rail Baltic project. Besides the Rail Baltic development plans have been assessed in the context of the White Paper of 28 March 2011: "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system".

The development of Rail Baltic meets the national planning strategies for the improvement of the railway network and for stimulating economic development in all three Baltic countries. In addition, one of the most important national and international planning factors is to offer a transport infrastructure with a sufficiently high level in order to support the defence and security needs of various organisations.

The impact of Rail Baltic to transport and land use cannot be underestimated. It has multiple effects at corridor, regional and local scale levels.

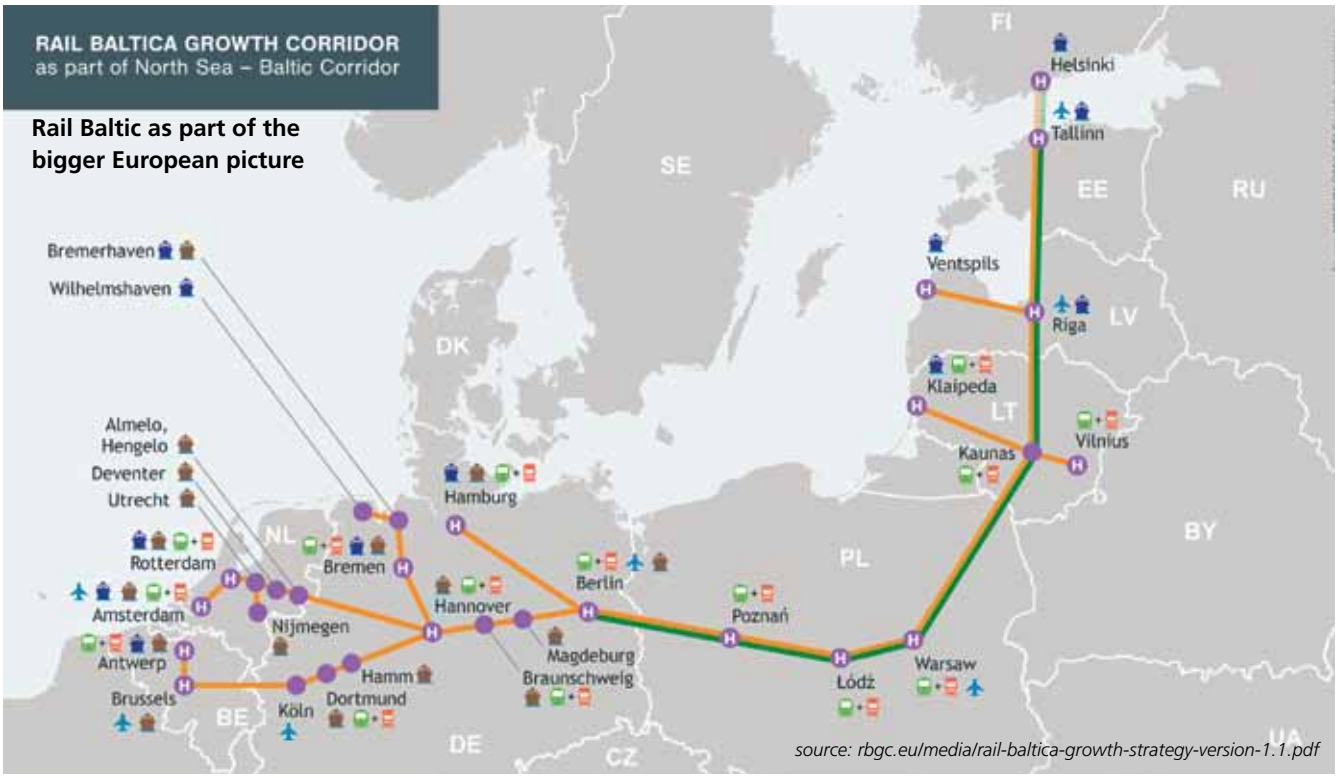
Issues

Corridor level:

- Long term competiveness of Baltic region, also link to Finland and Norway with its northern sea harbors (space);
- Increased congestion in E67 Tallinn-Pärnu-Riga-Kaunas highway (network);
  Optimizing the connection between infrastructures across international borders in order to create a coherent, optimal multimodal system (networks);
- Challenges are related to the linkage of corridor scale to the regional scale (different transport modalities, spatial developments).

Regional / DUS level:

- Exploration of land use and multimodal transport networks in various scales (space, network)
- Exploration of daily urban system (network).



source: rbgc.eu/media/rail-baltica-growth-strategy-version-1.1.pdf

Local level:

Spatial solutions are needed to solve interface of transport infrastructure with the land use (barriers, impacts to the human health).

Prologue themes

A prologue study could focus especially on the hub development in Tallinn and Pärnu, where the following themes are to be considered:

1. Spatial acupuncture for merging expanding infrastructure in the urban fabric (space)- connections to harbor, airport,
2. Embedding developments Tallinn multimodal hub of Ülemiste in relationship to fast growing business district and living space.
3. Capturing value of the fast train station for the Pärnu city
4. Development of sustainable traffic network and living space in relation to Rail Baltic in Pärnu.
5. Research on spatial development options reflecting increasing impacts from the railway corridor.

Stakeholders

- National government Estonia
- City of Tallinn
- City of Pärnu
- Tallinn Airport
- Rail Baltic management company
- Tallinn Harbour

Warsaw Ring Road, Poland

source: nielsonsinpoland.blogspot.nl

PROPOSALS for FURTHER RESEARCH

The proposed living lab will conduct research on a wide range of themes concerning the integrative approach for networking and urban vitality.

Best practice analyses, case studies and expert discussion (see appendix) led to the following priority issues. These issues are likely to play a central role in the implementation of an integrated approach and will be prioritized in the further application in the prologue studies:

A. Spatial Synergy

In order to research the spatial synergy between networks, infrastructure, land use and urban vitality several approaches have shown to be fruitful. Most promising for prologue application are:

A1: Spatial correlation
In order to generate solutions with optimal synergy between network, land use, mobility and liveability spatial correlation can be investigated in spatial development models, spatial investment agenda's, spatial development agenda's etc.

A2: Spatial intermediation
By means of spatial intermediation such as quality teams, chief government advisors and supervisors an in-process flexible (independent) knowledge base can lead to better integrated planning.

A3: Spatial communication.
By means of spatial communication tools such as mapping, drawing, calculating and 3D visualisation techniques. Experts from diverse technical backgrounds can develop an common language in order to create integrated solutions and consensus.

B. Multi-modal networking

Many practices show that the multi-modal optimisation often forms a base for a sustainable solution. Following issues need to be further researched in order to make this common practice across Europe:

B1: Multi-modal analysis (see also LUTI roadmap)
An important aspect of this research is the quantification of potential multimodal transport solutions on modal shift action from motorway networks to other modalities (especially in urban areas). Are multi-modality solutions for example a way to ensure that the growing demand for freight transport can be handled in existing networks – preferably without additional road - expansion measures?

B2: The role of spatial quality/constellation in order to create vital multimodal nodes (see category A)
The performance of a (multimodal) network is closely related to the spatial quality of the nodes and routes. Issues such as (social)safety, barriers forming, spatial attractiveness and flexibility/adaptiveness are crucial in successful network development.

B3: Role of the network provider

The role of the network provider in a multimodal context towards sustainable spatial development is currently developing rapidly. In many countries we see network operators moving from a small scope technical solution driven interest towards a broad scope, multi modal network interest.

C. Acupuncture: added value on a (regional, daily urban system) systems level

Around the world a large variety of value capturing instruments is used to finance public infrastructure works from land and property development. Complete overviews of this kind of tools and of their effectiveness do not exist (see also Alterman, 2012). Often European cities stick to traditional 'local' value capturing tools and ignore alternative instruments. Especially the research on an 'acupunctural strategy' across a full scale transport system needs to be addressed. The core of this strategy consists of specific local interventions in different modalities that have an overall impact.

D. Strategic maintenance & renewal: from repair to system optimization

Research is needed not only on the planning of new infrastructure, but also on the upgrading of existing infrastructure. Research should be conducted to look at the possibilities that arise at the moment of the maintenance of old infrastructure, not only to simply replace, but to use the moment as a means to be flexible and adapt to new situations (smart maintenance redesign) effect on the value of the whole system as well as on the overall efficiency of the corridor. For the acupunctural interventions, a range of tools can be applied, for example spatial design, rules/laws, financial stimulation measures an governance arrangements. The research should focus on the development of tools to value the effects of acupunctural interventions on the level of the system.

Commuter ferry services to relief conguestion on nearby highway A16 Rotterdam, The Netherlands

PROCESS RECOMMENDA-TIONS

NUVit baseline

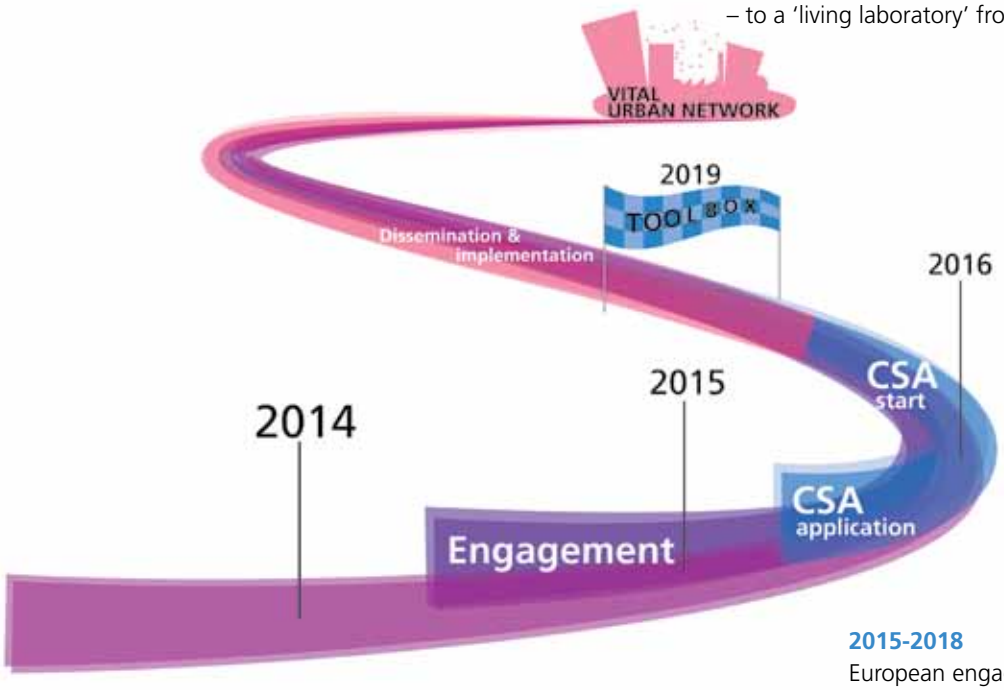
Current insights were driven by a relatively informal process led by problem owners (such as road authorities) and knowledge suppliers (universities, consultants etc.) The hands-on process, in which best practices were exchanged and prologue exercises were made, led to enthusiasm and the understanding within this network that current practice can be improved significantly and has a firm vitality potential. The consulted problem owners agree this process is fruitful since it is operational and generates network, awareness and hands-on practice. This process will be continued and forms the NUVit process baseline: prologue practise based knowledge exchange by key players such as network providers, urban regions and knowledge suppliers.

Strategic stakeholder engagement

The previous studies show the NUVit topic has a wide European relevance. This implies there is a need to widen awareness, urgency and disseminate knowledge on a larger European scale. NUVit intents to link up with European frameworks, initiatives and partnerships such as EIP Smart Cities, ETPs, Eranet Road energy, Purper, Interreg, CEF. European stakeholders organisations will be invited to join the NUVit process in order op operationalize this. A first step will be the engagement of National Road Authorities (which are organised in CEDR)

European engagement

Parallel to the previous two process lines it is important research questions are addressed on an European scale and linked to Horizon 2020. For this reason funding for a 'Coordinated Supporting Action' will be applied for 2015, that may lead – in case of a positive evaluation – to a 'living laboratory' from 2016 onwards.



2019-2030
- Toolbox
- Dissemination of knowledge, experiences and tools
- Implementation

2015-2018

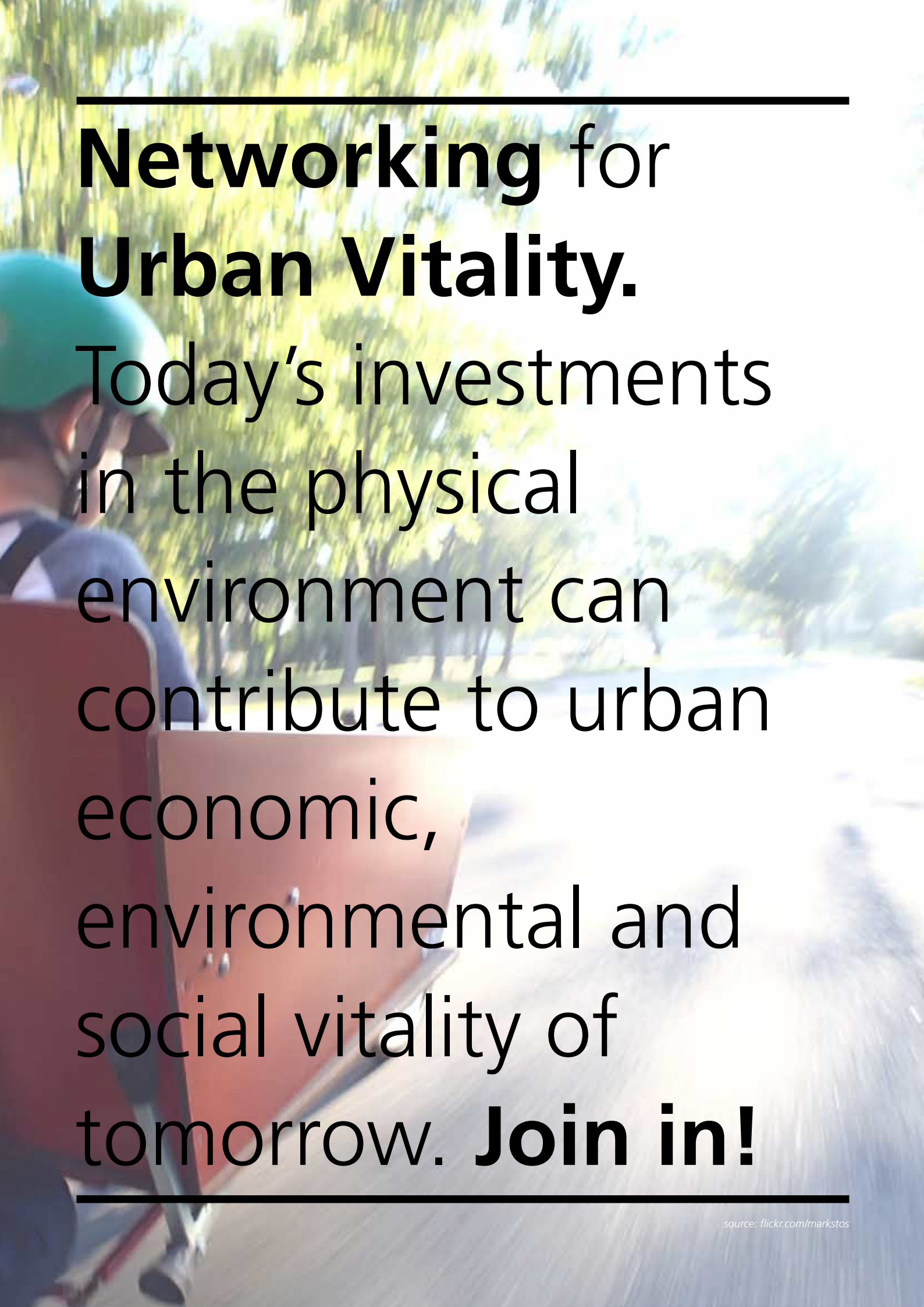
European engagement with the start of a CSA for founding Living Laboratory in order to optimise European relevance.
- CSA application August 2015
- CSA Start: spring/summer 2016
- CSA finalisation: end 2018
- Paralell: Research & Innovation Action's (RIA's) on specific topics or projects

Oktober 2014

Strategic engagement with European organisations such as CEDR for expanding knowledge base and deployment potential

Current-2018

Prologue practise based knowledge exchange by key players such as network providers, urban regions and knowledge suppliers



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source: flickr.com/markstos

APPENDIX

Expert meeting Brussels - 27th of June 2012
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Hickman, Robin (Mr)
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Imperial College and UCL UK
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Sander, Henrik (Mr)
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O'Malley, Vincent (Mr)
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Steiner, Thomas (Mr)
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Venhoeven, Ton (Mr)
Dutch Chief Government Advisor on Infrastructure, VenhoevenCS NL

Expert meeting Brussels - 8th of November 2012
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Expert meeting Rotterdam - 27th of August 2013
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Expert meeting Arnhem - 2nd of September 2013
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Hanekamp, Tertius (Mr)
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van Meerkerk, Ingmar (Mr)
Erasmus University Rotterdam NL
van Zwam, Huub (Mr)
Executive manager for e.g. Maasvlakte 2 NL

Expert meeting Düsseldorf - 16th of September 2013
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Expert Meeting Brussels - 18th of June 2014
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Schuch, Einar (Mr)
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Workshops and presentations
FIRM conference Fehrl
June 2013, Brussels BE
AESOP 2013 Conference
July 2013, Dublin IE
TRA 2014 Conference
April 2014, Paris FR
Mobile Track at AESOP 2014 Conference
July 2014, Utrecht NL

A LIVING LAB to **OPTIMISE SOCIAL** and **ECONOMIC VITALITY** through implementing **TOMORROW'S GOVERNANCE, TODAY...**