EUROPEAN UNION

Committee of the Regions

Regional

Innovation Ecosystems

CoR guide Learning from the EU's Cities and Regions

EUROPEAN UNION

Committee of the Regions

Regional Innovation Ecosystems

CoR guide Learning from the EU's Cities and Regions

Cover illustration: Aalto University Communications

Contents

Forewords

Forewords

Markku Markkula

President of the European Committee of the Regions

As the President of the European Committee of the Regions, I am pleased to introduce this book on the theme of pioneering cities and regions. The European Committee of the Regions is the European Union's assembly of regional and local representatives from all 28 Member States, which represents over 270 regions and 507 million people.

This publication aims to encourage regional decision-makers to increase their collaboration and partnering. Europe needs more partnering with collaborative power, creative thinking, ecosystems thinking, synthesis, and a stronger focus on outcomes and impact.

New ways of thinking are needed for dealing with European challenges. This means that traditional problem solving methods are no longer sufficient. Cities and regions have become the new powerhouses for progress and societal innovation: they can and must benefit greatly from open innovation ecosystems and they need to take a new orchestrator role in this field.

Three-quarters of EU policies and legislation affect our everyday lives in regions. Moreover, the governments of cities and regions in Europe manage two-thirds of all public investments, be it in the area of economy, social affairs, education, youth, culture, energy, environment, transport, territorial cohesion or immigration. Local and regional government in Europe therefore matters. For these reasons the European Committee of the Regions actively stands up for the rights and quality of life of citizens, ensuring that the local perspective is heard, and giving communities a voice in Europe.

This book is an essential part of the process in implementing our CoR priorities for 2015-2020, approved in June 2015. Our starting point is to show that the European Union can and must work for our citizens. However, for this to happen we need to achieve a change in mindset. Europe has to establish a culture of co-creation and breaking boundaries – a transition towards entrepreneurial discovery and open innovation, experimentation and action.

Two-thirds of the people in Europe live in urban areas; and these urban areas are not isolated - they are constantly interconnected with rural areas which are more and more impacted by the territorial developments of the 21st century. We are challenged by global megatrends like globalisation, digitalisation, ageing, environmental concerns and urbanisation, which call on all of us to turn these challenges into opportunities. This cannot be accomplished by one country, region, city, university or company alone; only by thinking and working together, in the spirit of learning, open innovation and crowdsourcing, can we create the desired new solutions.

This is exactly where the European Committee of the Regions can make a difference. Our focus

is on kick-starting growth and giving Europe's citizens the fresh start they deserve. Local and regional authorities have proven their worth in identifying relevant needs, bringing people together and stimulating investment in the real economy. Entrepreneurship, capacity building, smart specialisation and risk-taking must become the mantra of EU spending if we want our regions and cities to compete globally. Every region and city can be a pioneer in societal innovation.This book is an illustration of how sharing practices and outcomes of many regions can reveal the mentality required. Within the network of our members, we have excellent grassroots examples of entrepreneurship, open innovation, smart specialisation and sustainable development.

In our February 2016 plenary, we asked our members to take part in creating a Guide for best European practices in regional innovation ecosystems, which in a nutshell means solutions and investments to boost our local economy and create sustainable jobs. Now, it is time for us to promote these examples and publish this Guide in time for the Bratislava Summit. The objective is to raise awareness of the work of pioneering regions and cities in Europe.

We, as Members of the CoR, should stimulate bench-learning across regions and cities, and make this Guide an instrument for strenthening European dialogue and partnerships.

Our CoR priorities call for means and measures to be at the forefront of managing Europe's shift to a low carbon and knowledge-based economy. This requires concerted and collaborative action throughout Europe. In our Opinions we have stressed that every region and city in Europe can be a pioneer.

The stories in this book describe a journey to energise every kind of ecosystem on the ground. I invite readers to join us in this co-creation process. I express my great gratitude to our Members, European Commissioners, Members of the European Parliament, experts from diverse DGs and the JRC, and the many other people who made this work possible.

@CoR_President

https://www.facebook.com/markkulamarkku/

http://cor.europa.eu/en/about/president/Pages/president.aspx

Corina Creţu

European Commissioner for Regional Policy

Creating growth and jobs opportunities throughout the EU through sound macroeconomic policies, smart investments, and structural reforms is our number one priority, and Cohesion Policy has a crucial role to play in this.

With €454 billion for 2014-2020 the European Structural and Investment Funds are the EU's main investment tool. In all countries they are an important – if not the most important – leverage for economic transformation, targeting key growth-generating sectors – research and innovation, digital technologies, support to SMEs and to the low carbon economy.

Regions and cities are the closest entities to citizens: they know best the specific needs on the ground. They know best how talented their inhabitants are. We are here to help them fully capitalize on their competitive strengths and talents, to help them access global markets and increase public-private partnerships. This is the purpose of smart specialisation strategies, which serve as compasses for strategic investments in research and innovation.

I fully agree with the Committee of the Regions' diagnosis: for regions to be able to efficiently implement Smart Specialisation Strategies, they need the right conditions, the right environment for investment, and the active commitment of all stakeholders involved. Like natural eco-systems, each innovation eco-system has its own, individual character. From the remote island to the arctic space, each eco-system has its richness, its opportunities – and its challenges. Pioneers do not shy away from challenges; they develop new, innovative pathways. They experiment and explore further. In our journey for transformation, we all have to be pioneers, to explore new ways for the future of our regions and cities.

Innovation eco-systems are very much comparable: it takes human ingenuity, a pioneer's spirit and a real long term vision to fully exploit their potential. The shift towards a knowledge-based economy requires taking risks, connecting the actors of the quadruple helix – citizens, businesses, administrations and academia, and being constantly on the cutting edge of innovation. These innovation eco-systems are self-organising systems but evolve through an interaction between top-down policy choices and bottom-up creative forces. The emergence of the arche-typical innovation eco-system, Silicon Valley, is an example of this combination of public provision and private initiative. It is not possible to create top-down Silicon Valleys, but it is possible to create system conditions through which the likelihood of such innovation impacts can be increased significantly. The role of public policies is to facilitate the ongoing process of discovery of new opportunities. Be it through the provision of resources, such as education or infrastructures, or through the articulation of demand, such as public procurement. But more strategic: by promoting the interfaces between innovation actors.

An important instrument in setting-up a balanced innovation eco-system is the Integrated Territorial Investment which allows targeting investments on the basis of a specific regional development strategy. A strong instrument to support experimentation in urban settings is

the URBACT programme. But the most effective instruments to enhance the promotion of a pioneering approach in the region are the Smart Specialisation Strategies for research and innovation.

To achieve successful Smart Specialisation Strategies, an integrated approach is necessary to ensure strong involvement of industry in the implementation of these strategies and intensify cross-regional cooperation. For this we need to combine regional and industrial policy tools to create Thematic Smart Specialisation Platforms. They will help regions to roll out smart specialisation programmes by facilitating contacts between firms and clusters, enabling access to the innovative technologies and market opportunities.

The success of pioneering activities for your region or city relies heavily on innovation and thus the successful implementation of the National/ Regional Smart Specialisation Strategies. At this moment more than 120 regional and national Smart Specialisation Strategies are put in motion with a budget of more than 41 billion euro that is directly connected to these strategies. Other European funds are connected indirectly to this transformation agenda based on a diversification of the strengths of the region in new value chains where growth opportunities are most likely to be the greatest for the region.

A perfect example of pioneering is the Vanguard Initiative "New Growth through Smart Specialisation", a network of now 30 regions committed to lead-by-example in developing a bottom-up, business-driven approach for interregional cooperation in new industrial value chains. These thematic Smart Specialisation Platforms are launched at the High Level Event for Smart Regions on 1 and 2 June in Brussels.

These platforms are another step in establishing the right conditions for quality projects to flourish, for businesses to thrive and for the people's everyday life to improve, all leading to the increased competitiveness of the European economy.

@CorinaCretuEU

https://www.facebook.com/EUCorinaCretu/

http://ec.europa.eu/commission/2014-2019/cretu_en

Günther Oettinger

European Commissioner for Digital Economy and Society

Europe needs regions and cities that are actively working on creating strong digital societies, which meet the needs of its citizens today, anticipate the needs of tomorrow, and remain strong and competitive. Our cities and regions must work together in all levels with their many industrial, academic, and social partners – in order to be fit for whatever the future brings.

In this book we see many examples of this. We need to share the lessons of pioneers, highlight the role of digital champions in industry, and innovative frontrunners in society.

There is a wave of digital innovations in all sectors across Europe, including the public sector: the provision of services is just as an example of what is possible. Digital technologies will dramatically change the way we design, produce, commercialise and create value. Cities and regions can seize the opportunities offered by digital innovations to create unparalleled quality of life for its citizens.

The digital revolution in society is accelerating, and it is important that cities and regions are ready to take advantage of this. If we want to realise the full potential of this revolution and these technologies for our cities, Europe needs to adopt them as quickly and effectively as possible.

The next years offer unique opportunities for Europe to become a digital leader in urban and regional innovation. But we need to be fast and follow the good examples found everywhere across Europe. Close cooperation between cities and regions is essential for this.

To reach these objectives, the policies for a Digital Single Market and the new package for the digitisation of European industries and are very important on the EU political agenda and are key priorities of the new "Investment Plan for Europe". The European Commission proposes to tear down regulatory walls and moving from 28 national markets to a single one. This could contribute €415 billion per year to the European Union's economy and create hundreds of thousands of new jobs.

The road will not be without obstacles, there will be questions enough: How can we capitalise on the strengths of each territory? How can we better connect cities and regions between each other's?

This publication shares a number of possible answers to some of the key concerns, and indicates promising directions to take.

@GOettingerEU

http://ec.europa.eu/commission/2014-2019/oettinger

Violeta Bulc

European Commissionaire for Transport,
Chairwomen of European Innovation Partnership 2015-2016

Today 78% of European citizens live in and 85% of the EU's GDP is generated in cities. Many European cities are forerunners in the much-needed transition towards a low carbon, resource-efficient and competitive economy. Cities are central to delivering on key challenges for Europe's society and economy: jobs, growth and investment, innovation, energy- efficiency, low-carbon development and CO -reduction - to name a few.

Why smart cities and communities – opportunities and challenges?

Linking and upgrading infrastructures, technologies and services in key urban sectors (transport, buildings, energy, ICT) in a smart way will improve the quality of life, competitiveness and sustainability of our cities. This is a strong growth market - estimated globally to be worth €1.3 trillion in 2020 - a great export market for European business.

Markets are often fragmented, missing out on their full economic potential. Many innovative solutions require new business models and financing solutions for decreasing risk. Since demand for better infrastructures and services is high and still increasing while public budgets are under pressure, knowledge needs to be shared effectively and capacities developed.

Quality of life and attractiveness of cities as environments for living, learning, innovation, business and job creation are key urban priorities. Today they are also the key parameters for success in global competition for talent, growth and investments. Europe has many instruments to speed up this development. We need the cities and regions to use more these innovative instruments and co-create new ones.

The European Innovation Partnership (EIP) on Smart Cities and Communities is a good example, which helps European cities, companies, research organizations and other partners thrive these global markets.

The EIP facilitates collaboration to overcome market fragmentation and scale markets for tested innovations by highlighting that

- 100 cities active in this partnership will collaborate in different groupings to align and subsequently bundle demand for tested solutions;
- 100 key industry partners will cooperate with these cities in developing innovative solutions and the respective business models and innovative financing solutions to de-risk city investments and benefit SME growth.
- Other key parties, like academia, Governments, associations and other institutions, as well as civil society will join these initiatives to support their success.

The EIP brings together on an annual basis parties active in the partnership as well as those interested. This year the focus is on investment and finance in the partnership's implementation strategy. The key questions arise:

How can we mobilize greater investment in Europe? What are the priority areas where we can

scale markets closely and what is the role of better upstream collaboration between public and private actors? Which new business models and financing instruments work and how can we replicate them? What are needs and opportunities for support actions at European level and what is the role of this partnership?

Cities are the sources for life-friendly development. I want to congratulate the European Committee of the Regions on the strong commitment for pioneering cities and regions – the regional innovation ecosystems. Keep on moving towards more systemic solutions: let us collaborate and learn.

@Bulc_EU

https://www.facebook.com/VioletaBulc.EU/

http://ec.europa.eu/commission/2014-2019/bulc_en

Lambert van Nistelrooij

Member of the European Parliament

To new frontiers in a well-known world

The future is ours. The future ecosystems for innovation are crucial for Europe. For every two people that retire, we will have one youngster to fill the gap. We need to unlock all our human talent in cities and regions that will profit from new technologies and the ICT driven environment. In this respect I got inspired during the Espoo conference "Orchestrating Regional Innovation Ecosystems" in 2015. Here stakeholders took stock of the changes that we can bring in cities and regions. In my work in the European Parliament I focus on support schemes that foster this development.

Young policies: Smart Cities & Smart Specialisation

Embracing the boost of Smart Cities under the EU Urban Agenda we have made substantial progress under the Dutch Presidency. But the take up of the Smart Specialisation Strategies in the regions still show a remarkable disconnection with the city level. Smart Cities and the Regional Research and Innovation Strategies on Smart Specialisation (RIS3) are both relatively young concepts that have been rapidly adopted by policy makers in the recent years. Both start as knowledge and community-based concepts that work from the characteristics at the local level. Both are related to the EU 2020 Strategy, with focus on sustainability, the need to tighten the productivity gap in our continent and fulfil our agreements on economic and social cohesion.

From fragmentation to coordination

For a long period the EU policies were highly fragmented; the new approach in regions and cities leads to a stronger alignment with the everyday agenda of cities and regions. Both methods lead to a strong commitment with academia, applied sciences, industry and social partners in an entrepreneurial discovery process. This multi stakeholder discovery process, led by the public authorities, is supported by the open innovation principle and social media and communication technology. The characteristics of the cities and regions vary enormously, but there is more than enough evidence of a growing engagement in regions and cities. Their agenda can be filled with policy domains like transport, public safety, energy, education and healthcare. What connects them is their innovative way of interacting with stakeholders, managing resources and providing services. The focus is on the smartness of the citizens and communities and on their well-being and quality of life.

With the experiences in the recent year we should debate on the outcome of these approaches. Do we fill the gap between research and the daily life of citizens? Therefore it is necessary to align the results of Smart Cities and RIS3 from the local, national and European perspective. The European Structural and Investment (ESI) funds and other EU schemes have opened the door to the introduction of a more integrated planning, without a new bundle of legislation. What strikes me is the poor coordination of the two instruments. There is room for further development in both instruments.

Smart interacting policies

Smart Cites cannot exist without a smart relationship to a regional strategy for Smart Specialisation. The S3 platform in Seville underlines the strong interrelation between Smart Cities and the regional and urban development, since cities are the microcosms that condense many regional priorities and have specificities to be addressed. The Digital Agenda will enable the stakeholders of all levels towards a further integration of different policy levels and intensify the daily connections. Developments go faster where regions and Cities cooperate in their specific territorial needs. Specialisation leads to comparative advantages in the area.

Practical examples of interactions between RIS3 and Smart Cities can already be found in some of the ongoing smart specialisation strategies and concrete projects and initiatives in Member States. For instance, Stockholm region and Andalucia region have sustainable cities and smart cities as a RIS3 priority. Whereas, the Finnish Funding Agency for Innovation, TEKES, has launched in 2013 a national development programme for cities, namely the INKA programme on Innovative Cities and the Tekes programme 'Witty City', focusing on facilitating cities to develop innovation hubs.

'Cities in the spotlight'

In my book "Cities in the spotlight" (2015) I give an extended overview of the legal basis of both policies and the diverse support schemes. I invite the European Commission to present the next steps in the 7th Cohesion report, early 2017. An excellent moment to empower regions and cities in their innovation challenges. This policy should cover all Europe, with strong responsibilities at the decentralised levels. The Juncker Commission can make a new step here: closer to the citizens and without new burdens in legislation. Europe needs to come closer to the citizens, to touch the minds and hearts of the local communities. In this sense the European Commission has a unique possibility to keep their policy united, without a split in Europe in different speeds and support schemes. Cities and regions in the new Member States can fully participate and learn from experiences all over Europe. Here the "C's" of the territorial cooperation are essential. Cities and regions combine clustering and concentration with connection and cooperation. I expect that these C's will be leading principles in the next generation EU programmes, following the midterm and post 2020 debates.

Future: exploring new frontiers

The Lisbon treaty formulates the need for a solidary Europe on the basis of a proper territorial cohesion. We have to take the best of the last 30 years of Cohesion Policy in the EU and be prepared to move within the limits of the existing rules and regulations. The ESI funds already cover all Europe, with major investments in the Member States, but the uptake of Horizon 2020 (Research and Development) concentrates on the old Member States. The next generation EU investments have to tackle this disbalance. I invite all stakeholders to be involved now that the debates on the midterm review and post 2020 cohesion policy are starting, by exploring the new frontiers in a well-known world. Post 2020 we have to commit more to regions and cities through a bottom-up process.

@LvNistelrooij

https://www.facebook.com/lambert.vannistelrooij/

https://www.cda.nl/nistelrooij

Introduction

Regional **Innovation Ecosystems**

Introduction

Europe has a long history of pioneering. Europe has an established tradition of breaking new ground, exploring unchartered territories and discovering new options in scientific research, in the arts, in political governance and new systems for organizing society and addressing societal challenges.

Throughout history, individual pioneers – the many names we know from schoolbooks and heroic stories – and diverse pioneering cities and regions have excelled in creating breakthroughs that have changed society and led to our modern world. We know the outcomes of their deeds, and experience daily the benefits their breakthroughs have brought us, sometimes forgetting the hard work that was needed to get here. Pioneering is not always easy, and not without challenges: risks must be taken and fears must be faced in order to move from the past to the present, overcome obstacles and create the level of quality of life we enjoy today.

History marks the many milestones in our journey to today, but tomorrow's Europe, and the Europe of generations to come must be achieved in the same way. However, where historic challenges have been addressed and overcome, new ones have always arisen to challenge our capacities, ingenuity and entrepreneurial spirit. In the face of a fast-changing world, innovation and an experimental mindset are required more than ever. If Europe is to continue to provide quality of life for our citizens, the capacity to work together and learn from – and with – each other is essential. This pioneering spirit and character has never been more important than today.

European regions and cities are rising to the task. There is more and more experience with ecosystem development in which energizing urban actors is a key driver of innovation and improvement. There are many examples of how they work together in new ways to provide services for citizens, possibilities for entrepreneurial business – and an entrepreneurial public sector – to work together with universities, NGOs and citizens themselves to create the conditions that translate into opportunities for everyone.

For this reason, the European Committee of the Regions has decided to collect the first set of stories about pioneering regions and cities, and create an initial Guide to good practices for bench-learning, and for understand regional innovation ecosystems in practice. The stories have been collected without paying particular attention to comparing the quality of their operating models and their measures of what has been achieved, or judging them in terms of internal criteria or external rankings. A model describing 'what a pioneering region is' was developed to enhance story telling about what is happening throughout Europe. It was presented to the members of the Committee of the Regions, inviting them to tell their stories within the context of that model. The stories of the first group of regions to respond are presented here.

The purpose of this Guide is to raise awareness of how pioneering cities and regions are breaking new ground for co-creating the Europe of tomorrow, and provide a compact set of accessible examples for other regions to learn from. It recognizes that working together and learning from each other's practices are essential competences for the 21st century, and with this publication it creates an early prototype to guide further European dialogue and partnerships. In this way, it seeks to stimulate bench-learning between Europe's regions and cities.

The Guide is built up in the following manner: first we will define what it means to be a pioneer in regional innovation ecosystems and explain the concept of regional storytelling. The Chairs

of our CoR Commissions working on the different aspects of regional innovation systems will then set the scene for the 30 contributions we received from our members. Each one of these contributions - written in a short, accessible manner - tell a story of some of the most innovative cities, municipalities and region of Europe. We then move into a more theoretical account of territorial analysis, kindly provided by the Joint Research Centre (JRC) and other stakeholders working in this field. At the end, we will aim at drawing some initial conclusions about Europe's pioneering regions and the ways to move forwards.

There are many differences between the cities and regions, of course; specific solutions develop responses to particular challenges, and the talents and resources available to deal with them. Larger cities operate differently than smaller ones, and some approaches reflect specific circumstances in different parts of Europe. But there is also much common ground, and pioneers everywhere. We can respect and learn from pioneering examples in every context. We know that certain concepts – thinking in terms of regional innovation ecosystems, working with models for successful collaboration, developing innovative instruments tools for enhancing opportunities, acknowledging the importance of partnering and bench-learning – are important everywhere. Reading the different regional stories will make that, and many other lessons, clear.

These lessons are important for making progress in all of Europe's major projects – implementing the EU's Urban Agenda, actualising the Digital Single Market, moving towards a Energy Union, realising Smart Specialisation priorities and many diverse regional programmes, as well as addressing many other grand societal challenges.

In addition, they are directly related to realising the Committee of the Regions' Political Priorities for 2015-20:

1. A fresh start for the European economy
2. The territorial dimension of EU legislation matters
3. A simpler, more connected Europe
4. Stability and cooperation within and outside of the European Union
5. Europe of the citizens is Europe of the future

In this Guide, it is the stories that are important: grassroots examples of entrepreneurship, open innovation, smart specialisation, sustainable development and working together across borders.

Many regions and cities are pioneers in some areas and some things, although they sometimes may not be aware that the things they do may provide unique and valuable lessons for other regions elsewhere in Europe. This Guide is a step toward bringing this good practice to light, which may otherwise not receive the attention it deserves. It is concrete example of what the Committee of the Regions believes: that all regions and cities can be pioneers, that there are regions of opportunity everywhere, ready to harvest the power of learning from and with each other.

The intention is to update these stories regularly, both online and as a paper publication, giving every region the opportunity to add its stories to the developing vision of how Europe's innovation ecosystems continue to develop.

This is work in progress, and it should read as such. New versions will be more extensive, more complete, better and smarter. The potential for bench-learning across Europe's regions and cities is great. This guide is an impulse to leverage that potential.

The Concept of Pioneering Regions and Cities

Pioneers are essential for progress, and pioneering regions and cities are important learning arenas for building the Europe of tomorrow. Europe needs pioneering cities and regions to test groundbreaking ideas and develop the innovative products, services and policies that provide opportunities for business and industry, and quality of life for citizens, keeping us all fit for the future.

A Europe built on innovative, pioneering regions is a Europe of many possibilities, resilient in the face of societal challenges, global competition and financial uncertainty. A Europe of diverse regions can leverage diversity, moving at different speeds along diverse paths in the future. Within this diversity, different regions will play different roles on the road forward. One role of crucial importance is that of the pioneer, the region that explores new ground, sets examples, shows the way, and prepares the ground for others. Pioneering innovative regions can take advantage of their capacity to experiment and their drive to excel to become forward camps on the journey that other regions will eventually make, from local improvements to regional welfare that, through balanced contributions, builds European prosperity.

Pioneers establish themselves in previously unknown environments – be they physical, cognitive or conceptual territories – and discover how to engage the actors in experiments aimed at making the territory fertile ground for further development. They are innovators, restless by nature; 'boldly going, where none have gone before' is characteristic of the pioneer temperament. But moving ahead of events into the future is not the only thing pioneers do; they also know they must first learn how the worlds they explore could actually work. New knowledge must be turned into daily practice. Their experiments may not always succeed but when they do, they result in better quality of life, concrete examples, scalable processes, but also new questions and challenges. A good pioneer will also stay, at least until the most challenging questions are answered, preparing the way for others to follow, while reaping the early rewards of their work before moving on. In this sense, "boldly going" goes hand in hand with "boldly staying". And others do follow, translating lessons learned into daily practice. In this way, seemingly impossible dreams do become possible.

Pioneers exist in many fields – they are the explorers and settlers of new and uncharted territories, the trailblazers and pathfinders who map new regions of research, the scientists who find new truths, and the engineers and technologists who turn them into the things which define our daily lives. They are the artists that ask us to think differently about how we react with the world. Pioneering at the level of individuals, whether they are organizations or people – the often-famous inventors and visionaries – is important and we often know their stories,

We must remember, however, that innovation is a team sport, and urban and regional requires many diverse people from complementary disciplines working together. Collaboration is essential in team sports, and in the last 15 years we have gone from thinking in terms of Triple Helix and Quadruple Helix to ecosystem thinking. It is in the regional ecosystem that new ideas and new initiatives can thrive, or fail, and where the conditions can be created to feed them.

Translating the pioneering metaphor into actual practice requires the courage, curiosity and creativity – skillsets which must be anchored in

actors in every part of the ecosystem, from politicians to captains of industry, from entrepreneurial civil servants to enterprising start-ups, from universities to school children, and in citizens of every kind. Resistance to change can be widespread, pioneering is a challenge, and although 'following after' is easier than the trailblazing, it is never easy.

How does a pioneering innovation region develop the momentum to accelerate innovation and escape the gravity of resistance to change and reluctance to act? The simple answer is that regions can do this in the same way pioneers do: by hard work, using relevant resources, and engaging broad segments of the population to make the journey together. This means investing in practice. Pioneering regions work with methodologies of change to engage people, define shared purpose, create conditions for good collaboration, build capacity, showcase examples, and show the way.

Pioneering region require a **culture of innovativeness** driven by entrepreneurial spirit, which creates conditions for key entrepreneurial processes such as exploring, discovering, and pioneering to succeed. Within this culture, the engagement of stakeholders in participatory processes is central. This can be accomplished by accelerating the process of engaging stakeholders and citizens, taking advantage of the existing investment choices, reducing political risk and industrial lock-in, and speeding up the learning process.

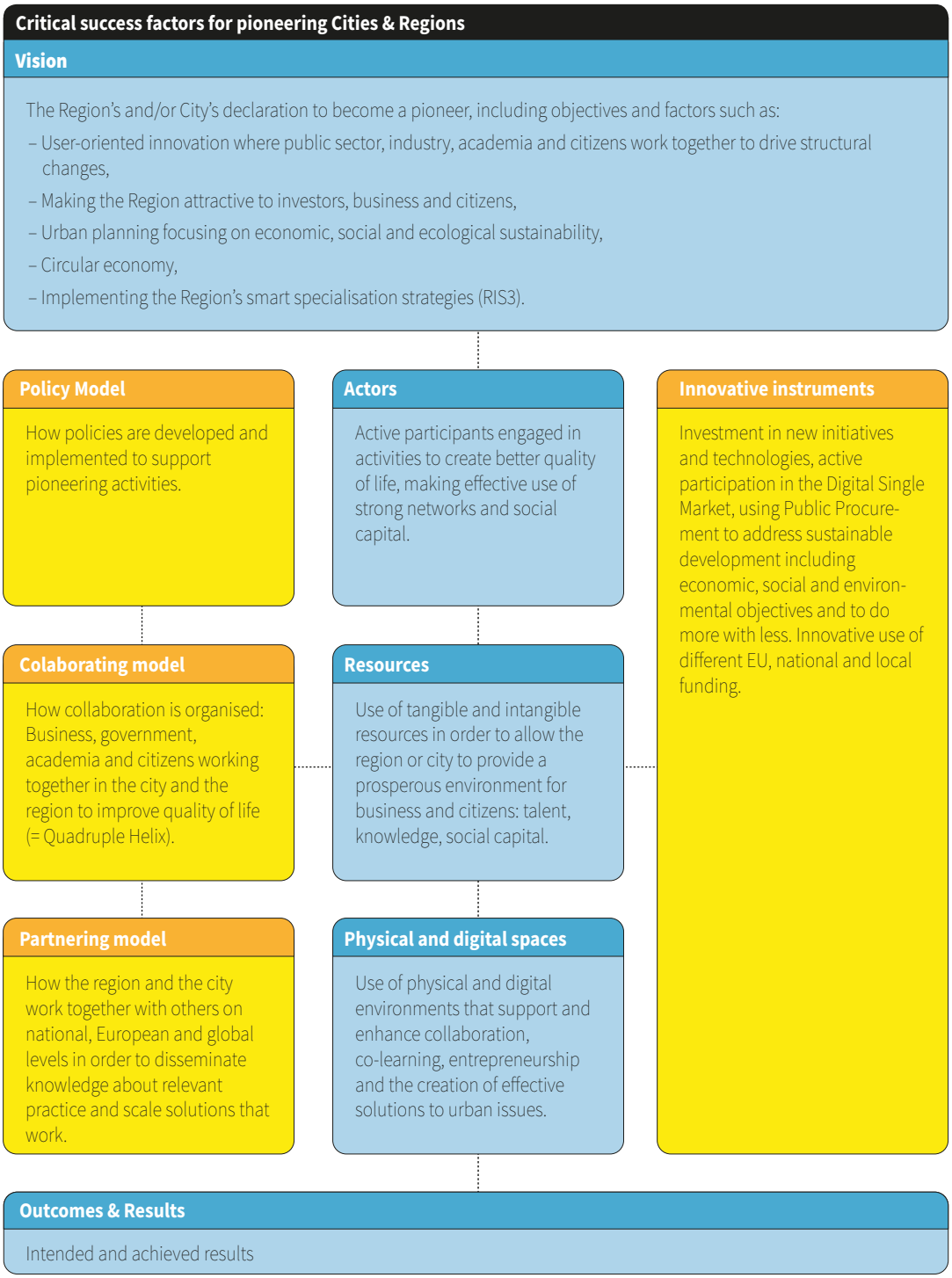
In many ways, the major issue in promoting a pioneering mindset is attitude. A pioneer is an innovator, creating something new and making things happen. This requires high ambition, motivation, positive mindset and measured risk taking. It also requires the capacity to work actively with other actors, both in the local ecosystem, and in broader partnerships with other cities and regions. For cities and regions, an effective collaboration model and an active partnering model are drivers of effective pioneering.

Regional Storytelling

Without thorough scientific study, it would not be easy to agree on the requirements for, or key characteristics of, a successful pioneering region. There are various models describing innovation ecosystems, business ecosystems and entrepreneurial ecosystems, but even there experts often differ in what to include and their relative importance of different factors. **Pioneering** regions are another story altogether.

The intention of this Guide is to contribute to a better understanding of the role of regions in creating sustainable growth, by describing how they deal with diverse issues and challenges with effective practice. So we do not choose for science, but for storytelling.

A quick-scan of studies and several conversations with of experts yielded a variety of characteristics, which we decided to present as a framework for storytelling based on 'critical success factors'. In our invitation to Committee of the Regions members to tell the story of their regions and cities, we developed a concept for describing pioneering regions and cities in terms of 9 critical success factors. All are important, and ideally a city or region should address all of them. Pioneering cities and regions do address most of them. And often, they set interesting examples for all regions that strive to exceed expectations.



A city or region should be able to address all of the requirements described in the figure; otherwise the regional innovation ecosystem is not yet well established. Especially the elements on yellow are the ones which make the difference between normal and pioneering regions. The more detailed text is written to give guidance for potential content of the success factors.

These critical success factors are described as follow:

- Vision: the Region's reason to pioneer, and its driver for change. All pioneering regions and cities should have a vision, which may refer to any of the following:
  - ☐ ***Open Innovation 2.0***: user-oriented innovation where government, industry, academia and citizens work together to drive structural changes beyond the scope of what any one organization or person could do alone;
  - ☐ ***Realizing RIS3***: implementing the Region's smart specialisation strategies in practice;
  - ☐ ***Attractiveness***: describing how to make the Region attractive to investors, business and citizens;
  - ☐ ***Sustainability/climate (economic, social and ecological sustainability)***: diverse issues relevant to Europe's Urban Agenda, especially urban planning with focus on the sustainable use of land, climate adaptation, and air quality;
  - ☐ ***Circular Economy***: the re-use, repair, refurbishment and recycling of existing materials and products to promote new growth and job opportunities.
- Policy model: How policies are developed and implemented to support pioneering activities in the region.
- Resources: Use and development of both tangible and intangible resources which allow the region or city to provide an attractive and prosperous environment for business and citizens: this includes talent, knowledge, and social capital as well as money.
- Actors: Active participants engaged in activities to create better quality of life, making effective use of strong networks and social capital (which is defined by the OECD as "networks with shared norms, values and understandings that facilitate co-operation within or among groups").
- Physical and digital spaces: the use of physical and digital environments that support and enhance collaboration, co-learning and the creation of effective solutions to urban issues.
- Innovative instruments: These can be Investment in new initiatives and technologies, active participation in the Digital Single Market, using Public Procurement to address sustainable development including economic, social and environmental objectives and to do more with less, and many others.
- Collaboration model: Organizing collaboration in Quadruple-helix: Business, government, academia and citizens working together within the city and the region to improve quality of life.
- Partnering model: How the region and the city work together with others on national, European and global levels in order to disseminate knowledge about relevant practice and scale solutions that work.
- Outcomes/Results: Intended and achieved results, the outcomes of initiatives and their impact on society.

We have invited our cities and regions to use this framework to tell their stories.

Pioneering Regions and Cities

Regional **Innovation Ecosystems**

Forewords

Yoomi Renström

Chair of the Commission for Social Policy, Employment, Research and Culture in the European Committee of the Regions

Following the devastating effects of the recent financial and economic crisis in many parts of Europe, local and regional authorities (LRAs) have not only been called to deal almost single-handedly with the numerous social problems on the ground, but also to find new ways to restore economic growth and create more and better quality jobs. Such innovative and creative solutions have primarily been focused on strengthening regional competitiveness by promoting both local and international partnerships with like-minded cities and regions.

Even though the European Union has been immensely supportive to the priorities of Member States' regions and cities during this difficult period, the bulk of efforts have unavoidably been carried out by national and local players motivated by their own political priorities and endowed with limited fiscal resources. In recent years, we have witnessed a real 'resurgence' of a variety of bottom-up processes aimed at boosting the entrepreneurial spirit in European territories. For instance, cities and regions have begun to systematically enact policy measures to help enterprises to get started, take risks, enhance their performance and grow. Cities and regions have also been transforming themselves to become more entrepreneurial not only by promoting technology in their own administration, but also by rewarding initiative, innovation, experimentation and capacity-building.

However, the ongoing demographic and youth employment crises in Europe, combined with the recent arrival of a large number of immigrants in a limited number of Member States and regions, have prompted LRAs to act proactively and to make use of all economic, technological and human resources available. It would not be far-fetched to say that the traditional, more gradual and national-based, approaches to building regional ecosystems and an entrepreneurial mindset have been called into serious question. Not only has the speed of finding and implementing innovative solutions recently increased, but also the set of players and types of preferred innovation methods have significantly changed. It has been argued that we are rapidly moving from the concept of knowledge economy of the so-called 'Triple Helix' (private sector – public authorities – university) to the concept of knowledge society/democracy (citizen-driven combined with transparency measures). The latter, mostly a bottom-up process, also implies a shift from technical to social innovation: thus contributing more inclusive and territorially-based models of involving individuals and local protagonists.

Indeed, we can safely affirm that today, due to the bottom-up push by active users and communities on the ground, technological innovation in our regions and cities has been accompanied by an equal effort to build on productive social innovation. The latter has also become a European cause and an "exportable" product and label of certain regions in Europe. On the one hand, the so-called Living Labs across the EU have taken scientific research out of the laboratory and into the real world, engaging stakeholders, citizens,

and end-users in the collaborative design of new services. On the other hand, local communities have mobilized their scarce resources in order to solve problems and pass on their knowledge to other regions and cities in Europe, thus making social innovation a practical reality. It is interesting to note that for all types of innovation – technological and societal, as well as top-down and bottom-up – the use of ICT solutions such as the Internet, data gathering and social media have been crucial for catalyzing innovative process and spreading know-how across borders.

As already mentioned, the role of the EU and its policies has been mostly positive in this context. The smart specialization strategies (RIS3) elaborated by all NUTS-2 regions and numerous metropolitan areas have become a precondition for realizing many European programs and have impacted the absorption of EU funds. LRAs have been striving to turn these strategies into tangible outcomes, particularly in the fields of innovative public procurement, support for SME and business start-ups, and through their role in education and entrepreneurial universities. Nevertheless, recent reports have equally pointed out that among the key challenges in designing and implementing RIS3, one could also identify poor planning in defining the objectives and the outcomes desired, shortcomings in monitoring indicators, investments in areas that were too similar and fashionable (ICT, nano- and bio-technologies), a failure to recognize other important areas for innovation, a lack of interaction and danger of duplication. The combined use of European funding, i.e. under the ESIF and Horizon2020, has also posed numerous procedural and practical problems, thus real examples of this have been quite rare at the European scale.

It is encouraging to see, however, that some EU regions have already managed to build pan-European innovation partnerships and have been trying to share best-practices and expertise. Enough to mention the European Innovation Partnership (EIP) on Smart Cities and Communities, the Open Smart and Agile Cities (OASC), the many pioneering regions united by the Vanguard Initiative, the European Network of Living Labs and, of course, the EC-promoted RIS3 Platform and the INTERREG IVC programme. One of the key principles of all of the above initiatives has been to reach out more to regions and to encourage them to act in partnership, as well as to stimulate cross-fertilization of ideas between LRAs and different other stakeholders.

As an EU institution, the CoR has been playing an active part in this process too. Via the work of its thematic SEDEC commission, responsible for research and innovation, the CoR members have been issuing legislative opinions and staging Brussels-based and local events promoting the new entrepreneurial culture and mind-set across Europe. For instance, a recently created Knowledge Exchange Platform (KEP) together with DG RTD of the European Commission has aimed at promoting policy debate and the results of EU-sponsored research to local and regional actors. Likewise, a European Entrepreneurial Region (EER) label has been established by the CoR in order to reward innovative regions and cities across Europe.

Overall, it is high time that political decision-makers started to think about their regions from the perspective of fully-fledged regional innovation ecosystems, endowed with strong human capital and international connections. There are naturally many factors that contribute to the eventual success of a region in this domain: from political to economic to governance ones. One, however, continues to be a central one: a positive attitude towards curiosity, creativity, entrepreneurship and knowledge sharing based on the principles of open innovation.

https://www.facebook.com/ovanakers.kommun

http://www.ovanaker.se/

Raffaele Cattaneo

Chair of the Commission for Territorial Cohesion Policy and EU budget in the European Committee of the Regions

Despite the presence of several major metropolitan areas such as Paris, London and Milan, the EU has a uniquely polycentric territorial structure built around towns and cities of varying size. An estimated 70% of the population of the European Union now lives in urban areas. Cities in the European Union are powerful engines for growth (GDP 85%), job creation (74% of employment) and provide significant contributions to achieving both the objectives of the Europe 2020 Strategy and the economic, social and territorial development and cohesion objectives of the European Union. Simultaneously, cities are the focal point of most of the challenges currently faced in the EU, including complex societal issues, such as global energy consumption, greenhouse gas emissions or urban waste. A city can also be seen as a "catalyst of integration" highlighted by the fact that many cities are currently playing a major part in coping with the current influx of refugees, as well as with intra-EU migration. None of the policies of the European Union would be feasible if the urban dimension was not taken into account.

In order to make life better for their inhabitants, towns and cities need to respond holistically to these challenges. A vital element of such a response is to ensure that full cooperation exists between different levels of administration and to organize traffic and transport programmes, spatial planning, the economy and the creation or maintenance of green spaces at the appropriate level. Encouraging cooperation between urban areas and the surrounding countryside is also crucial in this regard, as well as supporting any pioneering regions and cities that are already implementing integrated urban policies.

The European Committee of the Regions has always attached great importance to the development of an integrated EU Urban Agenda, as outlined in its opinion "Towards an Integrated Urban Agenda for the EU", by rapporteur Mr Bas Verkerk, Mayor of Delft, adopted in June 2014. In this opinion, the CoR underlined the necessity for a more integrated approach to EU policy and legislation that affect urban areas of all sizes, in order to eliminate existing overlaps and inconsistencies. The opinion also advocates for involving local and regional authorities more closely in the preparation of such an integrated policy. I am thus pleased that the Dutch Presidency of the Council of the EU is envisaging the adoption of the "Pact of Amsterdam", and the setting up of the EU Urban Agenda at the informal meeting of Ministers responsible for Urban Matters on 30 May 2016 in Amsterdam.

From the perspective of the European Committee of the Regions, developing a consistent approach to multi-level governance - from the UN to the local level - is the most appropriate way of achieving the successful delivery of results on the ground. Specifically, this entails the development of an integrated EU Urban Agenda that is coordinated with multiple levels of government and taking into account other successful initiatives such as the EU Covenant of Mayors or Smart Cities, which are excellent examples of good governance and replicable projects that can deliver favourable results. The final objective of the EU Urban Agenda should be a genuine intersectional anchoring of the urban dimension into the EU decision-making process ("urban mainstreaming"), which applies to all relevant European policies

and legislation, not only to a specific EU strategy or programme.

According to the CoR Opinion on “Concrete steps for implementing the EU Urban Agenda”, adopted by the plenary session in April 2016, three criteria are crucial in setting up an Urban Agenda at EU level: Transparency, Participation and Binding force. Transparency is crucial, as it is a necessary element to implementing knowledge-sharing and intercity cooperation in order to promote the exchange of know-how and best practices between cities and local authorities. Participation ensures a bottom-up approach and the involvement of local and regional authorities in the decision-making process. Finally the "EU Urban Agenda" should be a genuine agreement in which all the actors involved can commit to achieving the desired objectives.

The aim of any urban policy must be to improve the quality of life in towns and cities. Therefore the Pact of Amsterdam on the EU Urban Agenda should not be considered as a resolution to this process, but rather the starting point for a new "urban" governance process that sets goals and implements them through a practical and specific approach, coordinated at various levels in accordance with the principles of subsidiarity and proportionality. In order to be successful, it is imperative that it becomes a common endeavour of all actors concerned: EU institutions, Member States, cities and regions, civil society, and other stakeholders. It is important that the European Commission and the Council implement the decisions made in Amsterdam in a real partnership with the cities and regions. An EU Urban Agenda dissociated from levels of government, especially the regional institutional and administrative setting in which metropolitan areas develop is inconceivable. Synergies and cooperation between metropolitan governance and regional governance should therefore continue to be deepened and enhanced.

@Cattaneo_R

https://www.facebook.com/raffaelecattaneo/

http://www.raffaelecattaneo.it/

Christian Buchmann

Chair of the Commission for Economic Policy
in the European Committee of the Regions

Creating jobs and sustainable growth are key challenges for Europe. Boosting competitiveness is an essential requirement and depends largely on promoting innovation, creativity and entrepreneurship, a task in which cities and regions have a crucial role as lead partners in dynamic regional innovation ecosystems. By sharing experience and know-how, pioneering regions with successful strategies adapted to their competitive circumstances, can be powerful instruments in spurring innovative growth models

Vibrant entrepreneurial ecosystems are a key success factor for promoting new means of production and valorising technological, economic and social potential. However, Europe lags behind other parts of the world when it comes to entrepreneurship. The 6th Amway Global Entrepreneurship Report scores most European countries behind India, China, the US and Latin America. Only two EU Member States – Slovenia and Finland – have a higher score than the US. Among the four countries with the lowest score, three are in the EU.

In order to dynamise the entrepreneurial culture in Europe, it is essential to increase the visibility of entrepreneurs as role models and cultivate their attitudes and skills – e.g. willingness to take risk, tolerance of failure, sense of initiative and responsibility, commitment to life-long learning, teamwork and creativity – these are the essential ingredients of an entrepreneurial spirt.

A change in mentality towards a more entrepreneurial spirit cannot be imposed from the top. It must start at grass-roots level, as a bottom-up process. Cities and regions have a vital role to play by providing a supportive environment for enterprise and risk-taking and devising and implementing policies that help businesses to start-up and scale-up.

The European Committee of the Regions is committed to promoting a more entrepreneurial Europe. In 2013 the CoR adopted an opinion on the Entrepreneurship 2020 Action Plan , which says that Europe should present entrepreneurship as a viable and promising future career path for young people, thereby reigniting the entrepreneurial spirit. By generating synergies and cooperation among regionally-embedded actors – such as chambers of commerce, professional organisations, technology parks, business incubators, universities, clusters, nascent entrepreneurs and high-growth start-ups – local and regional authorities can make a major contribution towards creating an entrepreneurial ecosystem favourable to innovation and the start-up of new businesses.

At a practical level, the CoR promotes entrepreneurship through its European Entrepreneurial Region (EER) scheme. Each year, three award-winning EU regions commit themselves to implementing a cutting-edge entrepreneurial strategy in their territory. Even though the EER award is not linked to funding, it continues to attract strong interest from EU regions and cities, which clearly demonstrates that they are ready to tackle the challenge set for them through the EER initiative. My own region, Styria (AT), was an EER award-winner in 2013. The successful EER can serve as role models for regions and cities across Europe and the good practices in Styria and other

pioneering EER award-winners can help other territories to become more entrepreneurial.

Administrative burden is a significant obstacle to entrepreneurship. Companies should be able to concentrate on their core business without being hampered by excessive red tape. A more entrepreneurial mind set and approach on the part of public authorities necessarily implies a rigorous focus on improving the administrative and regulatory environment for businesses, particularly small and medium-sized enterprises (SMEs) for which the burden is often disproportionate. Cities and regions can do much to lighten this burden but their action must be complemented by initiatives at the European and national levels which are the sources of the greatest burdens. At EU level, the REFIT Platform, on which the CoR is represented, has an important role in this regard. The ECON commission is putting a strong focus on improving regulation for SMEs, addressing the topic through a process combining analytical work, thematic events and political debate.

One example of administrative burden arising at the EU level concerns the bureaucracy that has been built up in recent years in the management of EU structural funds, which has reached proportions that put an unreasonable burden on project applicants, thus discouraging SMEs from proposing actions financed by the European Structural and Investment Funds (ESIF). The EU should endeavour to ensure streamlined control procedures, simplify rules to avoid varying interpretations by regional and audit authorities and resolve issues between competition and regional policy, in order to make EU cohesion policy less complicated and risky for beneficiaries and regional administrations. I therefore welcome the fact that the European Commission has identified cutting red tape as one of its primary objectives.

Europe should make a renewed commitment to entrepreneurship as a core element of its strategy for growth and jobs. Obtaining finance continues to be one of the main challenges for start-ups and SMEs generally. Important steps have been taken to address this through EIB instruments and the European Fund for Strategic Investments (EFSI) but more needs to be done. According to Commissioner Katainen, the experience to date indicates that using EFSI for SME financing is the fastest way to spur growth.

Europe also needs to do more to make its Single Market work better in order to provide the scale and dynamic for competitiveness on which business can thrive. In particular in the area of services, which are the main driver of growth and jobs in Europe, much more needs to be done to integrate Europe's diverse national markets.

@Land_Steiermark

https://www.facebook.com/steiermark

http://www.politik.steiermark.at/cms/beitrag/10189287/5474782/

Contributing Cities and Regions

Amsterdam

Innovation Capital 2016

Regional **Innovation Ecosystems**

@Iamsterdam

https://www.facebook.com/iamsterdam

http://www.iamsterdam.com/en/

Eberhard Van der Laan

Mayor of Amsterdam, NL

The future is to the smart city, however only when a responsible city-government cares for a level playing field in which all citizens and companies can manifest themselves socially and economically. This requires technology that is inclusive.

Amsterdam:
Innovation Capital 2016

Introduction

There is no doubt that Amsterdam is a city that nurtures innovation in all fields. Amsterdam's successes were never truly derived from to a top-down structure – instead they were rooted in the mobilising force of diverse stakeholders, who collaborated and co-created within a loosely coupled innovation ecosystem.

Amsterdam's history is not only that of a city, but also of an idea. Amsterdam has been a breeding ground for innovation and liberal thinking. Amsterdam is and has always been a laboratory of new ideas – from gay rights to gay marriage, from free love to free bicycles, but also the breeding ground for more institutional advancements, such as the first multinational corporation in the world (Vereenigde Oostindische Compagnie, or VOC), investment funds and an insurance chamber ('assurantiekamer'). An important explanation for Amsterdam becoming so successful lies in its geographical location, which led to an effective cooperation between the people of the city and its governance. Throughout its history, the continuous struggle against the water made it essential for the Amsterdam people to manage things collectively – one cannot stop the water on his own.

The water, the perils, the bravery, the absurdity of the geographical position, and the development of complex communal organisations to cope with the situation explains much of Amsterdam's history. This gave birth to a very particular Amsterdam spirit: a strong desire for freedom, tempered by a tendency to cooperate and act collectively. The local government has always been embraced as a key factor to enable the people's freedom, while adding structure to the collective endeavours. This characterizes Amsterdam's innovative climate, making it possible to take a leading position in the world. And precisely because innovation is in the city's DNA, Amsterdam has become flexible and creative in dealing with the challenges that have confronted the city.

Vision

Innovation is based on three elements: the DNA of the city, an urban perspective (vision) on the future of the city, and how the city innovates (methodology).

City DNA – Why?: This constitutes the essence of city scale innovation. How innovation is emerging is mainly being determined by history and by the habitants, companies that are consciously and unconsciously leveraging the roots. The city DNA is becoming particularly visible when we have to respond to rapid changes that are challenging the competitive advantages in particular in knowledge based industries. The City DNA in

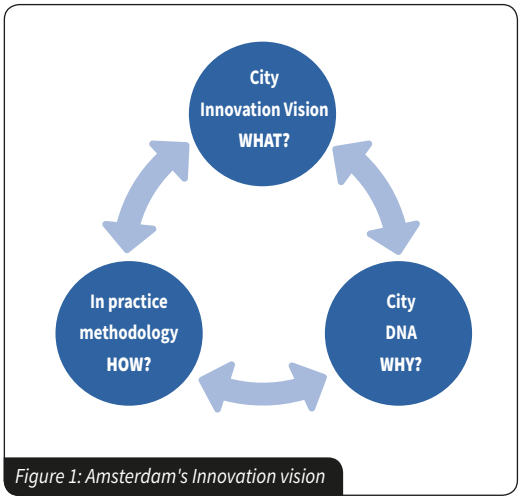


Figure 1: Amsterdam's Innovation vision

Amsterdam can be described by the following assets: diversity, openness, pragmatism, tolerance, dynamism and creativity. These characteristic traits define how we handle challenges, anticipate change and unlock agile responses.

City based Innovation Vision & Strategy – What?: This refers to future plans regarding how we envision the city and provides a general framework for innovation. For the purpose of this article, Amsterdam underpins its role as a platform operator and its ambition is to belong to one of the most innovative EU cities before 2020. At this point in time, Amsterdam will focus on four targets that are based around core assets of the ecosystem: smart cities, new ventures and startups, digital social innovation and livability. The vision and ambition will be to accelerate innovation in theses fields and become excellent.

The chosen innovation approach / methodology – How?: the implementation of innovation

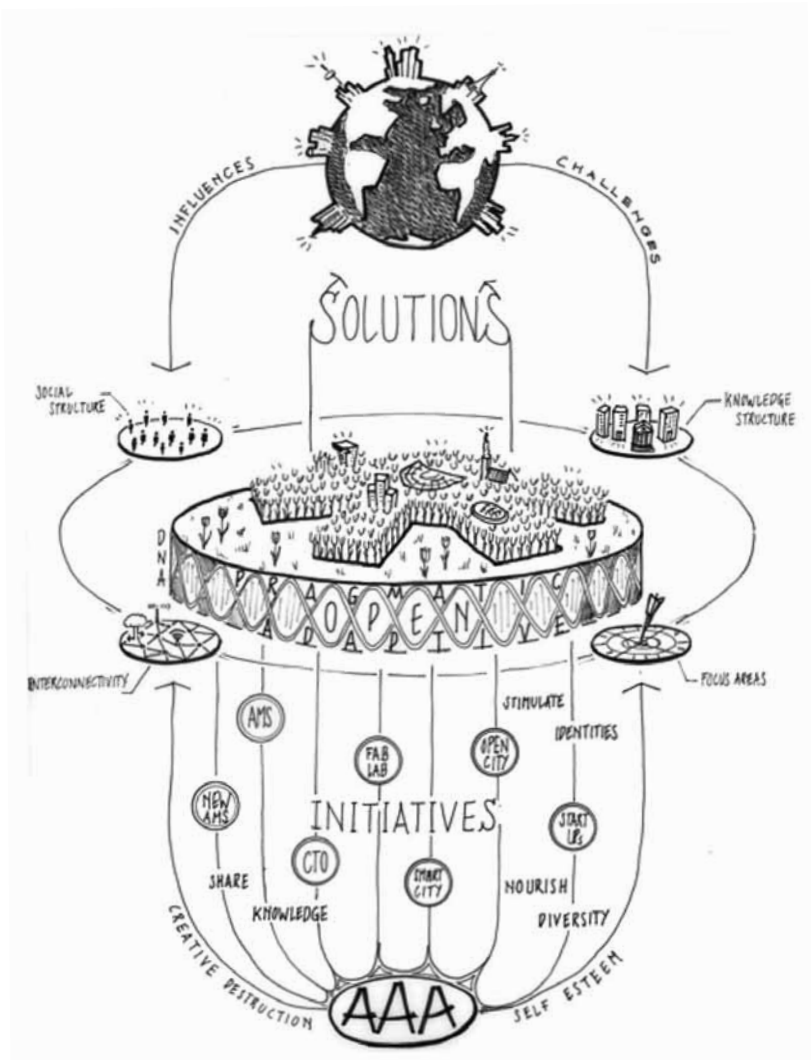


Figure 2: How Amsterdam innovates

in general can be described in Amsterdam by a 'to do and learn' attitude, by a fast feedback through city platforms and by agile short-term innovation learning curves. This is supported by a range of platforms where ideas and resources are generated on the one hand, while visibility and transparency are guaranteed on the other hand. The strength of the current innovation framework with four dimensions is the chosen approach. Since 2013 seven Initiatives have been developed, resulting in 28 great examples how Amsterdam innovates. On the way to 2017, this has already led to over 200 million euros' worth of investments in innovative projects and over 300 strategic partners in the city. Furthermore, over 100.000 people are involved in online platforms and social media.

Amsterdam innovates due to the fertile soil based on the city-DNA (open, pragmatic, adaptive). By using the knowledge structure, social structure and interconnectivity in focus areas urban challenges are met. The ecosystem is based on diversity, sharing knowledge, creative destruction, self-esteem and strengthening of identities. AAA is the starting point of the initiatives.

Innovative instruments, actors & Resources

In Amsterdam, the necessity to innovate has its roots in the 16th century, when the first Trade Agency was opened on the spot where the old Stock Exchange is located today. Back then, it was important that the building was close to the water. Their constant fight against floods forced the city's residents to collaborate in order to protect the city from further disasters. This created a society that relied upon creativity and collaboration. Applying multidisciplinary skills and knowledge, working together outside of regular activities and thinking with an open mind have always been the driving forces behind big societal changes.

Amsterdam, miraculously, could always sustain itself due to some of the core assets that are encrypted in the city DNA. These assets are:

- Ability to adapt and adjust to sudden, large-scale changes (ranging from floods to migration)
- Courage to reinvent established business models (creative deconstruction): there are regulations but they must always be adjusted or loosely customised. All these cultural aspects are connected to the prevailing economic structure, which mitigated vested interests and ensured they could not become dominant.
- Equality of ideas and people: the greatest importance is attached to ideas, and barely none to any kind of hierarchical constructions; neither is there a dominant sector or organisation that would prescribe how to act
- Communal thinking and acting, but with the ability to conduct concrete action (pragmatic approach).

In the last years, innovation processes have been undergoing varying and far-reaching changes. An increasing number of disruptive technologies is emerging and this has a liberating and revolutionary effect on society. It further requires important shifts in numerous fields: from centralised to distributed, from possession to sharing, from evaluation to real-time adjustments. In this new transitory and innovative city lies an urge to provide feedback to citizens on experimentations and prototypes; living labs are prominent and anyone can contribute – the city belongs to everyone. Amsterdam is very well equipped and proud to stimulate mass participation.

Since 2013, a strategy is being developed in the city that enables the conscious orchestration of 'serendipity' and more and more 'meeting places' have been established to stimulate the free flow of creative power between very different actors is being actively stimulated.

In the current ecosystem of **Amsterdam, the city acts as a living lab**. This is where Amsterdam shows extraordinary qualities. The city offers a great breeding ground due to its compact size, its extremely diverse population (there are residents of 180 nationalities in Amsterdam) and the presence of many groundbreaking meeting places. The most impactful innovation assets that characterise Amsterdam are:

- A vibrant urban society that nurtures innovation, that comes up with self invented solutions and applies them to concrete situations and that creates various platforms
- The fast uptake and application of smart technologies enable city residents to mobilise talent through rapid contacts and meetings
- Local context: Urban challenges form a basis for continuous discourse between urban stakeholders and this helps the city to respond faster to challenges
- Data/ driven (evidence based) approach with a high level of adoptive and absorbing capability leads to a shorter innovation cycle.
- Innovation in Amsterdam to implement, learn and grow, not top-down but rather bottom-up.

Relevant literature on regional innovation ecosystems often refers to recurring, well-known parameters. A city that is well prepared in absorbing future challenges and developments should however follow a more agile attitude. Amsterdam belongs to this category.

As the influence from the city is quite limited in this area, it means that the city council must operate smartly to really make an impact. Amsterdam does this in tiny steps and tries to unlock and mobilize innovation capacities from different resources (inhabitants, companies, intermediary organisations, research institutions) with different tools and projects. A well-aligned orchestration of the whole ecosystem is a complex task, and fully achieving it is to a certain extent in the end just an illusion.

The idea behind this orchestration role is that the city operates as a platform, which provides space and facilities for innovators to meet up, exchange ideas and create new things, and where participants are cooperative and make good use of the provided facilities. This open approach leads to a range of sparkling initiatives but also to some 'necessary' failures. The paradigm shift in innovation policy (from a centralised approach to more widely distributed ecosystem management) in 2013 resulted in stronger citizen participation and a quicker, more transparent and mobilizing role of the city hall.

Policy, collaborative and partnering model

Creating interaction between the different 'layers' within the innovation ecosystem and with the active stakeholders that are actually creating the city is the bottom line of the innovation strategy in Amsterdam. In this social structure, the citizens and the intermediary/civic organisations are crucial.

It is recognised that cross-fertilisation between all the actors is needed since, more than ever, the power, creativity and energy of the people is needed to tackle the pressing issues of our time. It is here that we see the beginning of an innovation ecosystem that connects and reinforces the new wave of innovations through new, emerging

grassroots platforms, stakeholders and projects that are creating a crucial social and economic value for the city. Many bottom-up initiatives gathered to align their ideas about a 'common good' and to look for alternatives for the relentless quest for (economic) growth. From citizens who have set up their own neighborhood initiatives, to locally owned energy companies, to successful social start-ups and citizen-driven service providers. It seems a transition is at hand, facilitated by today's revolution of new technologies and design methods – sometimes referred to as 'Social DIY'. Amsterdam even has its own, new quarterly magazine to showcase the multitude of positive change initiatives among its citizens, businesses and public organisations: Nieuw Amsterdam. Organisations such as Pakhuis de Zwijger, Waag Society, Impact Hub, Kennisland and more, play a crucial role in enabling and stimulating this kind of innovation.

These organisations can be seen as 'scaffolding organisations' – or incubators – that function as a bridge between the formal institutions and the informal civil society and act as a support system for bottom-up innovation. These are the types of organisations that are needed to bring their ideas to the next level. It is the task of the local governments to ensure that citizen involvement is not only for the happy few (the social entrepreneurs, the creative professionals) but includes all. Only by fully tapping into the innovative potential of all its inhabitants can Amsterdam create a flourishing society for all. This is the real objective for Amsterdam: to accelerate its assets within the context of the quadruple helix.

Conclusions

Amsterdam clearly has a long standing tradition of bottom-up innovation, making it a vibrant, resilient and great place to visit, live and work. Amsterdam is home to a dynamic and productive hub of universities and businesses undertaking world-class research and innovation.

This collective knowledge is a huge resource for all stakeholders in the city – whether it is those engaged in determining economic or planning policy, business strategies, or companies seeking to locate there. It is a key asset in assessing how and where to invest time and capital. Amsterdam's innovation ecosystem – which includes worldclass research in manufacturing, automobile, medicine, biochemistry, neuroscience and information research – gives a comprehensive evidence-based view of what the city is good at and where its growth will come from in both the near and long term. It also provides an important insight into what infrastructure is required to further support these trends.

Today, many investors and economic development professionals want to know where the next Silicon Valley will emerge, as investment in technology becomes a key priority. Analytic tools and data that reveal where the leading information and technology researchers are based could help find those answers. These same tools allow stakeholders to ask questions about the future of many other industries, as well as the specific impacts of innovation in a given area.

Amsterdam is just one example of where innovation can be used to make robust knowledge-based decisions. Whichever city you are working in, or planning to locate to – be it Copenhagen, Berlin, Shanghai, or Manchester – it is possible to map its strengths on the basis of its knowledge ecosystem. It is an opportunity that should not be missed.

Amsterdam (NL)		
Research and Innovation Observatory *	**Link**	https://rio.jrc.ec.europa.eu/en/country-analysis/Netherlands
Regional Innovation Monitor Plus Score Results (RIM Plus)		The region has a strong innovation potential because of its highly educated labour force, its knowledge infrastructure and its world-renowned liberal spirit. The Gross Domestic Expenditure on R&D in this province is €2,282m, 2.09% of the GDP, which is slightly above the national regional average of 2.03%. Public contributions are low compared to the private expenditures.Noord-Holland has two universities: the University of Amsterdam (UvA) and The Free University (VU). The UvA has 29,783 students (Bachelor and Master), more than 5,000 staff members, 2,269 members of scientific staff and 2,360 non-scientific employees. In 2012, 9,223 scientific publications were produced. The UvA is ranked 62th of 700 universities in the QS World University Ranking of 2011-12. In the 'THE World University Ranking' UvA ranked 83th in 2012-2013. The VU has 24,517 students (Bachelor and Master), 2,764 members of scientific staff (2045 fte), and 1,905 non-scientific staff members (1,564 fte). In 2008, 7,420 publications were produced.The VU is ranked 140th in the 'THE World University Ranking' and 177th on the QS World University Ranking. " Among the most important research centres are ECN, the Energy research Centre of The Netherlands (head office located in Petten, with 500 employees, and including a reactor for nuclear research; also the location of the JRC Institute for Energy&Transport), the Institute for Marine Resources & Ecosystem Studies (Imares, located in IJmuiden, Texel and Den Helder), the Royal Netherlands Naval College and the Royal Netherlands Institute for Sea Research (both located on the island of Texel). A special focus in the province is on ICT and Life Sciences. At the science park Amsterdam a physical hub of the World Wide Web is located, SURFsara provides services and expertise in advanced ICT infrastructures and a number of ICT scientific and educational institutions (including CWI, Centre for Mathematics and Informatics), government bodies and commercial companies are concentrated.
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/north-holland
Smart Specialization Strategy	**Strategy**	S3 Priorities: -1. Agrofrood 2. Energy 3. Water technology- clean and safe water 4. Healthy ageing
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/nl1/tags/nl1?s3pv=1

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Aosta Valley

A pioneer in pre-commercial public procurement and open innovation

Regional **Innovation Ecosystems**

@ustampavda

https://www.facebook.com/visitdaosta

http://www.regione.vda.it/

Augusto Rollandin

President of the Autonomous Region of Aosta Valley, IT
Member of the European Committee of the Regions

We express our satisfaction and pride for this project, that has allowed to create a systemic action among enterprises, research centres, public sector and civil society, to support the development and experimentation of new products and services: this is a pioneering experience that has adopted the instruments of pre-commercial public procurement and Living Labs and has allowed, in a transnational environment, to enrich the set of regional public policies supporting innovation and competitiveness.

Aosta Valley

A pioneer in pre-commercial public procurement and open innovation

Introduction

Shaped by superb glaciers and encircled by the highest mountains in Europe, Aosta Valley is a northern Italian region located strategically on the western side of the Alps, bordering France and Switzerland: with unique landscapes, natural skylines, enchanting castles and fine food all close at hand, this alpine region is almost entirely mountainous.

The regional economy, represented primarily by micro-enterprises, relies mainly on the tertiary sector, with tourism, ski resorts, wellness and services representing 80% of local GDP. Nonetheless, industry is of significant importance, as it ensures continuity and stability in employment in contrast with the typically seasonal nature of tourism and there are several areas of excellence with strong players exporting on the global market.

Since 2009, Aosta Valley, like all Italy's regions, has been experiencing a deep and lengthy economic downturn, with a sharp reduction in local GDP. In this negative context, regional public and private investment in R&D, already low compared with the national and European average, has fallen still further, representing just 0.57% of regional GDP in 2011.

Against this difficult backdrop, one project that is of strategic importance and that is having a significant impact on regional ecosystems as well as on the local communities concerned is the ***Alcotra Innovation*** project. Funded by the Alcotra Italy-France 2007-2013 territorial cross-border cooperation programme, its partners include the regional public authorities of Rhône-Alpes and Provence Alpes Côte d'Azur, in France, and of Piedmont, Liguria and Aosta Valley, in Italy, as well as the Province of Turin.

The project is aimed at creating and developing a culture of partnership and action among innovation players on both sides of the Alpine border and at stimulating user-oriented innovation, where the public sector, industry, academia and the public work together to bring about structural changes in terms of innovation capacity and international competitiveness.

Vision

As an Alpine region, the long-term vision of Aosta Valley is focused strongly on the region and its unique asset, the mountains, with the aim of exploiting indigenous resources and tackling geographical challenges. The regional Smart Specialisation Strategy for research and innovation is therefore based on a vision where the mountain is central, and its evocative brand element is divided into three highly interconnected pillars, aimed at weaving this identity-based profile into a regional innovation ecosystem:

- Excellent Mountain
- Smart Mountain
- Sustainable Mountain.

Innovative instruments

As part of the **Alcotra Innovation** project, Aosta Valley launched an innovative combination of living labs and pre-commercial public procurement (PCP) in a pioneering experiment aimed at stimulating R&D and delivering better, more efficient and higher quality public services.

The cutting-edge idea was to apply a transnational view to the living lab model, with the design and launch of one of the first cross-border living labs in Europe. Using this approach, it was possible to combine the advantages of living labs with the added value brought by the networking and collaboration of players residing on both sides of Alpine borders and sharing common interests.

In terms of innovative instruments, Aosta Valley has adopted not only living labs, but also pre-commercial public procurement, mobilising significant private investment in R&D and paving the way for the design, development, prototyping and testing in real life conditions of new products/services in highly topical thematic domains. By adopting pre-commercial procurement locally, governments can play the role of first buyer and acquire innovative prototypes at lower-than-market prices.

The most important features of pre-commercial procurement include:

scope for R&D services: R&D can cover a wide range of activities including pinpointing and developing solutions, refining prototypes and starting to develop a limited number of products in the form of experimental series, with the aim of incorporating the results of field testing and demonstrating the suitability of the product or service to marketing;

the sharing of risks and benefits: the public purchaser does not restrict the results of R&D to its exclusive use and shares the risks and benefits of R&D with the contractor;

competitive procurement designed to exclude State aid, as the procurement process still obeys the principles of competition, transparency, openness, fairness and pricing at market conditions.

Policy model

In Aosta Valley, we attempted to pilot the living labs experiment through a pre-commercial public procurement procedure. According to a study carried out by the Bank of Italy, the first properly-defined pre-commercial procurement experience in Italy was probably the one set up in the Aosta Valley[1].

The Open Innovation model represented by living labs has considerable and undeniable synergies and complementarities with pre-commercial public procurement, in particular:

- performance evaluation in real settings: by testing and assessing prototypes in a real-life environment, public purchasers can gear product development to their own priorities at a stage where it is still possible to influence the industrial plans and future standards. Moreover, the possibility of sharing knowledge on future market trends enables innovative businesses to predict demand for new solutions more effectively, reduce the time to market and optimise their R&D spending;
- early involvement of the public sector in the innovation process: involvement from the beginning of the process also ena-

[1] A. Petrella, Fostering innovation through public procurement: rationale, implementation and best practices in Italy and Europe (2014).

bles public bodies to identify, at an early stage, potential policy-related or legislative problems that need to be resolved in order to secure the legal and timely introduction of the new solutions to public services and other markets.

In terms of policy models, in line with the Smart Specialisation approach, the **Alcotra Innovation** project partners jointly identified two thematic areas:

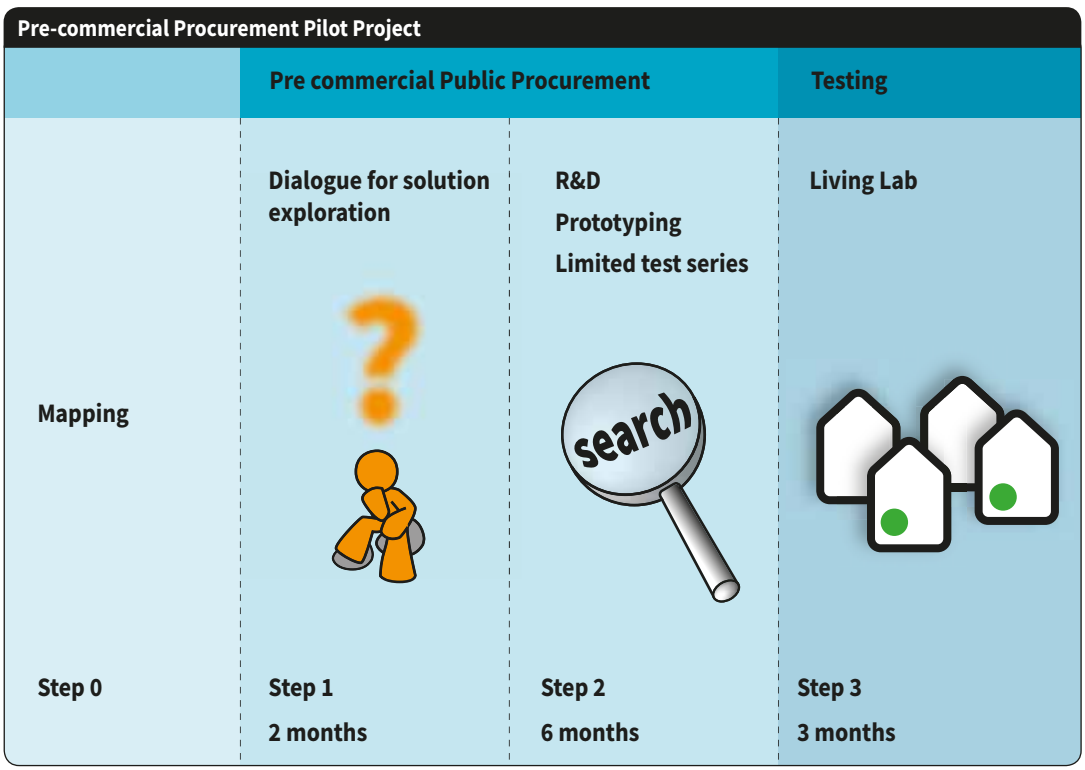
- smart energy, alternative sources of energy, energy efficiency; and
- intelligent automotive mobility, transport and territorial monitoring.

The pre-commercial public procurement pilot began with an open market consultation, involving:

- a call for ideas, with the aim of carrying out a survey within the production system (enterprises, research bodies, universities, etc.) in order to find possible innovative solutions to technological problems or to social-economic issues existing in the local area; and
- a survey to identify the needs and expectations of the local community, by consulting local public authorities and public equivalent bodies (foundations, agencies, etc.).

By matching up the responses, i.e. the proposals for innovative solutions not yet available on the market, on the one hand, and the needs emerging from the territory, on the other, it was possible to define the specific technological areas of interest within which to procure research and development services. The aim of our project was for the prototypes to subsequently be the subject of testing and experimentation through a living lab approach.

The PCP awarded R&D service contracts to a number of R&D providers in parallel in order to



compare the competing alternative solutions. This was carried out in three phases under a framework agreement (solution exploration, R&D and prototyping and pilot deployments made available to end users through living labs) with intermediate evaluations after each phase, progressively selecting the best competing solutions, which would then be offered a specific contract for the next phase. The prototypes were tested by end-users on the premises of local authorities and educational institutes and in this way the PCP was able to provide participating R&D providers with an initial customer test reference.

In particular, in order to ensure that the procured services achieved an outstanding level of innovativeness, intermediate evaluations paid attention to the following award criteria:

- the degree to which the needs declared in the tender documents were fulfilled;
- the technological excellence of the project;
- the potential impact of the research, prototyping and testing;
- the quality of the partnership, in cases where businesses and research centres were working together on the proposal;
- the utility, consistency and sustainability of the project experimentation;
- the reliability of the monitoring and evaluation system; and
- the financial bid.

Collaboration model

This policy framework is based on the active involvement of all relevant local stakeholders, such as government, business, academia and civil society, applying the quadruple helix model. More specifically, this open innovation model involves open market consultation launched by the public authority: the contracting authority issues a call for ideas, something less binding than a design contest, in order to carry out a survey on the productive system (enterprises, academia, research bodies, etc.), exploring the possibility of innovative solutions able to tackle territorial and societal challenges.

At the same time, the model provides for the identification of the needs and expectations of the community as a whole, in consultation with local public bodies and stakeholders (associations, foundations, agencies, etc.). Matching these findings, namely the proposals for innovative solutions not yet available in the market and emerging needs in the local area, serves to define the specific technological environment in which to activate the pre-commercial procurement and living labs policy model. The collaborative approach is also present in the experimentation phase by means of the living labs, where end-users, potential customers and students are actively engaged in the testing and co-development of new products/services.

Partnering model

Aosta Valley launched the cross-border living labs project as part of the territorial cooperation project Alcotra Innovation, with the involvement of Italian and French end-users: their interaction provides for a flow of relevant feedback for the engineering and market uptake of innovative solutions.

The Vallée Lab initiative that hosts these cross-border living labs, has been a member of the European Network of Living Labs (ENOLL) since 2012, providing for wide dissemination of the pilot activities and the connected know-how among a broad community.

Resources

The total budget for Aosta Valley was approximately EUR 1.3 million funded by the 2007-2013 Italy-France Territorial Cooperation project Alcotra Innovation (with a total budget for all the project partners of approximately EUR 5 million), with funding from the European Regional Development Fund, the regional public authority and Italy.

Outcomes and impact

In terms of outcomes, the project has developed seven new products/services in the smart energies and intelligent mobility domains, with a direct impact on:

- 11 business contractors, mostly SMEs;
- 5 research centres participating in R&D projects;
- 6 cooperation initiatives between enterprises and research centres;
- 4 living labs;
- 120 high-school and university students and 50 civil servants from the local authorities participating in the living labs;
- EUR 1.1 million of private investment in R&D.

In terms of project impact, one example worth mentioning is the case of an innovative system for the monitoring, control and management of energy consumption and production installed in high schools that has raised awareness among students about energy saving and had a positive influence on their behaviour, resulting in the virtuous and responsible consumption of energy. In practice, the students can visualise real time consumption in a user-friendly way on several screens installed throughout the school premises, so as to be able to modify their habits responsibly in order to save energy.

Conclusions

This pioneering experience can be evaluated in a positive way and has remarkable innovative potential, as with these instruments it is possible to replace the simple and sometimes inefficient way public grants for R&D activities often work, with no guarantee in terms of results and outcomes for the community, with a new demand-driven approach where the public sector involves civil society directly in innovation demand and in developing and testing new products/services while addressing territorial challenges.

In the light of the success of the pilot project in our region, it would be extremely worthwhile exploring innovative pathways and intervention methods in the field of demand-side industrial policy and open innovation with other European regions sharing our territorial challenges, with the overall aim of seeking smart, sustainable and inclusive growth.

Valle d'Aosta (IT)		
Research and Innovation Observatory *	**Link**	https://rio.jrc.ec.europa.eu/en/country-analysis/Italy
Regional Innovation Monitor Plus Score Results (RIM Plus)		"Aosta Valley's RTDI performance has been weak. In 2011, the total R&D expenditure was only 0.56% of GDP, less than half of the Italian average. There was only a minor increase since 2008, when it was equal to approximately 0.44%. The main critical issues, with regard to the regional innovation system, include low public R&D expenditure; the small-size of local businesses; low weight of employment in high technology sectors; and small percentage of turnover generated by new products. Aosta Valley is also characterised by a low education degree and a poor share of graduates in technical and scientific disciplines.In addition to these issues, the geography (with considerable differences between valleys and mountain areas) is a relevant constraining factor which hinders the development of an innovation-friendly environment and adequate infrastructures (e.g. TLC facilities, logistics, etc.)." "The business R&D expenditure as a share of GDP was approximately 0.4% in 2011, while the public R&D expenditure stood at 0.2%. It is worth mentioning that R&D data may underestimate the actual innovation capacity, since innovation is mostly informal and difficult to detect in SMEs active in traditional sectors, which are predominant in the region. The share of firms which introduced product or process innovation was 29.3% in 2010 (last available year), slightly lower than the Italian average which was 31.5%. There was a significant increase since 2008 when innovative firms represented 20.4% of the total number of firms. The broadband diffusion among Public Administration is good, 95.9% in 2012 (last year available), and increased considerably from the figure registered in 2007, 43.6%. In the business sector, the share of employees who use the Internet was 31.7% in 2013 which, although it still below the national average, represented a significant increase from 25.9% which was recorded in 2007.
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/aosta-valley
Smart Specialization Strategy	**Strategy**	
	Sectoral priorities	"The regional S3 identified the following priority areas: 1. Digital Agenda 2. Intelligent inter-modal & sustainable urban areas (e.g. smart cities) 3. Open data & sharing of public sector information 4. Sustainable innovation 5. Sustainable energy & renewables
	Link	http://s3platform.jrc.ec.europa.eu/regions/itc2/tags/itc2?s3pv=1

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Attica

Forerunner in thermal and bioclimatic innovations

Regional **Innovation Ecosystems**

https://www.facebook.com/AthensAtticaLive/

http://www.patt.gov.gr/site/

Ioannis Sgouros

Member of the Regional Council of Attica, GR
Member of the European Committee of the Regions

Attica's regional ecosystems – operating as the interface between the European, national and individual initiatives – are ideally suited to translating ambition into action and integrating learning at all levels to improve practice, whether it concerns people-centred policymaking, targeting strategic objectives or fast and effective implementation on the ground.

Attica

Forerunner in thermal and bioclimatic innovations

Introduction

Attica is an administrative region that encompasses the entire metropolitan area of Athens, the capital of Greece. Located on the eastern edge of Central Greece, Attica spans about 3 808 square kilometres. Nearly half the Greek population, more than 4 million people, live in Athens' Larger Urban Zone, making it one of the most densely populated areas in Europe (1 540 inhabitants/ km^2). The region is subdivided into eight subordinate regional units.

Attica's rich history is the history of Athens for the most part. It is substantiated by the prehistoric findings discovered in the Acropolis and other parts of the region and can still be seen today as you take in the sights and sounds of Athens.

The Attica Basin is the urban conglomeration of the Cities of Athens, Piraeus and suburban towns. Most administrative institutions and national financial and commercial activities (e.g. 55% of banking activity, 80% of heavy industry, 80% of seaborne commerce etc.) are located in this area. There are nine universities, which teach all aspects of science.

Vision

Attica is planning to gradually restructure its productive base in order to create jobs, enhance innovation and the smart use of ICT by setting up business support structures and mechanisms. In addition, it is planning to improve the region's profile as a place to live and to attract investment through environmental protection and sustainable management and by promoting climate change adaptation. Measures to ensure social cohesion will be designed to create protection and support a framework for vulnerable groups and to mitigate risk factors for poverty and social exclusion among segments of the region's population, which have been exacerbated by the crisis. These measures focus on the labour market integration of targeted groups with the biggest problems, while also improving access to welfare and health services and promoting equal opportunities, also through the creation of educational and health infrastructure. This pioneering vision includes objectives and factors such as:

- User-oriented innovation where public sector, industry, academia and citizens work together to drive structural change
- Making the region attractive to investors, business and citizens
- Urban planning that is focused on economic, social and ecological sustainability, taking into consideration conflicting social interests
- Circular economy
- Implementing the region's smart specialisation strategies (RIS3)

Attica will use the Regional Development Fund (ERDF) and the European Social Fund (ESF) to provide a prosperous environment for business and citizens: talent, knowledge and social capital.

Mobilising different stakeholders and resources for collaborative innovation ventures is a key governance concern. This involves active participants making effective use of strong networks and social capital to improve the quality of life. A great number of innovative regeneration projects have been undertaken in Attica to enhance collaboration and effective solutions to urban issues.

Flisvos Park:

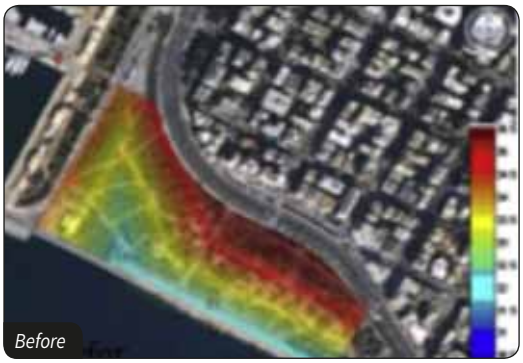
This project deals with the application of 4 500m2 of reflective pavements in an urban park in the greater Athens area to improve thermal comfort conditions, reduce the intensity of the heat island effect and improve the area's overall environmental quality. To our knowledge, this is the most extensive use of cool pavements in urban areas in the world. To evaluate the thermal impact of cool paving materials, specific and detailed measurements of the climatic conditions in the park were carried out before and after the installation of the new materials. Validated computerised fluid dynamics techniques were used to homogenise the boundary conditions occurring during the two experiments and to perform direct comparisons of the climatic quality in the park. The use of cool paving materials was found to contribute to reducing the peak ambient temperature during a typical summer day by up to 1.9 K. At the same time, the surface temperature in the park fell by 12 K, thereby significantly improving comfort conditions. It has been concluded that the use of reflective paving materials is a very efficient mitigation technique for improving thermal conditions in urban areas.

Marousi:

Athens suffers from high summer temperatures that affect quality of life. In response to the problem, a major rehabilitation plan was designed and applied, based on the use of advanced mitigation techniques in the suburban city of Marousi. This urban area is located in northeast Athens and is one of the largest municipalities in Athens. It mostly comprises commercial buildings and is one of the most densely built areas. Detailed monitoring techniques have been applied and the main climatic problems have been identified. The specific climatic environment under peak summer conditions was computed using accurate simulation techniques. Based on the results of experimental and theoretical analysis, a detailed rehabilitation plan was designed using advanced mitigation and passive cooling techniques. The bioclimatic design involved the use of cool materials for pavements and streets, earth-to-air heat exchangers, solar control devices, photovoltaic panels and extensive use of green spaces and water. The climatic impact of the proposed design has been evaluated and estimated to reduce ambient urban temperatures by up to 3.4 K under peak summer climatic conditions. At the same time, an important decrease in surface temperature was calculated, resulting in a very significant improvement in thermal comfort conditions.

Thivon:

Integrating sustainability in urban design is crucial to finding an adequate solution to urban challenges concerning climate change, resource availability, environmental degradation and energy consumption. In this project, the bioclimatic regeneration of Thivon Avenue has been examined in terms of its thermal characteristics. The results of the field survey concerning the initial situation showed significant thermal loads for the neighbourhood. The integrated strategy included a monitoring plan, the bioclimatic redesign and evaluation of the regeneration project. The biocli-



matic project involved the use of cool materials (for the asphalt and the pavements), increasing the vegetation, PV lighting systems and earth-to-air heat exchangers. The microclimatic assessment showed a reduction in the mean air temperature of about 1.1-1.8˚C for the final plan.

Ymittos:

To facilitate urban heat island mitigation measures and improve local comfort and environmental conditions, the Municipality of Ymittos has undertaken an integrated rehabilitation project with the application of reflective and photovoltaic (PV) pavements and reflective asphalt (cool materials). Extensive monitoring of the whole area was carried out approximately six months after the installation of the new materials and an evaluation strategy. Simulations and field measurements were undertaken to ensure the validity of the project. The cool coatings that were applied present solar reflectance above 45% and 25% for paving and asphalt, respectively. Site measurements indicated that the decrease of 7.9˚C of temperature between the surface and the conventional asphalt. Relative measurements on reflective and conventional pavements showed a decrease of up to 7.5˚C. The simulation results showed that the use of cool materials helps reduce the peak ambient temperature during a typical summer day by up to 1.7˚C.

Policy, collaboration and partnering models

These policies have been implemented to support pioneering activities, in cooperation with the stakeholders. In the aforementioned projects, there was strong collaboration between the government, academia, small and medium-sized enterprises (SMEs) and people working together in the region to improve quality of life. Regional ecosystems – operating as the interface between the European, national and individual initiatives – are ideally suited to translating ambition into action and integrating learning at all levels to improve practice, whether it concerns people-centred policymaking, targeting strategic objectives or fast and effective implementation on the ground.

Outcome and impact

The innovative use of different EU, national and local funding facilitates reorganisation and strengthens existing steering structures and mechanisms for the development of innovative services, procedures and products. The outcomes and impact could be summarised as follows:

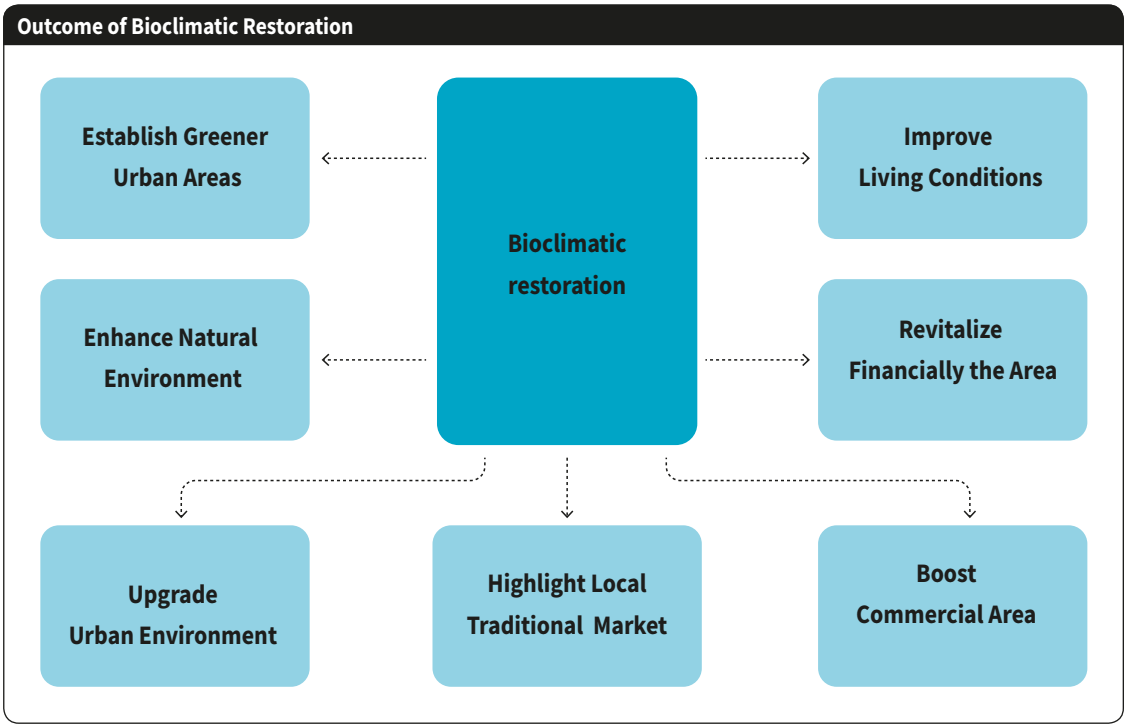
- good urban governance across administrative boundaries and inter-municipal cooperation;
- strategies for the evaluation and planning of urban interventions in order to improve the social connectivity between the fragmented urban tissue and between the clusters of multiple networks of interests;
- sound and strategic urban planning to renovate open space in urban areas, to support new TRAM lines;
- promotion of climate change adaptation and of risk prevention and management (ERDF – 8.4% of the EU allocation): anti-flood works and enhancement of fire and civil protection mechanisms, limited intervention in NATURA 2000 areas;
- integrated approach to sustain public buildings and households in order to improve energy efficiency for the reduction of equivalent of CO2 emissions;
- innovative approaches to link businesses with research institutions effectively through supported mechanisms;
- impact on societal change, creating full-time equivalent jobs, supporting the long-term unemployed, disadvantaged people or marginalised groups;
- challenges and opportunities of small- and medium-sized cities, supporting mitigation policies to ensure the wise investment of resources;
- adaptation to demographic change, increasing availability and quality of public services of general interest, providing places in supported childcare facilities and supporting social enterprises; and
- international dimension, to enhance collaboration, to increase investments and to increase visitors to the cultural and natural heritage sites receiving support.

Conclusions

Attica encompasses Athens, one of the oldest cities in the world with a recorded history dating from around 1400 BC. The advantages and opportunities of Attica are related to its function as the political, administrative and financial centre of Greece. Athens is a major regional transport hub for air traffic, rail, roads and boats. Athens has Piraeus Port, an important centre of the merchant marine, industry, and transportation connecting cities across the country and abroad. The city has numerous institutions of higher education, a major centre of archaeological research, a world-renowned tourist centre with a wealth of culture including: ancient monuments, world-class museums, large contemporary exhibition spaces, art galleries, numerous cultural events. A large part of the town's historic centre has been converted into a 3-kilometre pedestrian zone – the largest in Europe – leading to the major archaeological sites.

Attica needs mechanisms to stimulate alignment, to complete the innovation of ecosystems and overcome multiple fragmentations, mainly related to the financial crisis, which lead to poverty and social exclusion among segments of the region's population. The region needs support to reverse the decline in its productive base and gradually restructure it by enhancing high added value and low environmental impact sectors. As regards urban regeneration and energy efficiency, high quality evaluation practices are essential in order to tackle the critical issues of climate change and resource conservation and to overcome barriers due to lack of confidence in results and to foster experience sharing. There is also a need to strengthen public procurement to address sustainable development including economic, social and environmental objectives. In addition, the reinforcement of investments by SMEs in Attica in research and innovation is needed. Tasks

to be promoted in Attica in order to make its economy more competitive include greater use of information and communication technology (ICT) in businesses; knowledge transfer for the creation of innovative products, support for technology transfer to SMEs; support for investment in businesses directly involved in research and innovation; the networking of SMEs; assistance for SMEs in the use of modern financing instruments; incentives for "green" entrepreneurship and improved IT services for tourism.



Attica (EL)			
Macro-economic profile**	GPD	2011 ESTAT	€86.406,00
		2015 JRC projection based on ECFIN	€74.407,46
		2030 JRC projection based on ECFIN	€80.578,54
	Employment	2011 ESTAT	1.691.300,00
		2015 JRC projection based on ECFIN	1.391.750,44
		2030 JRC projection based on ECFIN	1.344.715,53
	Population Territory	2011 ESTAT	3.992.912,00
		2015 JRC projection based on ECFIN	3.874.562,00
		2030 JRC projection based on ECFIN	3.428.627,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Greece	
Regional Innovation Monitor Plus Score Results (RIM Plus)		"Attiki concentrates the bulk of public and private R&D actors and expenditure in Greece. In 2011, the region accounted for 55.7% of the national GERD, while the regional GERD accounted for 0.77% of the regional GDP, a share above the national average (0.67%). Similarly, BERD as a percentage of GDP and of GERD within the region are 0.36% and 46.9% respectively, also above the national averages. Despite the above positive trends, R&D expenditures as a percentage of GDP, remain significantly lower compared to the EU average (2.05%) as is the contribution of private sector (62.4% for the EU27). This significant gap to the EU27 average is partly the outcome of the limited demand from the industry, reflecting the low-to-medium technology structure and low level of extroversion of the economy. The limited formal linkages between the research and business sector, the low level of public funding and the fragmentation of the research efforts across numerous disciplines are the main obstacles to further efforts of increasing R&D expenditure in the region. Moreover, 48% of the country's HRST is located in Attiki (2012), with HRSTC accounting for 21.2% of the region's active population, a share well over both the EU27and the national average. In terms of patenting activities, these are marginal compared to the EU average, despite the fact that half of them (58.4%) come from Attiki. Over 2006-2010, the researchers of the region participated in 27,909 publications with a normalised citation score of 0.99. "However, the steep decline in private investment after 2008, due to the crisis has also reduced the already low levels of private R&D investments. The reduced liquidity of the private sector and the limited funding provided by the banking sector for private investments are hindering the mobilisation of resources for innovative ventures. Additionally, in some cases, even successful proposals in RTDI programmes receive funding with sometimes considerable delays. Indicatively for the region of Attiki, until 31/03/2012 , from the approximately 347 million euro's (public funding) from the ROP planned to be directed towards the funding of RTDI activities, only 77 million were absorbed (22.2%). Over 2007-2013, Attiki participated in more than 708 R&I projects of total public funding €156.2m."	
	Link	Link: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/region-attiki	
Smart Specialization Strategy	Strategy	The Attica's RIS3 was finalised in 2015.	
	Sectoral priorities	The S3 priority areas are grouped under the rubrics of creative economy, blue economy and sustainable needs-driven economy. These include a list of sectors, such as: furniture, jewellery, media, tourism and recreation, green shipping, materials, smart transport, marine biotech, pharmaceuticals, renewables, agrofood, smart grids.	
	Link	http://s3platform.jrc.ec.europa.eu/regions/el30	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Basque Region

A Pioneer in Smart and Green Cities

Regional **Innovation Ecosystems**

@iurkullu

https://www.facebook.com/gobiernovascoirekia

http://www.euskadi.eus/inicio/

Iñigo Urkullu

President of the Regional Government of the Basque Country, ES
Member of the European Committee of the Regions

Energy, advanced manufacturing and health-related bioscience – along with the four areas of opportunity in the fields of food and agriculture, the cultural and creative industries, environmental ecosystems and urban habitats – are the top priorities of the Basque plan for science, technology and innovation. A plan which should serve to promote sustainable human growth to guarantee the welfare and cohesion of Basque society.

Basque Region

A Pioneer in smart and green cities

Introduction

The Basque Country has a population of 2.2 million inhabitants distributed over an area of 7 235 km^2, giving a population density of 301 inhabitants/km^2 divided among its 251 municipalities. Its three main cities – Bilbao, Donostia-San Sebastián and Vitoria-Gasteiz – have been awarded prestigious international awards and distinctions, such as the Lee Kuan Yew World City Prize, the 2016 European Capital of Culture and the European Green Capital, respectively.

The Basque population speaks two official languages, Spanish and Basque. Basque is one of the differentiating traits of Basque culture as it is Europe's oldest living language, without any known connections to elsewhere in the world and is over 5 000 years old.

The Basque Autonomous Community develops many of its policies independently from the Spanish State, thanks to the powers granted by the Basque Statue of Autonomy and the Basque Economic Agreement, the two cornerstones of its self-government. Those two instruments, which grant the territory considerable tax autonomy to collect its own taxes, are precisely what underpins the development of the welfare state that the region enjoys.

Vision

Since the arrival of democracy, the Basque economic development model has been based on ensuring that sustainable growth is compatible with human development. The high industrial GDP, which stands at 21.7% compared to the European average of 17.2%, is the main characteristic of the Basque economy. Energy, advanced manufacturing, the automotive industry, aviation and health, along with new opportunities such as the science industry, tourism and urban solutions are the strategic sectors of the Basque economy.

A highly industrialised territory, an internationalised economy, its status as the most im-

Euskadi Key Indicators Overview

Surface Area: **7.235 km2**	**0,981** out of 1	(No.1 in the World Ranking Human Development Index)
Population: **2.172.877 inhab**	**122%**	Per Capita GDP (Eighth EU Country)
Population density: **300 inhab/km2**	**21,7%**	Industrial GDP (EU average: 17,2%)
No. of Municipalities: **251**	**130%** Productivity per person employed	(3rd EU country in productivity per person employed. EU average: 100%)
Official languages: **Basque and Spanish**	**82,4** years	(Quality of the Health Service. The country with the longest life expectancy of the EU.)
Working population with higher education: **39,2 %**		
Per capita GDP: **30.868 euros**		

portant financial centre along the Atlantic Corridor and its commitment to technology and innovation are the Basque Country's hallmarks in the economic sphere. The challenges for the coming years include positioning ourselves at the top of the world ranking on the Human Development Index and consolidating peace.

Instruments, actors and resources

The Euskadi 2020 Science, Technology and Innovation Plan (PCTI Euskadi 2020) seeks to position the Basque Country as an innovation and research benchmark in Europe. Its mission is to improve wellbeing, sustainable economic growth and employment by means of an innovation and research policy based on smart specialisation and on making the Basque science, technology and innovation system more efficient.

The strategy to foster the sustainable and economic development of the Basque Country is underpinned by the three pillars of sustainable growth, human development and smart growth.

Three strategic priorities – health biosciences, energy and advanced manufacturing – and four areas of opportunity have been established: agrifood, the creative and cultural industries, environmental ecosystems and the urban habitat: sustainable construction, an area developed through the following strategies:

- industrialised construction and virtual modelling;
- integral refurbishment and urban renewal;
- smart cities, neighbourhoods and buildings (smart cities, advanced home automation, zero-emission buildings);
- new sustainable construction materials: insulation, renewable, bio- and nano-materials;
- accessible buildings and cities; horizontal/vertical mobility.

The implementation of the RIS3 process by means of the niche opportunity identified as urban habitat: sustainable construction and its strategies are developed through the following core areas:

Core area 1: sustainable growth. Its strategy is based on **efficiency and energy savings**.

Part of the 2020 strategy for smart, sustainable and inclusive growth, it seeks to drive energy efficiency and savings in buildings and dwellings, by means of schemes aimed at making existing buildings more energy efficient, by supporting the extension of energy self-sufficiency and raising awareness among the general public of the importance of responsible energy consumption.

Core area 2: urban development. It seeks to advance a new urban planning policy, by giving impetus to new sustainable building and green architecture models, along with getting a programme up and running to support integral refurbishment and urban renewal.

The governance bodies are headed by Lehendakari Iñigo Urkullu, in the Basque Science, Technology and Innovation Council, and they also have a Commissioner, Interdepartmental Committee, and Interinstitutional Committee, coordination with Spain and the European Union, along with the RIS3 steering groups.

Urban habitat

In June 2015, the executive committee was set up as a clear public-private partnership; its members include the administration and publicly-owned companies of the Basque Government (including Visesa), the scientific and technological stakeholders of the Basque science and technology networks, along with companies, clusters and social stakeholders within the sector. It is a clearly collaborative approach, which is noted for its commitment to private-public participation.

After identifying the projects to be developed or which are going to be implemented during the 2012-2019 period, special mention should be made of the following (see table).

Clearly committed to innovation as a forward-looking strategy based on sustainable growth, human development and smart growth, **the Basque Country** has become a **land of opportunities.** The structures underpinning that approach are based on a highly consolidated sustainable construction sector, with great territorial and local expertise and broad experience in Europe, with its own representation in European Horizon 2020 projects and with the input of ERDF funding. On top of this, there are also the government's energy efficiency plans, such as the housing refurbishment "Renove" plan (scrappage scheme) to create employment, together with the funding for research through the Eraikal programme and the quality control laboratory, as well as collaboration programmes involving technology centres and universities regarding acoustic and thermal control in buildings.

Industrialised construction and virtual modelling	Integral refurbishment and urban renewal	Smart cities, neighbourhoods and buildings	New sustainable construction materials
BERTIM-OLATEK-HONDARRIBIA	ZenN – Barrio MOGEL	PIME'S	HISER/IRCOW
Industrialised solution using local timber to construct sustainable buildings	ZenN, near-zero energy neighbourhoods (demonstration project FP7)	Energy-efficient communities, based on micro-networks (demonstration project FP7)	Integral innovative solutions for the efficient recycling and recovery of raw materials with greater added values using complex C&DW
2012-2019	2013-2017	2009-2015	2011-2019
TECNALIA, EGOIN, VISESA, HABIC and 10 other European partners	Basque Government, TECNALIA, EIBAR COUNCIL, DEBEGESA and others (11 European partners)	VISESA, Vitoria-Gasteiz Council, EVE, TECNALIA, ACCIONA and others (14 partners from 4 countries)	TECNALIA, 8 large corporations, 14 SMEs, 1 business confederation, 7 R&D&I centres, 2 public administrations
Total budget: €26 M Basque stake: €22 M	Total budget: €16 M Basque stake: €3 M	Total budget: €18 M Basque stake: €7 M	Total budget: €12 M Basque stake: €2 M

The development of areas such as Bilbao Bolueta, promoted by Visesa, the publicly-owned company, and where the commitment to the environment is a fundamental cornerstone, materialisingin near zero-energy buildings, and the energy refurbishment of the Coronación neighbourhood in Vitoria-Gasteiz, involving embracing the "already standing", are clear examples of this approach. The putting into practice of the strategy can be seen in "the new", Bolueta, and in "already standing", SmartenCity, Coronación Neighbourhood (Vitoria-Gasteiz).

Bilbao-Bolueta

The project for the Bilbao Bolueta Distribution Area 421 emerged from the need to recover disused industrial land in Metropolitan Bilbao for the benefit of society, by reversing the current degradation and embarking on an integral renewal of the area. The project, in close contact with the river, is seeking to recover the area with regard to 3 fundamental spheres – architectural, micro-urban, and sectoral –, while emphasising its 4 defining fundamental aspects: energy savings, high thermal and acoustic comfort, indoor air quality and construction using healthy and natural materials. The project is also generating social housing promoted by the public administrations, with a total of 1 100 housing units being planned, 608 of which will be housing subject to some type of public protection. The project stands out because of its location in the Bolueta neighbourhood of Bilbao, its volume and, of course, height, but the most outstanding feature of this project is that they are near zero-energy buildings, which is even more striking as it is protected housing.


Bilbao-Bolueta


Bilbao-Bolueta

The highest sustainable building began to be built in the Bolueta neighbourhood of Bilbao in July 2015. It is part of a project to build 361 housing units divided into two skyscrapers. The first, with 108 official protection units and 63 social housing units, will be constructed by Visesa, the Basque Government's publicly-owned company. It is being built in accordance with the energy requirements of the PassivHaus standard, thanks to which it was rated as a best practice in the "X United Nations Best Practices in Sustainable Development".

A near zero-energy project takes on real meaning in social housing, where the owners are really going to appreciate savings of up to 75% in their heating bills. There have been five measures adopted to obtain results that enable it to be rated as a near zero-energy building: improving insulation, eliminating thermal bridges, better glazing and carpentry, airtightness and mechanically controlled double-flow ventilation.

SmartEnCity-Coronación

On the other hand, the SmartEnCity project in the Coronación neighbourhood of Vitoria-Gasteiz is part of one of the government's strategic objectives to work on what is standing, to drive a new model of economic, social and sustainable refurbishment that is integrated with European directives.

On a timeline of 5 and a half years and as part of the "Smart Cities and Communities" call under

Smartencity-Coronación

Horizon 2020, the European Commission's R&D&I framework programme, Vitoria-Gasteiz aspires to be a "beacon city" that can be replicated in 3 core areas:

- Driving sustainable urban mobility by means of electric vehicles in the context of taxis, commercial and service fleets, and urban goods distribution (last mile logistics) and collective solutions for urban logistics.
- Energy-efficiency refurbishment to drive the transition towards a low energy neighbourhood by means of refurbishing measures in at least 750 housing units, which manage to halve heating requirements. Energy refurbishment improves the comfort level of the dwellings and significantly cuts heating requirements. As regards the buildings, the plan is to improve the frontage, roof and window insulation, and the project also envisages setting up a neighbourhood heating system with a boiler based on local renewable energy sources and fuelled by biomass (wood chips) and a heat distribution network to cover each of the energy-refurbished housing units in this projects and which will cover the thermal demands by minimising the dependency on fossil fuels and respecting the environment. The new heating system is expected to guarantee a minimum saving of 10% on the current rate in order to achieve a similar comfort temperature. The economic and energy saving achieved by improving the insulation will have to be added to the previous saving. On the other hand, the use of local renewable energy will minimise the dependency on fossil fuels and the emission of greenhouse gases.
- Implementation of a monitoring platform, which together with workshops and other measures, will allow the neighbours to access information and be involved in the decision-making. This project seeks to deploy the European strategy to create carbon-neutral smart cities (CO2 free) and is going to be carried out in Tartu (Estonia), Sondeborg (Denmark) and in Vitoria-Gasteiz.

País Vasco (ES)			
Macro-economic profile**	GPD	2011 ESTAT	€58.801,00
		2015 JRC projection based on ECFIN	€55.885,48
	Employment	2011 ESTAT	973.200,00
		2015 JRC projection based on ECFIN	885.164,48
	Population Territory	2011 ESTAT	2.183.136,00
		2015 JRC projection based on ECFIN	2.160.281,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Spain	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The Basque Country's ranking (along with the neighbouring autonomous community of Navarre) is one of only two autonomous communities in Spain that have achieved the classification 'innovation follower', the second highest status of the regional performance groups. Although the region has remained a follower between 2004 and 2010, it has grown at a higher rate than the EU average: the average annual growth has been between 2.5% and 15%. The Basque Country stands out in one of the indicators used in the RIS 2014 with respect to the European average – the percentage of population aged 25-64 having completed tertiary education. It also performs well (between 90% and 120% of the EU average) with respect to: •R&D expenditure in the business sector as a percentage of GDP; •The percentage of innovative SMEs collaborating with others SMEs; •The percentage of employment of the total workforce in medium-high-tech or high-tech manufacturing and knowledge-intensive services; and •The percentage of turnover due to sales of innovattions new to market and new to firm. The RIS 2014 defines five main categories of regions in terms of the use of EU funding for research and innovation in the period 2007-2013. The Basque Country is an FP leading absorber of EU funds, which is a typology that comprises the regions with medium-high to very high participation in the FP7 programme (more than 120% of the regional average). The region is also a low user of structural funds. According to the RIS 2014, FP's leading absorbers are largely regions that show better innovation performance (leaders or followers).	
	Link	Link: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/basque-country	
Smart Specialization Strategy	Strategy	The S3 process in Spain shows that most Spanish regions, with some variation across regions, have made important efforts to widen stakeholders' participation to give regional actors from the public and private sector the opportunity to reach consensus and to jointly take decisions on a common vision of the future, creating commitment to the selected priorities. Link Official link to the Spanish RIS3/ S3 related material: www.redidi.es/politicas-y-estrategias-de-idi/la-ris3-en-las-comunidades-autonomas	
	Sectoral priorities	The Basque Country's RIS3 identifies the following priorities areas: Advanced manufacturing; Energy; Bioscience/Health.	
	Link	www.ivace.es/index.php?option=com_remository&Itemid=100124&func=fileinfo&id=1919&lang=es	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Berlin

A Pioneer in the Creative Industry and Open Ecosystems

Regional **Innovation Ecosystems**

@BerlinPartner

https://www.facebook.com/BerlinPartner

http://www.berlin-partner.de/en/

Hella Dunger-Löper

State Secretary, Representative of the Land of Berlin to the Federal Government with Responsibility for European Affairs, DE
Vice-President of the European Committee of the Regions

Berlin has established the only inter-regional innovation strategy in Europe. Cross-innovation takes place between all defined specialisations and clusters ensure the integration of all relevant stakeholder. However, partnerships should also be set up on other issues requiring integrated policy approaches, for example new inclusive forms of participation, innovation and Smart Cities.

Berlin

A Pioneer in the Creative Industry and Open Ecosystems

Introduction

Berlin renews itself perpetually. In the past decade the city has undergone profound structural change. Together with its citizens the German capital has performed this change in a progressive and inspiring way to other people. The city is a magnet for creative and independent minds from all over the world. Berlin fosters this diversity by supporting innovative subcultures and free space for trial and error. As a result a flexible and reactive ecosystem is up and running with Berlin itself serving as an open urban living lab.

With more than 3.5 mio inhabitants, Berlin is Europe's second largest city. In the last ten years, Berlin's population has grown by 230 000. This migration has been economy driven, as in the same period the workforce increased by 248 000. The innovative turn and the economic growth are due to the sustainable investment in research and development. On average, the city spends 3.4% of its annual GDP on R&D. Within the new operational programme 2014-2020 Berlin has earmarked 47% of ERDF for innovation measures. This is far above the European average. Berlin's major investment in innovation is a motor for jobs and growth.

Berlin has become one of the most important startup cities in Europe. One particularly important driver behind is the digital economy with its applications, services (from online marketing to cloud computing) and end customer services (e-commerce, digital content). Around 5.800 digital companies are located in Berlin with 62.400 employees in this sector. For makers and investors in the digital economy, Berlin is the ideal base for innovative companies, i.e. an environment that offers the best economic, social and infrastructural conditions. The digital economy is nourished by Berlin's strength in ICT education. Information technology and software development are taught at 85 scientific institutes in Berlin. This strength opens up also new industrial opportunities for Berlin. With the recently established center for digital networks Berlin is strengthening its role in the implementation of Industrie 4.0. The ICT cluster functions as integrative framework for the digital ecosystem bringing all the relevant players together.

Vision

Digitalisation will change the entire industrial value chain. Here Berlin wants to be a pioneer as a provider of innovative solutions. Economic policy objective is to display the entire value chain in the technology fields of life science, digital economy / ICT, electrical and urban technologies such as energy, environment and mobility to permanently anchor Berlin on the world map of technology driven industrial and digital leaders. Thanks to the strength of our research institutions and the Berlin locations of the future - especially the business and science location Adlershof – Berlin is providing the best conditions, to play a leading role as an innovation and high-tech location .

Resources

Berlin's major resource is knowledge. The Berlin research landscape is in its density and diversity unique in Europe. Four universities and Charité University Hospital, seven universities of applied sciences, four art colleges, and more than 70 research organizations and 20 technology centres are located in Berlin. The regional universities are amongst the top higher education institutions in the world. The excellent and diverse research landscape is the foundation of Berlin's smart specialisation. Universities are at the starting point of all innovation. They secure the growth of knowledge and are international ambassadors for the city. Berlin is unique in Germany for winning two competitions for national lighthouse projects on crucial topics (big data and e-mobility).

Actors

Within the innovation process the constant exchange between the relevant actors of the ecosystem is mandatory. Berlin is securing this exchange through its five clusters. To widen the outreach and to integrate global partner the innovation strategy has been enlarged by an international dimension.

Physical and digital spaces

Berlin has identified ten "locations of the future" within the city. An integrative structure with research institutes, spin-offs, universities, private housing and cultural and leisure activities characterises these locations. Adlershof is the most prominent of these locations and has been supported over the years by ERDF funds. The integrative structure includes also the next generation by offering school-labs and internships to pupils.

Via online platforms such as daten.berlin.de and berlin-innovation.de the city stimulates the creation of new applications of public data and promotes strongly the use of innovative technologies in public procurement procedures.

Policy Model

Together with Brandenburg, Berlin has established the only inter-regional innovation strategy in Europe. Cross-innovation takes place between all defined specialisations and clusters ensure the integration of all relevant stakeholder (academia, business, people, education). In the dialogue between urban society, politics and public administration, it is necessary to develop clear objectives, agree upon responsibilities, provide leadership and carry out regular reviews of the progress made so that potential mistakes and problems with implementation and their causes can be detected in good time and amended as part of an "error management culture" within the urban policy dialogue.

Collaboration Model

Berlin consistently asks for the opinion of its citizens. All recent strategies in Berlin have been developed interactively to improve the acceptance of city initiatives by the broad public.

Networks mean an increase in mutual dependencies and ask for an increase in mutual trust. The local government publishes all current activities, events, outcomes and agendas. The citizens explore policy-making by actively co-designing the future shape of the city Berlin.

The new platform *www.mein.berlin.de* is taking participation the extra mile. Citizens can follow a wide range of procedures, keep themselves informed about the progress of a debate on a particular issue or take part in the debate as part of a process of great citizen involvement.

Partnering Model

Berlin is a test-bed for urban innovation. To exchange best practice and to present local solutions that can be replicated, cross-sectoral events with guests from all over the world are organised by Berlin. From 2015 onwards, Berlin is hosting the largest smart city congress in the world, Metropolitan Solutions. Other excellent forums in this context are the Creating Urban Tech Berlin Business Conference and the CKI Conference, a research competition for students based on close cooperation between Siemens, the Technical University Berlin and the Senate, to mention only a few. Moreover, a pop-up store has been designed and promotes in selected European cities the young startup scene and makes innovation visible.

Photonics Centre Adlershof

Innovative Instruments

Highly innovative financial and digital instruments are applied by the local government. The well-established financial instrument ProFIT aims at boosting the intensity of research, development and innovation in Berlin's economy – especially in the innovation clusters.

A special focus is on co-operation between science and business and the related transfer of technology so that the economic exploitation of research and development results in Berlin can be strengthened and accelerated. Support is available for single and combined projects in the phases of industrial research, experimental development as well as production development, market preparation and market launch. ProFIT was recently extended to include an early phase module geared specifically to very young startups.

Citizens too are more and more engaged in financing innovation. They organise their financial support via *www.crowdfunding-berlin.com*, which presents current crowdfunding und crowd-investing projects.

Berlin Urban Republic

Outcome and Impacts

In 2015, 2.1 bn of foreign venture capital has been invested in young startups in the first six months, which makes Berlin number one in Europe in terms of acquiring venture capital. International market leaders such as Google, Cisco and Telekom choose Berlin as the location for their centres of innovation and their incubators. Berlin thrives though innovative subcultures. With 100 co-working spaces and counting, Berlin is Europe's pioneer in this new working culture with the world's third highest number of co-working spaces per capita. Open economy is a reality. As a consequence with 18.1% growth between 2005-2014 Berlin has the highest economic growth in Germany.

Conclusions

Smart Berlin offers many opportunities to drive cooperation between research institutes, universities and business. Successful innovation can best emerge when it is cross-disciplinary, particularly at the interfaces between ICT, energy technology, health and transport/mobility. A targeted policy of grants and subsidies is intended to bring together sectors and companies that don't normally work together but which benefit from cooperation. This is the way in which various domains become smartly linked.

Berlin (DE)			
Macro-economic profile**	GPD	2011 ESTAT	€128.106,00
		2015 JRC projection based on ECFIN	€135.792,65
		2030 JRC projection based on ECFIN	€161.095,99
	Employment	2011 ESTAT	2.372.500,00
		2015 JRC projection based on ECFIN	2.293.882,39
		2030 JRC projection based on ECFIN	2.131.099,24
	Population Territory	2011 ESTAT	5.055.116,00
		2015 JRC projection based on ECFIN	5.142.240,88
		2030 JRC projection based on ECFIN	5.623.480,40
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Germany	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The RTDI sector in Berlin is oriented towards public spending. Business expenditure on R&D amounts to €1.40bn in 2011. The share of regional business expenditure on R&D on total regional R&D spending amounts only to 39.0 % compared to the national average of 67.7 %. The overall expenditure on R&D per GDP exceeds the national average of 2.9 % clearly and amounts to 3.5 %. Likewise, the region's overall expenditure on R&D of €3.6bn contributes by 4.8 % to the German total. On the other hand, the business sector's contribution contributes only 2.7 % to the German total. The number of DPMA (German Patent and Trade Mark Office) patent applications per 100,000 inhabitants of 27 (897 in total) in 2013 remains below the German average (59) which can in part be explained by an comparatively low share of high-tech industries within the economy. 1.9% of all German DPMA applications stem from Berlin. The number of R&D personnel and researchers amounts to 30,179 FTEs in 2011 (5.25% of German total). Within the business enterprise sector the number of R&D FTEs is 11,340, representing 3.18% of the national total. Berlin has a very rich and diverse public research and higher education sector with a high concentration of actors: four universities, including the "Charité-Universitätsmedizin Berlin" university clinic, three colleges of arts, 7 universities of applied sciences as well as 23 private higher education institutions. Beyond higher education, a significant part of the regional scientific activities is performed in non-university research institutions. The large national research organisations are present in Berlin: 5 institutes of the Fraunhofer Society, 3 centres of the Helmholtz Association, 15 institutes of the Leibniz Association and 6 institutes of the Max Planck Society. In addition, there are 14 federal research facilities and 24 other, partly publicly funded research facilities in the capital city. Additionally, the federal ministries of Germany altogether maintain eight research institutions in Berlin. Altogether, they provide a basis for interdisciplinary work and co-operation with the private sector. Berlin has about 160,000 students, representing 6.4% of the national total.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/berlin	
Smart Specialization Strategy	Strategy	Berlin and Brandenburg adopted a joint innovation strategy (innoBB) in 2011 and prepared a joint RIS3. Master Plans are developed to implement the strategy in each priority area through clusters.	
	Sectoral priorities	The joint priority areas of Berlin and Brandenburg are: - 5 priority areas (""Zukunftsfelder""): Biotech, medical technology & pharmaceuticals; energy technology; traffic, mobility & logistics; ICT, media and creative industries; optics. - 4 cross-cutting themes: materials; production and automatisation technologies; clean tech; security	
	Link	http://s3platform.jrc.ec.europa.eu/regions/de3	
Stairway to Excellence	Link	http://www.innobb.de/en/home	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Białystok

Promoting the ‘Science and Industry Quarter’

Regional **Innovation Ecosystems**

@TTruskolaski
@WBialystok

https://www.facebook.com/Wschodzacy.Bialystok

http://www.bialystok.pl/

Tadeusz Truskolaski

Mayor of Białystok, PL
Member of the European Committee of the Regions

Cooperation built on the quadruple helix model brought the "Science and industry quarter" in Białystok to life. It is an area of new high quality cooperation between entrepreneurs and universities resulting from the close proximity of the Special Economic Zone, the Science and Technology Park and the university campus. The Science and Technology Park has a central role in this collaborative network.

Białystok

Promoting the 'Science and Industry Quarter'

Introduction

Białystok represents the Podlaskie region, located in north-eastern Poland. The city has almost 300 000 inhabitants and an area of more than 100 km^2. The region is characterised by multicultural tradition and history. People of different nations and religions live here in harmony, enriching the cultural assets of the city and region. Białystok is the administrative, sporting and cultural center of the Podlaskie region. There are many institutions, such as the Podlasie Opera and Philharmonic – European Art Centre, the football stadium with its training centre, or the renovated outdoor water sports centre, which organise various events to entertain and integrate the local community. Transport infrastructure, including road infrastructure that is constantly being developed, cycle paths, and public transport, ensures fast transit between different parts of the city without traffic jams. Vast green areas and a variety of tourist attractions make Białystok an attractive place for everyday life and leisure. The three biggest universities in the city – the Medical University, the University of Technology and the University of Białystok – provide highly qualified and well-educated employees for the local economy. Measures currently being undertaken by the authorities are focused on improving the city and region's attractiveness for new investments and as a location for business.

Challenge and vision

The main challenge Białystok must respond to is the economic development of the city and surrounding areas, attracting investments, stimulating the creation of new, innovative companies, and fostering the growth of local enterprises. Measures should aim to lower the unemployment rate and limit "brain drain", as very many educated young people leave the region to seek better job opportunities. The priorities of economic growth and job creation were emphasised in the City of Białystok Development Strategy adopted by the City Council in 2010. The strategy's goals are focused on implementation of a complex sustainable development model in which environmental, social and economic objectives are harmonised.

To tackle the issue, the city outlined its vision of a "Science and industry quarter" located in the southern part of the city. Spatial planning for the region reflected this vision – the area was signalled in the plans as being for service, production, research and education purposes. The "Science and industry quarter" would comprise a science and technology park, a special economic zone and university facilities. The concentration of these institutions in close proximity, fostering synergies, would result in the active cooperation of industry, academia and local authorities to stimulate the local and regional economy, building a production and service sector based on innovative solutions and cutting-edge technologies. It would also stimulate local people and encourage them to engage in the initiatives coordinated by the park, the central entity of the ecosystem. Active cooperation would allow new high quality jobs to be created, especially for young people graduating from universities located in Białystok, and would make the region attractive to investors, business and citizens.

University Campus

Instruments and actors

The Special Economic Zone in Białystok was created in 2008 and comprised almost 30 ha of land. To attract investors, the city implemented an infrastructure development project between 2008 and 2009. Technical infrastructure and roads in the zone were created with the support of EU funds under the "Podlaskie" operational programme (2007-2013). The total cost of the project was about €12.5 million. The zone was a successful initiative and was very popular with investors. All the areas were sold, and in 2015 the zone was extended by almost 65 ha of new investment land.

In 2006 a common letter of intent was signed to create a Science and Technology Park in Białystok. This initial step was taken collectively by the Mayor of Białystok, the Marshal of the Podlaskie region, the rectors of the Białystok University of Technology, the University of Białystok and the Medical University, as well as the president of the Podlaska Regional Development Foundation.

To search for good practices in the area of science quarters, especially science and technology parks and collaboration between science and business, Białystok joined the "REDIS – restructuring districts into science quarters" project in 2008. The REDIS network was a group of cities from around Europe, each of them developing the project of a science quarter. The network worked under the URBACT programme and was financed by the ERDF, with a budget during the implementation phase of about €640 000. The aim of the cooperation was mutual learning and exchanging good practices. The Białystok team learned about best practices in Poland by visiting other Polish cities. The idea of science and technology parks was becoming popular in Poland, although at that time the institutions working on technology transfer were at the initial phase of their development and there were few good practices in this area. By collaborating in the REDIS project, the city had a specific opportunity to discover how these types of institutions work in the EU and to receive advice from experts in the field.

The city authorities successfully applied for a grant from the European Regional Development Fund within the "Development of Eastern Poland" operational programme (2007-2013) to construct the Science and Technology Park facilities, provide equipment and build road infrastructure.

The project was launched in 2010 with a budget of €44 million.

Simultaneously, close to the "Science and industry quarter", the University of Białystok implemented its project of a new university campus. It was a huge venture co-financed with ERDF funds within the same operational programme as the Science and Technology Park. With a total budget of €32 million, new centres for science faculties and a computing centre were built and equipped. The project was completed in 2015. The buildings satisfy the highest modern standards and pedagogical requirements and their proximity to the Science and Technology Park and Special Economic Zone will facilitate the cooperation of business and academia.

Collaboration and policy model

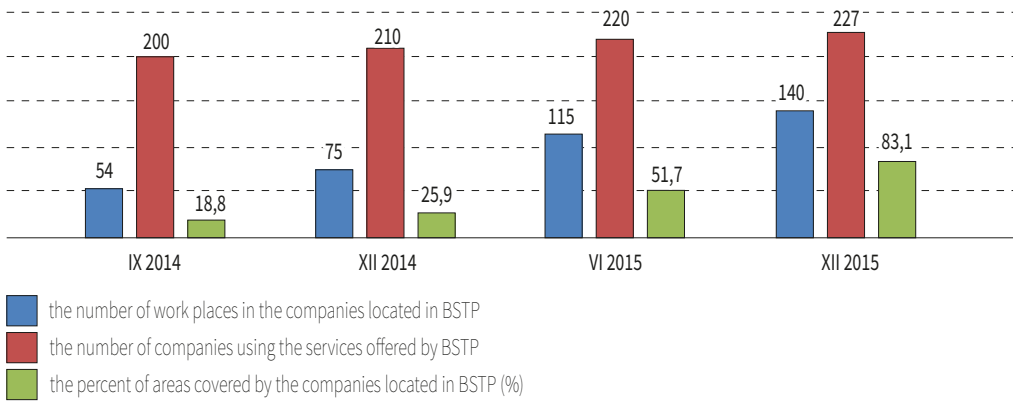
The implementation process of the Science and Technology Park project involved broad consultation with various groups of stakeholders. The city wanted the Park to be the central entity of an innovation ecosystem, effectively meeting the needs of all interested parties.

There were a few cooperation platforms during the process of establishing the Park. One of them was the Local Support Group, which aimed to offer opinions on measures taken and to provide consultation. It ensured that all stakeholders participated in the process of implementing the project and disseminating the results. The body consisted of representatives of local universities and entrepreneurship organisations as well as local and regional authorities. Meetings of the Local Support Group made it possible to bring stakeholders together, inform them about the measures taken within the project, promote ideas and receive their opinions.

This triple helix model of cooperation was also applied to the functioning of the Mayor of Białystok's Enterprise Board, a consultative and advisory body on economic issues. The Board is authorised to issue opinions and take initiatives with regard to the city's economy, and to consult on economic development programmes of local importance. The topic of the creation of the Science and Technology Park was frequently discussed during the Board's meetings. Its members

Science and Technology Park

Białystok Science and Technology Park (BSTP)



presented opinions and advice on such issues as the institutional organisation of the Park, the co-operation of business and academia, technology transfer, the Park's profile, etc.

Direct cooperation between the city and universities was fostered throughout the project's implementation. This started with letters of intent, where universities presented their interest and declared their intent to help the city to launch and develop the Park project. The collaboration was continued through meetings with universities in order to discuss individual aspects of participation in the project. Universities were engaged in the process of establishing laboratories and various aspects of the Park's operations such as research and development or technology transfer.

The idea of the Park was widely disseminated via the media. Information on the project was published in the local press, and a website was created to promote the project and to involve not only business and other institutions, but also the local community. Student surveys were conducted on their expectations and interest in the Park's operations. The city also sought out individual possibilities of cooperating with local businesses and institutions.

The city managed to institute broad-based co-operation between business, academia and local and regional government representatives, and involved individual people interested in innovative business and technology transfer. Quadruple helix relations allowed the Park to develop comprehensive activities and enhance the potential of the "Science and industry quarter".

Outcomes and impact

Today, the "Science and industry quarter" is an area in the south of the city where representatives of business and science meet to initiate and develop cooperation and stimulate the local economy. The Science and Technology Park is the central entity of this ecosystem and plays a key role in facilitating business contacts. The infrastructure created includes an incubator, a technology centre, advanced data communications infrastructure and laboratory equipment. The Park offers office and laboratory space, as well as wide range of business support services. To ensure continuous participation of stakeholders in the decision-making process and for further progress with regard to the Park, the Programming Council has been appointed. The Council comprises

representatives from business and academia and serves as a consultative and advisory body to the director of the Park. The Science and Technology Park is surrounded by special economic zone areas where tax relief is offered to investors. Close by, about 1300 students are in science departments at the university campus, potential creators of an innovation-oriented economy.

The innovation ecosystem is continuously evolving, engaging new partners and introducing new projects and initiatives. The established cooperation platform that has been established enables the mission of the Białystok Science and Technology Park to be put into practice: the sustainable economic development of the city and the region by promoting a culture of modern technologies, innovation and competition among entrepreneurs and institutions operating in knowledge-based environments.

Conclusion

Cooperation built on the quadruple helix model brought the "Science and industry quarter" in Białystok to life. The infrastructure and investment areas that have been created enhance the region's economic development. The collaboration platform managed by the Science and Technology Park contributes to the establishment of innovative companies, attracting investors and increasing the number of high quality jobs. These factors boost the attractiveness of the city.

In 2015, the Science and Technology Park offered workspace to 52 companies, mostly comprising young, innovative startups. Fifty-three companies were provided with support services and 31 companies used professional laboratories located in the Park. Białystok offers about 94 ha of investment area. Thirty hectares has already been developed by nine companies, which invested about €95 million here. These companies have created 950 new jobs. An additional 64 ha of recently prepared investment land is now awaiting investors.

Białystok is seen as an attractive place to live. It offers citizens a balanced lifestyle with time efficiently shared between work and family or leisure. Universities located in the city offer a high standard of education. Students and graduates can use the potential of the Białystok Science and Technology Park and participate in its events, training courses and workshops, which could support the beginning of their careers.

The above-mentioned incentives proposed by the city mean that citizens are satisfied. Białystok occupies top positions in national and international rankings. The most recent ranking from January 2016, provided by Eurobarometer, shows that 96% of inhabitants are content with living in Białystok, which puts us in first place among Polish cities!

Bialostocki (PL)			
Macro-economic profile**	GPD	2011 ESTAT	€3.485,00
		2015 JRC projection based on ECFIN	€3.664,23
		2030 JRC projection based on ECFIN	€4.507,93
	Employment	2011 ESTAT	211.200,00
		2015 JRC projection based on ECFIN	230.517,72
		2030 JRC projection based on ECFIN	223.796,81
	Population Territory	2011 ESTAT	509.016,00
		2015 JRC projection based on ECFIN	510.355,06
		2030 JRC projection based on ECFIN	501.035,83
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Poland	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The business R&D expenditure accounts only 0.06% of GDP (2010), which is both lower than the country and EU average estimated at 0.16% and 1.31% respectively. The underlying characteristic of the Podlaskie is that large companies (≥250 employees) recorded the highest innovation sales (7.84%), followed by medium-size companies (50 – 249 employees) and small enterprises (10 – 49 employees), respectively 4.2% and 2.81%. Central Statistical Office (2014) Science and technology data. The main scientific institutions in the region are: the University of Białystok, Białystok University of Technology, Higher School of Economics in Białystok, and Higher School of Finance and Management in Białystok. The University of Białystok offers courses in 27 fields of study and over 70 specialisations for approximately 18,000 students within full-time and part-time programmes. The University of Technology has the following faculties: architecture, computer science, civil and environmental engineering, management, electrical engineering, mechanical engineering, and forestry. Altogether there are 14,000 students and 600 academic lecturers.	
Smart Specialization Strategy	Strategy	The S3 priorities encoded are: innovative technologies and industrial processes, natural ressources and waste management, healthy society, sustainable energy and bioeconomy and environment.	
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/PL?s3pv=1	
Stairway to Excellence	Link	http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_PL_national_profile.pdf/9844e9c0-0216-448e-9370-a19ab1cef513	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Bratislava

The Science City

Regional **Innovation Ecosystems**

@VisitBratislava

https://www.facebook.com/Bratislava.sk/

http://www.bratislava.sk/

Ivo Nesrovnal

Mayor of Bratislava, SK
Member of the European Committee of the Regions

Bratislava aims at using innovation and scientific potential concentrated in the city as vehicles delivering a new quality of life for our citizens. In particular the EU Urban agenda must be strong: it needs to give European cities tools to provide better services to our inhabitants.

Bratislava

The Science City

Introduction

Bratislava, the capital city of the Slovak Republic, is the leader of economic and cultural development and a place from which new ideas penetrate to other regions of Slovakia. In the business area the City of Bratislava has most of characters identical with other European cities - the concentration of services, seat of the largest domestic companies and of a number of industries. Whereas Bratislava region hosts only 11% of Slovakia's population, it contributes more than 27% to the country's GDP. About 35% of all Slovak companies are located there.

Unlike other European capitals, Bratislava has one substantial difference – a geographically eccentric position in the country. This feature seems to be a rather negative one with respect to other regions of the Slovak Republic, but on the other hand, it allows the interconnections of Bratislava and Bratislava Self-Governing Region with other nearby strongly growing regions (Gyor - Vienna - Brno). This geographically eccentric location also creates conditions for a strong growth at different constellation of economic policy and allows the city to have a high degree of resistance to external economic impacts.

Vision

Bratislava has an ambition to further develop as a modern and competitive European capital creating favourable conditions for the full and harmonious life of citizens of all generations and an attractive environment for visitors, students and investors. Bratislava will actively and responsibly use the value created in a rich and glorious past, multicultural experience, dynamic growth of last years, extraordinary human potential, unique position, natural and cultural richness towards its development[1].

Bratislava Smart toolbox: co-designing intelligent solutions

When Bratislava´s current administration took office in the fall of 2014, it expressed its intention to bring the city among internationally recognized leaders of smart cities. As part of this process, the SMART CITY coordinator will be tasked with:

1. Defining Bratislava smart city strategy in close relation with the Vienna Smart strategy (SMART TWINS)

2. Designating strategic initiatives and formulating funding/partnership programs to support project implementation.

The ambition of this SMART CITY vision is based on regional collective intelligence to forge a distinctive Bratislava- Vienna -based model. As part of this process, the city and communities in it intend to invest in innovative, growth-generating projects. Bratislava seeks to devise and develop an outstanding quality of life and a prosperous economy with and for citizens through collaborative innovation, state-of-the-art technologies and a bold approach, backed by Bratislava´s and Vienna´s trademark creativity.

[1] Taken from "The economic and social development Programme of the City of Bratislava" for 2010-2020 (July2010)

To become a genuine smart city, though, Bratislava must not only promote this concept but also integrate its activities (public policies, laws, by-laws, etc.) within a culture of co-creation and co-development (transport service delivery, for example).

Specific resources: skills, creativity and ecosystem

The strong science and technology potential: Slovak Academy of Sciences, Slovak University of Technology and Comenius University, the driving forces of knowledge in Bratislava and Slovakia...

Bratislava has a strong potential to become smart city. It disposes with significant intellectual capacities, it is the first university, scientific and educational pole of Slovakia. In 2014, one third (13) of the total number of 33 academic institutions was located in Bratislava municipality which had also the biggest share of population with academic education (23,85%) and 40,7% share from the total number of students in Slovakia.

Bratislava also has a dominant position in Slovakia in the field of science and research. In 2014, Bratislava municipality concentrated 48% of employers in research and development and 51% of science and research costs.

The interrelation of education and research is reflected in many joint activities, joint projects, research teams and workplaces, diploma and doctoral training in the SAS organizations, etc. Their priorities are also similar and these consensus and consistency are reflected in ambition of universities (namely Comenius University and Slovak University of Technology) and SAS to build centers, which will combine excellent research and the education of students. For the foregoing reasons, Bratislava has been granted an exemption in the SF scheme (hence also in the OP R&D). It would be uneconomic to build big research centers in areas that do not have the tradition and such a strong link between education and research.

At the international level, Bratislava is successful in the field of science mainly due to the production of top teams by Slovak Academy of Sciences, Slovak University of Technology and Comenius University in Bratislava.

The thematic specialization of science teams in Bratislava is clearly crystallized and it reflects also the needs and requirements of industrial praxis. Several main excellent fields in which Bratislava has dominant position deserve to be highlighted:

- Biomedical engineering and environmental health;
- Progressive materials, energy and energetics;
- Knowledge technologies with the ICT support.

In connection with their expertise and today´s already built laboratories and existing infrastructure, Slovak Academy of Sciences, Slovak University of Technology and Comenius University in Bratislava have the interest to concentrate their potential first of all in the above mentioned fields. These three institutions belong to the most significant scientific research institutions in Slovakia, not only because of the number of creative workers, but also due to their ability to seek and receive financial support to their scientific exploration and last but not least because of their achieved outcomes.

...insufficiently valorized and supported

In spite of the dominant position of Bratislava in the field of science and research in comparison to other cities in Slovakia, at European level, it represents rather a limited scope of innovative and scientific research localities. This situation is

conditioned by several endogenous factors such as missing public R&D and public financing strategy, inconvenient infrastructure, low ability of the system not only to produce new ideas but also to bring them to markets and translate them into economic growth. These factors uniquely influenced the overall pace of Bratislava science development over the last two decades and consequently also its path towards the knowledge economy.

Creative class: precious resource seeking for opportunities

At present, Slovakia has more than 4000 creative companies (6.2%), with the contribution to GDP 5.5 bilions EUR (4%), with more than 45.000 employees (4%), about 4% of GDP and more than 4% of the total number, which can significantly contribute to the objectives of the strategy Europe 2020 strategy.

The national study (SIEA, 2013) claims that creative and culture industry occupy a significant position within the economy of Bratislava. Opposite to the other industrial branches, companies operating within creative and culture industry are mainly concentrated in Bratislava district.

The Bratislava region is one of prominent EU regions from the point of view of concentration of employment in the creative sector since in this region approximately 5.01 % of the labour force work in these sectors, pointing out at significant

specialization. Moreover, 46 % of all firms in the creative sectors are seated in the Bratislava region, of that 91 % directly in Bratislava. Design and computer programming can be considered as the most prospective orientation of the creative industry in Slovakia[2].

[2] Research and Innovation Strategy for Smart Specialisation of the Slovak Republic (RIS3 SK).

Physical and digital spaces/ Collaboration model

There are two main initiatives that will have a crucial impact on the Bratislava city future innovation development and produce positive externalities: Bratislava Science City and Creative Center Project, financed within Integrated Regional Operational programme, 2014-2020.

The project of Science City has the ambition to concentrate the best scientific, academic and technological competences that have the following common aim/vision: to develop the scientific base for these supporting areas: biomedicine, materials and energetics, ICT, to create „scientific research showcase“ that would significantly contribute to promotion of Slovakia within the international scene. On the other hand for a long period the city is dealing with the brain drain. The project of the Creative Center has an ambition to cope with this challenge by creating a conducive environment for the development of creative talent and non-technological innovations such as stimulating the promotion of employment and job creation in the cultural and creative industry.

Bratislava Science city

The goals of Bratislava Science City project are as follows:

- the three main scientific agents should be al-

lowed to carry out adequately their superior scientific research activity, gain new knowledge and develop new technologies,

- to secure better integration into international research and development projects,
- to support education of young generation of science and research workers missing in Slovakia,
- to optimize strategic partnerships with the commercial sphere,
- to support competitiveness of local companies via innovative processes and to contribute to the overall innovative culture and atmosphere,
- to contribute to the economic development of Slovakian metropolis,
- the evaluate outcomes of Science City activities for the purpose of increasing the international attractivity of the capital as well as the country (territorial marketing).

Slovak Academy of Sciences (SAS), Slovak University of Technology (STU) and Comenius University (CU) in Bratislava, as the protagonists of the project have the aim to use effectively the resources of Structural funds Operational Programme Science and Research and to build scientific parks Patronka – Mlynska dolina- City center.

In the locality of Mlynska dolina, there are concentrated faculties of CU with natural-scientific specialization and key faculties of SUT relevant for applied ICT.

The principle of concentrating activities to build a critical mass of diverse and complementary activities equally applies to the re-development of these three localities. Activity will be concentrated in a number of key sites within these three areas:

- Biomedical Science park - SAS
- Molecular, Enviromedical and Biotechnology park - CU
- Applied ICT park – SUT
- Institute of Materials and Machine Mechanics- SAS

Bratislava Science City is not only a physical concept for the reorganization of the Patronka – Mlynská Dolina- City Center localities, but even more a concept of how the Academy and two prestigeous Universities' activities integrate, interact and communicate with the city of Bratislava and related institutions elsewhere.

The first stage of the project has been successfully achieved. The city is proud of having at its disposal the most modern infrastructure for scientific research in Slovakia next to the largest Slovak technology university.

Mayor Nesrovnal at Science City

Outcome and impacts

Sustainability trough proximity and dynamic positioning

The projects of Bratislava Science parks and Creative Hub would have a systemic impact on Bratislava´s development. The spatial concentration and interconnection of quadriple-helix partners would significantly contribute not only to the endogenous socio-economic and territorial development, but also to the global enhancement of international attractiveness and competitiveness.

Science and technology development

- Thanks to this project Bratislava would be a valuable partner for international corporate R&D projects. The project would create convenient conditions for the development and strengthening of R&D capabilities and the creation of competitive advantages in specific technology sectors.
- As a science city, it would be composed of a number of key science nodes, some of which would be within Bratislava science parks, and some would lie outside, sufficiently strongly connected to benefit from participating in this created innovative urban atmosphere. This polycentric influence would be accentuated through the development of equipped middle scale laboratories which would be used by experts from all over Slovakia.

Socio-economic development

- In Slovakia, with low levels of population growth and high levels of fixed capital, the increase in revenues should primarily come from intangible investment in research, innovation, education and training. It is this investment that could also make it possible to address certain negative external implications of economic development.
- The intensity of innovation produced by Bratislava Science city project will have a definite impact on standards of living and the quality of employment. In addition to the impact of economic growth on the number of jobs available, innovation produced can contribute to reducing unemployment. Furthermore, thanks to the embeddedness of local firms the project will consequently increase the territorial flexibility and adaptability in case of MNC departure (VW, IBM, DELL, etc.). The ability of the economy to commercialize the output of the science park's research, and to offer a viable market for its products would be increased. At the global level, this may concern the ability of Bratislava to connect with different regions and with the global value chain. Whole Bratislava urban area and country would derive the benefits from this new science-based economic activities bringing in new activities, making the capital city the "place to be", in fields such as ICT, progressive materials or biomedicine.

Conclusions

As many programs continue to roll out, the future of the smart specialization in the city has already started to form. Political decision-making is based more and more on a large number of players and a variety of levels (European, Community, national and regional) where choices can be made and action taken. Joint strategic visions to choose the priorities for scientific and innovation objectives are becoming essential. Bratislava meets all preconditions needed to become a smart city and a valuable European partner.

Bratislava (SK)			
Macro-economic profile**	GPD	2011 ESTAT	€13.743,00
		2015 JRC projection based on ECFIN	€15.040,10
		2030 JRC projection based on ECFIN	€21.639,21
	Employment	2011 ESTAT	424.400,00
		2015 JRC projection based on ECFIN	463.759,46
		2030 JRC projection based on ECFIN	465.104,86
	Population Territory	2011 ESTAT	599.931,00
		2015 JRC projection based on ECFIN	620.283,00
		2030 JRC projection based on ECFIN	651.676,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Slovakia	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The Bratislava Region accounted for some 11% of population, but generated one quarter of gross domestic product and half of research capacities in terms of gross expenditure on research and development (GERD) and research and development (R&D) personnel in 2012. Share of the region in total Slovak GERD increased from 37.2% to 54.2% in period 1996-2012. With applied research disappearing, basic research (supported by public sector) gained on relative importance in Slovakia in 2000s. This trend was most pronounced for the Bratislava City, where most higher education institutions (HEIs) and public research organisations concentrated. While nominal business expenditure on R&D doubled, public expenditure increased four times in period 2000-2012. Some 11 HEIs had their seats in the region by 2014. The Comenius University and the Slovak University of Technology scored the best in the Webometrics ranking (no. 534 and 735 respectively out of 11,992 World Universities in 2014). The Slovak Academy of Sciences provided for bulk of basic research in Slovakia. The Bratislava Region also contains the single largest R&D infrastructure in Slovakia, the Cyclotron Centre. Data on private research institutions are scarce in Slovakia. The VUZ (welding research), and the Slovnaft VURUP (oil and hydrocarbon research) likely were the largest private research performers in the Bratislava Region. There also were several spin-offs and R&D intensive small and medium enterprises: the BioScience (biotechnology spin-off company), the EGU Energia (electrical engineering research), and the Fytofarm (research on plant nutrition and protection). Central government ministries supported research in non-profit and/or semi-private research. The most important institutes included the VUVH (water research), the VUP (food research), the VUPOP (soil science and conservation research), the VUEPP (agriculture and food economics research), the VUGK (geodesy and cartography research), the VUS (postal and telecommunication research) and the VUPC (pulp and paper research). Structure of public and private research bodies was reflected in structure of research activities. Nature sciences (29.6% of total GERD), engineering (37.6%) and humanities (13.7%) were the most important science fields in the region in 2012.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/bratislavsky-kraj/bratislava-region	
Smart Specialization Strategy	Strategy	The Slovak Government approved the RIS3 with the Government Resolution no. 665/2013 on 13 November 2013.	
	Sectoral priorities	The RIS3 priority areas are: Automotive & mechanical engineering industries; Production and processing of iron and steel; ICT and Services; Consumer electronics and electrical equipment These priority areas reflect projected capabilities in the following sectors: Manufacturing & industry, Motor vehicles & other transport equipments, Information & communication technologies (ICT), Computer programming, consultancy & related activities, Manufacturing & industry, Computer, electronic & optical products. The RIS3 identifies 5 potential areas of specialisation: automation, robotics and digital technology; processing and increasing the value of light metals and their alloys; production and processing of plastics; creative industry; increasing the value of domestic raw material base.	
	Link	http://s3platform.jrc.ec.europa.eu/regions/sk	
Stairway to Excellence ***	Link	http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_SK_national_profile.pdf/e44cbe64-d2a6-4d51-971c-948450bffda0	

** UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Castilla-La Mancha

A region with quality of life, agriculture and windmills

Regional **Innovation Ecosystems**

@gobjccm

https://www.facebook.com/juntadecastillalamancha/

http://www.castillalamancha.es/

Emiliano García-Page Sánchez

President of the Regional Government of Castilla-la Mancha, ES
Member of the European Committee of the Regions

European cities are called upon to play a leading role in the future territorial development of the EU. Therefore, it is essential to develop an urban agenda at European level that leads to more effective and more coordinated policies for urban areas so as to support their consolidation as sustainable territorial development engines, and ensure greater citizenship participation and mutual learning. In this regard, the region of Castilla-La Mancha offers its innovative, successful and demonstrative expertise, whereby the integration of various institutions towards common goals is positively affecting the quality of life of citizens, optimising resources and promoting territorial cohesion.

Castilla-La Mancha

A region with quality of life, agriculture and windmills

Introduction:

The region of Castilla-La Mancha occupies an area of 79 409 km^2, with a population of over 2 million inhabitants, one of the lowest population densities in Europe, i.e. fewer than 26 inhabitants/ km^2. The most populated city has 172 121 inhabitants, six cities exceed 50 000, 32 have over 10 000 inhabitants and 98 have over 3 000 inhabitants. The rest of the municipalities, a total of 919, can be considered rural. The population is concentrated around the capitals of provinces and the big urban centres located in the vast plain of La Mancha, as well as in the two hubs of great demographic and industrial growth: the Henares Corridor, in the southwestern area of Guadalajara, and the La Sagra Corridor, north of Toledo. However, rural areas in the mountainous zone of Guadalajara, Cuenca and Albacete are suffering continuous depopulation that threatens their economic and social sustainability.

Within the European context, Castilla-La Mancha falls into the so-called "continental diagonal", a band of cross-border territory that goes across Portugal, Spain and France, and whose main common features are the above-mentioned low population density, the considerable weight of the primary sector and weak industrialisation. Castilla-La Mancha is, therefore, a diverse and heterogeneous region, with large differences between its existing urban realities, and which requires management policies that integrate, coordinate and complement them.

Vision

The Network of Sustainable Cities and Towns of Castilla-La Mancha[1] was established on the initiative of the Regional Government of Castilla-La Mancha, and its vision is to implement a model of sustainable development across the region's urban centres, integrating social, economic and environmental sustainability into their municipal policies through the implementation and autonomous development of their Local Agenda 21.

This network was created with the aim of:

- providing continuity to and building on the Network of Healthy and Sustainable Cities, composed of 100 municipalities that developed the Healthy Cities Project of the World Health Organization and tried

[1] http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/vicmedamb/actuaciones/sostenibilidad

to integrate sustainable development criteria into their municipal policies; and

- linking into the Regional Strategy for Local Sustainability, which is designed to comply with the Aalborg Charter (1994) and its commitments (2004), so as to implement sustainable policies in the municipalities of Castilla-La Mancha.

Actors

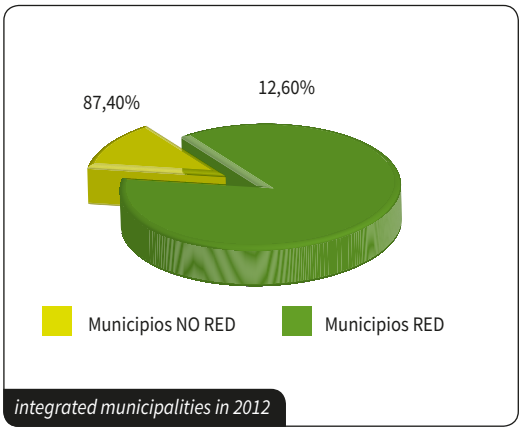
Public administrations involved in regional development, the regional government, the five provincial councils and municipalities, as well as public bodies located in the region, such as the Federation of Municipalities and Provinces of Castilla-La Mancha (or FEMP, its acronym in Spanish) and the Association of Municipalities and Rural Development Groups (GDRs, its acronym in Spanish).

Resources

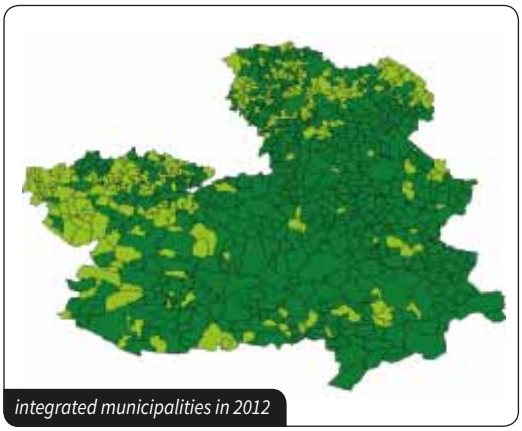
- Coordination and direct advice from the regional administration to municipalities, associations and rural development groups, especially those with fewer resources.
- Financial commitment of the regional government, financed through network agreements: with the provincial councils and FEMP, and annual support calls for municipalities, associations and GDRs, to finance technical staff and sustainability projects.
- A technical team made up of a total of 73 qualified staff spread across the territory of the region, including municipalities, associations, GDRs and provincial councils.
- Regional companies specialised in sustainable development working as external technical assistance providers in the production of sustainable diagnoses and the definition of local action plans.
- All citizens of Castilla-La Mancha, due to the fact that participation is one of the key pillars in the working model of the network.

Results and Impact

- 803 municipalities integrated in 2012, 87% of the total in the region, and 100% of those with over 20 000 inhabitants, covering 94.3% of the total population of Castilla-La Mancha.
- Cooperation among the different administrations involved (regional, provincial and local), which coordinated and pooled their human, technical and financial resources in the process of implementing sustainability policies in the municipalities of Castilla-La Mancha.
- Exchange of experiences, knowledge and resources among municipalities, promoting joint development.
- Bi-directional working method, implementing top-down European, national and regional policies at local level, and translating on a bottom-up basis the needs and proposals of the nearest administration to citizens, the municipalities, in order to define the main strategies and/or regional, national and European policies.
- Implementation of a proven methodology, supported by international organisations such as the International Council for Local Environmental Initiatives (ICLEI) in



integrated municipalities in 2012



integrated municipalities in 2012

the implementation and development of the Local Agenda 21.

- Effective implementation of sustainability policies established in the Rio de Janeiro International Earth Summit (1992) and its translation into European policies, mainly, through the Aalborg Charter (1994) and its commitments (2004), as well as the Leipzig Charter (2007), which have defined the objectives of the Urban Agenda since then.
- Adjustment to the polycentric territorial model adopted by the European Union as the most suitable one at the time of defining the various European action policies, which also includes the Urban Agenda, assigning to the cities and municipalities of a certain size the role of socio-economic development engine for the different regions and, thus, developing a more united and balanced territory. In Castilla-La Mancha, the network approach, based on the coordination of global and local dimensions, has helped to foster this polycentric territorial model and enabled European policies to be easily adapted to specific and diverse local conditions.
- Creation of a panel of local sustainability indicators, with 40 indicators to monitor and follow up the development of the network's progress.
- Organisation of a total of seven Regional Network Congresses and seven Technical Conferences to share and compare experiences, and numerous courses, forums, newsletters and specific meetings to give training and technical information to the network's human resources.
- Configuration of more sustainable, participatory and equitable municipalities as an optimal form of development, following the idea defined and agreed in the Lisbon Treaty to "strengthen the urban dimension in cohesion policy".

Conclusions

Since the beginning of the last decade sustainability criteria have been introduced in all regional policies, through their inclusion in initiatives, projects, programmes and activities conducted by the regional administration and, especially, those related to local policies, with the aim of fostering the participation and quality of life of the citizenship.

In this context, inspired by the sustainability guidelines promoted by the European Union, the Network of Sustainable Cities and Towns of Castilla-La Mancha was established, with the aim of promoting local sustainability as a cornerstone of municipal policies through the Local Agendas 21 and the involvement of all regional, provincial and local institutions. As proof that the approach adopted by the network was the right one, in 2013 the EU established a more holistic approach with the Integrated and Sustainable Urban Development Strategies. The cohesion policy 2014-2020 aims to promote integrated solutions to improve sustainable urban development in order to strengthen the resilience of cities and ensure synergies between investments financed by the European Structural and Investment Funds (ESI Funds), supporting sustainable urban development through integrated strategies that face economic, environmental, climate, social and demographic challenges in urban areas. In short, the Integrated Sustainable Urban Development Strategy becomes the advanced version of Local Agendas 21.

Castilla la Mancha (ES)			
Macro-economic profile**	GPD	2011 ESTAT	€33.647,00
		2015 JRC projection based on ECFIN	€34.917,69
		2030 JRC projection based on ECFIN	€51.079,64
	Employment	2011 ESTAT	724.600,00
		2015 JRC projection based on ECFIN	696.909,31
		2030 JRC projection based on ECFIN	811.413,09
	Population Territory	2011 ESTAT	2.099.064,00
		2015 JRC projection based on ECFIN	2.083.113,00
		2030 JRC projection based on ECFIN	2.050.190,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Spain	
Regional Innovation Monitor Plus Score Results (RIM Plus)		Gross expenditure on R&D (GERD) in Castilla La Mancha was €230m in 2012, representing 0.64% of GDP, which is less than the Spanish average (1.30%). Regional GERD has decreased, breaking the upward trend of the past years derived from expansive policies. In 2012, 62.9% of the expenditure in innovation and R&D of the region comes from the private sector. This percentage is higher than private R&D expenditure on average in Spain, which amounted to 46.3%. The distribution of human resources dedicated to R&D activities is as follows: 28.6% work in the private sector, 21.1% in public administration and 50.3% in universities. The total of people working in R&D during 2012 in Castilla La Mancha amounts to 7,607people, which represent 2.2% of Spanish R&D workers.For higher education, the whole region has a public University known as the University of Castilla La Mancha (UCLM). This institution was created in 1982, and is divided in four centres spread across the whole region. Currently UCLM has 30,043 students (1,988 of them postgraduates and PhDs) and 2,386 professors. There are 115 research groups whose work led to 67 valid patents. Those groups are from all existing scientific areas, from the humanities and social sciences to technical disciplines. Besides the centres devoted to both education and research, the UCLM has a network of centres and institutes and contributes to the regional development by transferring technology to companies and opening up the possibilities for future graduates to enter the job market. Castilla La Mancha is considered as a convergence region by the European Commission. The expenditure in R&D is low and this indicator shows little growth when compared to the national average. For this reason, the region during the last years has undertaken activities to reinforce the science, technology and industry system by defining a regional science and technology policy. The regional government changed in 2011 and modified its political structure and policy-making strategies. Due to the economic crisis there were budgetary cuts in many fields that continue in 2014, including R&D. The annual budget of Castilla La Mancha decreased 10.25% in 2013, but in 2014, there is an increased of 11% in R&D budget. Nevertheless, it is too early to judge the long-term impact of these changes on the R&D policies.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/castilla-la-manchabaseline-profile	
Smart Specialization Strategy	Strategy	The S3 process in Spain shows that most Spanish regions, with some variation across regions, have made important efforts to widen stakeholders' participation to give regional actors from the public and private sector the opportunity to reach consensus and to jointly take decisions on a common vision of the future, creating commitment to the selected priorities. The Castilla –La Mancha's RIS3 was prepared in 2014. Link Official link to the Spanish RIS3/ S3 related material: www.redidi.es/politicas-y-estrategias-de-idi/la-ris3-en-las-comunidades-autonomas	
	Sectoral priorities	The S3 priorities areas: Agrifood sector: wine, olive oil, milk, meat and other agricultural food products; Traditional sectors: manufacturing wooden clothing and footwear; Energy and Environment; Tourism; Aeronautics.	
	Link	Regional link to the RIS3: http://ris3.castillalamancha.es/	

**UNITS
Employment: Employment is expressed as employed persons per region
Population: Population is expressed in persons
GPD: GPS is expressed in million euro, constant prices (base year 2015)
Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA
The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).
*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Espoo Innovation Garden

Northern Hotspot of Youth, Innovation and Startups

Regional **Innovation Ecosystems**

@EspooEsbo
https://www.facebook.com/espoonkaupunki
http://www.espoo.fi/en-US

Sirpa Hertell

City councillor of Espoo, FI
Member of the European Committee of the Regions

For us, as Espoo City policy-makers, and for many others, the Espoo Innovation Garden is a mental and physical learning space and a journey through the many co-creation activities of our regional innovation ecosystem. Europe needs forerunner cities to achieve the Paris COP targets. To achieve the targets set by the City Council, we stress the need for the systemic integration of the different dimensions of sustainability – economic, social and ecological – to become the synergic foundation for the mindset of our policy-makers, civil servants and our citizens, in all their business and societal activities.

Espoo Innovation Garden

Northern Hotspot of Youth, Innovation and Startups

Introduction

Finland is ranked among the key global innovation leaders and the Helsinki Region, with its 1.6 million inhabitants, is the centre of country's economic activity. Its strength stems from skilled people, the quality of its research and education environment, and its versatile business landscape. The Region's industrial structure is extremely versatile – a concentration of SMEs and large companies, both Finnish and international.

The region consists of three larger cities – Helsinki, Espoo, and Vantaa – and 23 other municipalities. Political commitment and productive collaboration are manifested through three regional priorities and the strategies to realise them:

- The Helsinki Region will become the most significant innovation concentration in the Baltic Sea Region.
- Sustainable development will be promoted through innovation.
- The Helsinki Region will be carbon-neutral in 2050.

Finland and the Helsinki Region are well positioned to meet future challenges posed to their innovation ecosystems. Helsinki Smart Region covers a rich spectrum of test-beds, living labs facilities, datasets, user environments, experts and other resources. It brings together a diverse set of stakeholders with common objectives. Expanding collaboration across Europe is practised actively, and interregional collaboration goes beyond benchmarking and best practice exchanges to creating collaborative projects on key themes in research, innovation and adoption. The Smart Specialisation RIS3 process offers additional collaboration opportunities for the region.

The region is transforming into a strong regionally based innovation ecosystem, with several locally based ecosystems networking effectively, each focusing on specific business developments. Its most visible outcome is Espoo Innovation Garden (EIG), a concept that Espoo is using to spread the innovation mindset throughout the City and also the Region.

The creation of this 'garden model' started within a 5 km2 area known as in Otaniemi-Keilaniemi-Tapiola, the largest technology, innovation and business hub in Northern Europe. The area has 44,000 residents and hosts an almost equal number of jobs, 16,000 of which are in ICT or ICT-intensive services sectors. 5,000 researchers and 16,000 students are found in the area. 200 local companies are foreign. 110 nationalities live and work in the area.

Vision

Espoo is the second largest and the fastest growing city of Finland. Espoo is constructing a network city structure based on rail connections, intelligent transport system and intelligent services. Co-creation and collaboration with universities, companies and residents is the key element of our approach. The major elements in our Espoo Innovation Garden (EIG) vision are based on answering the question: 'How can we create an inclusive and fully accessible society, in which all

citizens are 'smart' and can contribute to co-creating quality of life?'

Looking ahead, we see paths in all directions, some already open, others just being discovered. We see a growing interest in ideas and practices in the following themes:

- Sustainability as our way of living
- Co-creating and facilitating active idea nurseries
- New developments based on the Nordic way of urban development
- Experimenting Pan-European flexi-work prototypes
- Rethinking work, jobs, employment, societal participation and contribution
- Active sharing culture based on ecosystem results

Resources

All societal challenges have a strong local dimension, which can benefit from science-society dialogue: helping scientists become aware of the real issues and burning questions faced by their societal partners, and societal stakeholders understanding what science and research can offer for understanding complicated and complex issues.

Our citizens are traditionally actively engaged in public-sector processes. Our EIG resources have been based on the culture of the Triple Helix model, which has a long tradition in Finland, and more recently Quadruple Helix thinking has become a natural way to speed up innovation.

Actors

Traditionally, universities play societal roles related to discovering new knowledge and disseminating existing knowledge. Here, they have also become active players in the communities, anchoring knowledge in the regional innovation ecosystem by adding value to regional development processes and renewal capabilities. This co-creation process produces regional services in collaboration with industry, public authorities, and citizens.

Universities within the EIG developments – especially Aalto University, VTT Technical Research Centre of Finland, Laurea University of Applied Sciences, Metropolia University of Applied Sciences, and Omnia Institute for vocational education and non-formal adult education – are good examples of this.

Physical and digital spaces

The City supports collaboration and co-creation between and within communities by providing physical spaces and in many cases also funding to communities. In addition to university and private initiatives, the City has started the DigiEspoo project to apply design-thinking and next-generation digital tools to reinvent the public services that meet the requirements – and surpass the expectations – of city residents.

The Espoo story is bearing fruit. The number of labs, co-creation spaces, incubators, and accelerators in the EIG has grown enormously to include over thirty recently established communities, with a special focus on RDI to address societal challenges. EIT ICT Labs, Startup Sauna, Vertical Health Accelerator and RDI units of Huawei, Intel, and Samsung are examples of this. In addition, the Aalto Campus is the heart of the Finnish startup movement. Aalto Entrepreneur Society, Startup Sauna, SLUSH, Aalto

Venture Programme have global impact. In November 2013 SLUSH gathered 7 000 attendees, 1 200 companies and 500 venture capitalists and other investors from 68 countries. In the SLUSH 2014, as well as the SLUSH 2015, these numbers more or less doubled, especially the number of participants and the number of venture capitalists.

The City of Espoo has co-initiated the privately run Urban Mill, a public-private co-working and co-creation platform for urban innovations on the Aalto University campus. Urban Mill's success is demonstrated by its 50 000 users (and 100 prototypes) since 2013. It is a powerful example of an open innovation platform that uses a thematic approach, agile orchestration and co-creation methods to advance urban change.

Policy model

The City is especially active in undertaking initiatives to create more value for its citizens and the business community. EIG is a shared mentality, and a set of concepts demonstrating how regional innovation ecosystems work in practice, and – proactively learning through doing – defining how to orchestrate the ecosystem to realize the shared goals and collective ambitions of its business, academic and governmental partners; and ultimately to benefit all the people who live and work there.

Espoo has re-organized its governance by adding five policy programmes to its traditional policy structures, each with a steering group of five top decision-makers and five top civil servants. The targets focus on creating new innovative solutions to grand societal challenges. The five programmes are:

1) Innovation and Entrepreneurship,
2) Sustainable Development,
3) Youth Inclusiveness,
4) Active Healthy Ageing,
5) Citizen Collaboration and Active Partnering.

The City Council has set ambitious targets for each programme based on multi-sectoral, multi-disciplinary and multi-stakeholder collaboration both within the city organisation and with public-private partners.

Collaboration model

Mutual trust clears the way forward for shared activities and project collaboration, involving all parties in processes of experimenting, responsible risk taking and the collaborative learning essential for innovation. In EIG cooperation is moving beyond the Triple and Quadruple Helix models to true ecosystem thinking.

Partnering model

International competitive edge is increasingly based on a shared intent of key regional actors to turn an area into significant innovation hubs. These hubs have four factors in common:

- They have globally valued special expertise and corporate activities based on this expertise.
- They create new knowledge that is applied on a global scale.
- The hub attracts international expertise, competence-driven business and investments.
- They have companies of excellence that operate both locally and globally.

EIG is actively partnering internationally to pioneer co-creation concepts in its hubs. Espoo was one of the six European i-Capital finalists in 2014.

Innovative instruments

Espoo is in many ways a city of opportunities and the innovation garden is its dynamic heart. Things originate here where diverse universities and major RDI actors are located. Europe's Living Labs movement started here, Rovio's Angry Birds started here, SLUSH (the largest start-up event in EurAsia) was created here. ACSI (the Aalto Camp for Societal Innovation) began here.

Espoo City Councilors for Sustainable Development

Espoo Innovation Garden

To take the full advantage of the metro extension from downtown Helsinki to Espoo, the City has initiated a process called "The West Metro Growth and Development Corridor". The main tar-

The Metro extension connecting Downtown Helsinki and Southern parts of Espoo will be put into use in August 2016. The Metro Growth Corridor is an instrument for urban renewal. It is also an innovation platform for economically, ecologically and socially sustainable urban development solutions and services. In programs like this, the City of Espoo, together with its many the stakeholders, is committed to realizing the following goals and guidelines:

- Economically sustainable solutions
- Clean energy
- Low-emission and smart connected traffic solutions
- World-class university and upper secondary education
- Support for employment, particularly for our youth
- Nature is an important value in city development
- Sustainable living is easily enabled here
- Testing environment for pioneering future solutions
- Becoming Northern Europe's most interesting area for investments
- Safety as a competitive edge

Europe needs forerunner cities to achieve the Paris COP targets. Through our activities, we also want to inspire other cities to embark on similar journeys their own.

get of the west metro is to use it as an instrument of urban renewal for 70 000 new inhabitants and 30 000 new jobs. The urban development is carried out jointly with Tekes, local industry, universities, and other stakeholders. Their interests strongly target experimenting and testing new smart city business solutions, both in the construction phase and in the provision of services and maintenance. Special focus is on global-level start-ups, digitalization, and entrepreneurial developments.

Outcomes and impact

Espoo is the biggest innovation hub in northern Europe and a thriving ecosystem of many communities with a strong international character. Many well-known global companies have their headquarters in Espoo, such as Nokia, Kone, Neste, Valmet, Fortum, Outotech and Rovio.

The EIG shows that the new generation of innovation activities is a socially motivated and open innovation ecosystem, complex and global by nature. Its human-centred vision of partnerships between public and private sector actors, with universities playing a crucial role, is an example of modernizing the Triple Helix and with a special emphasis on collaboration in pioneering societal innovation test-beds.

Conclusions:

Espoo's experience show that future urban ecosystems should be seen as combinatory sets of smart infrastructure (e.g. housing, mobility, energy, water, services, community, security), which can be put together in different ways to create a well-functioning and sustainable urban whole. They function as mutually complementary ecosystems, where actors collaborate to discover the optimal balance of

1) urban economic activities,
2) comfortable, invigorating and human-scale living environments,
3) synergistic innovation processes for continuous renewal.

In this way, future urban ecosystems can be seen in a much broader context: as orchestrated platforms for testing emerging concepts and technological solutions for a sustainable tomorrow.

EIG ecosystems operate as test-beds for rapid prototyping of many types of user-driven innovations: new products, services, processes, structures and systems which need to be transformative and scalable by nature. EIG is fulfilling its pioneering role as a leading global innovation hub where ecosystem thinking is fully integrated in practice, and where entrepreneurial discovery and a startup mentality drive collaboration. All participants experience multiple gains – business can develop the scalable product and service solutions that users want, the public sector can provide effective and affordable solutions to regional challenges, citizens share ownership of the specific, often highly personalized solutions they need, and universities can actively contribute knowledge and reap new knowledge and insights in return. The increased synergy helps achieve a far greater impact than ordinary development measures allow.

Espoo/Helsinki (FI)			
Macro-economic profile**	GPD	2011 ESTAT	€63.552,00
		2015 JRC projection based on ECFIN	€61.691,84
		2030 JRC projection based on ECFIN	€73.879,68
	Employment	2011 ESTAT	819.600,00
		2015 JRC projection based on ECFIN	783.178,56
		2030 JRC projection based on ECFIN	804.086,82
	Population Territory	2011 ESTAT	1.532.309,00
		2015 JRC projection based on ECFIN	1.600.632,00
		2030 JRC projection based on ECFIN	1.875.369,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Finland	
Regional Innovation Monitor Plus Score Results (RIM Plus)		Uusimaa has a very high expenditure for R&D as a percentage of GDP (GERD) in a European comparison. With a GERD of 4.47% of GDP (2010) investment in R&D Uusimaa exceeds the national level (3.9%), and is clearly above the EU-25 (1.9%) and the EU27 (2.0%) average. In absolute terms the region achieved a GERD of €3.1b (2011), which accounts for 43% of the Finnish GERD (Statistics Finland). Uusimaa is also a home to almost 100,000 companies, and 28% of all enterprises in Finland. Each of the 20 largest Finnish companies operate in the region, and often also have R&D activities. Furthermore, in 2011 Uusimaa attracted almost half (47.8%) of all Tekes research funding for universities and research institutes as well as 53% of all Tekes RDI funding to companies, which is reflected in the high GERD figure of Uusimaa. There are four universities and eight universities of applied sciences with high levels of research capacity in Uusimaa. The region also hosts many public and private research institutes. Finland has altogether 20 government R&D institutes in eight policy sectors, and the main part of their activities are concentrated in the metropolitan region, although many of these institutes have branch units in other regions as well. The share of human resources in science and technology as percentage of active population is higher in Uusimaa (60.5%) than elsewhere in Finland (53.7%), and also significantly above the EU27 average of 42.9%. The difference between Uusimaa and other Finnish regions is partly explained by the fact that besides R&D, other economic activity and much public administration is also located in the region. Uusimaa is an active region regarding patenting. There were 602 national patent applications in 2011, representing approximately 37 per cent of all applications in Finland. The trend, however, seems slightly decreasing. In 2007 the number of patent applications reached 716 (Statistics Finland).	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/helsinki-uusimaa/helsinki-uusimaa-region	
Smart Specialization Strategy	Strategy	Five themes are used for carrying out the smart specialisation of the Helsinki-Uusimaa Region. Each theme forms an umbrella, under which actors and stakeholders, skills and projects are gathered. The themes are: Urban Cleantech; Human Health Tech; Digitalising Industry; Welfare City; Smart Citizen.	
	Sectoral priorities	"The regional S3 identified the following priority areas: 1. Digital Agenda 2. Intelligent inter-modal & sustainable urban areas (e.g. smart cities) 3. Open data & sharing of public sector information 4. Sustainable innovation 5. Sustainable energy & renewables	
	Link	http://s3platform.jrc.ec.europa.eu/regions/FI1B1/tags/FI1B1?s3pv=1 http://www.uudenmaanliitto.fi/files/16166/Smart_Specialisation_in_Helsinki-Uusimaa_Region_-_Research_and_Innovation_Strategy_for_Regional_Development_2014-2020_B_51_-_2015.pdf	

** UNITS

Employment: Employment is expressed as employed persons per regionE

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Gdańsk

Transition towards Inclusive and Smart Governance Practices

Regional **Innovation Ecosystems**

@gdansk

https://www.facebook.com/gdansk/

http://www.gdansk.pl/en/

Paweł Adamowicz

Mayor of Gdańsk, PL
Member of the European Committee of the Regions

Smart technologies accelerate creativity, responsibility and civic involvement of Gdańsk inhabitants and city users.

Gdańsk

Transition towards Inclusive and Smart Governance Practices

Introduction

The inhabitants are the major creators and recipients of any changes in the city, and social and economic trends are best illustrated by the structure and scale of demographic changes. Gdańsk, with a population of over 460 000, is one of the largest cities in Poland and the Baltic Sea region. The metropolitan area, within which it is the largest city, is inhabited by over 1.2 million people. Gdańsk is one of few metropolitan centres in Central Europe to show positive demographic trends. The society's key resource is its social capital, determining the development possibilities and competitiveness of the city and metropolis. The metropolis of Gdańsk is the largest academic centre in northern Poland, where every year over 26 000 students graduate from 23 higher education institutions catering for 100 000 students. Modern and well-developed educational facilities at every level of education, as well as wide-ranging fields of study make Gdańsk a metropolitan educational centre. The inhabitants of Gdańsk are becoming more and more socially active. As a local community, we are aiming to strengthen civic values and improve levels of involvement and responsibility for the common good at the district and city-wide level. The strong sense of local identity based on the rich cultural heritage of Gdańsk, and the use of new tools to engage residents, i.e. the civic budget, are increasing people's readiness to act in favour of the establishment of local cooperation networks.

Gdańsk Metropolitan Region is one of the fastest growing economic hubs in Central and Eastern Europe, demonstrating the highest rate of growth in 2009-2011. The level and increase in GDP are reflected in an increase in inhabitants' income, which is one of the highest in Poland. Gdańsk and the metropolis are among the largest and most dynamically developing business service centres (BPO) in Central Europe, using modern office spaces in the central service zone of Gdańsk. The emerging metropolis is rapidly changing its social and economic ecosystems. This transition is enhanced by the latest growth in innovative ingenuity and programs.

Vision

The further development of Gdańsk has been founded on a number of major priorities – cooperation, openness, mobility and learning – creating idea clouds. The clouds are based on the use of a new type of offline and online relations, which are characteristic of the post-modern world, demonstrating a flexible and open set of notions and priorities, and an integrated approach. In our vision, as declared in the Gdańsk 2030 Plus Development Strategy, Gdańsk is a city that is gathering and attracting what is most valuable – people who are proud of their heritage, community-spirited, open-minded, creative, developing and shaping their future together. The people of Gdańsk are therefore the core focus of the vision and the future of our city. Following on from that participation, involvement, cooperation, responsibility, openness and social procurement have become major features of the urban ecosystem.

Public consultation for the 2030 strategy

Actors

The whole process of innovative social and participative milieu is based upon active participation of various types of city user. The social network of stakeholders includes NGOs, business organisations, representatives of local, regional and central government, academia and media. To respond to growing demand for direct democracy, more and more practices are aimed at the broader spectrum of willing, engaged inhabitants, who can get personally and directly involved in planning and budgeting processes.

Experience:

2014 - Gdańsk Council for Public Benefit gathers representatives of the city hall, city council and NGOs operating in Gdańsk. The council works out recommendations for cooperation between the city and the third sector.[1]

2009- Council for Culture in Gdańsk[2] – meetings of high-ranking city officials and representatives of arts, culture and media environments for the development of cultural events in Gdańsk and the promotion of the city's culture in Poland and abroad.[3]

The social innovation system centres on a set of intangible resources, as highlighted in the city development strategy. Talent, learning, openness, responsibility and solidarity are the cornerstones of successful public involvement and social recruitment. A number of municipal measures are being taken by social and public bodies and financed by both the municipal budget and EU funding.

Experience:

2015 Grant competitions and an umbrella IT system for controlling expenditure – a structural

[1] More at: http://www.Gdansk.pl/prezydent-miasta/Gdanska-Rada-Dzialalnosci-Pozytku-Publicznego,a,12166

[2] http://www.gdansk.pl/urzad-miejski/biuro-prezydenta-ds-kultury/Rada-Kultury-Gdanskiej,a,17216

[3] More at http://www.Gdansk.pl/urzad-miejski/biuro-prezydenta-ds-kultury/Rada-Kultury-Gdanskiej,a,17216

solution for financing support for NGOs, other local associations working for the city, and cultural activity. Competitions and IT solutions are a tool for increasing transparency and efficiency when transferring funds for tasks outsourced by the city to the third sector.

2014 Mini-grants for seniors – a simple, fast, streamlined approach to co-financing short-term grass-roots initiatives, initiated by senior residents of Gdańsk, that requires small sums of money (up to approximately EUR 150) to happen.[4]

2016/2017 Gdańsk Citizens' Contact Centre (CC) – as a means of informing and updating the public. One-stop-shop for contact between residents and the city hall, the CC will provide full, detailed information on the services provided by the city hall and its executive agencies, increasing transparency and trust in public services in Gdańsk.

2014/2015 - Entrepreneurship lessons – provided for teachers and school students by the city business incubator in cooperation with experts on business and the economy. The project aims to boost creativity, openness and readiness to take up challenges among the young adults of Gdańsk.[5]

[4] More at: Mini-grants for seniors: http://kiwi.org.pl/event/details/2616

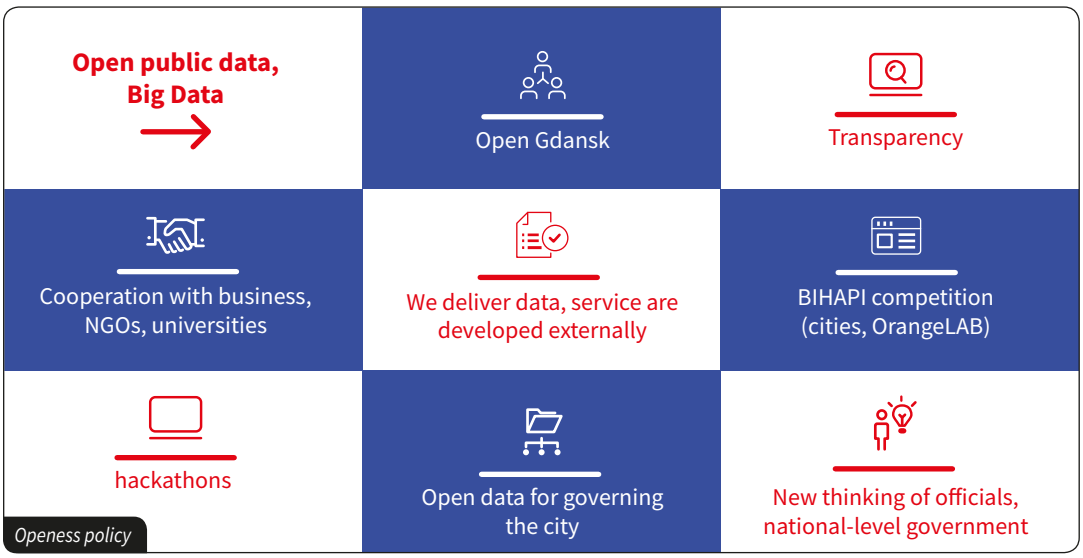
[5] More at: http://lekcjeprzedsiebiorczosci.pl/

Physical and digital spaces

Gdańsk is undergoing a transition from traditional management towards Open Data and Smart City initiatives in cooperation with external stakeholders. The physical and digital environments supported enhance collaboration, co-learning, entrepreneurship and the development of effective solutions for urban issues. Urban public spaces are being transformed by digital features. The transformation process started with a system of free wireless internet benches. The recent Gdańsk digital revolution opens the city management to innovative public initiatives.

Experience:

2013/2015 - ACCUS, Adaptive Cooperative Control in Urban Systems, is an operating system for the city, set up by an international consortium of universities and ICT companies. It aims to provide an integration platform for urban systems (such



as GIS, intelligent transport systems, weather forecasts, smart energy, and crisis management) in order to optimise their combined performance and achieve a more flexible, efficient and open environment.[6]

2013/2016 - Developing urban mobility. The volume of cycle traffic in Gdańsk has doubled in the last 7 years. 60% of students in elementary schools took part in the Cycling May 2015 project, an initiative promoting daily cycling from home to school. The idea behind the project was much admired by other cities and in 2016 the event is expected to take place in the entire Gdańsk metropolitan area, in Warsaw, Wrocław, Lublin and Zamość.[7]

[6] More at: https://medium.com/@Gdansk/accus-Gdansk-s-os-for-the-smart-city-e08ae1f9cede#.4xv3a5502

[7] More at: http://www.rowerowyGdansk.pl/start,169,121.html

2013 – STeR (System of bike paths)[8] is a document that sets a target for the development of cycle paths, bicycle parking places, better inter-district connections, traffic-calming zones and standards for new investment. The document went through an extended process of public consultation (640 amendments were proposed) and was voted by the city council. It is an exemplary document in Poland, regarded as best practice in the field of cycle infrastructure planning in cities.

2014-2016 Civic budget: In 2016, for the first time in the history of the project, the process of selecting civic projects for participatory budgeting will take place in many cities of the Pomorskie region at the same time. It is an important tool for increasing civic engagement in city management.[9]

[8] https://medium.com/@gdansk/gdansk-guide-to-cycling-6e45e5cb4b94#.rg27ff6fi

[9] More at: http://www.Gdansk.pl/budzet-obywatelski

the STeR system

Policy model

Inclusive urban governance is the basis for the city policy model. The city's most important political document – the Gdańsk 2030 Plus Development Strategy was initiated through open public meetings and discussions. The operational programmes reflect the inhabitants', often pioneering, suggestions and opinions. This bottom-up innovative process is being facilitated by numerous initiatives, like the Gdańsk City Lab. Social media has become an important part of the direct policy model.

Experience:

2013/2015 – the public consultation process was redefined and the new approach included engaging new stakeholders and promoting pro-active communication, including social media. In the case of the Gdańsk 2030 Plus Development Strategy[10], almost 40 consultations with more than 1 000 stakeholders took place. This new model of public consultation also involved additional further processes, like the planning of new investments.

2013 - Starter Incubator [11]– the city decided to develop its own business incubator, to support innovation, start-ups and creativity in the city. Located close to the university campus and business district of Gdańsk, it is the perfect place to share and mix experiences.

[10] (http://www.Gdansk.pl/strategia/Gdansk-2030-Plus-Development-Strategy-download,a,38041),

[11] http://inkubatorstarter.pl/en

Gdańsk 2030 Plus Development Strateg

Collaboration model

Engaging a wide range of actors has long been fundamental to municipal policy since different actors have skills and knowledge that is potentially able to support both planning and implementation. Our Quadruple Helix model puts innovation users at its heart and encourages the development of innovations that are relevant to users (civil society), while the business, administrative and academic milieux enhance, support and facilitate the Helix. In line with this perspective, new innovative products, services and solutions are developed with the involvement of users in their role as lead users, co-developers and co-creators.

Experience:

2015 - Council for Metropolitan Strategy – a body working on strengthening metropolitan cooperation between Gdańsk, the neighbouring cities of Gdynia and Sopot and other local governments in the metropolitan area.[1]

2012 - Council of the Young City Stakeholders – an open format for cooperation between the city, NGOs, business, unions and artists, working together on shaping the future of a former shipyard district, yet to become a modern district in the centre of Gdańsk.[2]

[1] More at: http://en.metropoliaGdansk.pl/who-are-we/

[2] More at: http://www.Gdansk.pl/urzad/nasze-miasto,512,44892.html

Partnering model

The municipality of Gdańsk is a leading partner in the Gdańsk-Gdynia-Sopot Metropolitan Area Association, collaborating closely with the Provincial Office of Pomorskie. Gdańsk is also an active member of EuroCities, exchanging ideas with other European metropolitan areas. Especially close links connect Gdańsk with a number of Eastern European cities, including Ukrainian, Belorussian and Georgian cities. Best municipal practices are being implemented by the Metropolitan Area Association. Additionally, Gdańsk, as national leader in smart city appliances, is being followed by numerous other cities

Experience:

2014 - Open Data. In 2014 Gdańsk became the first city in Poland to officially announce the openness policy and publish various data-sets on the city, including financial data. Strong cooperation with NGOs and IT developers is a part of the policy.[3]

2015 - Cycling May is an initiative to promote daily cycling from home to school. The idea behind the project was much admired by other cities and in 2016 the event is expected to take place throughout the Gdańsk metropolitan area, in Warsaw, Wrocław, Lublin and Zamość.[4]

2015/2016 - Gdańsk city applications, like BAND (crowd sourcing for new locations for plants), are developed in open source mode, thus other cities and NGOs can use our code freely.[5]. This application was an innovative idea for the visualisation of city spending, including spending per capita. It has inspired several other local governments.

[3] www.otwartyGdansk.pl

[4] http://www.rowerowyGdansk.pl/start,169,121.html

[5] www.bandgdansk.com

Innovative instruments

Most recent urban management initiatives are based on smart technologies, enhanced by active participation in the Digital Single Market, using Public Procurement to address sustainable development including economic, social and environmental objectives and do more with less. A broad spectrum of instruments are being implemented within the municipal administration and through public social procurement practices.

Experience

2015 - GdańskLab - a marketplace of innovative solutions aimed at improving the management and functioning of the city hall, incorporating innovative methods into the offices, such as design thinking.

2014 - Chief Innovation Officer – Gdańsk has a high-ranking official (head of the Mayor's Office),

The Migrant Integration Model

responsible for supporting innovation processes in the city and coordinating innovative projects in the city hall.

2016 - Migrant Integration Model – Gdańsk is the first city in Poland to develop a model for integrating immigrants into what is a fairly homogenous Polish society. The proposed model is currently going through the public consultation process. [6]

[6] http://www.Gdansk.pl/urzad-miejski/Czas-na-konsultacje-Gdanskiego-Modelu-Integracji-Imigrantow,a,51411

Outcome and impacts

The Gdańsk social innovation ecosystem is relatively new and based on good will, skills and limited financial resources. Nevertheless during the last few years Gdańsk has been seen as a national leader in the implementation of Smart City ideas and Open Data. Our intention is to enhance the process of public and civic involvement in innovative urban governance practices, including smart and digital solutions. The results are promising, but there is still a significant gap to bridge between Gdańsk and Nordic cities in particular. The implementation of innovative pioneering models, like the Migrant Integration Model or Gdańsk Lab help to minimise emerging problems and facilitate social, economic and cultural progress in the city.

Conclusions

For centuries, openness and the free movement of people, goods and ideas have been a constant feature of the foundations for the development of Gdańsk. A natural consequence of the city's port identity is also its hospitality and readiness for change, new challenges and opportunities. The catchwords that are associated with Gdańsk are not only fine ideas, but also the specific actions entailed by them. Gdańsk is moving fast from the post-communist past to meet the challenges of a digitalised, demanding, active civic society. Gdańsk could serve as an example of the **process-based inclusive governance model**, based on public involvement, a learning process, smart technologies and shared responsibilities. Further evolution of the model could be enhanced by interaction and interlinkage with other advanced European cities and regions.

Gdanski (PL)			
Macro-economic profile**	GPD	2011 ESTAT	€11.833,00
		2015 JRC projection based on ECFIN	€12.838,72
		2030 JRC projection based on ECFIN	€17.374,56
	Employment	2011 ESTAT	483.000,00
		2015 JRC projection based on ECFIN	517.539,56
		2030 JRC projection based on ECFIN	509.105,38
	Population Territory	2011 ESTAT	1.281.491,00
		2015 JRC projection based on ECFIN	1.303.218,88
		2030 JRC projection based on ECFIN	1.339.908,28
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Poland	
Smart Specialization Strategy	Strategy	The S3 priorities encoded are: innovative technologies and industrial processes, natural ressources and waste management, healthy society, sustainable energy and bioeconomy and environment.	
	Sectoral priorities	"The regional S3 identified the following priority areas: 1. Digital Agenda 2. Intelligent inter-modal & sustainable urban areas (e.g. smart cities) 3. Open data & sharing of public sector information 4. Sustainable innovation 5. Sustainable energy & renewables	
	Link	http://s3platform.jrc.ec.europa.eu/regions/PL?s3pv=1	
Stairway to Excellence		http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_PL_national_profile.pdf/9844e9c0-0216-448e-9370-a19ab1cef513	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Glasgow

Scotland's innovation powerhouse
European Entrepreneurial Region 2016

Regional **Innovation Ecosystems**

@GlasgowCC

https://www.facebook.com/GlasgowCC

https://www.glasgow.gov.uk/

George Redmond

City Councillor of Glasgow, UK

Glasgow being awarded the title of a European Entrepreneurial Region in 2016 was a great honour, and recognition of our efforts to encourage entrepreneurial activity in the city for the benefit of all Glaswegians. We like to think that Glasgow uses an innovative approach to developing such activity and look forward to achieving a great deal for the city and its economy while we hold this title.

Glasgow

Scotland's innovation powerhouse and European Entrepreneurial Region 2016

Intro

Glasgow is the economic, cultural and academic powerhouse of Scotland - an innovative city with innovative people. As Scotland's largest city, with a metropolitan population of 1.8M, Glasgow contributes approximately £18B to the Scottish economy and 18,000 companies make Glasgow their home generating £31.7B annually. Since 2012, Glasgow has attracted more than £8B in capital investment within its support infrastructure, including housing, retail, health, education, hotels and offices providing a springboard for inward and foreign investment to the city and improving quality of life for citizens.

A European City of Culture in 1990, Glasgow is still building strongly on that title 25 years later, having one of the most vibrant arts and cultural scenes in the world. This allows for an impressive record of integrated partnership work to a higher level and thereby offers shared developments and lessons learned with other European peer cities. It will be the basis for building an innovative culture of working together, showing how we can achieve additional success through better partnerships.

People make Glasgow

Vision

Glasgow firmly believes in turning principles into policy and can point to a range of interventions to support economic growth, innovation and entrepreneurialism with tangible results. Glasgow thus strives to build stronger economic and cultural ties across its peer cities. Glasgow has been named **EU Entrepreneurial Region 2016 and was a finalist for the European iCapital Awards 2016,** in recognition of its existing strong approach to innovation.

An integrated vision for economic development through our Glasgow Economic Leadership model has led to the most extensive level of support for apprenticeships, training and job creation of any city in the UK through the Glasgow Guarantee Programme. As a result, Glasgow has come out of the recession with renewed confidence and our investment in employment support has protected our young people from its worst effects.

Open Data
Glasgow
400 data sets

UNESCO
City of Music

Innovative UK
Future Cities
Demonstrator

The Glasgow City of Science partnership works across sectors and with communities to inspire organisations and people alike to be more innovative. It is connected to European partners through the OpenPlaces FP7 project and global networks on innovation and the public promotion of science through Ecsite and Eusea. It also engages with citizens to inspire a culture of citizen science and works with children to foster future innovators

Innovative instruments, actors and resources

Glasgow recognises the importance of planning for an uncertain future, ensuring that cities can be resilient in the face of uncertainty, by creating a climate of innovation allowing us to be agile and flexible. To achieve this, our policies and partnerships need to be integrated. Glasgow has a proven track record in delivering large scale projects under budget and on time and leaving a lasting legacy illustrating the strong levels of partnership working, governance, financial management and project delivery.

Furthermore, Innovation ranges from world-class research and businesses through to citizen science projects and engagement with local communities on societal challenges. Glasgow offers a distinct and highly innovative set of partnerships which can be replicated in other cities and help to drive a dynamic innovation ecosystem and set of practices. Innovation will emerge at all levels of this exciting approach and we believe that it offers something different, fresh and sustainable for bench-learning.

Glasgow City Council has made significant economic progress over the last decade, culminating in being named Council of the year 2015. A combination of political leadership and private sector engagement has driven Glasgow's economy, and will continue to do so in the future. This is a difficult asset to create as it depends on trust relationships and tacit knowledge. A city where local government, academia and business - the triple helix - find it relatively easy to work together is one with an asset others find difficult to replicate.

Education
130,00 students
from 135 countries

No 1 Friendly
City in the World
Rough Guide

8th best
sporting City in
the World

This work, led by Glasgow City Council, is delivered through Glasgow Economic Leadership with a remit to oversee the implementation and delivery of recommendations made by the Glasgow Economic Commission3, enhancing the growth of the Glasgow city-region economy, specifically:

- Private sector leadership: a new private-public leadership body will be established to focus the economic development efforts of Glasgow City Council, Scottish Enterprise, the Chamber of Commerce and others, to deliver on the city's economic potential and to ensure that Glasgow is 'open for business'.
- Focus on key growth sectors: there is a need for greater focus on current economic development efforts in Glasgow, particularly in: financial and Business Services; Low Carbon Industries; Engineering, Design and Manufacturing; Tourism and Events; Life Sciences; Higher and Further Education; and Creative Industries.
- Global promotion of Glasgow and its key sector ambitions: significant economic opportunity exists in greater global investment promotion of Glasgow's ambitions across key sectors.
- Connectivity to national and international markets: Glasgow's economy will increasingly rely on growing the city's private sector companies and businesses, including increasing exporting and internationalisation activity with wider UK and international markets.
- Innovative funding of infrastructure investment: Glasgow is able to continue to invest in the infrastructure that in turn attracts and underpins private sector investment.
- Further and Higher Education in support of key sectors: Glasgow's further and higher education institutions are a vital economic asset to the city's (and Scotland's) economy and have a key role in supporting success in key growth sectors.
- Skills to aid the growth ambitions of key sectors: it is vital that Glasgow's skills 'system' is able to provide the right skills, at the right time, as needed by key sectors.

Glasgow attracts many of the most talented people because the city has one of the UK's largest knowledge bases with world-renowned universities for excellence in research, innovation and entrepreneurialism. Many Glasgow researchers feature in the Thomson Reuters Highly Cited Researchers lists and University of Strathclyde was UK Entrepreneurial University of the Year 2014. Together they contribute £1.2B to the Scottish economy. Glasgow has the second-largest number of higher education.

Policy / collaborative /partnering model

Glasgow works best when it works in partnership and it is still all about upscaling our existing partnerships to support our innovation ecosystem, where our organisations and communities work together to harness and accelerate their naturally innovative qualities.

Glasgow City of Science is a pioneering partnership of ~90 organisations. It acts as 'the heart' of our science & technology innovation ecosystem supporting partners to ensure everybody in the city region benefits by boosting sustainable development and quality of life.

Glasgow Economic Leadership is a unique partnership that builds on our history of public, industry and academia collaboration. It provides independent leadership and direction to economic development activity on our key sectors; Low Carbon industries; Life Sciences; Engineering, Design & Manufacturing; Financial & Business Services; Tourism & Events.

Creative Clyde is a collaborative partnership of media, technology and creatively-minded businesses and development agencies. Based on the regenerated riverfront it is a leading international business and cultural hub, a vibrant destination to work, live and play. It includes Glasgow School of Art; Royal Conservatoire, Digital Health & Data Lab Innovation Centres, BBC, third and private sectors.

Governance and partnership are central to the success Glasgow has enjoyed in recent years, epitomised by both the award of the largest City Deal in the UK as well as hosting the most successful Commonwealth Games in history. Neither of these achievements would have been possible without strong governance and a commitment to working in partnership. The foundations have been set to continue this commitment to sound governance practices and working in a joined up way to achieve economic success through innovation and entrepreneurship.

Glasgow city council building

Conclusion

2016 is the Scottish Government's year of Innovation, Architecture and Design. Glasgow offers Europe a long history of innovation across industry, society and public participation and we want to share learning through collaboration with other cities, to drive positive change in the face of significant global challenges, acting in a multiplier role to add both value and investments.

We want to take all this experience and raise it to a new level. Glasgow strives to expect deliver a sustainable legacy of innovation: Our innovation ecosystem and innovation hub - Glasgow City of Science - will bring together other UK & EU cities (third countries, new geopolitical order in the Mediterranean, EU eastern partnership and other third countries) to join us in Glasgow and via digital collaboration platforms to participate in our innovation conversations. To improve urban life through more sustainable integrated solutions we will couple excellent science, industrial leadership and citizens to tackle societal challenges.

Glasgow (UK)		
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/United%20Kingdom
Regional Innovation Monitor Plus Score Results (RIM Plus)		The performance of the Scottish innovation system can be characterised as highly dichotomised between a strong and well-performing higher education research base and a weaker and highly specialised in specific sectors effort by the business sector.On the one hand, Scotland's strong academic base is evidenced by the size and international standing of Scottish higher education institutions, with three (Edinburgh, Glasgow and St Andrews) among the world's top 150 universities. Directly employing some 38,455 full-time equivalent staff and teaching some 231,000 students, Scottish universities had a total turnover of £2.84b (€3.37b) in 2011/12. Scotland has the highest ratio of cited research papers to GDP in the world and the impact of Scottish research is ranked second in the world. Scottish universities attract around 40,000 international students in each course. In 2011-12 there were 281,630 students in higher education in Scotland, and the number of new entrants was 132,365, which represents one of the largest student bodies in the OECD economies. On the other hand, Scotland's BERD expenditure as a percentage of GDP has historically been low compared to the other regions within the UK as well as internationally. Scotland's performance on BERD as a percentage of GDP ranks in the bottom quartile of OECD countries that reported in 2011 (Business and Enterprise Statistics 2013). However, Scotland performs well on HERD expenditure as a percentage of GDP, ranking within the UK and in the top quartile of OECD countries. The latest figures show that GERD in Scotland was £1,934m (€2.228m) in 2011, an increase of £22m (€25m in real terms) since 2010. The increase in GERD over the latest year is driven by an increase in BERD expenditure, sitting at £689m (€794m) in 2011 (33% of total) and HERD, which has increased up to £953m (€1,099m, 51% of total). In 2009, Business sector R&D and innovation in Scotland was almost exclusively done by US, Scottish and EU owned firms; and virtually none by rest of UK firms (RUK). In figures, 53% was done by US firms, 25% by Scottish firms, 16% by EU firms, but only 3% by RUK firms. Just two sectors accounted for the lion's share of R&D and innovation spending in Scotland: pharmaceuticals and precision instruments for 41% and 20% respectively; with services at 12% and Information Technology (IT) at 4%.
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/scotland
Smart Specialization Strategy	Strategy Priorities	The smart specialisation priorities for Scotland, as encoded in the EYE@RIS3 data base, are: energy, tourism, universities, life sciences, creative industries, maritime energy.
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/ukm/tags/ukm?s3pv=1
Stairway to Excellence	Link	http://www.gov.scot/

** UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Lisbon

State-of-the-art
Place of New experiences

Regional **Innovation Ecosystems**

@CamaraLisboa

https://www.facebook.com/camaradelisboa

http://www.cm-lisboa.pt/en/city-council/city-council

Fernando Medina

Mayor of Lisbon, PT
Member of the European Committee of the Regions

Lisbon is developing its political and economic vision based on concrete initiatives aiming to position the city as one of the most competitive, innovative and creative cities of Europe - Lisbon Startup City. The EER label allowed the city of Lisbon to scale-up its entrepreneurial strategy at international level, but more transnational cooperation is needed and joint projects can foster the local strategies and take them to another level.

Lisbon

State-of-the-art Place of New experiences

Introduction

Lisbon is developing its political and economic vision based on concrete initiatives aiming to position the city and region as one of the most competitive, innovative and creative cities of Europe. The strategy aims at promoting the internationalisation and the competitiveness of Lisbon at a global scale. The purpose is to stimulate innovation, creativity and the entrepreneurship spirit making Lisbon a place open to new experiences.

All the initiatives included in the Economic Ecosystem cover the strategic domains of Entrepreneurship, Investment, R&D and Innovation and Strategic Clusters and are currently being dynamically undertaken in the city, in partnership with multiple stakeholders. Cities should be based on new government policies empowering actors and partners in the implementation of shared projects. Lisbon is designing and actively promoting an entrepreneurial vision aiming to foster and build local networks in order to give citizens, companies, universities, public and non-profit organizations the opportunities to participate in the co-creation of ideas and projects to foster a diverse range of entrepreneurship dimensions of the city.

Vision

Lisbon's vision to develop its interventions to support economic growth, innovation and entrepreneurialism are based on a strategy for the future. Lisbon is trying to strengthen the links between the anticipation of challenges and opportunities, the execution of projects and initiatives and the mobilization of all the stakeholders of Lisbon. At the same time it is promoting the internationalization and the competitive capability of Lisbon at a regional and global scale by creating, attracting and retaining talents, companies, investment and strategic clusters as well as inserting Lisbon in major international projects and networks of cities. Lisbon is working hard to make the city a space open to the exploitation of new motivations, experiences, concepts and innovations and trying to stimulate the innovation, creativity and entrepreneurship spirit in the city.

Innovative instruments, actors and resources

The "Manifesto do Empreendedorismo" (Entrepreneurship Manifesto) created in 2013 by several entrepreneurship actors during the "2nd Entrepreneurship Week of Lisbon" presents the main proposals for Lisbon, which includes positioning and promoting Lisbon as a Startup City at an international scale as an "Atlantic Startup City". The strategy consists of providing funding instruments for Start-Ups and companies and it promotes and disseminates funding instruments for the different phases of the cycle life of business projects: ideas, startups, early-stage companies, expansion.

In order to enable access to finance Lisbon is ensuring the simplification and dissemination of information on funding and promoting an adaptation of the tax system to make the country and city areas attractive for the creation of startups on an international scale.

Lisbon has a network of incubators and wants to expand and develop the network of incubators and acceleration spaces of companies in Lisbon, as well as supporting the expansion and internationalization of enterprises and startups.

Lisbon is also promoting a more entrepreneurial attitude in Lisbon region and creating interconnections between universities and entrepreneurship as well as promoting the education and culture for entrepreneurship at the university ecosystem.

Entrepreneurship projects and initiatives that enable the economic and social revitalization of territories and historical and/or depressed areas of Lisbon are also undertaken. In this context entrepreneurship and regeneration are important to transform Lisbon into a space of experimentation, testing and development of new concepts, products and services.

Policy / collaborative / partnering model

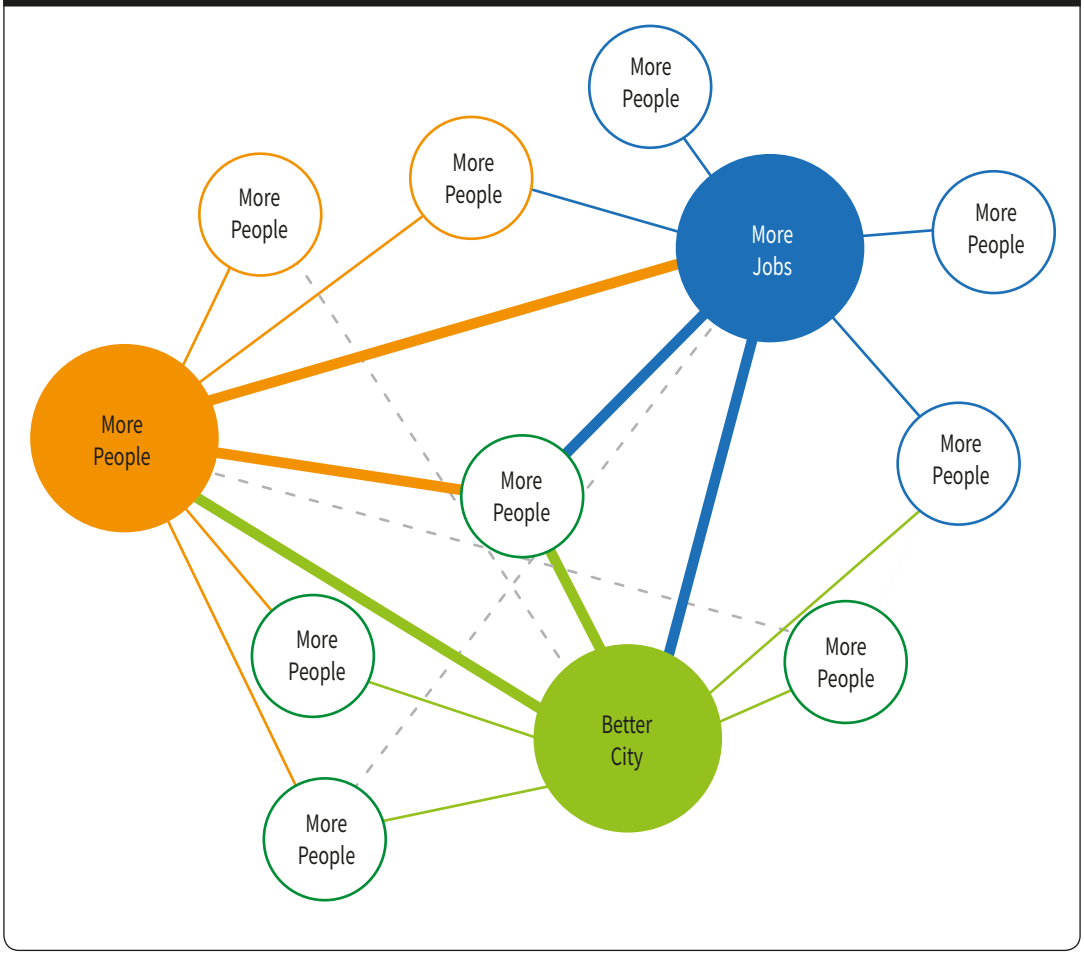
Lisbon wants to create an environment in which entrepreneurs and family businesses can thrive and entrepreneurship is rewarded – Lisbon is creating, already with tangible results and impacts as recognized by international rankings, the conditions that enable entrepreneurs to implement today their business ideas. That is the case of the Lisbon Incubators Network that includes several entrepreneurial spaces in the Great Lisbon area. Several partners of the entrepreneurial ecosystem are working with the city of Lisbon to give all the conditions – not only spaces, but also financing tools, networking activities, acceleration initiatives and organizing together entrepreneurship events, among others – that are giving Portuguese and international entrepreneurs all the environmental conditions to successfully develop their products and services.

Enable SME's to turn environmental challenges into opportunities and encourage and support SMEs to benefit from the growth of markets and the cluster approach is decisive to give SME's market opportunities. A diverse range of markets so that SME's can fully develop their businesses were identified in Lisbon: maritime cluster, health and wellbeing, creative economy, digital economy, tourism, commerce and green economy. These are the best market opportunities for SME´s in Lisbon and the city is developing partnerships with the actors of each cluster in order to transform the endogenous environmental assets into opportunities for SME´s so that they can successfully thrive in Portugal and abroad.

The Economic Strategy of Lisbon is strongly connected with Europe 2020 objectives in its integrated and ambitious vision, in its co-created strategy and in its structure based on common strategic domains. Through the publication of the document "Lisbon-Europe 2020", the Lisbon City Council is committed to contributing to the achievement of the objectives of the EU 2020 Strategy supporting the integrated implementation of projects in various areas, including entrepreneurship.

"Lisbon-Europe 2020" is strongly connected with economy, innovation, entrepreneurship and creativity dimensions and was developed through a participatory process and structured in the following strategic areas contributing to the accomplishment of Europe 2020´s objectives: more people and inclusive growth; more jobs and sustainable city; better city and intelligent/smart city. For each strategic area several projects were defined as priorities and they will be presented as ap-

Lisbon-Europe 2020



plications to EU Funds (2014-2020) that, together with local (public and private) financing, will be the main funding resources for the entrepreneurship initiatives in Lisbon during the next years.

The economic domains encompass four strategic objectives: Atlantic Business Hub, International Students in Lisbon, Startup City and Strategic Clusters. The projects are on-going and will continue to be implemented, together with new projects and measures in phase of co-creation.

Lisbon is working very hard to position itself as a global Startup City. Many international entrepreneurs are choosing Lisbon to launch their ideas, products and services turning Lisbon into one of the top five "Startup Cities" in the World (source: Entrepreneur magazine). The Lisbon Incubators Network which currently includes 11 incubators, adding more than 200 startups and 800 jobs. The network includes 11 business accelerators, 4 FabLabs, 15 coworking spaces and the community of business angels and venture capital investors. The Entrepreneurship Ecosystem of Lisbon implies concrete projects that contribute to a well-balanced and integrated strategy. Private and public partners work together with people and civil society in the creation of a sustainable innovative place and building an open environment needed to stimulate a broad based innovation experience.

The creation of business incubators is one of the most effective and innovative factors to at-

tract micro, SME and young entrepreneurs and to ensure their survival in the early days of activity, which is why Lisbon has created the Lisbon Incubators Network. Startup Lisboa opened its doors in 2012 and is part of a urban regeneration project for the downtown area of the city (Baixa), including the reuse of historical buildings and it was implemented with a decisive role played by public and private partners. It's an incubator with special characteristics, since it was born from the will of the citizens. It fits into the strategy of Lisbon to foster the participation and the entrepreneurial spirit of citizens and diversify the productive activities in Lisbon.

The focus is to support entrepreneurs in the development of business ideas that are innovative, with the main purpose of its implementation in the market and attracting investment to the growth of their business process. One of the biggest advantages of Startup Lisboa is the exchange of experiences and knowledge among entrepreneurs, only possible in a creative incubation environment where there is constantly internal communication and also the organization of workshops and activities as well as promoting presence in national and international competitions and events presenting their projects and attract investment.

Lisbon: EER winner 2015

Additionally, Lisbon is developing a "Q-Helix" and "Co-Creation" strategy fostering the active flow of information and ideas among four sectors – the Quintuple Helix – of society: public administration, academia, NGO´s and organized civil society, private sector and individuals, which allows for participation, engagement and empowerment in developing policy, creating programs, improving services, and tackling systemic change. The tools used in the co-creation of the initiatives included in this ecosystem are also interactive (ex: co-created strategies and policies, fab lab, websites, mobile and interactive Apps and digital platforms, events) because they contribute with concrete results to the quality of life of citizens, specially creating new opportunities and adding value and technological solutions which facilitate their participation in city´s daily life.

Finally, there is a continuum and permanent connectivity between Lisbon City Council and the entrepreneurship local, regional and international stakeholders resulting in processes or tasks creating and building entrepreneurship based in strong interdependencies. We believe that the city can be a Living Lab. For this reason the interactivity with consumers/citizens is a priority in Lisbon. Companies are involved in the entrepreneurial process in a variety of ways, with the majority of businesses working with customers/citizens as sources of new ideas and as a mean to test new prototypes and concepts.

Lisbon(PT)		
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Portugal
Regional Innovation Monitor Plus Score Results (RIM Plus)		"As the capital region, Lisbon concentrates the highest share of science and technology resources and expenditure in Research and Development (R&D) activities in the country (2011 figures). The region has the highest number of PhDs in Science and Technological areas per 1,000 inhabitants in the country (0.90, being the national average 0.60) and accounts for 32.6% of the total number of RTD units in Portugal. Lisbon ranks also first among the Portuguese regions regarding the regional gross expenditure in research and development (GERD as percentage of regional GDP), which was, in 2011, 2.09% (well above the national average: 1.52%). Companies are the main players regarding RTD activities in the region: 51.4% of the expenditure in R&D is made by activities implemented by businesses; 30.9% by Higher Education Institutions; 9.4% by the national government; and 8.4% by private non profit institutions (2011). As the region has a high concentration of universities, state laboratories and other RTD infrastructures, there is a very relevant critical mass and potential for high quality RTD activities in various scientific and engineering areas, being a number of research units within these institutions internationally recognised. However, compared to other European capital regions, in spite of the very positive development in the past ten years, the region is still catching up. Specifically, the enhancement of the use of existing scientific and technological expertise in favour of the businesses in the region remains a challenge, particularly in industries where innovation is induced by RTD activities, such as software, telecommunications, multimedia, and biotechnology. Enhanced efficiency in technology transfer activities and increased levels of collaboration between companies and universities concerning the exploitation of RTD activities, are objectives to be achieved in the next years.
	Link	Link: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/lisbon
Smart Specialization Strategy	Strategy	Sintra- Grande Lisboa region has a RIS3 finalised in 2014
	Sectoral priorities	The RIS3 identifies the following priority areas: Tourism and hospitality based on natural, historic and heritage including eco-tourism, application of ICTs to tourist industry, links to the creative industries; Creativity and the cultural industries; Marine resources related to geology, robotics, construction and repair of naval vessels, chemical and pharmaceutical industries; Health services, research and technologies; Mobility and transport - production and repair for automotive, naval and aeronautic industries. The S3 priority sectors are: Tourism, restaurants & recreation, creative, cultural arts & entertainment, Services, scientific & technical activities, Manufacturing & industry, health & social work activities, Motor vehicles & other transport equipment, and EU priorities that include Cultural & creative industries and support to links with traditional industries, Digital Agenda, Blue growth, Marine biotechnology, Public health & well-being.
	Link	http://s3platform.jrc.ec.europa.eu/regions/pt17/tags/pt17

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Lombardia

Entrepreneurial Region 2016

Regional **Innovation Ecosystems**

@LombardiaOnLine

https://www.facebook.com/Regione.Lombardia.official

http://www.regione.lombardia.it

Raffaele Cattaneo

President of the Lombardia Regional Council, IT
Member of the European Committee of the Regions

My role in in the Commission for territorial cohesion policy (COTER) at the Committee of the Regions is a direct expression of the importance of the political and territorial representation of our region on the European stage. Representative assemblies should not be left out of the political dialogue and in turn be reduced to a mere influence, but claim an active role in strengthening our relations between regional councils. The role our assemblies play in enhancing our common vision of multilevel governance represents one of the most important keys to break down the current impasse of the EU and eventually bring the Union closer to the hearts and minds of Europe's citizens.

Lombardia

Entrepreneurial Region 2016

Regione Lombardia

Lombardia is one of Italy's most dynamic regions—offering everything from world-class ski slopes to luxurious summer lake resorts. Milan is the beating heart of the nation—commercial, fashionable and forward-looking. Topping any list of the region's attractions are the glacial lakes. Above them stand the Alps, which have been praised as the closest thing to paradise by writers throughout the ages, from Virgil to Hemingway.

With over 9.9 million residents recorded in 2014, Lombardia is the fourth most-populated region in Europe. Lombardia's gross domestic product, amounting to EUR 33 835.7 per inhabitant (2014), is the fifth largest among European regions. Lombardia's production system is currently one of the most developed in Italy and Europe: at the beginning of 2015, there were approximately 813 000 active firms (compared to some 5 150 000 at national level), of which over 99% are micro and small companies. Lombardia's knowledge-based system is extremely complex, specialises in a range of technical and scientific disciplines and includes skills and research groups of international ranking. In Lombardia there are 14 academic institutions and several top-ranking public and private research centres. 36 entities provide business accelerator / incubator services with over 200 start-ups.

Smart Specialisation marks a major innovation in the Region's approach to industrial policy, emphasising and affirming the principle of priorities no longer being tied to a traditional vision for industrial sectors but being based on a logic of selectivity with measures concentrating on specific technologies to support specific sectoral areas or new higher value-added markets.

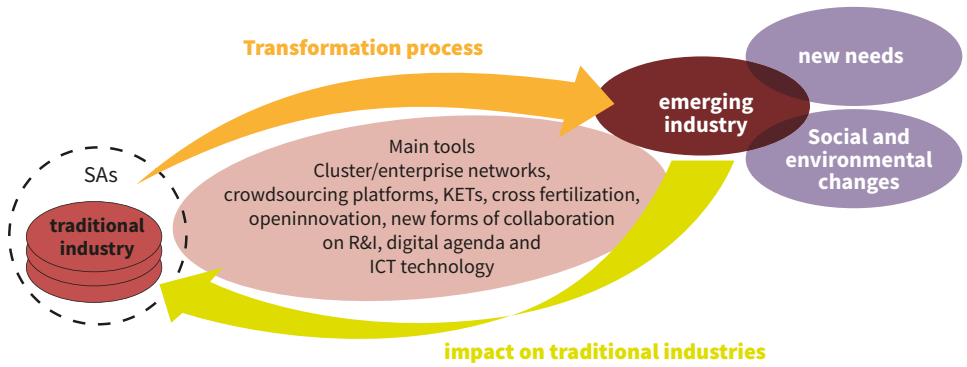
ERDF ex-ante conditionality has given Lombardia an opportunity to put new regional development pathways to the test. The involvement of citizens in the decision-making process on innovation and competitiveness also marks a considerable improvement: exploring new knowledge limits; thinking beyond schemes; improving what already exists or creating what does not; living better – these are just some of the citizens' inputs during the innovation awareness-raising process.

Vision

"*A goal without a plan is just a wish*" (A. de Saint-Exupery), is the sentence that characterises the region's actions to give shape to its strategy. In order to increase its competitiveness, the region has begun to view itself as a company, focusing its attention primarily on the market, the most profitable sectors in terms of social impact, with strong technological and innovative potential, and emerging industries[1]. This vision has become the spearhead of new political choices aiming to anticipate the structural evolution of the regional economy.

[1] cf. Smart Specialisation Strategy of the Lombardia Region: www.s3.regione.lombardia.it

Evolution of emerging industries



Resources

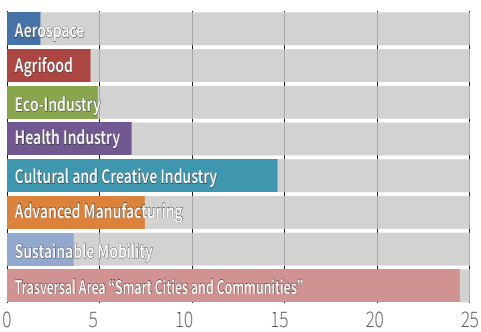
To accelerate the transformation of traditional and mature industries into emerging industries, the Lombardia Region has chosen two types of measure: direct support for Lombardia stakeholders (companies and research bodies) through specific calls for proposals in order to facilitate the evolution of the value chain, and the development of technologies and regional initiatives that consist of building up environments in which businesses can thrive and evolve into emerging industries.

Experience: 2013 - Cluster Initiative Programme and 2015 - Collaborative R&D programme - Call for Proposals supporting process, product and organisation innovation and the exploitation of results (participation of research organisations and industry). The measures are covered by regional resources, via the region's own financial company, Finlombarda Ltd. and the European Regional Development Fund.

Actors

All representatives of the innovation ecosystem are involved in defining the technological pathways: representatives of the companies and research organisations, through Cluster Organizations (nine Lombardia-based technological clusters: life sciences; smart communities technology; living environment technology; aerospace; agri-food; green chemistry; energy, cleantech and sustainable building; smart factory; mobility) and specific sectoral working groups too. Public consultations are used to give citizens a voice and discover what society's real needs are.

No. Communities vs S3 Specialisation Areas on Open Innovation



Experience: 2015 – "In an ideal world, citizens would direct public funds: Lombardia has EUR 100 and asks members of the public to indicate in which enterprise of the future or which kind of innovative service or product this amount should be spent on to obtain a substantial improvement in quality of life…".

Physical and digital spaces

The creation of enabling environments for businesses, to help them grow and evolve from traditional industries into emerging ones, calls for an approach to knowledge management that involves open innovation spaces. A regional Open Innovation Platform, a digital space and a physical space ("stateroom") for the Lombardia Technology Cluster (LTC) have been established in order to be able to respond promptly to strategic challenges in connection with the growth and competitiveness of the Region. The collaborative Open Innovation Platform is for the partners involved in innovation and research, business and education. The LTC Stateroom for the representatives operating in the clusters is a soft governance instrument for dialogue, an environment where relationships can be built between public (regional authority and universities) and private economic players. The implementation of open innovation practices has proved efficient in industrial sectors, and is thus in line with the goals of the regional government.

Experience: 2013 - The Platform[2] is one of the implementation tools used by the regional RIS3 in all phases (RIS3 communities). The LTC Stateroom is organised monthly with different agenda: contributions on building tailor-made regional policies, technological foresight, roadmaps, international networks, collaborative projects geared towards societal needs and the performance degree of each cluster (LCT presentation).

[2] available at www.openinnovation.regione.lombardia.it,

Policy model

Realisation of the vision began with a cultural leap: the model of the Region as a company in terms of revenue, human capital and social return on investments. Phase 0 was to review the governance system, Phases 1 and 2 involved the setting up of an Entrepreneurial Discovery Process adopting both top-down (sectoral data analysis and recognition of the emerging industries on Lombard territory) and bottom-up (public consultation and sharing on strategic fields and technological themes) approaches and the final phase consisting of an innovative policy mix based on thematic priorities and fields.

Experience: 2014 – In the interests of a new and solid governance system, new regional Working Groups and Units were set up, including the: Specialisation Foresight Unit, Regional Cross-Directorate Working Group, Policy Learning Unit, Public & Private Fund Synergies Working Group, Inward and Outward Looking Unit, etc.

Collaboration model

A new governance system, an ambitious challenge to help stakeholders discover new market opportunities also requires a rich collaboration model. The collaboration model is based on vertical coordination - sharing the strategy at national level, e.g. with the Ministry of Education, University and Research and the Ministry of the Economy, at European level, e.g. with DG Regio, S3 Platform and DG Grow, and at territorial level - and horizontal coordination - between different regional Directorates-General, with the ERDF and ESF Managing Authorities, and the Regional Delegation in Brussels, etc.).

Experience: 2013 - Putting the inter-sectoral system of competencies priority into practice meant identifying technological topics. A Work Programme for Research and Innovation, including technological topics and technology readiness levels for each topic and specialisation area were set-up through public consultation, through Working Groups made up of government and clusters, expert working groups, representatives of large and medium-sized companies and Lombardia-based entities involved in the strategic European Technological Platform.

Partnering model

The vertical coordination model was provided with on-going support by the Lombardia Region through various national and international networks.

The RIS3 design and implementation phases were and continue to be shared with peers and European authorities. One of the channels is the dialogue with the JRC/S3 Platform, following suggested patterns and implementing the Inward and Outward Looking Unit.

Experience: 2013/2015 – the Vanguard Initiative for New Growth through Smart Specialisation is one good example of the partnering model between regional government, territorial subjects and European peers. Lombardia also organised a European peer workshop on Emerging Industries.

Innovative instruments

These instruments are key elements in the new approach taken by the Lombardia Region to the development of research and innovation issues.

Lombardia was recognised by the European Commission as a pioneer in setting up an innovative Public Pre-commercial Procurement (PCP) project.

Experience: 2012/2015 - The first PCP pilot project was developed in the field of healthcare and concerned automated devices for moving beds and stretchers. Lombardia issues vouchers (EUR 25 000) for SMEs that were positively evaluated, but not funded, and awarded with a Seal of Excellence under Phase 1 of the Horizon 2020 SME Instrument.

Outcome and impacts

The main impact has been a cultural leap in society regarding innovation and the decision-making process, mobilising various regional structures and generating synergies between resources in response to local needs. The outcome so far has been technological pathways, data analysis of high growth companies in Lombardia, and the innovative policy mix.

Conclusions

In a highly industrialised and complex system like the Lombardia Region, a strategic vision and new policy approaches are essential when it comes to pinpointing real market opportunities and building regional competitive advantages. Therefore, Lombardia could set the tone for Europe by means of an efficient bench-marking process. The rest of the Europe is seen as a series of interlinked platforms stimulating the establishment of cross-regional activities. Peer learning activities and the provision of expert assistance are important, and help Lombardia raise its regional profile.

Lombardia (IT)			
Macro-economic profile**	GPD	2011 ESTAT	€303.748,00
		2015 JRC projection based on ECFIN	€292.358,94
		2030 JRC projection based on ECFIN	€348.535,35
	Employment	2011 ESTAT	4.603.900,00
		2015 JRC projection based on ECFIN	4.108.668,50
		2030 JRC projection based on ECFIN	4.448.944,47
	Population Territory	2011 ESTAT	9.663.872,00
		2015 JRC projection based on ECFIN	10.080.989,00
		2030 JRC projection based on ECFIN	11.051.354,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Italy	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The role of Lombardy in relation to national RTDI effort is central. About 22% of the total Italian R&D investments are currently concentrated in the region, even though this share has fallen since mid 90ies (it was 24.3% in 1996). In 2010 expenditure for Research and Development (R&D) in Lombardy amounted to 1.2% of the GDP, below the European average (1.71%) and still far from the 3% established by the EU 2020 strategy (Eurostat, 2012), while private spending was 0.92%.The Lombard private R&D expenditure as a share of the total is the highest in the Italian economy (over 75% against a national average of 50%). The private R&D expenditure was concentrated, fifteen years ago, in electric and electronic equipment, pharmaceutical and chemical products. Over the years, the large enterprises drastically reduced the R&D investment in these sectors and the persisting leadership of Lombardy in terms of private R&D investments seems to reflect an increased R&D propensity of regional SMEs.In terms of RDTI output, Lombardy performs well looking at the scientific relevance of the publications and at the ability to get access to the European funding. Patenting activity (1,250 EOP applications on average in 2005-2010) is stronger than European average but relatively weak in comparison with other European advanced areas.Public-private cooperation is still relatively weak since only 2% of the funded European projects are proposed jointly by universities (or research centres) and firms. The innovation process is usually acquired in outsourcing or thanks to the services provided by intermediate actors such as chambers of commerce and trade associations. Approximately ¾ of the total number of Italian operators belonging to the national private equity and venture capital association (AIFI) are located in Lombardy.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/lombardy	
Smart Specialization Strategy	Strategy	The Lombardy's RIS3 was finalised in 2015.	
	Sectoral priorities	The regional S3 identified 7 priority areas: Aerospace; Agri-food; Eco – industry; Creative and Cultural Industries; Health Industry; Advanced Manufacturing; Sustainable Mobility. Sources: www.openinnovation.regione.lombardia.it http://s3platform.jrc.ec.europa.eu/-/thematic-peer-review-workshop-on-ris3-governance?inheritRedirect=true&redirect=%2Fs3-design-peer-review"	
	Link	http://s3platform.jrc.ec.europa.eu/regions/itc4	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Lubelskie Region

Poland's growing engineering center

Regional **Innovation Ecosystems**

@BiznesLubelskie

https://www.facebook.com/export.invest.lubelskie

http://www.lubelskie.pl/

Sławomir Sosnowski

President of Lubelskie Region, PL
Member of the European Committee of the Regions

We based the development of our region on a selective development model with smart specialisation at its core. This approach, which is pioneering for the Lubelskie Region – has guided us through the vital experience of building a regional innovation ecosystem for its endogenous development potential.

Lubelskie Region

Poland's growing engineering center

Introduction

The Lubelskie Region is situated in central-eastern Poland – on the eastern border of the European Union. The capital city is Lublin – the administrative, economic and cultural heart of the region. Lublin plays the role of an important educational centre offering a high level of education.

The city, where every fourth inhabitant is a student, is the largest and most rapidly developing academic centre on the eastern side of the Vistula. The variety of training courses available at the city's universities, respected faculty, beautiful campuses, and students who are the source of many development opportunities contribute to the city's unique image.

Thanks to various R&D centres, the economy of the Lubelskie Region is becoming more competitive and innovative. Lublin Airport provides connections to airports in Poland and abroad. Climatic and soil conditions enhance the development of agriculture, licensed organic farms and food processing.

Engineering has always played an important role in the region and is well represented by local companies and it attracts foreign investment. The Lubelskie Region and its capital city have a very strong basis for the development of the BPO sector in the form of financial and accounts centres. Thanks to qualified staff, well-developed medical and R&D sectors, the Lubelskie Region is a perfect location for medical and healthcare service centres. The Region's rich natural resources and a clean and natural environment hold potential for the development of tourism and ecological regional products.

The Lubelskie Region boasts two national parks (the Roztocze National Park and the Polesie National Park), 17 natural parks and dozens of areas of protected landscape. Roztocze is a diverse upland area with hundreds of picturesque tourist destinations. Due to the wealth of rivers, lakes and ponds, the Region offers plenty of activities for water sports enthusiasts. In the Łęczna area and the Włodawa Lake District, tourists will find excellent conditions for sailing, canoeing, fishing, as well as sunbathing. The Lubelskie Region also offers hundreds of historic sites which are undoubtedly worth visiting. The region is famous for its beautiful horses, and the world's largest commercial promotional event is the "Pride of Poland" Arabian Horse Days in Janów Podlaski[1].

Lubelskie taste life!

[1] http://www.lubelskie.pl/index.php?action=formMail&pid=175&photoId=250 https://www.youtube.com/watch?v=RcaGu-pqlF4

Vision

The regional authorities have based the development of the Lubelskie region on a selective development model, and the core of this model is smart specialisation. This approach – pioneering for the Lubelskie Region – has guided the region through the vital experience of building a regional innovation ecosystem for its endogenous development potential.

The economy of the Lubelskie Region is dominated by low and medium-low technology sectors, and the aim of strategic development will be to actively engage in technological as well as non-technological transformation of these sectors. As an analysis of the previous experience of the OECD countries shows, it should produce effects comparable to the effects of investments in the high technology sectors.

The blueprint for the development of the Lubelskie Region, as specified in the Regional Innovation Strategy for Smart Specialisation (RIS3)[2], assumes that the region will: 1) effectively use its endogenous potential; 2) create products and services with high added value; 3) be open to innovation; 4) cooperate and link with the outside world both economically and scientifically. The major objective is to build an effective entrepreneurial discovery process for regional growth in the areas of highest potential as well as good communication between the stakeholder groups that are addressed by the strategy's priorities (business, science and research, business environment and public administration).

Life in Lubelskie

[2] http://rsi.lubelskie.pl/images/Regional_Innovation_Strategy_of_Lubelskie_Voivodeship_2020.pdf

Resources

The endogenous development potential of the Region derives from its scientific and technological skills. There are 97 universities and R&D institutions operating in the Lubelskie Region. This includes 37 centres operating in the public sector (universities, research institutions), and a further 60 in the commercial sector, often acting as R&D centres providing services to specific companies. The dominance of agricultural, forestry, veterinary, medical and health sciences, as well as physical education, is fully reflected in the amount of funding spent on research in these fields, as well as in the structure of R&D personnel.

According to statistical data, the Lubelskie Region is noted for relatively high and diverse educational potential at vocational and secondary school level. As far as higher education is concerned, the ratio of students to population in the region is the highest in Poland and is running at about 9%. The majority of them are graduates in medicine and health sciences, agriculture, forestry and fishing and biological faculties, including biotechnology.[3]

The endogenous development potentials are in these areas of business activity, which already demonstrate specialisation and have gained, or

[3] http://www.lubelskie.pl/index.php?pid=2219

may in the future gain, competitive advantage on a national and international scale. One of the largest and dynamically developing segments is the agri-food industry, covering agriculture and food processing. It is in tune with the well developed chemical industry that has a nearly 6% share of employment. Farm lands and rich deposits of coal, natural gas and limestone are the basis for the development of the mining and energy industries. Regional biomass and fuel resources constitute the basis for the development of the power industry. Other important branches of the local economy include the manufacture of machinery, equipment and motor vehicles, where many innovative manufacturers develop their own R&D infrastructure. This has created favourable conditions for a large group of furniture-industry companies operating in the region. The service industry, accounting for nearly 77% of all business entities, mainly provides medical and health-oriented services as well as education-, information technology- and automation-related services[4].

[4] http://www.lubelskie.pl/index.php?pid=2231 and http://www.invest.lubelskie.pl/index.php/en/

Actors

In the Lubelskie Region, the methodology used in updating the RIS3 strategy is based on the entrepreneurial discovery process, engaging relevant stakeholders pursuing common objectives. These stakeholders are business entities, the science and research sector, and finally business environment institutions and public administration bodies. The first group, business entities, is represented by large enterprises, SMEs, start-ups and cluster initiatives for each branch of smart specialisation. Knowledge base actors are universities and research institutes conducting research in the fields of smart specialisation. Finally, institutional support to those two sectors is provided by science and technology parks, business incubators and public administration. They are actively involved in creating an environment for the innovative growth of the region.

Physical & digital spaces

The region's initiatives, physical spaces and websites enhance collaboration, co-learning and entrepreneurship. Regular meetings, conferences with networking and workshops are planned for the Region's stakeholders in order to further popularise and strengthen knowledge and co-operation in the areas of smart specialisation. A modern conference centre has been created in the centre of Lublin offering a conference and exhibition area, as well as a tourist information and promotion centre located on the ground floor of the building. Centres for knowledge transfer at the major universities and the Lublin Science and Technology Park welcome visitors interested in science-business knowledge transfer. The managing authority of the RIS3 strategy coordinates a website providing access to strategic documents and the latest news on business and innovation.

Lublin Science and Technology Park

Policy model

Selecting smart specialisation areas was a 2-stage process: 1) identification of endogenous development potentials, 2) identification of areas of smart specialisation of the region. The results of each stage were compared with a detailed Analysis of the Region's Innovation Potential, a SWOT analysis and a PEST analysis.

Bottom up entrepreneurial discovery was used in the process, taking the form of debates and public consultations, and supported by thorough self-assessment of economic, scientific, technological, educational and industrial potential.

Endogenous development potentials were pinpointed with the help of location index numbers, analysis of the direction and intensity of R&D, publishing activity and regional universities and R&D institutions, indices of science, research and technological specialisation, available statistical data and findings of surveys. Smart specialisations were identified by using a 3-dimensional sector-science-technology matrix and an educational matrix and assessing the significance of each potential area of smart specialisation for future growth. The four smart specialisations include: bioeconomy, medicine and health, IT and automation, and low-carbon emission energy.

Collaboration model

The selection of regional smart specialisation, based on the entrepreneurial discovery process, takes the form of debates and public consultations involving regional stakeholders (entrepreneurs, representatives of financial markets, knowledge institutions, civil society and public authorities, etc.) in four sub-regions of the Lubelskie Region.

During the process of RIS3 formulation, the Lubelskie Region was peer-reviewed, making it possible to find solutions to challenging issues and allowing us to build cooperation between regions. This also made it possible to develop main instruments of social debates that took the form of public discussions within the Council for Innovation, industry panels organised as part of the Regional System for Economic Change Management and TRES (Interreg IVC) projects, as well as workshops organised as part of the project implemented by the Ministry of Science and Higher Education called the National Foresight Programme: Results Implementation. The above-mentioned activities are the basis for the model for cooperation between actors of the quadruple helix.

Partnering model

The regional authorities of the Lubelskie Region are well aware of the importance of partnership at national and international level. International cooperation with our 16 partner regions located in and outside Europe is based on a partnership agreement. The Region is a member of the S3 Platform, which is a think tank providing professional advice to EU countries and regions for their RIS3 strategy design and implementation. It also gives access to a rich database of partners, enabling mutual learning. The Region is also present in Brussels through the Lubelskie Regional Office located in the East Poland House in Brussels.

The Lubelskie Region participates in European Territorial Cooperation projects. The Bridges project is one example of an ongoing Interreg Europe project, launched this year. Its overall objective is to significantly improve partner regions' RIS3 implementation governance and enhance industry-led Centres of Competence as RIS3 implementation units.

Innovative instruments

The path towards creating and using innovative instruments has been opened, but it is still in its initial stage. In the Regional Operational Programme for the 2014-2020 financial perspective the innovative use of funding will be tested by pilot programmes. These programmes initiate the regional innovation laboratory for systematic search for solutions. They also adjust forms of intervention more effectively to the changing needs and challenges related to the development of regional smart specialisation. Some programmes take the form of umbrella initiatives aimed at testing new instruments, evaluating their effectiveness and preparing procedures for popularising the most effective solutions.

Outcomes and impact

The intended result is to build a strong and effective innovation system, namely to improve technology performance in the region by linking the actors involved in creating innovation. As a result, the innovation system is based on the quadruple helix that joins together all stakeholders interested in cooperation. Included in the innovation system is the RIS3 strategy – a systematised process of enhancing development potentials in the region.

Conclusions

What can our region offer to the rest of Europe?

The Lubelskie Region has a lot to offer if you are looking for openness, willingness for cooperation and reliability in a partner. The Region's strong scientific and educational base is available for boosting innovation capacity and exchange of knowledge. The advantage of having a diversified society should also be appreciated in terms of the possibility of building various types of business.

What our Region needs from the rest of Europe

Our ambition is faster development in the economic, scientific, social and cultural dimension and to that end Europe provides a rich source of good practices and ideas, as well as the possibility of being included in global innovation chains. We are also looking forward to increasing the effectiveness of decision-making within the RIS3 strategy.

Lubelskie (PL)			
Macro-economic profile**	GPD	2011 ESTAT	€12.164,00
		2015 JRC projection based on ECFIN	€12.798,71
		2030 JRC projection based on ECFIN	€15.839,84
	Employment	2011 ESTAT	965.000,00
		2015 JRC projection based on ECFIN	1.003.771,18
		2030 JRC projection based on ECFIN	862.522,59
	Population Territory	2011 ESTAT	2.178.611,00
		2015 JRC projection based on ECFIN	2.152.807,00
		2030 JRC projection based on ECFIN	2.025.665,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Poland	
Regional Innovation Monitor Plus Score Results (RIM Plus)		"The business R&D investment in Lubelskie accounts for 0.13% of GDP (2011), which is both lower than the country and EU average estimated at 0.22% and 1.31% (2012) respectively. While the public funding at the national level accounts for 73.3% of total R&D expenditure, it represents 86.6% in Lubelskie. The underlying characteristic of Lubelskie is that medium-size companies (50 – 249 employees) recorded the highest innovation sales (8.4%), followed by large companies (≥250 employees) and small enterprises (10 – 49 employees), respectively 8.23% and 1.14%. It is also worth underlying the stable growth in R&D investments during the 2009-2012 period. Central Statistical Office (2014) Science and technology data. The Lubelskie region, most notably due to its capital city Lublin, plays an important role in the Polish scientific landscape. In total, Lublin has 18 schools of higher education, including 4 universities. " "These are Maria Curie-Skłodowska University, John Paul II Catholic University of Lublin, University of Life Sciences (former Agricultural Academy), Lublin Medical University and Lublin University of Technology. Moreover, the region has a number of institutes undertaking research and development activity, the most important are Institute of Agrophysics in Lublin of the Polish Academy of Sciences, Institute of Soil Science and Plant Cultivation - Research Institute, as well as Institute of Soil Science and Plant Cultivation in Pulawy. A definite advantage of the region is growing science and industry cooperation, mainly through business and technology parks, e.g. the Lublin Science and Technology Park or Pulawy Industrial Park. In addition, recent years have seen a dynamic growth of business liaison through cluster activity, e.g. Ecological Food Valley Cluster.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/lubelskie	
Smart Specialization Strategy	Strategy	The S3 priorities encoded are: innovative technologies and industrial processes, natural ressources and waste management, healthy society, sustainable energy and bioeconomy and environment.	
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/PL?s3pv=1	
	Link	http://s3platform.jrc.ec.europa.eu/regions/itc2/tags/itc2?s3pv=1	
Stairway to Excellence		http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_PL_national_profile.pdf/9844e9c0-0216-448e-9370-a19ab1cef513	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Małopolska Region

Where technology becomes business

Regional **Innovation Ecosystems**

@malopolskiePL

https://www.facebook.com/lubiemalopolske

http://www.malopolskie.pl/

Jacek Krupa

President of the Małopolska Region, PL

The Programme „Małopolska - where technology becomes business" undoubtedly gives an important support for a start-up community in Cracow. Through its implementation we would like to not only provide financial support for specific events, but above all, establish a real partnership with this community. The programme depicts the high potential of Małopolska Region which conduces to the development of entrepreneurship based on new technologies. The fact that Małopolska Region was awarded the title of European Entrepreneurial Region 2016 only confirms that the direction we follow is appropriate.

Małopolska Region

Where technology becomes business

Introduction

The Małopolska Region is currently one of the fastest growing regions of Poland and Europe. A few years ago, we were ranked quite low in terms of regional development in Europe, but our hard work and consistency in taking bold actions have resulted in a significant improvement in the economic standing of the region. In recent years, GDP in the Małopolska Region has increased by nearly 30%, and the number of companies has steadily grown, as has the Małopolska Region's position in the international rankings of investment attractiveness. Today, the Małopolska Region is being increasingly talked about in Europe. We have become an equal partner in international projects and we can share with other regions our experience of how to effectively implement economic development measures.

In 2015, the European Committee of the Regions awarded Małopolska, as the first Polish region, the title of **European Entrepreneurial Region 2016**. Until then, this award had mostly been given to regions in Western Europe. The title for the Małopolska Region is, however, confirmation that Polish regions can finally be compared with the rest of Europe, despite the fact that they often exceed our GDP and economic potential. The Małopolska Region has been recognised in particular for its strong partnership and cooperation with the key stakeholders of the innovation system in the implementation of projects aimed at supporting businesses in the region, as well as the effective use of European funds[1].

[1] for details go to: http://eer.malopolska.pl/index_eng.php

Vision

Presenting the award to the Małopolska Region, the president of the Committee of the Regions, Markku Markkula, said: "The Małopolska Region's aim is to attract investors to the region and to support businesses in increasing their innovative potential, introducing new products and services and opening up to new markets. The action plan aims to increase innovative entrepreneurship and hence the region's competitiveness and its achievement of the objectives of the Europe 2020 strategy." These words perfectly reflect the assumptions and strategic plans of the Małopolska Region as regards supporting entrepreneurship.

Instruments, Resources and Actors

For several years, we have seen an increase in the importance of small technology companies and start-ups in the economic development of regions. This tendency is also clearly visible in the Małopolska Region. Krakow - the capital of the region - is considered to be a start-up city. And there is a reason for that: it's precisely here, in Małopolska, where the story of such start-ups began: Estimote, operating in the Internet of Things; Base, providing solutions for companies to facilitate, among other things, sales management and customer bases and Brainly - one of the largest and most popular groups of educational portals. These are just a few examples of companies

that were set up in Krakow, and today they operate in international markets and provide solutions for customers from all over the world. The unique nature of the Krakow start-up community is evidenced not only by successful companies but, above all, by its vast range of activities and dynamism. This community includes wonderful, pro-active people full of ideas and energy. Every year, they organise nearly 600 events bringing together thousands of people, thereby forming a community of modern technology enthusiasts.

In Europe, nowadays there is a lively debate about the need to support start-ups, the need for European regions to create programmes dedicated to the enhancement of this community. The Małopolska Region has recognised the huge potential of small businesses dealing with technology as a factor which has a significant impact on the region's competitiveness. We have decided to focus on an area which is particularly important to the Małopolska Region: supporting the extensive development of the start-up sector already under way. In 2013, we launched a support programme of events organised by Małopolska Region start-ups: **Małopolska - where technology becomes business**. There was a huge interest in the very first edition and it was welcomed by the start-up community. The premise of the programme is the Region's co-financing of events and technology-related meetings with the greatest potential.

These events are mostly organised from the bottom-up. They are backed up by people or organisations that often have very limited resources, often volunteers seeking partners. Nevertheless, due to the huge involvement and enthusiasm of young people, these events are prepared at a very high level. They help attract influential foreign visitors and give international exposure to the Małopolska Region, Krakow and its community. Every year they attract thousands of people.

Policy, collaboration and partnering model

With such an active start-up community, the Małopolska Region has also noticed that local authorities have an important supporting role to play. After analysing the needs expressed, we have launched a programme enabling event organisers to apply for funds. Thanks to this, they can be organised on a larger scale, for a larger group of interested people and invite more speakers from abroad who are mentors and promoters of the Krakow community.


Tedx Krakow

The programme is based on transparency. Interested entities may apply for funds by making a presentation about the potential of the events. The competitive nature of the programme, generated by the very large number of applications submitted each year, makes it easier to find the best. Such elements as the scale, the impact of the events on the local community but also the experience and potential of the company and the people behind them greatly impact the selection of events. The assessment of applications involves the participation of representatives from the sector and institutions that know their needs in order to choose the best projects. So far, during the three editions of the programme, the Małopolska Region has supported 41 events, involving a total of over 47 thousand people. In 2016, we will be a partner in another 26 events. The activities supported between 2013 and 2016 include small meetings of the Krakow community of start-ups, such as Hive53, Startup Stage, TechCamp and

also large international events, including such conferences as TEDxKraków, TEDxKazimierz, Bitpiration, e-business festival, Mobile Trends. The idea, which has been the guiding principle since the very beginning of the programme, has been to attract technological events to the Małopolska Region and to encourage the community to be more active.

The implementation of the programme undoubtedly represents significant support for the Krakow community. As the regional government, however, we pay attention to more than just financial support. The implementation of the programme has also shown that we are a real partner for this community. We recognise their needs, talk to them and participate in organised events. It is a very important factor from the point of view of the implementation of the policy designed to support entrepreneurship. Regions should build support programmes for businesses based on partnership, and the involvement of all members of the ecosystem in their creation. The selection of the Małopolska Region for the award of the European Entrepreneurial Region also confirms that. Our application was based on highlighting the actions taken by the regional government as well as by our partners - universities, business community institutions and entrepreneurs. Such cooperation brings far greater benefits.

Conclusions

"Małopolska - where technology becomes business" is the first such programme in Poland. There is no doubt that it is an example to other Polish and European regions showing how to promote a start-up community effectively. The example of Małopolska also shows that regions should be part of the community, listen to its needs – these are the key elements in creating support programmes and building partnership. However, the involvement of the region cannot interfere with the bottom-up model of organising events. Therefore, it is important to balance these activities.

Supporting initiatives is not the only action that should be taken by regional authorities. Close cooperation among the various European regions aimed at sharing experiences and good practices as well as inspiring each other to engage in new activities and projects are also important aspects. The European Entrepreneurial Regions network, created on the initiative of the European Committee of the Regions, has provided considerable opportunities for partnership. Regions with outstanding strategies to support entrepreneurship, which have received awards from the Committee, could be a role model for others trying to effectively create a friendly environment for business but also develop new initiatives in this field thanks to their joint efforts.[2]

Małopolska - where technology becomes business

[2] https://www.youtube.com/watch?v=TYKeEYCS9eM

Małopolska (PL)			
Macro-economic profile**	GPD	2011 ESTAT	€23.676,00
		2015 JRC projection based on ECFIN	€26.318,44
		2030 JRC projection based on ECFIN	€37.000,49
	Employment	2011 ESTAT	1.287.900,00
		2015 JRC projection based on ECFIN	1.324.435,60
		2030 JRC projection based on ECFIN	1.165.012,62
	Population Territory	2011 ESTAT	3.336.699,00
		2015 JRC projection based on ECFIN	3.369.214,00
		2030 JRC projection based on ECFIN	3.414.244,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Poland	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The Malopolskie region with its capital city of Krakow is among the Polish leaders in terms of the number and quality of R&D organisations. This is due to the strong position of Krakow as an academic centre and the high level of scientific research conducted at the Jagiellonian University, which is the oldest and interchangeably with the Warsaw University, the best Polish university according to several rankings; the Krakow University of Technology, or the AGH University of Science and Technology, and several scientific institutes of the Polish Academy of Sciences, e.g.: Institute of Nuclear Sciences or Institute of Catalysis and Surface Chemistry.The business R&D expenditure in the Malopolskie accounts for 0.27% of GDP (2011), which is above the country average (0.22%) but below EU average estimated at 1.31%. The underlying characteristic of the Malopolskie is that large companies (≥250 employees) recorded the highest innovation sales (11.1%; 2012), followed by medium-size companies (50 – 249 employees) and small enterprises (10 – 49 employees), respectively 5.4% and 1.75%. "It is also important to note that high level of R&D expenditure continued during the 2009-2011 period. Central Statistical Office (2013) Science and technology data.A definite advantage of the region is relatively good science and industry cooperation, mainly through several business and technology parks, e.g.: Krakow Technology Park, Tarnow Regional Industrial Park, Life Science Technology Park, Crystal Industrial Park in Tarnow. Moreover, there are also several industry-oriented research units, e.g. at the Jagiellonian University: BIER Molecular Biotechnology - Integration of Education and Research, STEC - Stem Cell Therapeutics-Excellence Centre.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/malopolskie	
Smart Specialization Strategy	Strategy	The S3 priorities encoded are: innovative technologies and industrial processes, natural ressources and waste management, healthy society, sustainable energy and bioeconomy and environment.	
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/PL?s3pv=1	
Stairway to Excellence	Link	http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_PL_national_profile.pdf/9844e9c0-0216-448e-9370-a19ab1cef513	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Manchester

City of Health Innovations

Regional **Innovation Ecosystems**

@ManCityCouncil

https://www.facebook.com/mancitycouncil/

https://www.greatermanchester-ca.gov.uk/

Kevin Peel

Member of Manchester City Council, UK
Member of the European Committee of the Regions

Manchester has always been a pioneering city. Scientists in Manchester split the atom and invented the computer. Our latest pioneering efforts to bring together health and social care services, create a real, meaningful partnership between local government, health services and other stakeholders and deepen our collaboration locally and with partners across Europe and beyond to advance medical science and improve health outcomes for local people is as exciting as it is innovative.

Manchester

City of Health Innovations

Introduction

Greater Manchester has a long track record of working collaboratively in partnership – bringing together local government, academia, and the private sector to support economic growth and better public services. Nothing illustrates this better than actions under way to take control on devolved powers from central government over health and social care. To date, the current fragmented health and social care system has not enabled the City-Region to improve the lives of people in Greater Manchester at a scale and pace to realise its ambitions.

Vision

The challenge now faced is bigger than ever because health outcomes for local people are worse than those in other parts of the country and health inequalities are deep-rooted. Older women in Manchester have the worst life expectancy in England. The high prevalence of long term conditions such as cardiovascular and respiratory disease mean that people in Greater Manchester not only have a shorter life expectancy, but can expect to experience poor health at a younger age than in other parts of the country. Our population has aged and this older population will increase by 25 per cent by 2025. As more people have developed multiple long term conditions the focus has shifted from curing illnesses to helping individuals live with chronic ill health.

Many people are still treated in hospital when their needs could be better met in primary care or the community. There is still too little coordination between urgent services and emergency services - A&E, ambulance, GP out of hours and NHS 111. There are real risks of significant market failure in domiciliary, residential and nursing care across social care, and this impact on system resilience and hospital discharge planning. There is a rising burden of illness caused by lifestyle choices like smoking, drinking and obesity. These changes have put the NHS and social care under increasing pressure and a growing number of people with multiple problems receive care that is fragmented or leads to wasteful duplication. On present trends, if nothing is done, then the GM health and social care system will face an estimated financial deficit of £2 billion by 2020/21. That pattern of rising demand is connected to our current organisation of services and the imbalance between preventive early help services and those which respond when crisis occurs.

Actors, instruments and resources

The historic Health Devolution Agreement signed in February 2015 between Greater Manchester and the UK Government offers a way forward and brings together partners in NHS England, the ten Greater Manchester local authorities, twelve Clinical Commissioning Groups and fifteen NHS foundation trusts to work together to transform health and social care - alongside local control over an estimated budget of £6 billion each year from April 2016. The plan that has been put in place to deliver this will draw upon the assets of world-class public services, a strong busi-

Manchester Academic Health Science Center

ness base, an excellent research base, and strong communities.

Such an approach is critical in helping us to achieve our vision 'to deliver the fastest and greatest improvement in the health and wellbeing' of the 2.8 million people living across Greater Manchester. However, it will require action across the whole range of care services; upgrading our approach to prevention, early intervention and self-care; redefining how primary, community and social services become the cornerstone of local care; standardising and building upon our specialist hospital services through the development of shared hospital services; and creating efficient back office support. We now have a plan for how, as a system, we are going to approach and achieve this and how our transformation fund will help us change, to radically shift the nature of demand and reform service provision.

Getting new ideas tested, adopted and widely used takes too long in the National Health Service (NHS) – sometimes up to 20 years. To overcome this, Greater Manchester has taken this unique step to accelerate health innovation into the local health and social care system. It is already in a strong position with three teaching hospitals, a research-led university base, a critical mass of life science firms and skilled workers, and a large and diverse population. We will identify and spread the interventions that will have the biggest impact on the greatest number of people in the City-Region. We will work to source the rapid take up of innovations on a large scale and to achieve this, we will also work to create industry partnerships, to speed development and attract inward investment.

Central to this will be ensuring that opportunities for the area's health and distinctive science and innovation strengths and assets are fully realised – to contribute effectively to health and well-being regionally, nationally and internationally. This is helped by having a large and diverse patient population, providing a highly attractive testbed for new health approaches and applications. There are four universities across the City-Region footprint, and together they train around 24,000 students each year in Health-related disciplines. The University of Manchester which is one of the UK's top research universities, ranked fifth in the UK for research power – and along with Manchester Metropolitan University ensures that over 70% of NHS laboratory-based clinical scientists are educated annually within the city.

Policy, collaboration and partnering models

Greater Manchester hosts the Manchester Academic Health Science Centre, the only such body outside the South East of England. The Christie Hospital is Europe's largest single site cancer

centre; they are currently building a proton beam centre and have an expertise in clinical trials. The Cancer Research UK Manchester Institute is one of only three Major Centres in the UK. These are complemented by a Medicines Technologies Catapult, an international centre of excellence for Antimicrobial Resistance at Alderley Park, and a Precision Medicine Catapult at Manchester Science Park's CityLabs facility

In September 2015, the city launched Health Innovation Manchester – a partnership between leading healthcare research, academia and industry organisations. By coordinating and harnessing our considerable research capabilities in the academic and health systems, HInM will speed-up the discovery, development and delivery of innovative solutions to the NHS, focussed on health informatics, building on Greater Manchester's data capabilities and expertise in clinical trials and precision medicine. Health devolution will permit far greater use of devolved, but aligned, commissioning and procurement, allowing innovation and evidence to be adopted and deployed at pace and scale. These opportunities offer the prospect of our footprint becoming a world-leading location for clinical trials and creating a nexus for discovery, clinical validation, and the adoption of Precision Medicine.

The partnerships, of course, go wider. Health North, a collaboration between research and NHS organisations in Manchester and seven other cities across the North of England (NHSA) will drive innovation in Healthcare across a population of 15 million. The £20m Connected Health Cities (CHC) project, which integrates Health and Social Care data, is the first Health North investment. Additionally, North West eHealth, the Health e-Research Centre, and the Farr Institute are all locally based partnerships focusing on using health data to drive healthcare improvement. Greater Manchester is already the UK's leading recruiter to clinical trials and has capacity to much more.


The Christie Hospital

Alongside this we have a strong cluster of businesses that are helping to shape and drive health innovation for the regional and international markets, including multinationals such as AstraZeneca, GSK, Hitachi, Merck, Medtronic, Novartis, Sanofi-Aventis, Teva and Waters Corporation. In addition we have locally grown spin-outs such as Ai2, Epistem, Bioxydyn, Premaitha Health, Redx Pharma, C4X, imorphics and Cyprotex.

Conclusions

All this aims to accelerate the discovery, development and implementation of new treatments and approaches, with a focus on improving health outcomes and generating economic growth. The combination of our research strengths, business base, and ecosystem and devolution, offers an unique opportunity not only for Greater Manchester, but also for the economic growth within the European Union more generally. We aim to be one of the best regions in the world for partnerships with innovative life-science companies, driving economic growth and improving health outcomes, and hope that partners across Europe will collaborate with us to make this a reality.

Manchester (UK)			
Macro-economic profile**	GPD	2011 ESTAT	€69.958,00
		2015 JRC projection based on ECFIN	€72.713,57
		2030 JRC projection based on ECFIN	€84.728,85
	Employment	2011 ESTAT	1.177.500,00
		2015 JRC projection based on ECFIN	1, 208,740.16
		2030 JRC projection based on ECFIN	1.229.630,80
	Population Territory	2011 ESTAT	2.673.791,00
		2015 JRC projection based on ECFIN	2.739.795,00
		2030 JRC projection based on ECFIN	3.007.320,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/United%20Kingdom	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The North West is fairly active in terms of innovation inputs. The percentage of business R&D expediture to total R&D expenditure was 77% in 2011 (UK National Statistics). In 2011, the level of R&D expenditure as a percentage of regional GVA was 2.38%, which is substantially above the UK average (2.04%). However in terms of innovation outputs it fares less well. Its outputs are more focused on businesses introducing existing products (i.e. innovation imitators or followers), where it aligns with the UK average, than introducing new products and processes, where it performance falls within the bottom three UK regions. This discrepancy between inputs and outputs may be structural as the R&D investments are heavily concentrated in a very small number of large firms. It has been estimated, for example, that one large pharmaceutical firm is responsible for around one-third of all R&D activity in the region. The region is home to 14 universities including a number of research intensive institutions with strengths in science and technology fields (such as the Universities of Manchester, Liverpool and Lancaster) . The University of Manchester, in particular, is ranked 7 in the UK and 26 internationally in the 2009 Times Higher Education/ QS university ranking system (and 58 & 66 respectively in the worldwide rankings). The region is also home to a number of public-sector research establishments such as the Daresbury Laboratory, Cockcroft Institute, Jodrell Bank telescope and the Proudman Oceanographic laboratory and considerable R&D activities of pharmaceutical, chemical and consumer products companies. The North West is also home to nuclear energy cluster centred on Sellafield in Cumbria and its nuclear energy production and reprocessing facilities and decommissioning services. The region is also home to five science/ innovation parks. The former Regional Development Agency identified a number of sectors where the region has particular strengths: biomedical; energy & environmental technologies; advanced engineering & materials: chemicals, aerospace, automotive, advanced flexible materials; food & drink; digital & creative industries; business & professional services.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/north-west	
Smart Specialization Strategy	Strategy priorities	The smart specialisation priorities for the Greater Manchester, as encoded in the EYE@RIS3 data base, are: digital economy, advanced manufacturing, advanced materials, financial and professional services, manufacturing services, connected e-health and graphene.	
		http://s3platform.jrc.ec.europa.eu/documents/20182/93537/RIS3_GM_presentation_Potsdam+251013+.pdf/f275038a-53d3-43b9-91ed-a40f44e11249	
	Link	http://s3platform.jrc.ec.europa.eu/regions/ukd3/tags/ukd3	

** UNITS

Employment: Employment is expressed as employed persons per regionE

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Mazovia Region

Poland's Hub of Business and Innovation

Regional **Innovation Ecosystems**

@StruzikAdam

https://www.facebook.com/Mazovia.UK/?fref=nf

https://www.mazovia.pl/

Adam Struzik

President of Mazovia Region, PL
Member of the European Committee of the Regions

Nowadays, the only engine of the economic growth and the development of regions is innovation. The best place for the creation of new ideas and bringing them into practice are innovation ecosystems. In Poland and the Polish regions, like Mazovia, where the openness and collaboration between science, business and the administration is not deeply rooted in the history, the development of innovation systems is not only an organizational challenge, but mostly a cultural and social one. The Mazovia Regional Government is aware of how important the involvement of all major actors is to achieve this goal. Therefore, with full conviction, we initiate and support projects aimed at the development of innovation ecosystems in our region.

Mazovia Region

Poland's Hub of Business and Innovation

Introduction

The Mazovia Region is the largest region in Poland and has the greatest potential for innovation: it has the largest number of companies, scientific institutions and research institutes and the largest number of business environment institutions and financial institutions. However, a well-functioning innovation ecosystem at regional level (understood as stable relationships between stakeholders based on the exchange of knowledge and cooperation between large enterprises and SMEs, start-ups, scientific institutions, technology transfer centres and business support institutions, located in relative proximity) has not fully developed.

Vision, actors and instruments

The main goal of the Regional Innovation Strategy is to develop and complete the innovation ecosystem, and this is also the main reason why the regional authority is cooperating closely with regional innovation actors to foster interaction between them, turning ideas into solutions and bringing products to the market. One of the projects developing the innovation ecosystem is the Kreatywne Mazowsze (Creative Mazovia) initiative. The initiative was launched in 2014 by a group of businesses, universities and organisations that intensified their joint efforts to develop innovation in the Mazovia Region. Its goal was to implement projects and programmes that would enable the Mazovia Region to enter into the top 50 most innovative regions of the European Union by 2020. Organisations representing regional and local authorities, scientific institutions and businesses signed the programme manifesto, and launched cooperation and joint involvement to establish a collaboration platform to be shared by various entities. Signatories to the agreement included the Office of the President of the Mazovia Region, the Mazovian Unit of EU Programmes Implementation in Warsaw, the Mazovia Development Agency, the Warsaw University of Technology, SGH Warsaw School of Economics, the Centre for Entrepreneurship at Kozminski University, Grodzisk Mazowiecki (local authority), the Płock Industrial and Technological Park, the Institute of Industrial Design[1], FIRE Innovation Center, BTM (BioTechMed) Innovations Mazovia Cluster, and Pro-Development (an organisation managing complex investment projects aimed at creating the highest quality space for promoting innovation).

[1] http://www.iwp.com.pl/about

Policy, collaboration and partnering models

The "Kampus+" innovation ecosystem project[2] is a result of the cooperation under the Kreatywne Mazowsze initiative. The project partners are Pro-Development, the Kreatywne Mazowsze Foundation, the Warsaw University of Technology, the Centre for Innovation and Technology Transfer Management[3] of the Warsaw University of Technology, and the CEZAMAT Central Laboratory (a research centre enabling interdisciplinary research on future-oriented materials and technologies). Kampus+ is a method of creating centres of progress and development with comprehensive and well-designed space, providing scientists, inventors and entrepreneurs with the best conditions to implement collaborative and innovative projects. A number of analytical and empirical projects will be carried out, and open conferences and seminars will also be organised. The results of research will be an important element of Kampus+ Mazovia. The goal of this joint research project is to develop a roadmap for the development of Kampus+ initiatives, which is the main motivation for building the innovation ecosystem at the Warsaw University of Technology. The project is being implemented with the cooperation of the Institute for Manufacturing, University of Cambridge.

[2] www.kampus-plus.pl)

[3] https://www.pw.edu.pl/engpw/News/Grand-Opening-of-the-Centre-for-Innovation-and-Technology-Transfer-Management

The project is dedicated to creating an innovation ecosystem around the technical and scientific institutions in the City of Warsaw that have the most potential: the Warsaw University of Technology and CEZAMAT. The main goal of the CEZAMAT project is to provide a platform to integrate research and society and enable interdisciplinary research on modern materials and technologies. The research infrastructure and integrated research programmes will enable research and development at the highest level and will also allow new technologies to be promoted and implemented. The centre is for everyone: Polish and international scientific communities and companies that use innovative technologies and products. Another important goal of the CEZAMAT project will be to transfer advanced technologies and commercialise ideas that have been developed. The centre is to be the hub for improving cooperation between Mazovian and national research centres and businesses. CEZAMAT will also oversee development activities in the region.

The Kreatywne Mazowsze initiative and the Kampus+ project are just the beginning of the development of the innovation ecosystem at regional level, but they demonstrate cooperation and the efforts made by innovation actors, fundamental elements in building and achieving a well-functioning regional innovation system.

Mazowieckie Region (PL)			
Macro-economic profile**	GPD	2011 ESTAT	€71.001,00
		2015 JRC projection based on ECFIN	€78.792,02
		2030 JRC projection based on ECFIN	€114.199,58
	Employment	2011 ESTAT	2.407.800,00
		2015 JRC projection based on ECFIN	2.715.109,16
		2030 JRC projection based on ECFIN	2.840.990,46
	Population Territory	2011 ESTAT	5.267.072,00
		2015 JRC projection based on ECFIN	5.331.058,00
		2030 JRC projection based on ECFIN	5.439.902,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Poland	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The public R&D expenditure in Mazowieckie accounts for 1% of GDP, which is both above the country and EU average estimated at at 0.53% and 0.73% respectively. Comparatively, business R&D expenditure reached the level of 0.35% of GDP. While the public funding at the national level accounts for 69.7% of total R&D expenditure, it represents 73.7% in Mazowieckie. One of the the underlying characteristics of the Mazowieckie is that medium-size companies (50 – 249 employees) recorded the highest innovation sales (6.06%), followed by large companies (≥250 employees) and small enterprises (10 – 49 employees), respectively 5.67% and 0.81%. With regard to the structure of innovation investments, 20% of all investments in the manufacturing sector is allocated for R&D activities. It is also important to note the growth in innovation investments which accounted for 27.4% during the 2011-2012 period. Central Statistical Office (2014) Science and technology data. Out of 2,733 entities with research and development activity in Poland, 693 are located in Mazowieckie, with considerable majority of them in Warsaw. In addition, the region has the highest number of employees in the R&D sector: 26.6% of country's researchers, i.e. 37,166 out of 139,653 (including technicians and supporting staff) are employed in Mazowieckie. The high research and innovation performance is also reinforced by the fact that more than 20% of all patent applications, and 21% patents granted in Poland are from Mazowieckie. Central Statistical Office (2013) Science and technology in 2012. Warsaw, the capital of Mazowieckie, is also the seat of the Polish best academic organisations: together with the Jagiellonian University in Krakow, the University of Warsaw are the only two academic institutions from Poland ranked in the Academic Ranking of World Universities. Other strong research organisations are most notably Warsaw University of Technology, Warsaw School of Economics and Warsaw Agricultural University.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/mazowieckie	
Smart Specialization Strategy	Strategy	The S3 priorities encoded are: innovative technologies and industrial processes, natural ressources and waste management, healthy society, sustainable energy and bioeconomy and environment.	
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/pl	
Stairway to Excellence	Link	http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_PL_national_profile.pdf/9844e9c0-0216-448e-9370-a19ab1cef513	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Paris

The French Capital of innovative, social and economic diversity

Regional **Innovation Ecosystems**

@Paris
https://www.facebook.com/paris/
http://www.paris.fr/

Jean-Louis Missika

Deputy Mayor of Paris, FR

Paris: A Smart and Sustainable City built for citizens by citizens!

Paris

The French Capital of innovative, social and economic diversity

Introduction

Paris is the capital of diversity, both social and economic. Thus, in order to respond to pressing issues and reinvent itself, Paris adopted an open innovation approach, based on openness, connectivity and ingenuity. In this regard, the City collaborates with all the stakeholders: private sector, academia, residents, and administration of neighbouring authorities in order to support an inclusive economic and social development, address environmental issues and improve the lives of its residents. The innovation path of Paris, detailed in the Smart and Sustainable City Strategy launched in 2014, addresses a wide range of urban issues, such as energy consumption, waste management, congestion, sustainability, employment, use of open data for public benefit, and digital urban services among others.

The city improves the business climate through specific programs supporting start-ups and SMEs in its rich network of incubators and co-working spaces and opens itself to foreign innovation by welcoming and incentivizing foreign start-ups on its territory. Additionally, the city procures innovation and has also opened its public space to experimentation in order to propagate innovative solutions.

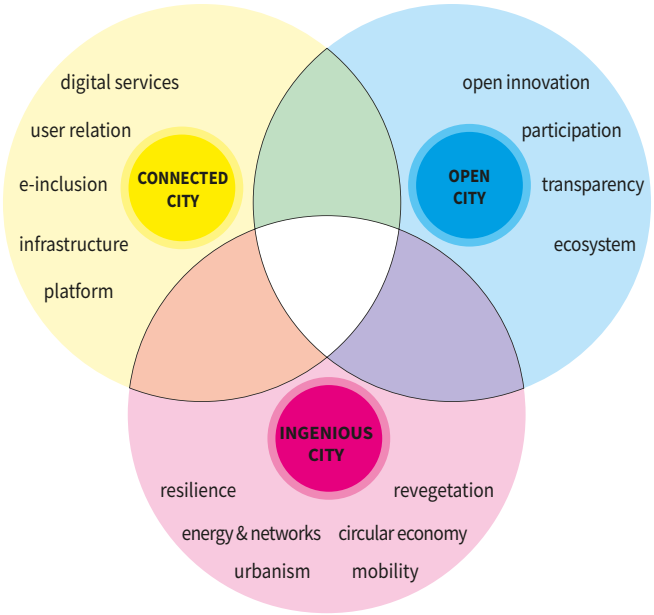
Not only is the city modernizing from within, it also shares its data for an open innovation that can leverage its resources for the development of new services and solutions to the city's needs. Such an integrative and citizen-centric approach allows for a participatory innovation that benefits everyone. Paris also supports urban, social and economic inclusion of its poorer neighbourhoods on the outskirts through new sustainable infrastructure, education programs and business implantation.

Vision

The City of Paris laid out its innovation strategy in 2015 in the Smart and Sustainable Paris: A view of 2020 and beyond document, which highlights the city's vision of transforming itself through innovation and technology in order to better address its residents' needs as well as pressing economic, social and environment issues. Anne Hidalgo, the Mayor of the City, pledged 1 billion euros for a Smart and Sustainable City until 2020. The concept of the strategy is based on three main pillars:

- Open City, which places humans at the heart of the system and relies on collective intelligence;
- Connected City, which supports technological modernization of local administration to provide improved public services;
- Ingenious City, which optimizes resources through innovative practices that improve urban renewal and planning, consumption behaviour, network and transport, based on Open City's methods and the Connected City's tools

The Three Pillars of the Smart and Sustainable strategy for Paris



Innovative instruments

Paris adopted an open innovation and resident-centric approach and it employs transparency, interoperability and collaboration with relevant stakeholders to be an innovative, smart and sustainable city. The following processes guide the City in achieving its innovation goals:

Inner transformation

The City administration modernizes for an improved public service delivery. In this context, the City has established a Smart City Unit, which coordinates the implementation and monitoring of innovative projects. The recent emergence of Paris&Co - economic development agency in charge of economic attractiveness, incubation, experimentation, gave an additional boost to the international attractiveness of the Parisian innovation ecosystem.

The City administration has also collaborated with 13 PhD students since 2012 through the CIFRE program benefiting from knowledge transfer from researchers on the most pressing issues for the city.

Opening towards citizens

The Smart City strategy of Paris relies on an open innovation model, which fosters participation and mobilization tools for residents, openness of the public data, as well as valorisation of the public space by offering it up for experimentation. Paris invests in collective intelligence and collaboration with public institutions, companies, researchers and residents, placing them at the heart of its decision making process.

The City established a systematic and thorough resident consultation process. Among the initiatives is the participatory budgeting, by which the City dedicates 5% of its budget to projects proposed and voted by citizens.

Multi-stakeholder cooperation

The City partners with all the relevant stakeholders in order to reinvent itself, provide improved services to its residents as well as contribute to the economic and social development of its territory. Paris has recently started collaborating with start-ups on procuring innovation through innovative public procurement. The dynamic experimentation practices transformed Paris into an open air laboratory with over 100 experiments conducted from 2012. 13 new projects are currently being tested within the innovative waste management initiative.

Actors and resources

Paris is one of the most attractive cities in the world. It has been inspiring through art, gastronomic tradition, fashion and urban innovation such as Haussmann buildings, sewerage system, electricity network, and metro. Paris' attractiveness is also based on the following attributes:

- A central position: access to 12M people in the regional market and to 360M consumers less than 2 hours away coupled with its strategic geographical location making it the first gateway to Africa and Middle East;
- An economic force: headquarters of 31 of the world's biggest companies and international organizations, such as OECD, International Chamber of Commerce and Industry, UNESCO and many others;
- An area of knowledge and innovation: 70 higher education institutions and prestigious research bodies like National Center for Scientific Research, INSERM and Pasteur Institute, as well as 7 competitive clusters, among which 3 are world class.

Attracting talents and resources

Leveraging on its vibrant tech scene, Paris embarked on ambitious start-up development efforts, which aim to transform Paris into one of the world's main innovation centres and a global start-up factory. Since 2012, over 300.000 m2 have been created and dedicated to business incubators, 20 co-working spaces and fab labs, supporting 1.500 start-ups each year. By 2020, additional 100.00 m2 will be dedicated to innovation activities in the metropolitan area.

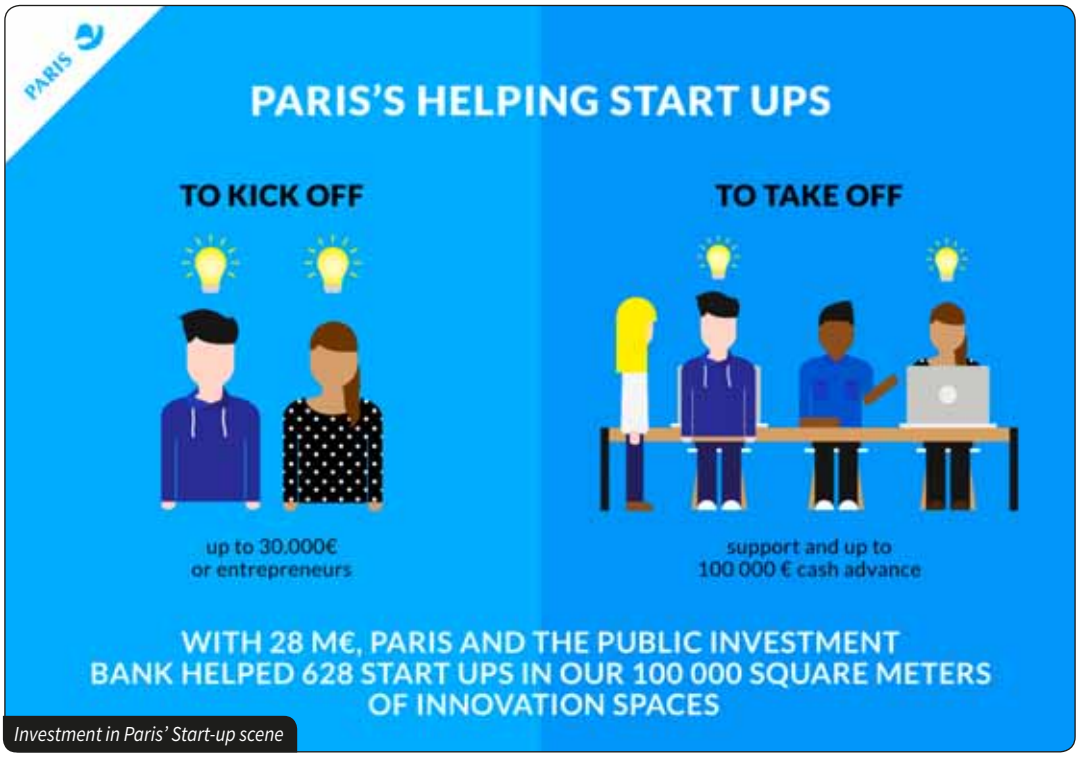
Paris&Co launched in 2015 the Paris Landing Pack program, which enables foreign entrepreneurs to develop their business from Paris. This will foster local job creation and internationalization of the Parisian ecosystem. It complements the French Tech Ticket program, which attracted almost 1,500 applicants willing to come to Paris.

The City also launched an exchange program for start-ups in partnership with New York City with a focus on tech, clean tech, fashion-design, tourism, food-beverage, and arts enterprises. Paris&Co further develops the open innovation ecosystem through the Open Innovation Club, which catalyzes business relationships building between companies and start-ups.

Attracting funding and investment

Paris dismantles the belief that France is a difficult business territory by offering a wide range of business incentivizing programs. Paris is among leading financial centres in Europe with the second largest stock exchange.

The leading innovation firms such as Ebay, Google and Twitter have offices in Paris. Facebook recently opened a R&D center, recruiting dozens of researchers in artificial intelligence. Cisco doubled its investments to $200 million in Paris, Xavier Niel (CEO of Free) invested €150 million into the world's biggest incubator "Halle



Investment in Paris' Start-up scene

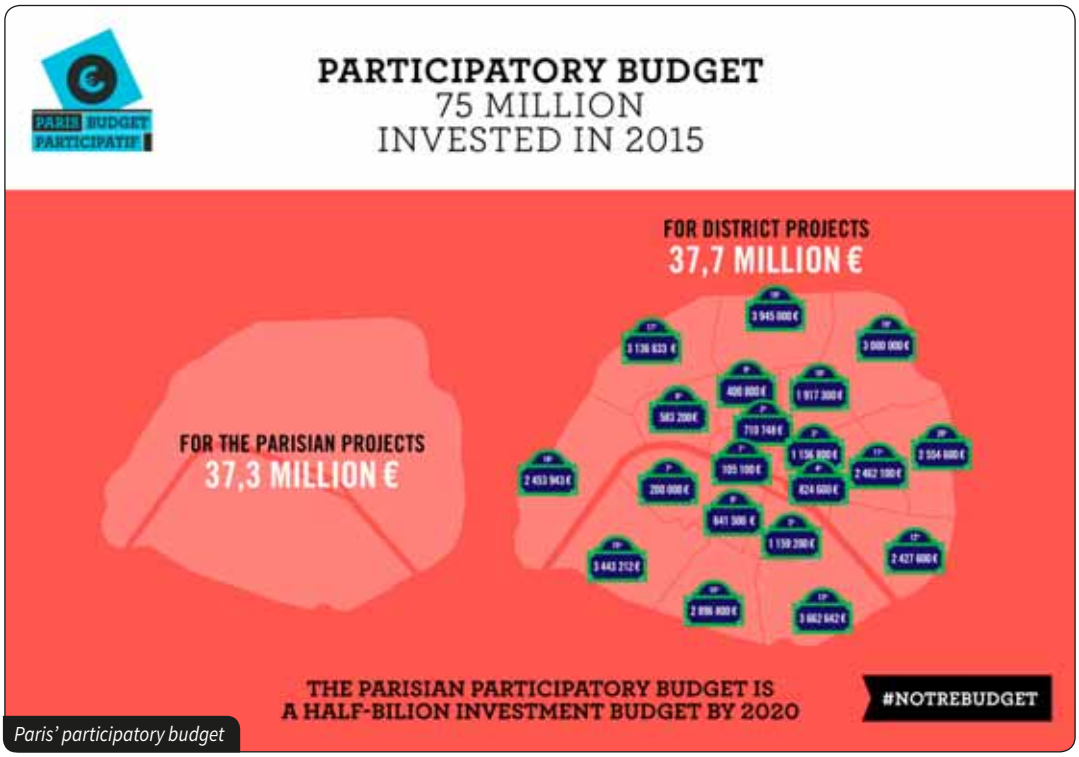
Freyssinet", which will open in 2016 and welcome 1,000 startups on 30,000 m. The launch of 2 more incubators Le Cargo and Le Tremplin sponsored by the City will follow.

The City has furthermore recently obtained for the first time an Integrated Territorial Investment of €10 million from ERDF to develop its 13 priority districts implementing its ambitious territorial strategy.

Policy, collaborative and partnering model

The publicly consulted Parisian Smart City strategy is interactive as it is reinventing the relationship with its residents. The city's management has long been the business of experts and elected representatives. Today, the city is moving towards open governance favouring the process of co-design and co-decision over the traditional decision/criticism dichotomy through a Quadruple Helix approach (collaboration between Residents, Public Administration, Stakeholders and Research Institutions). Residents are at the heart of the decision making process, interacting with the administration through a wide range of applications. Business partnerships and collaboration with academia contribute to the reform of the administration as well as valorisation of public data for public benefit in the forms on new services.

One of the remarkable examples is the participatory budgeting launched in 2014, according to which 5% of the city's annual budget, or an equivalent of €500 million by 2020, is dedicated to projects voted by residents. In 2015 only, the City devoted €75 million for this initiative. A constantly growing number of residents engage in issues of their concern, registering votes from nearly 67 000 residents, a 64% increase from 2014.



Paris' participatory budget

One of the inspiring implemented initiatives proposed by residents, which received over 15,000 votes and to which Paris devoted 2 Million euros, is the creation of 14 co-working spaces for students and entrepreneurs. By supporting this initiative, Paris reinforces its status of an open and interactive City and acquires valuable tools for promoting the employability of young people, while supporting the development of its business and the Parisian innovation.

The City has also designed and implemented a range of digital tools to foster residents' participation in city's life and decision-making process, such as "Madam Mayor, I have an idea" a co-creation platform for citizens, "Je m'engage" platform to strengthen solidarity initiatives and "Dans-MaRue" mobile application for crowdsourcing urban malfunctions.

Private sector is also involved in designing a smart and sustainable city through an innovative call for projects 'Reinvent Paris', which received 815 applications from 15 countries with over 30 professions mobilized to reinvent beyond architectural design 23 sites around the city.

Paris (FR)		
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/France
Regional Innovation Monitor Plus Score Results (RIM Plus)		IdF is the most important French region in terms of RTDI. It hosts 125,000 researchers, representing 40% of the national researcher population (2013 - Regional Council). It is also the first European region in terms of academic research (2013 - Regional Council); and first in terms of technology research (6.2% of European patents, 2013 - Regional Council). The region is particularly competitive in the fields of pharmaceuticals and biotechnology (11.5% of EPO fillings), electronics and electricity (7.7%), and instrumentation (6.1% - REDP). "Between 2000 and 2009, IdF dedicated an average 3.16% of its GDP to GERD, compared to 2.26% at the national level and 1.9% at the European level (Eurostat). IdF is one of the two French regions, together with Midi-Pyrénées, meeting the Lisbon treaty requirement to spend 3% of GDP on R&D. Regional spending on R&D accounts for 8% of the European total, making it the most important region at the European level (REDP). However, the GERD growth rate between 2000 and 2008 was considerably lower in the region (1.9%) than at the national (3.1%) and European (4.2%) levels (Eurostat).Private sector R&D activities are considerably higher than public activities. The business expenditure on R&D in the region represents 67.1% of the regional gross domestic expenditure on R&D, compared to 62.7% at the national level (Regional Council, 2013). In addition, 60% of the region's researchers work for the private sector (20). "Altogether, the regional contribution to the national GERD (41%) and BERD (43.9%) are well above the regional contribution to the national GDP (28.8%).In terms of human resources, the percentage of the region's active population working in science and technology is 51.8% (Eurostat average 2000-2010). This number is well above the national average (38.5%). In addition, the region has an over-representation of high-tech and knowledge-intensive jobs and activities. Regional employment in this type of activity is 8.8%, compared to 5.3% at the national level (Eurostat).Yet, the region's RTDI assets have been reduced over the last two decades. Between 1982 and 2003, the region went from hosting 53 to 38% of public research staff. In 2003, the private research lost 1% of its employees, while the rest of the country's regions gained 2.6% (ROP).
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/ile-de-france
Smart Specialization Strategy	Strategy	
	Sectoral priorities	The RIS3 identifies the following priority areas: a)Optics, photonics, and robotics constitute a horizontal theme, b) Intelligent transport without CO2 - simultaneously involving 3 target markets (i) mobility, (ii) health and (iii) energy/environment, c)Medical devices, d) Eco Contruction, e) digital creation, f) Complex systems engineering and software
	Link	http://s3platform.jrc.ec.europa.eu/regions/fr10/tags/fr10?s3pv=1

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Santander

SmartSantander

Regional **Innovation Ecosystems**

@idlserna

https://www.facebook.com/I%C3%B1igo-de-la-Serna-117727151619588/?rf=119392921408296

http://santander.es/

Iñigo de la Serna Hernáiz

Mayor of Santander, ES
Member of the European Committee of the Regions

Our world is changing fast and with it our society in all its different dimensions. This has also created an environment that gives us the opportunity to take part in challenging and pioneering initiatives, such as SmartSantander. The most important aspect for such initiatives remains that they are enablers for social innovation, a concept which for us means that the inhabitants themselves contribute, hence, participate in people-driven social innovation or, according to the current expression, co-create the city.

Santander

SmartSantander

Introduction

Our world is changing fast and with it our society in all its different dimensions. As part of this world, our cities are also undergoing major changes. In this context, a perception arose several years ago that a new economic model was needed in the city of Santander (Spain).

This model had to be based on the confluence of innovation and development, benefiting from some of the strengths of the city and region; among them, our University of Cantabria as well as several powerful SMEs working in the ICT area.

Last but not least, the Bank of Santander is fully committed, along with the city and the region to the aim of pushing for a strategic position competing with the best players.

All these ingredients have produced an opportunity to take part in challenging and pioneering initiatives, such as SmartSantander, funded by the European Commission as part of the 7th Framework Programme. From the very beginning there was a conviction that the project offered a golden opportunity for progressing and for showing commitment to ICT, and in particular to the smart city concept. Indeed, the most important aspect was that such a project was an enabler for social innovation, a concept which for us means that the city is not just obtaining benefit from the deployments, but that the inhabitants themselves contribute to new services, policies, concepts, etc. Hence, people-driven social innovation or, according to the current expression, co-creating the city.

Vision, policy model and innovative instruments

As already described, there was a clear vision that, beyond culture and tourism, the city needed to expand in other directions in order to position it better compared to similar competitors. In 2009, when the concept of the Internet of Things (IoT) was far from mature, we felt that this technology could play a similar role (in the city) as the traditional Internet did in the past (worldwide). The idea that any simple or complex system embedding IoT components could be monitored ideally matched many of the requirements we faced in such complex systems as our cities.

Of course, for such a vision to succeed, it is important to put in place the right policies which encourage the city ecosystem stakeholders to feel part of this vision. To this end, Santander city managers have placed innovation at the forefront of their priorities. As an example, it is worth remarking that from 2010 onwards public procurement linked to urban services has required an ICT/IoT technology component (when applicable) for monitoring and improving the efficiency of such services. However, beyond public procurement, we are fostering the real implementation of private-public partnerships such as that between the private company FERROVIAL, the Santander Municipality and the University of Cantabria. The former funds research initiatives to improve the efficiency of waste management and street clean-

ing services. Identifying the appropriate technical and financial levers allows the three players as well as the entire ecosystem to take part, in keeping with the win-to-win principle.

Sensing technology seamlessly surrounding citizens

Actors, collaboration model, physical and digital spaces

Needless to say, in order to carry such a vision forward, it is crucial that no stakeholder remains outside the ecosystem creation process. With this aim, it is essential for the Municipality to conceive and implement the right actions engaging a plethora of citizens with different views, life experiences and skills. In parallel, the commitment of companies and other business activities also plays a prime role because they know what is needed in the present and medium term to make the city more competitive and hence their businesses more profitable. Of course, the presence of the research centres is also essential, balancing their medium/long term technology view with more immediate demands. All in all, this quadruple helix shapes future progress towards making the vision a reality.

For the stakeholders of this quadruple helix to interact more easily, it is also important to ensure they have appropriate physical and logical environments in which they can be stimulated and inspired.In consequence, several incubator areas have been set up together with additional spaces for hosting meet-ups and other participative and co-creative events. From a more virtual perspective, the Municipality is heavily involved in the design of co-creative platforms such as those being built in projects such as SOCIOTAL [1] and ORGANICITY [2]. In particular, the latter is creating a new dimension in co-creation, providing a truly intuitive, experimentation-as-a-service platform (EAAS) incentivating the city community to actively propose unique solutions for present and future urban challenges.

Partnering model and resources

The city is fully committed to forging collaborative links at national and international level. Intensive, targeted dissemination campaigns [3-4] on the main achievements during the year will therefore be presented at the Smart City Expo, the Mobile World Congress and the IoT Asia Conference. Santander's city managers are always eager to explore new ways for closer cooperation with other cities worldwide aiming to share experiences and make our cities more sustainable and liveable. At present, the framework programmes managed by the European Commission play an essential role in facilitating such cooperation, using well-known tools such as the Research and Innovation Actions. Indeed, specific calls addressing joint work between Japan and the EU or Korea have enabled synergies to be established beyond Europe. However, all this would not be possible if beyond the tangible resources the city did not have access to more intangible but truly valuable assets. Among them, the broad experience in the ICT domain that the research centres, the University and the companies around the city exhibit. This experience is attracting talent and so consolidating a virtuous circle.

Conclusions

After an intensive 7-year period, the city of Santander is consolidating a shift to a new economic model in which ICT is a key priority. This priority has two main implications. First, a much more efficient and sustainable city is being implemented. Second, the shift itself brings a plethora of new possibilities making the city much more attractive. Last but not least, this process has generated a unique ecosystem which we offer to other interested cities, companies, research centres and so on for further cooperation and joint learning. This is an irreversible process which will never stop but, on the contrary, will grow for generations shaping a new society in all its dimensions. Our cities are the seeds for a new economic paradigm driven by technology, innovation, efficiency and sustainability.

Environmental monitoring in the city of Santander relying on an ubiquitous IoT infrastructure

Cantabria/Santander (ES)			
Macro-economic profile**	GPD	2011 ESTAT	€11.563,00
		2015 JRC projection based on ECFIN	€10.988,93
		2030 JRC projection based on ECFIN	€13.081,91
	Employment	2011 ESTAT	222.100,00
		2015 JRC projection based on ECFIN	204.971,72
		2030 JRC projection based on ECFIN	211.625,21
	Population Territory	2011 ESTAT	590.867,00
		2015 JRC projection based on ECFIN	587.923,00
		2030 JRC projection based on ECFIN	565.637,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Spain	
Regional Innovation Monitor Plus Score Results (RIM Plus)		Technological innovation and development is a priority in the Cantabria regional policy. The region promotes activities in the field of technological development and information society that are reinforced by an ambitious programme of incentives and support measures in order to foster R&D and innovation activities. Such initiatives were all set within the framework of the 2006-2010 Regional R&D and Innovation Plan. The share of estimated expenditures as regards to GDP for 2011 builds up to 1.07%, which is lower than the previous 15% (€63.69m). In 2010, there were 65 companies established in high-tech services and high and medium-high technology industries. Currently, the regional innovation strategy of the region is being revisited according to the European Commission guidelines with regard to smart specialisation strategies. Apart from important research centres of the main companies located in Cantabria, there is an interesting public technology supply led by the University of Cantabria, the Components Technology Centre and the Logistics Technology Centre, acting as support for the vehicle components industry. In the academic year 2010-2011 Cantabria imported through, e.g. scholarships, grants, etc. a total of €19,650.5m for the support of education, around 41% of which going to universities.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/cantabria	
Smart Specialization Strategy	Strategy	"The S3 process in Spain shows that most Spanish regions, with some variation across regions, have made important efforts to widen stakeholders' participation to give regional actors from the public and private sector the opportunity to reach consensus and to jointly take decisions on a common vision of the future, creating commitment to the selected priorities.The Cantabria's RIS3 was approved by the Governing Council of Cantabria 'Consejo de Gobierno de Cantabria' on 30 January 2014. Link Official link to the Spanish RIS3/ S3 related material: www.redidi.es/politicas-y-estrategias-de-idi/la-ris3-en-las-comunidades-autonomas	
	Sectoral priorities	The S3 priorities areas: Tourism; Agrifood; Mechanical Transformation; Chemical; Machinery and Automotive Components.	
	Link	Regional link to the RIS3: http://dgidtei.cantabria.es/especializacion-inteligente	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Šiauliai

Remediation Technologies for Cleaning up Contaminated Sites

Regional **Innovation Ecosystems**

@DaivaMatoniene

https://www.facebook.com/SiauliuMiestoSavivaldybe

http://www.siauliai.lt/

Daiva Matonienė

Member of Šiauliai City Council & Vice-minister of Environment, LT
Member of the European Committee of the Regions

Innovation helps us provide better and faster public services to our citizens. Our cities and regions are faced with evolving challenges and in turn, our solutions need to evolve too. To build solutions that are well adapted to the needs of our communities, it is crucial for the different tiers of government to work together. This is an area close to my heart in light of my local, national and EU roles.

Šiauliai

Remediation Technologies for Cleaning up Contaminated Sites

Introduction

As a politician that has a role at the local level in Šiauliai, national level as Deputy-Minister and EU level as a member of the CoR and rapporteur on environmental dossiers, I have seen first-hand the importance of the different tiers of government working together. This is especially true for sustainable urban and rural development. I would like to present a case study from my country on the cleaning of contaminated water and the role that technology has played in this area.

Groundwater in particular is an essential element of all ecosystems and plays an important role in public water supply in Europe. Among the EU Member States using the highest percentage of groundwater for public water supply is my home country Lithuania (100%), but also Denmark (100%), Italy (93%), Hungary (90%), Poland (70%), Estonia (65%), Romania (43%), and the United Kingdom (35%). The percentage of groundwater public water supply has been increasing in big European cities in recent years.

All potable water resources in Lithuania are extracted from groundwater aquifers and the wellheads for public water supply in most cases are located in urbanised territories. These groundwater resources are estimated to be three times larger than the levels of current water extraction for centralised water supply.

In urban areas the groundwater resources must be protected from contamination. In Lithuania, this is ensured by setting wellhead protection zones, as well as through the appropriate management of geo-pollution hazards.

Vision: Management of contaminated sites in Lithuania

In 1997, the Lithuanian Geological Survey (LGT) developed a program for the inventory of potentially contaminated sites (PCS). The database of PCS was created in 1998. By the end of 2015, the database of PCS contained information about more than 12,000 potentially contaminated sites. The results of the hazard evaluation showed that 30% of the sites classified as "potentially contaminated" are possibly environmentally hazardous, whereas about 10% of the sites are extremely hazardous.

The study results are worrying – they demonstrate that the area (groundwater and/or soil), which might have been polluted with chemicals may account for as much as 0.43% of Lithuania's territory (280 km²). Pollution may be high or very high on an area of 115km².

The main pollutants are oil products, which are responsible for more than 40% of all PCS. Roughly a fifth may be contaminated with pesticides, heavy metals and other compounds such as polycyclic aromatic hydrocarbons, halogenated hydrocarbons, detergents, and phenols.

Abandoned PCS are especially dangerous due to two reasons. Firstly, negative consequences of the past activity may be ongoing or may be felt in the future. Secondly, it has been proven that controlling inherent contamination is more difficult

Project "Assessment of contaminated sites in urban areas“

when compared with dealing with the sites on which there has been ongoing economic activity.

Investigations do not always reveal the source of contamination. This is especially true with regards to groundwater in urban areas. Identification of such sites is becoming increasingly difficult as time passes by. Without knowing what the sources of PCS are, we can only estimate the potential threats to residents' health.

The table below shows how important the issue of inherent contamination is for Lithuania. Inactive PCS account for up to 42% of all PCS in the Baltic state. 43% of them pose high or extremely high risks.

The Lithuanian Geological Survey (LGS) decided that this data requires it to take action, hence its project titled "assessment of contaminated sites in urban areas“. The project was carried

Table 1. Distribution of PCS by risk levels

	Risk level				Total:
	Extremely high	High	Medium	Negligible	
Potentially contaminated sites (PCS)	1272	3587	7408	11	12278
active	618	1779	3885	1	6283
abandoned, destroyed	615	1641	2949	6	5211
renovated, recultivated	39	167	574	4	784

thanks to financing from the EU Cohesion Policy Fund from the 2007-2013 financial perspective. There were two crucial stages. The first one involved stocktaking of 39 municipalities, including eco-geological investigations in high-risk PCS, especially in rural areas. The second stage took place in 2014 and 2015, and focused on contamination in urban areas. It has been successfully completed in ten largest cities in Lithuania. The results showed that some of the sites representing the highest risk are located in my home city Šiauliai.

Strategy:

PCS inventory

The LGS was taking stock of PCS between 1999 and 2008. During this decade the institution discovered and enlisted potential sources of contamination in 28 municipalities, accounting for 44.15% of Lithuania's territory. Information was collected from 6,513 PCS. As this time-consuming process required allocation of substantial resources, it is estimated that at least 15 more years will be needed to extend it to all parts of the country. The process continued in 2009-2010 and in 2014.

In its first stage, inventory of PCS was taken in 39 municipalities (39,300 km2). In eight of them data had been gathered by LGS concerning potential sources of pollution, but this time the quality of the data has been improved. As a result, 3910 PCS were added to the LGS database. During the second stage, 10 largest Lithuanian cities were added. Due to the ongoing economic activity on sites, this evaluation was a lengthy process, but it successfully led to taking inventory of 1017 potential pollution sources. Eco-geological investigations helped to evaluate the potential risk of some PCS located on state-owned land.

Eco-geological investigations

Taking inventory of PCS and preliminary assessments are very important, but determining levels of pollution cannot be completed without carrying out detailed investigations. It is crucial that the contaminated sites are not only remediated, but that they can be reused and accessible for the residents. Having gathered requests from municipalities and the PCS data on high preliminary risk, 250 preliminary investigations were carried on the land owned by the state. 105 requests were received from municipalities. The investigations confirmed contamination in more than 50% of the cases under scrutiny.

Detailed investigations were carried on 100 contaminated sites, which posed most serious threats. The list included 80 industry, energy, transport, and services facilities; as well as 20 sites for collection and treatment of pollutants. Among them were 44 oil manufacturing sites, 20 warehouses, seven yards, six asphalt sites, one military territory and nine heating plants.

Each investigation showed precisely how much soil and groundwater was contaminated. In sum, it turned out that 85 of the sites under scrutiny were polluted with oil products. The area of polluted soil was estimated at 123,000 sqm. Eleven sites accounting for 2,262 m² were polluted with pesticides. Six sites were polluted with heavy metals.

The results also showed that on 45 of the investigated sites the groundwater was contaminated with oil products. The volume of water-bearing deposits (which exceeds limit values) ranged from 33 to 34,760 cubic metres. Groundwater was polluted with oil products in an area of more than 77,000 m². On two sites oil was discovered on the surface of groundwater. Oil quantity surpassed 1,500 m³ in one of them.

Groundwater on four sites was contaminated with pesticides. Four of the sites were polluted

with heavy metals. On thirty of them groundwater was polluted with various nitrogenous compounds (nitrates, nitrites, ammonium nitrogen) accounting for a total area of 9,248 m². On one of the assessed sites 19,000 m³ of groundwater was polluted with halogenized hydrocarbons.

During the second stage of the implementation of the project, site remediation plans were prepared for the 50 sites posing greatest danger. In 80% of the cases only remediation of polluted soil was envisaged, whereas in the remaining 20% also groundwater was subject to remediation plans. The total area of remediation was 77,673 m², the total amount of soil – 57,772 m³, and the total amount of groundwater – 67,812 m³. The cost of the remediation process was EUR 17.13 million.

The results of numerous investigations and remediation plans were presented to municipalities, in which contaminated sites have been uncovered. Based on this information, Lithuanian municipalities were presented with the opportunity to apply for financing of remediation of the contaminated sites[1].

[1] The outcomes of the project can be found here (in Lithuanian): https://www.lgt.lt/old/index.php?page=217

Conclusions

The aim of the project was to better protect natural resources (particularly water resources, landscape and biological diversity) and make them more accessible for local residents. Taking stock of potentially contaminated territories, investigating the gaps and remediation have all been part of the process. The LGS carried out 250 preliminary and 100 detailed site evaluations in the years 2010-2015. Investigations involved abandoned sites located on state-owned land in rural and urban localities. These sites had negative impact of the environment, public health and landscape. The project was a success story – it led to a discovery of potentially contaminated and contaminated sites. The results will provide basis for the development of a Management Strategy for Contaminated Land and for establishing the financial needs necessary for its implementation. Lithuania is one of the countries very much dependent on groundwater for household use, which only highlights the need for such projects.

Šiauliai (LT)			
Macro-economic profile**	GPD	2011 ESTAT	€1.755,00
		2015 JRC projection based on ECFIN	€1.968,73
		2030 JRC projection based on ECFIN	€2.161,94
	Employment	2011 ESTAT	115.600,00
		2015 JRC projection based on ECFIN	111.768,49
		2030 JRC projection based on ECFIN	63.567,00
	Population Territory	2011 ESTAT	303.110,00
		2015 JRC projection based on ECFIN	281.328,61
		2030 JRC projection based on ECFIN	197.958,94
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Lithuania	
Smart Specialization Strategy	Strategy	The Regional Innovation Strategy for Lithuania was adopted in April 2014.	
	Sectoral priorities	The S3 priorities as encoded in the eye@ris3 tool are: energy and sustainable environment; health technologies and biotechnologies; agricultural innovation and food technologies; new production processes; transport logistics and ICT; inclusive and creative society.	
	Link	http://s3platform.jrc.ec.europa.eu/regions/LT?s3pv=1	
Stairway to Excellence	Link	http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_LV_national_profile.pdf/183e9dff-b15b-4e6b-b6d5-7c6503b2abc3	

** UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Sintra

Urban green/blue Sintra

Regional **Innovation Ecosystems**

@camaradesintra

https://www.facebook.com/camaradesintra

http://www.cm-sintra.pt/

Basílio Horta

Leader of Sintra Municipal Council, PT
Member of the European Committee of the Regions

Sintra aims to become an innovative Council and promote innovation. The different elements of an intelligent city in, contemporary terms, are being performed in our Municipality. The support of innovation is high priority of cities management.

Sintra

Urban green/blue Sintra

Introduction

The municipality of Sintra forms part of the Lisbon Metropolitan Area and has a long history, with traces dating back to prehistory and was first inhabited by the Celtic-Iberian people who worshipped the moon, the sun and Saturn, followed by the Phoenicians and then the Roman empire. All of these traditions have formed Sintra's symbolism and identity, emphasising its mountain range in particular. Sintra's charter dates back to 1154, and was intended to consolidate the first Portuguese king's strategy for defending the country after Muslim rule and was updated by King Manuel I in 1514 to harmonise laws and codify practices and customs. Sintra has been involved in Portugal's most important historical developments and in the late eighteenth century and nineteenth century was heavily influenced by the Romantic movement, which shaped a natural and cultural landscape that is now classified by UNESCO as a World Heritage site, and includes the Sintra-Cascais natural park.

In the second half of the twentieth century, alongside significant political, social and economic changes affecting Portugal as a whole, the county of Sintra played a new role in changing patterns of land use and in attracting new inhabitants, today being the second most populous county in Portugal, with more than 380 000 people living there.

While the coast, the mountains and the surrounding area have retained their main features, and in the north, agricultural activities and exploration of geological resources have taken precedence, the southeast quadrant now accounts for some 80% of the population, in densely urbanised areas whose exponential growth in less than three decades has resulted in a highly artificial city built without sufficient urban planning and public space.

With the intention of revitalising the city, the municipality of Sintra is developing an urban renewal strategy centred on the value of natural systems, particularly in the rehabilitation of the main rivers, their banks and green places. The rivers that cross urban centres have often been re-routed or subject to major redevelopment, leaving cities with their backs turned to these natural elements. Ongoing initiatives are intended to encourage links and consolidate the green and blue infrastructure as the basic classification factor and improve people's quality of life, seeking to adopt instruments appropriate to each sector by the naturalisation of the environment or improvement of interconnected green spaces, with the involvement of local key players such as parish councils, cultural, recreational and youth associations.

Urban renewal and green and blue connectivity in Sintra

According to the Natural Capital Declaration launched at the United Nations 'Rio+20' Earth Summit in 2012, "natural capital" comprises Earth's natural assets (soil, air, water, flora and fauna), and the ecosystem services resulting from them, which make human life possible. Ecosystem goods and services from natural capital underpin productivity and the global economy. They provide services worth trillions of US dollars per year in equivalent terms and provide food,

fibre, water, health, energy, climate security and other essential services for everyone.

It is the natural-capital-derived ecosystem services that make human life possible, performing functions that can be grouped into groups: regulatory functions, such as climate, run-off water, and aquifer recharge, erosion prevention; support functions such as the ability to provide space and suitable substrate for human activities; production functions, oxygen, water, food, energy; welfare functions, contributing to the maintenance of mental health, historical information, cultural and artistic inspiration, etc.

The services provided by ecosystems are influenced by various components such as climate change, affecting the resilience of natural systems to extreme events and their own societal changes, translated into different behaviour, consumption patterns and land-use choices. Human well-being has the dual role of being influenced by the performance of natural systems, and simultaneously influencing them by the impacts of resource consumption needs and lifestyles.

Thus, the recognition that natural elements play a key role in human well-being, led to the need to assign a monetary value to the use of natural resources and to the conservation of ecosystem services and to incorporate this value into the economy.

In the context of municipal policies, natural capital is immediately recognised as an asset in rebalancing the area, either through its valuation when implementing measures on green space for human living in a natural environment in an dense urban context, or through its valuation when deciding on the conditions of land use alongside the natural system, and to which they contribute, and can even be integrated into landscape design.

Green and blue infrastructure

Improving the conditions offered by cities requires recognition of the importance of green urban spaces and closer links between them through a network of waterways, making a statement about the area and about urban occupation.

In the urban fabric, green spaces take on microclimate control functions, helping to moderate it through their properties of thermoregulation, humidity control, and the dominance of solar radiation, carbon sequestration and increase of O2 content, protection against wind, rain and hail and erosion protection. Green spaces enable the physical separation of car traffic and pedestrian circulation, filter engine emission gases and absorb noise. They also facilitate cultural integration, leisure and recreation and the decompression of dense urban areas, helping to secure a balanced distribution of land use. Green spaces are likewise linked with functions related to the psychological dimension of individuals, provide well-being as regards observing and contemplating the landscape, the perceptual experience of following the regular recurrence of the seasons and other biological cycles, knowledge of fauna and flora, both spontaneous and cultivated, knowledge of phenomena and physical and biological balance.

The connection between these areas of green infrastructure (GI), which is a “a strategically-planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. GI incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including

coastal) and marine areas. On land, GI is present in rural and urban settings.".[1]

Integrated and strategic action in urban areas in the municipality of Sintra provides a response to the lack of green spaces and territorial connectivity of natural systems. The integration of the water network that crosses and connects urban areas can therefore foster urban development and the urban economy in a sustainable framework.

The areas subject to this approach benefit from green spaces and urban decompression, currently lack the know-how and structure required to maximise the positive effects of ecosystem functions performed by natural systems, with an emphasis on the water network, on communities, and on fostering resilience and wellbeing.

[1] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Green Infrastructure - Valuing Natural Capital of Europe 2013

Municipal strategy

The municipal strategy is based on the following objectives:

- Revitalisation of urban centres, in order to:
  - create the conditions for attracting people, modernising trade and delivering local amenities;
  - attract residents to the city centre and reinforce the sense of community identity and belonging.
- Rehabilitation of public spaces – priorities
  - Improving pedestrian circulation areas – an accessible city for all
  - Upgrading meeting places (squares) – a city of culture
  - Public parking (discouraging the use of cars in the centre and improving transport interfaces)
  - Street furniture - standardisation of visual language
- Valuing free areas
  - Increasing and improving green spaces
  - Upgrading streams
  - Rehabilitation of the building stock.
- Multilevel governance, involving:
  - the town hall, parish, local players

Benefits / financing in the form of:

- Tax incentives for the rehabilitation of buildings
- Urban rate incentives
- Use of Community and national funding programmes.

We highlight a number of initiatives aimed at upgrading the green and blue infrastructure, in conjunction with the urban fabric:

- Project to improve and redevelop the Laje riverside area
- Project for green infrastructure and use of soft transport modes and the rehabilitation and integration into the urban fabric of the Jarda river
- Redevelopment project for the Jamor river

In this article we discuss the case of the Laje river, a process that has involved local communities and whose instruments are used in other projects.

Collective tour with different local cultural associations and the parish council.

Environmental and landscape enhancement project for Laje riverside

Laje riverside

The course of the Laje river crosses the largest urban area of the county, with over 66 000 inhabitants, and considerable diversity in the local environment, geomorphology, land, and existing plant communities.

The Environmental and Landscape Enhancement Project for Laje Riverside aims to foster new uses, preserve others, and promote interaction with the local population, while guaranteeing the mitigation of flood risks by creating a balanced river system.

To this end, two types of measures were considered: structural (involving direct forms of intervention aimed at reducing parameters such as flooded area, the flow rate or flood-delay time) and non-structural (involving preventive actions or adjustment and whose implementation is based often on legislative or institutional measures).

Structural measures

Cleaning the riverbed; eradication of invasive plant species; strengthening and upgrading of the river banks; planting in the high river valley banks; structural reinforcement of the banks; allocating areas for vegetable production; recovery/implementation techniques to reduce the flow-speed on the riverbed; reclassification of public and existing spaces; construction of pedestrian and cycling routes; relocation/demolition of derelict or sub-standard housing.

Non-structural measures

Purchase or exchange of land; survey and monitoring of illegal discharges, involvement of the population and local stakeholders; municipal director plan review.

General Trace pedestrian and cycling route linking the five centres of the area of urban regeneration

Conclusions: meeting needs, drawing up strategies for innovative action

In urban settings that face a range of problems, the challenge lies in the ability to achieve integrated and multidimensional projects that effectively translate into increased quality of life, ensuring the correct and diverse use of public space.

This requires a local development strategy that values existing resources, such as natural resources, as regards the ecosystem functions they perform for the population's well-being, and also logistical and fiscal resources that make the proposed projects possible and take into account the creation of concerted responses aimed at environmental quality and sustainability.

The rehabilitation of natural resources, along with other social initiatives and the promotion of economic activity and entrepreneurship, boost the development of innovative projects using innovative technologies that allow extensible dynamic areas such as trade and tourism and may enhance the endogenous local resources (human, natural, historical and cultural) that are part of the identity of Sintra and which play an important role for future development. In is therefore crucial to improve knowledge, disseminate sound practices, backed by the financial component, but primarily based on the experience of similar projects.

Sintra (PT)		
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Portugal
Regional Innovation Monitor Plus Score Results (RIM Plus)		"As the capital region, Lisbon concentrates the highest share of science and technology resources and expenditure in Research and Development (R&D) activities in the country (2011 figures). The region has the highest number of PhDs in Science and Technological areas per 1,000 inhabitants in the country (0.90, being the national average 0.60) and accounts for 32.6% of the total number of RTD units in Portugal. Lisbon ranks also first among the Portuguese regions regarding the regional gross expenditure in research and development (GERD as percentage of regional GDP), which was, in 2011, 2.09% (well above the national average: 1.52%). Companies are the main players regarding RTD activities in the region: 51.4% of the expenditure in R&D is made by activities implemented by businesses; 30.9% by Higher Education Institutions; 9.4% by the national government; and 8.4% by private non profit institutions (2011). As the region has a high concentration of universities, state laboratories and other RTD infrastructures, there is a very relevant critical mass and potential for high quality RTD activities in various scientific and engineering areas, being a number of research units within these institutions internationally recognised. However, compared to other European capital regions, in spite of the very positive development in the past ten years, the region is still catching up. Specifically, the enhancement of the use of existing scientific and technological expertise in favour of the businesses in the region remains a challenge, particularly in industries where innovation is induced by RTD activities, such as software, telecommunications, multimedia, and biotechnology. Enhanced efficiency in technology transfer activities and increased levels of collaboration between companies and universities concerning the exploitation of RTD activities, are objectives to be achieved in the next years.
	Link	Link: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/lisbon
Smart Specialization Strategy	Strategy	Sintra- Grande Lisboa region has a RIS3 finalised in 2014
	Sectoral priorities	The RIS3 identifies the following priority areas: Tourism and hospitality based on natural, historic and heritage including eco-tourism, application of ICTs to tourist industry, links to the creative industries; Creativity and the cultural industries; Marine resources related to geology, robotics, construction and repair of naval vessels, chemical and pharmaceutical industries; Health services, research and technologies; Mobility and transport - production and repair for automotive, naval and aeronautic industries. The S3 priority sectors are: Tourism, restaurants & recreation, creative, cultural arts & entertainment, Services, scientific & technical activities, Manufacturing & industry, health & social work activities, Motor vehicles & other transport equipment, and EU priorities that include Cultural & creative industries and support to links with traditional industries, Digital Agenda, Blue growth, Marine biotechnology, Public health & well-being.
	Link	http://s3platform.jrc.ec.europa.eu/regions/pt17

Sofia

The Digital Capital of South-East Europe

Regional **Innovation Ecosystems**

https://www.facebook.com/Sofia-City-Council-135950009772935/

http://www.sofia.bg/

Malina Edreva Audoin

Councillor for the Municipality of Sofia, BG
Member of the European Committee of the Regions

Our main goal is to accelerate the competitiveness of science and entrepreneurship in Sofia by improving the knowledge exchange between academia and business, supporting startups and innovative ideas and thus creating a unique environment for innovation, build and implement educational programs and provide support to the commercialization of new technologies, products and services.

Sofia

The Digital Capital of South-East Europe

Introduction

In recent years, Sofia has rapidly accelerated its development as a European capital city. In particular, the progress of its digital entrepreneurship environment was preconditioned by the growth of a successful IT-BPO industry in the city. Outsourcing hubs of global leaders like SAP Labs (in Sofia since 2000), HP (in Sofia since 2006), VMware, etc. now employ thousands of ICT professionals and set international quality standards and business acumen. It is a priority of the Bulgarian government and Sofia municipality to make the city the home of a vital startup ecosystem and an attractive place for business by building and expanding infrastructure and improving the quality of life.

Since 2012, entrepreneurship has been financially supported by the EIF (European Investment Fund) through the JEREMIE (Joint European Resources for Micro to Medium Enterprises) initiative, which further allocated EUR 21 million and established the Eleven[1] accelerator and LAUNCHub[2] programmes. Eleven and LAUNCHub support startups financially and offer early stage business assistance and mentoring. NEVEQ[3] (EUR 56 million) is a local venture capital fund providing another source of capital for startups.

[1] http://11.me/

[2] http://launchub.com/

[3] http://www.neveq.com/

Actors, instruments and resources

Sofia is home to the most renowned state and private universities in the country with deep traditions in mathematics, engineering, programming and sciences (over 60 thousand students graduating annually). Both the expertise level of ICT professionals in Sofia and the availability of human capital have improved drastically in recent years. Private software schools and universities yielding thousands of professionals each year have proved successful in linking business and academia (e.g. Softuni[4], established in 2013). Many young people from Sofia study (according to NSI[5]) abroad (EU and USA) and increasingly come back home due to attractive opportunities in multinational companies. English is widely spoken among the younger population (25-45 yrs.), which accounts for 45% of Sofia's total population. The city offers

[4] https://softuni.bg/

[5] http://www.nsi.bg/

an abundance of skilled and motivated professionals at a fraction of average EU labour costs.

In addition, Bulgaria offers a very attractive taxation policy – corporate tax and income tax are both set at a flat rate of 10%. The general cost of doing business is also among the lowest in Europe - affordable and quality office space, including co-working spaces like BetaHaus[6] creates a foundation for a start-up and entrepreneurial ecosystem.

The continuous development of digital infrastructure delivers high quality internet connections, including broadly available wireless and LTE and complete fibre optic coverage at low broadband costs. Good digital infrastructure and a high level of ICT expertise attract an increasing number of R&D projects and labs to Sofia – for example VMware hosts their largest R&D site in the EMEA region in Sofia.

Sofia Tech Park[7] – an infrastructure investment of the Bulgarian government – opened at the end of 2015. It has been set up to boost the development of the city's and the country's research, innovation and technological capabilities. Its goal is to accelerate the competitiveness of science and entrepreneurship by improving knowledge exchange between academia and business and supporting start-ups and innovative ideas.

This April, Sofia is hosting the Webit[8] festival and will be attended by the world's key enterprise leaders and Europe's policymakers along with the most renowned start-ups and founders, who will be designing Europe's digital future.

Sofia is a very well-connected city - short flights link it to the biggest European hubs. It offers easy access to the entire European Union and next day delivery to 500 million of the wealthiest consumers in the world. The public transport network in Sofia is well developed and is being expanded continually, offering efficient, inexpensive and convenient connectivity and commuting.

Its openness to foreign cultures, rich artistic agenda, constantly improving city environment, low cost of living, accessible leisure activities and well-maintained public parks and facilities offer a great lifestyle and quality of life.

The most notable start-ups from Sofia are desktop and mobile event platform Sponsia[9], Image Recognition PaaS imagga[10], and software Storpool[11], scaleups - mobile TV projector app Flipps[12] (raised €5.13M) with offices in Sofia, San Mateo (CA) and New York (raised €5.50M).

[6] http://www.betahaus.bg/en/
[7] http://sofiatech.bg/en/
[8] http://www.webit.bg/
[9] http://sponsia.com/
[10] https://imagga.com/
[11] https://www.storpool.com/
[12] http://www.flipps.com/

Outcomes and impact

Sofia offers start-ups and entrepreneurs very good conditions and has a great potential to become the digital capital of South-East Europe. Sofia Investment Agency facilitates, supports and incentivises (Class "CW" investor certification programme) foreign investors and start-ups willing to set up business in Sofia. Its main objective is to be a gateway for entrepreneurs, matching investors with opportunities and providing advice and practical assistance in setting up and expanding a business in Sofia.

Sofia (BG)			
Macro-economic profile**	GPD	2011 ESTAT	€11.892,00
		2015 JRC projection based on ECFIN	€14.288,02
		2030 JRC projection based on ECFIN	€23.139,51
	Employment	2011 ESTAT	1.041.500,00
		2015 JRC projection based on ECFIN	929.585,70
		2030 JRC projection based on ECFIN	1.043.701,80
	Population Territory	2011 ESTAT	1.673.116,00
		2015 JRC projection based on ECFIN	1.687.473,94
		2030 JRC projection based on ECFIN	1.737.761,83
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Bulgaria	
Regional Innovation Monitor Plus Score Results (RIM Plus)		The Southwest region features a high concentration of national research infrastructure and is the leading region in research and development (R&D) activities. It hosts some prominent universities: Sofia University, the Technical University, the University for National and World Economy, the New Bulgarian University, the Sofia Medical University, the Southwest University "Neofit Rilski", the American University in Bulgaria, etc. Sofia University had the largest number of citations and articles in the country over the period 2005-2011 (Scopus data). The region also ranks first in the number of students - 414,236 or 31.7% of all students in the country are studying in the region (2011 Eurostat data). It hosts many industrial associations, technology transfer offices and innovation centres such as the Centre for Innovations at the Bulgarian Academy of Sciences, the GIS Transfer Centre, the Business Information and Consulting Centre - Sandanski and the business incubator Gotse Dalchev. The region generates 84% of all R&D expenditures amounting to € 212,969m (2012 NSI data). "Gross domestic expenditure on research and development (GERD) is 0.98% of the region's GDP, a considerably high rate compared to the average 0.6% for the country but lower than the 1.03% in 2010 (2011 Eurostat data). Most R&D expenditures in the region come from the business sector, with R&D expenditure (BERD) being 30.1% of the total GERD (2011 Eurostat). The human resources in science and technology (HRST) in the region are 39.1% of the active population, which is significantly higher than the 33.8% average value for Bulgaria for 2012 (Eurostat). Over half of the R&D personnel (63%) are concentrated in the South West region, due to the presence of the capital city in the region and some of the prominent universities (2012 NSI). Employment in high-tech industries and knowledge-intensive services is 6.15% of the total employment of the region, again exceeding the 3.4% average for Bulgaria for the period 2003-2011 (2011 Eurostat). The region ranks first in the share of the population with broadband access - 54% (NSI 2011). It also has the most patent applications to the European Patent Office (EPO) by priority year – 5.43 (2010 Eurostat data).	
	Link	Link: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/yugozapaden	
Smart Specialization Strategy	Strategy	The S3 priorities as encoded in the eyes@ris3 tool are: nformation and Communication Technologies (ICT); healthy life and biotechnology industries; mechatronic and clean technologies; new technologies in creative and re-creative industries	
	Sectoral priorities	http://s3platform.jrc.ec.europa.eu/regions/BG	
	Link	http://www.mi.government.bg/bg	

** UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Styria

Green Tech Innovation Leader

Regional **Innovation Ecosystems**

@Land_Steiermark

https://www.facebook.com/steiermark

http://www.politik.steiermark.at/

Christian Buchmann

Member of the Styria Regional Government, AT
Member of the European Committee of the Regions

With an R&D quota of 4.8 % of the gross regional product Styria is one of the most innovative regions in Europe. A key factor for the success of Styrian companies all over the world is the close cooperation between economy and science. With our universities, colleges, research facilities and centers of excellence it succeeds very well to transfer research results directly in the companies, where new products and services emerge that are in demand in domestic and international markets.

Styria

Green Tech Innovation Leader

Introduction

Global economic developments call for much clearer profiling of individual regions. The region of Styria - as a "brand" - has come to be known in the past few decades as a region of innovation and a European Entrepreneurial Region with a high quality of life and, in recent years, has become one of Europe's most innovative regions. With a clear policy model culminating in the economic strategy "Styria 2020 – growth through innovation", the region is to become a European Model Region in which it will be possible to transform regional know-how into value added, and also to improve the transition from research and knowledge into production[1].

The lynchpin of Styria's economic strategy has been to bundle active location development along the three guiding themes of green tech, mobility and health tech. In terms of positioning relating to these three key themes, Styria has at its disposal technological core competences and location advantages, particularly with regard to education and research (e.g. mechanical engineering, electronics, instrumentation and control technology).

The strategic levers for Styria's innovation- and ecosystem are the day-to-day implementation of the principle of innovation as a standard, R&D and human resources, a targeted economic policy supporting regional business potential, the focus on internationalisation and the promotion of young enterprises and start-ups. Styria accounts for 73% of Austrian R&D staff at universities in the field of mechanical and automotive engineering, and 55% of Austria's technical research scientists work in the province.

Furthermore, the cluster region of Styria as an internationally recognised pioneer makes full use of the advantages of public-private partnerships and a range of collaboration models for regional economic development.

These locational advantages, in conjunction with an ambitious economic policy, have led to a current R&D ratio of 4.8 % of gross regional product, meaning that the region is still the front runner of all Austrian federal regions and also occupies the top spot compared with its European counterparts.

As Christian Buchmann, Chair of the European Committee of the Regions' ECON Commission and Regional Minister of Economy, Tourism, Europe and Culture, has pointed out, Styria bases its economic development on initiatives for internationalisation and innovation.

[1] www.wirtschaft.steiermark.at

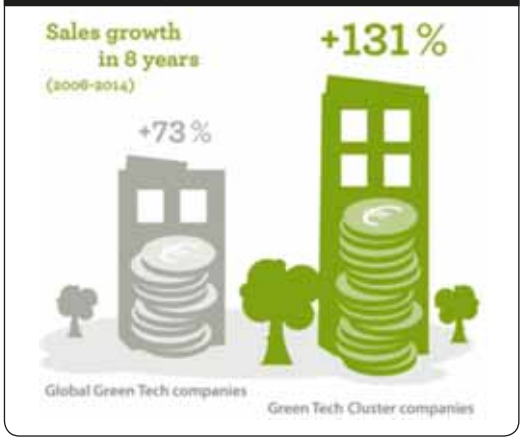
Best Practice in the Styrian Innovation Ecosystem

A brief overview of innovative instruments and projects clearly demonstrates how Styria's economic strategy contributes to the development of the local and regional innovation and ecosystem. Numerous pioneer activities in the fields of green tech and ecological modernisation, the collaboration between Styrian companies and cutting edge research, together with new solutions for the development of a city district, illustrate the some of the successful steps taken so far.

Green Tech Innovation Drives Growth

Innovation in environmental technology and measures to improve energy and resource efficiency will be promoted within the framework of Styria's economic strategy with its guiding theme of green tech (energy and environmental technology). Policies will be increasingly oriented towards clean production and clean technologies in the key fields of mobility[2] and health tech[3]. A masterplan for the region of Styria has been developed in the form of a climate protection plan. The energy and climate package will contribute to achieving the Europe 2020 flagship initiative for a resource efficient Europe.

Green Tech Cluster companies grow nearly twice as fast as global competitors



According to a ranking carried out in 2012 (Global Cleantech Directory 2012), the world's foremost concentration of environmental technology enterprises is located in Styria. About 200 Styrian enterprises and research institutions work today on the clean and green technologies

Green Tech Fact Box

30% of final energy consumption in Styria is renewable
>70% recycling rate – the highest material recycling rate in Europe
41 700 employees in 200 companies
19 300 employees in the field of renewable energy and environmental technology
1 000 jobs growth p.a. within the last decade
7 million t/p.a. additional CO2 reduction as a result of these companies' new products
EUR 9.4 billion p.a. turnover of all cluster-partner companies
EUR 3.6 billion p.a. turnover in the fields of renewable energy and environmental technology (one of Europe's leading concentrations) alone accounts for 9% of Gross Regional Product (GRP)

[2] www.acstyria.com

[3] www.humantechnology.at

of tomorrow. The Green Tech Cluster Styria[4] accelerates innovation by actively developing joint projects between academia and business. Cluster companies are growing twice as fast per year (14%) as the world markets. They are technology and market leaders with regard to biomass plants, solar systems, hydroelectric plants and recycling systems. The cluster was awarded the Regio Stars Award by the European Commission for smart growth and holds the highest "Cluster Management Excellence" label - in gold.

[4] www.greentech.at

Green Tech Cluster Styria is top of the global rankings

Academia and Business Jointly Drive Knowledge Based Production

In terms of competition between regions and nations, the field of science, industrial research and development and the transfer of knowledge is of paramount importance. The COMET programme – Austria's flagship research funding programme - has evolved in recent years to become a fixed point in the Austrian research landscape and a showcase for the whole of Europe. COMET aims to strengthen cooperation between science and industry and accelerate the growth of joint research skills, as well as promoting the country's scientific and economic recovery.

The Styrian competence centers are among the main drivers of innovation in the region, enabling the region to position itself as an excellent innovation, research and science location with an extensive international network. The centers carry out state of the art application research, give an important impetus to the economy and prepare the ground for new ideas and the products of tomorrow[5].

[5] www.sfg.at and www.ffg.at/comet

Example: Virtual Vehicle

The competence center located in Graz specialises in international research and development in the area of application-oriented vehicle development and future vehicle concepts for road and rail. The goal is to create a strong, permanent bond between university research and industrial development and thus to foster innovation in industry. By participating in numerous national and international projects, the company has established itself as a desirable research partner. This has been accomplished not only through the recruitment and training of top researchers, but also through long-term cooperation with partners in industry and science.

COMET Competence Center Fact Box

Top position in Austria - Styria is involved in 23 out of 47 Austrian competence centers
20 competence centers have their headquarter in Styria
About 2 000 persons are involved in Styrian COMET Competence Centers

The Lighthouse for Smart Cities

The city of Graz - capital of Styria - combines World Cultural Heritage with the creative City of Design.

The vision: in 2050 Graz will be a dynamic and compact city characterised by mixed urban usage, attractive public space and a high quality of life. By consistently pursuing the Smart Cities strategies and raising public awareness, it is now possible to reduce not only the consumption of energy and resources, but also the emission of hazardous substances, paving the way for a Zero Emission City.

Today, 12 national and international partners have set up the project consortium as a collaboration model and are working jointly on the first Austrian Smart City project. Thanks to the specific geographical position of Graz, the objectives of low emissions, resource saving and energy-efficiency are integral aspects of this new innovative urban development. It will be located in the old Waagner Biro industrial site and is designed as a compact district with mixed urban usage, attractive public spaces and a high quality of life.

The project includes the large-scale testing of so-called "Grätzel cells" on the Science Tower, a local energy network for the district and multimodal mobility solutions. Reaching a height of 60 metres, the tower will be home to research facilities. It has a double-shell façade that is wrapped around the core shape like a cape and is made up of translucent photovoltaic Grätzel cells which, like photosynthesis in plants, transform light into electricity. It is the first time that this innovative technology will be used on a large scale. Part of the façade of the science tower serves as a test site for the latest development stages of energy-producing façade elements.

Science Tower, part of the flagship project Smart City Graz

Smart City Fact Box
3 800 people are expected to live in the new Smart City district
Around 1 500 new jobs will also be created
EUR 330 million Euro is being invested in this new district

Conclusion

Styria offers experience and knowledge in the strategic guiding themes of mobility, green tech and health tech in the sense of a smart specialisation strategy, aligned to our technology core competencies and regional assets in the fields of electronics, instrumentation and control technol-

ogy, mechanical and plant engineering, materials technology, chemical and process engineering, including bio-technology and the creative industries.

Styria has so far consistently chosen – and will continue to do so – the path of innovation as a standard guiding principle, and will continue to seek comprehensive opportunities for collaboration with the other European regions in the above mentioned core competencies. The clear goal is to become a European Model Region as an innovation driver and innovation hotspot for knowledge based production.

from left to right: Mr. Mario Müller, Mr. Christian Buchmann, Mrs. und Mr. Michael Grätzel and Mr. Hans Höllwart
© Kronen Zeitung

Styria (Steiermark) (AT)			
Macro-economic profile**	GPD	2011 ESTAT	€33.613,00
		2015 JRC projection based on ECFIN	€35.086,61
		2030 JRC projection based on ECFIN	€44.037,39
	Employment	2011 ESTAT	615.700,00
		2015 JRC projection based on ECFIN	599.862,64
		2030 JRC projection based on ECFIN	607.759,50
	Population Territory	2011 ESTAT	1.206.611,00
		2015 JRC projection based on ECFIN	1.219.429,00
		2030 JRC projection based on ECFIN	1.270.586,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Austria	
Regional Innovation Monitor Plus Score Results (RIM Plus)		In contrast to its comparatively weak overall economic output, Styria can be characterized as one of Europe's leading regions in terms of overall RTDI intensity, both in comparison to other Austrian federal states as well as other countries. In 2011, the overall expenditure on R&D per GDP (4.4%) was above the national average (2.77%). Correspondingly, in 2011, the region's overall expenditure on R&D contributed 19.9% (€1,647m) to the Austrian total, being well above the region's GDP share of 12.5%. Similarly, the number of patent applications at the Austrian Patent Office in 2013 (360 in total) per 100,000 employees of 67.44 remained above the Austrian average (58.50) and amounted to 16.8% of the national total (data for 2010). The RTDI sector in Styria is dominated by the private sector: in 2011, 70.7% of R&D expenditures were spent in the private sector (national average: 68.8%). 19.8% of all Austrian R&D personnel were employed in the region (12,129 FTE). The overall research infrastructure in Styria is strong by national comparison and features five universities (four thereof located in Graz) and two universities of applied sciences and two higher education institutionswith around 56,000 students. The region is also home of five K1- as well as three K2-competence centres (Kompetenzzentren) all of them are involved in the now effective COMET programme. There are several relevant non-university research institutes in Styria (e.g., a variety of Christian Doppler Research Association laboratories in various fields). A prominent actor in this regard is JOANNEUM RESEARCH Forschungsgesellschaft mbH as a professional public research institute, which focuses on applied research and technology development in the areas materials, health, information and communication technology, water, energy and sustainability, as well as economic and innovation research.	
	Link	Link: https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/styria	
Smart Specialization Strategy	Strategy	The Austrian Federal Strategy on research, technology and innovation summarises all 9 regional innovation and development strategies. In due time the potential for smart specialisation at regional level will focus on a stronger involvement of the business community and regional (Länder) level. The update of the RIS3 will include innovation other than in high-tech (e.g. wood and metal sectors, and also to social, urban and process innovations). It also plans to link RIS3 priorities to the Interreg's, and EU Danube and Alpine strategies'.	
	Sectoral priorities	"The documents: ""Wirtschaftsstrategie Steiermark 2020 Wachstum durch Innovation (2011)"" and ""Forschungsstrategie Steiermark 2020"" identify the following priority areas and cross-cutting themes: - 4 priorities areas: life sciences; energy & environment; mobility (incl. logistics); service innovations. - 2 cross-cutting themes: ICT; materials and production.	
	Links	http://s3platform.jrc.ec.europa.eu/documents/20182/89115/RTI_Strategy.pdf/08713cad-6d45-40a8-9e96-16a6f6265087 http://s3platform.jrc.ec.europa.eu/regions/at	
Stairway to Excellence	Link	https://era.gv.at/directory/34	

** UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GDP: GDP is expressed in million euro,constant prices (base year 2005).

Projections are performed by LUISA Modelling platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Turin

Transition from Industry to Innovation

Regional **Innovation Ecosystems**

@CittaMetroTO

https://www.facebook.com/Citt%C3%A0-Metropolitana-di-Torino-764145600302630/?fref=nf

http://www.cittametropolitana.torino.it/cms/

Piero Fassino

Mayor of Torino, IT
Vice-President of the European Committee of the Regions

Over the last decades, Torino has shown the capability to face the economic crisis positioning itself as pole of innovation at international level. The crisis has not decreased Torino's dynamism to change and innovate. Its ability to attract European funds and investment has boosted the transformation of territory: moving from a company town to a vibrant cultural and innovation hub.

Turin

Transition from Industry to Innovation

Introduction

The city of Torino is an important business and cultural centre in the north of Italy. Surrounded by the charming landscape of the Alps, the city used to be a major European political centre. Torino is the 4th largest city in Italy by population, with its 890.000 inhabitants (2.2 million considering the whole Province) and 130 kmq of territorial extension. Torino is the main Province of Piemonte, a region in the North-West of Italy wich accounts for around 8% of total GDP. GDP in Torino Province averages 22,000 EUR and the city is the third largest Italian city for economic development.

As the first capital of Italy after Unification in 1861, Turin has become synonymous with design, innovation and reinvention. Since the 1990's Torino has been following a path that has transformed it from an industrial capital - a sector which continues to play a fundamental role - into a pole of innovation, culture and improved quality of life. Torino first started a process of territorial transformation, thanks to the 1995 Town Master Plan, then a process of territorial marketing, through the first and second metropolitan strategic plans in 2000 and 2006. The 2006 Winter Olympics sparked an urban revival, with a cultural knock-on effect that has seen a contemporary art, architecture and design scene blossom in the city.

Torino Social innovation

Nowadays city's strategy is strongly oriented toward the achievement of a sustainable, intelligent and inclusive urban growth, objectives of the Europe 2020 plan: all the relevant stakeholders cooperate together in the innovation process.

Vision

Torino is converting from an industrial city to a centre of innovation and culture, positioning itself as a capital of innovation in Italy and ambitiously in Europe. Torino adopts an open innovation approach, creating a multi-actor ecosystem and following a three step pathway: networking and planning, integrated initiatives, and territorial participation.

Torino was the first in Italy to define a strategic plan of 45 actions, "SMILE–Smart Mobility, Inclusion, Life&Health and Energy"[1], co-participated by 350 public and private organizations: in this way Torino got in touch with innovation initiatives by its citizens, such as the first Italian FabLab[2] (makers-space), Officine Arduino [3](open-hardware) and #hackUniTo [4] (a hackathon for the University).

[1] www.torinosmartcity.it/smile
[2] http://fablabtorino.org
[3] http://local.arduino.cc/torino/
[4] www.hackunito.it

Strategy

The strategy of Torino is inspiring thanks to three elements.

First, it has reversed its processes for attracting talents and resources. Typically, the PA worked with institutional players (universities and research centres) to innovate, thus excluding the talents and resources outside the university system and the ideas developed in more informal, creative and open contexts. Torino reversed this paradigm, through a bottom up approach: it started asking people (citizens, organizations, public employees, …) what they need to improve the quality of their life and their work, and soliciting them to propose their ideas, since they are closer to problems.

Second, the Municipality started a dialogue with the citizens, making a territorial marketing operation to establish Torino as a recognized better place where to develop the social/urban innovation.

Third, according to Torino's strategy TSI's ecosystem works as a single entry-point for services by people who want to make urban social innovation and as a connection with the actors that work in the field. The access to resources through an unique entry-point (spaces, funding, business coaching, contacts, labs, …) increased the attractiveness for talents Torino's strategy is inspired by the principles of creating an integrated system toward an inclusive growth. TSI's ecosystem integrates competences, resources, know-how and experiences belonging to the territory. With its 40 partners, it joins together organizations both profit and non-profit, social and pure commercial ones.

Following the criteria adopted by Startup Genome to study worldwide start up ecosystems, Torino's strategy can be described in relation to three correlated aspects which forms an ecosystem: differentiation, government support, art=entrepreneurialism.

First, differentiation to be a social innovation hub: historically the metropolitan area of Torino has been a fertile ground of social innovators, hosting internationally renowned socially innovative experiences.

Second, government support is constantly provided through the multi-years programme TSI (2013- 2016). Moreover, local funds have been strictly interconnected with regional/national funds, such as Structural Funds (ROP, ERDF, ESF

PIEDMONT REGION and PON METRO), as well as FP7 and H2020 ones.

Third, art=entrepreneurialism: Torino is celebrated as one of the most important international capitals of contemporary art thanks to international events and the wide presence of gallery/museums and public artistic installations, which are fundamental ingredients to develop a creative, vibrant, attractive, entrepreneurial environment.

In order to promote the culture of social innovation, it's crucial to integrate talents into creative communities by supporting new forms of collaborative economy for a social economy more dynamic, inclusive and sustainable. The new initiatives launched by City of Torino are perfectly in line with this vision and what the private innovative players are doing to trigger innovation.

For example, in TSI-FaciliTO public fundings are integrated with private services such as facilitated renting of flats, office space for testing, private finance, business mentoring, to promote the culture of open urban innovation, integrating talents into creative communities. Smart Procurement Initiative acts from the demand side policy asset to reinforce, improving the dialogue with the market as well as public capacity to act as an intelligent lead client for urban innovations. In the Smart Living Lab Initiative the aim is integrating the management of public assets with the experimentation of innovative solutions proposed by privates, transforming the public spaces into real testing labs.

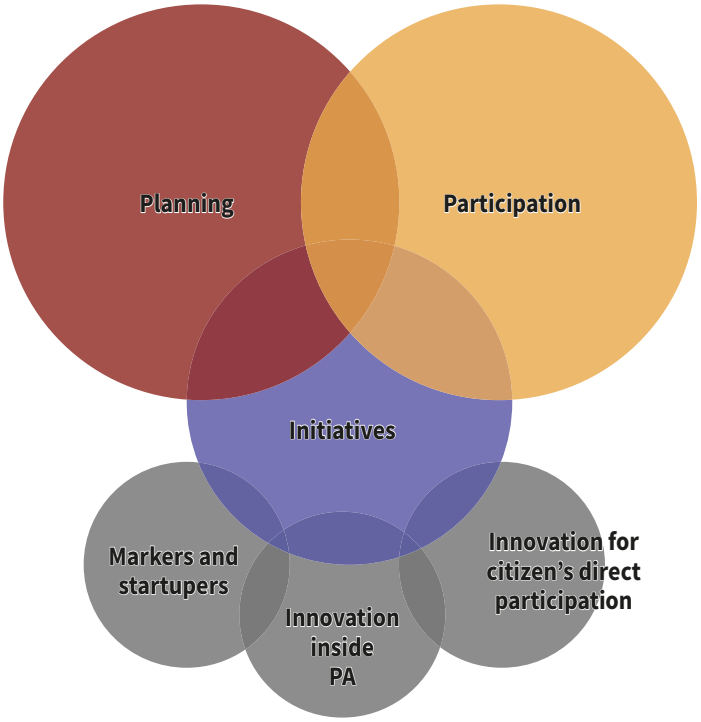
Conclusions

Torino's strategy aims at triggering urban innovation through an open innovation approach. It leverages on lean instruments to support fluid process of innovation, Sharing of the innovation risks, no closed governance system to develop the local ecosystem collaborative knowledge and action, creating a multi-actor local ecosystem as well as a new open culture nurtured within the PA and the territory.

The strategy follows a three step pathway:

- the construction of the stakeholder network, thanks to the SMILE master plan;
- the consolidation of open, integrated and collaborative processes and tools through a targeted set of innovation initiatives, co-developed by the City, among which:
  - TSI-FaciliTO: a mentoring and funding programme for social startuppers
  - Innova.To: an internal competition reserved to public employees to innovate the PA from the inside
  - Open Incet: the first Italian centre of open innovation, where the quadruple helix actors collaborate to solve social challenges
  - Smart Living Lab Initiative: a new administrative framework to allow Public Private Partnerships (PPP) to co-develop innovative solutions for smart communities
  - Smart Procurement Policy: to diffuse the strategic use of Public Procurement to deliver smart Innovation (PPI)
- the territorial participation in innovative policies, as triggered within the Torino Social Innovation (TSI) initiative and as inspired by the interactivity of the new local social network First Life based on an interactive map of neighbourhoods and its forthcoming policy tools from the EU project WeGovNow!.

The innovativeness of the Torino's strategy



→ **Open Policy**

No verticalities/authorization disfunctional to innovation

→ **Lean approach**

Flexibility in the procedures

→ **Trust**

Risk-sharing and transparency
Emergence of social relations

→ **Partnerships**

Cross-sector collaborations between profit/noprofit, private/public orgs and citizens' participation

Torino (IT)		
Research and Innovation Observatory *	Link	Link : https://rio.jrc.ec.europa.eu/en/country-analysis/Italy
Regional Innovation Monitor Plus Score Results (RIM Plus)		Piedmont is one of the most important Italian regions in RTDI thanks to the presence of large firms and their research departments and a thick fabric of SMEs operating in the same value chains, and important universities (e.g. Polytechnic of Turin). Data show a specialisation in mechanical engineering, while biology and chemistry, though important, have a more marginal position. It is worth noting two important features which are unique in the Italian panorama: the prevalence of the private sector in R&D expenditure and the international breadth of regional research (mainly due to continued collaborations). The ability to produce innovation – as shown by patents – is remarkable compared to other Italian regions but not very significant when compared to the situation in the most advanced continental areas. In 2011, the total R&D expenditure was 1.87% of the GDP, significantly higher than the national average (1.25%). There was a very marginal increase since 2008, when it was equal to 1.83%. The business R&D expenditure on GDP was 1.5% in 2011. The public R&D expenditure as a percentage of GDP was approximately 0.4%. The share of firms which introduced product or process innovation was 38.9% in 2010 (last available year), slightly lower than the Italian average which was 31.5%. The broadband diffusion among Public Administration is very good: 97.8% in 2012 (last available year), having increased significantly from 45.2% registered in 2007. In the business sector, the Internet diffusion, measured by the share of employees who use it, was 41.4% in 2013 and above the national average. It showed a significant increase from the 30.8% recorded in 2007.
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/piedmont
Smart Specialization Strategy	Sectoral priorities	The regional S3 identified the following priority areas: Aerospace; Chemicals; Automotive; Manufacturing and industry and Life Sciences.
	Link	http://s3platform.jrc.ec.europa.eu/regions/itc1/tags/itc1?s3pv=1

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Valencia

Entrepreneurial Support throughout the Cycle

Regional **Innovation Ecosystems**

@generalitat

https://www.facebook.com/gva.es

http://www.gva.es

Ximo Puig I Ferrer

President of the Valencia Region, ES
Member of the European Committee of the Regions

The Valencian region has shown a sound entrepreneurial character and a consolidated business experience at international level. We are strongly committed to the change of the production process through innovation.

Valencia

Entrepreneurial Support throughout the Cycle

Introduction

The Valencia region plays a fundamental role in the Spanish economy, providing 10% of Spanish GDP. Thanks to its climate, geographic location, high population density and excellent infrastructure, it is an ideal location for entrepreneurship.

In addition, the region has a sound entrepreneurial fabric and consolidated business expertise at international level. It is the third Spanish region in terms of start-ups and the first in terms of accelerators, incubators and co-working.

The Valencia region's entrepreneurial policy aims to build a coordinated, collaborative and cross-cutting model supported by all key economic and social players in our region, under the scrutiny of the Valencian Entrepreneur Council, the body responsible for coordination and advice regarding the strategic policy on entrepreneurship.

In this new term of office the Generalitat, the Valencia region's government, proposes to introduce changes in the management of public support for entrepreneurship, with the aim of giving entrepreneurs turning to the Valencian public administration one, clear, efficient channel for meeting their needs for information, advice and management of administrative procedures.

The changes relate not only to organisational matters, but also to the spreading of entrepreneurial potential throughout the whole of Valencian society, involving both the different population groups and all production sectors, as well as emphasising the social, as well as financial, benefits of the projects.

The Comunitat Valenciana's EER Label 2015

The Committee of the Regions (CoR) launched the call for applications for the EER 2015 Label on 26 November 2013.

The Comunitat Valenciana's application for the EER 2015 Label was proposed on 31 March 2014 and signed by the President of the Generalitat Valenciana. The prizes were awarded on 25 and 26 June 2014, at CoR's plenary session.

The Comunitat Valenciana's kick-off took place on 10 February 2015, headed by its President, with the involvement of high level representatives from the European Commission and the Committee of the Regions and other EER regions, including Helsinki-Uusimaa, as well as three key entrepreneurs in the European ecosystem who manage from the Comunitat Valenciana enterprises such as Plug and Play España, Business Buster, Zubi Labs and PeerTransfer. The Valencian Regional Ministry presented the Valencian Entrepreneur Council's strategy.

Europa Oportunidades

The event FOCUS Innova Pyme, held on 4 November 2015, served as a first-class closing ceremony for the Valencia region's EER 2015, as it included three local Open days and attendance by several representatives from the European Commission and the Committee of the Regions at Europe's plenary session. The EER assessment panel's visit to the Valencia region is planned for 10 March 2016.

Actions implemented in 2015 with regard to application objectives

The Valencia region's activities as European Entrepreneurial Region 2015 covered the whole year, according to the Action Plan provided, including specific measures in the area stipulated by the Valencian Entrepreneur Council, which is responsible for the monitoring, definition and achievement of the strategic objectives. The objectives can be summarised under the following three headings:

Development of an attractive, sustainable, effective and efficient Entrepreneur Ecosystem

Governance: Article 12 of Valencian Entrepreneur Council Legislative Act 2/2012 of 14 June laying down urgent measures to support entrepreneurial initiatives, entrepreneurs, microenterprises and SMEs in the Comunitat Valenciana establishes the Valencian Entrepreneur Council, whose regulation code was approved by Order 133/2014. This Council is made up of representatives from public administrations and academic, social and economic institutions related to entrepreneurship culture and promotion on a region-wide scale.

It is appointed by the Regional Ministry of Sustainable Economy, Production Sectors, Trade and Labour, and its coordination and technical support are provided by the Directorate-General for the Economy, Entrepreneurship and Cooperatives.

Stakeholders in the implementation of entrepreneurial policies in the Comunitat Valenciana

A) Generalitat Valenciana:

B) Universities, science parks and Technology Transfer Bureaus (OTRIs) (5)

C) European Innovation Enterprises Centres (CEEIs) (4)

D) Technological institutes and their network, REDIT (14)

E) Public investigation organisms: IVIA, CIPF, CSIC, FISABIO, INCLIVA

F) Council of Valencian Chambers of Commerce

G) Other: Spanish Seniors for Technical Cooperation (SECOT) and entrepreneurial associations such as CIERVAL, CEV, CEC, COEPA and AJEV

On 7 January 2015, the Valencian Entrepreneur Council was set up as the main interdepartmental coordination and advice body with social participation. Its objective is to draw up a joint strategy for the promotion of entrepreneurship in the medium and long term, coordinated among public sectors, administrations, universities and enterprises, according to the principle of public-private cooperation.

Its executive board met on 29 January 2015 and proposed the setting-up of three working groups: good entrepreneurship practices; entrepreneurship culture-ecosystem; and financing.

The Subdirectorate-General for Social Economy and Entrepreneurship coordinated the meetings of these working groups, which were made up of 35 public entities and enterprises.

Their recommendations were presented at the Council's next plenary session, which took place on December 11 2015. Additionally, the Council defined the entrepreneurship policy's strategy for this new term of office, and proposed the setting-up of a new working group to detail an action plan with 2020 Horizon and the implementation of recommendations.

Focus on entrepreneurs. Local deployment: setting up Start Points

Start Point Helpdesks have been set up at the 56 SERVEF Employment Centres (CSE) across the Valencia region. The CSE's entrepreneur service includes the following activities:

- initial session and motivation to consider entrepreneurship, for job seekers not aware of self-employment opportunities, or who do not have a definite business idea, who attend a two-hour group session;
- basic information – self-employment, a two-hour group session for job seekers showing interest in pursuing the self-employment process and for those who come to CSEs with a clear business idea. After this session, if no more advice is needed, they are directed towards an Entrepreneur Attention Point (PAE), in order to begin the procedures to register as a self-employed person;
- group sessions on specific subjects focusing on specific skills, such as using social networks;
- direction towards specialised self-employment centres, if the complexity of the project requires more advice.

Basic Guide for direction towards specialised entities and bodies

As at 31 December 2015, at the Comunitat Valenciana's 56 CSEs, this Entrepreneur Service has assisted 12 346 workers. It's also worth mentioning the participation of SERVEF in the drawing-up of a protocol defining the activities which are to be offered by the self-employment and entrepreneurship advice service, included in the Common Services Portfolio of the National Employment System, which will apply throughout Spain.

As future projects, some sessions on specific subjects and information events on entrepreneurship have been planned, along with the launch of a "Support and Mentoring Service for Entrepreneurs", to be financed by European Social Fund Operational Programme for the Valencia Region 2014-2020.

The three Start Point Helpdesks (PAE) belonging to the Valencian Youth Institute, IVAJ, located in the provinces' capitals, and the 35 INFODONA centres, spread throughout the whole region, act as gateways to entrepreneurship for young people and women, and also serve to provide access to a mentoring process.

Valencia region Chambers of Commerce also have a Start Point Helpdesk as part of their Entrepreneurial One Stop Shop (Ventanilla Única Empresarial). Their Start Point Helpdesk has a two-fold role: to provide first-hand information and advice services to entrepreneurs for the definition and telematic processing of their business initiatives, and to start administrative procedures for setting up a business.

The services provided include: enterprise constitution procedures (New Enterprise Limited Company (SLNE), self-employed, and Limited Responsibility Company (SRL)) through telematic processing, using the single electronic document (DUE); information on the main legal forms of businesses; public support for setting up busi-

nesses; social security, suitable financing and tax system; application for an identity code, and registration of the company name for the in situ processing of the New Enterprise Limited Company.

Specialisation, efficiency and support throughout the cycle: idea, implementation, consolidation and acceleration. Entrepreneur sites, mentoring programmes, financing

Entrepreneur web sites: emprendedores and emprenemjunts

www.emprendedores.gva is the Valencia government's site for people intending to become entrepreneurs, where the information needed for the development of a business project is gathered together.

A direct link to the Portal del Emprendedor is provided from the Generalitat's main website and accounts for around 60 000 visitors per year on average. Its objective is to offer useful information for entrepreneurs and SMEs: advice, speeding-up of administrative procedures, cutting red tape, support, training and financial resources. Entrepreneurs have access to an online service catalogue which covers all stages from the generation of a business idea to the setting-up of an enterprise. It is a dynamic site that involves every department of the Generalitat thanks to the cross-cutting nature of the project.

www.emprenemjunts.es seeks to put together all the stakeholders in the Valencian entrepreneurship ecosystem and direct users towards different, related Internet sites, with the aim of improving the efficiency and effectiveness of these resources for the benefit of the users. The site's objective is to promote entrepreneurship, values and governance, involving the maximum possible number of interested entities, enterprises and entrepreneurs. It is a project of institutional cooperation, where the entities, associated voluntarily, provide information and content which is interesting for the entrepreneur.

Basic mentoring

The objective here is to provide basic information, training, skills and tools for entrepreneurs or future entrepreneurs. The entities offering basic mentoring in the Valencia region are the Valencian Employment and Training Service, SERVEF, through its 56 employment centres; the Senior Volunteers' Association for Entrepreneurial Advice, SECOT; specialised centres for women, INFODONA, and European Innovation Enterprises Centres, CEEIs. The activities and results of these entities are described in sections 3 a) and 4 c) of this report, except those of SECOT.

Intermediate mentoring

This activity is carried out by the five public Valencian Universities - Valencia University, UV; Alicante University, UA; Valencia Polytechnic University, UPV; Jaume I University (Castellón), UJI; Miguel Hernández University (Elche) UMH - four CEEIs, the Council of the Chambers of Commerce, the Valencian Youth Institute, IVAJ, and INFODONA centres.

The aim is to support and mentor entrepreneurs and innovative SMEs created recently (within the last five years), throughout the process of launching a business, offering them high-quality advanced services on different entrepreneurial management subjects.

Universities offer this advice through the Innovative Entrepreneur's Campus Programme, led by Miguel Hernández University, in different ways: tutoring of first year students by teachers and final year students; definition of various advice levels

and YUZZ programme for personalised tutorial support, including a mentor for each new entrepreneur (as an improvement in 2015 the mentor had to be chosen directly by students) from among experienced entrepreneurs from universities or enterprises. The additional proposal for setting up a network of mentors external to the university required a website that it was not possible to develop during 2015.

CEEIs are non-profit associations, created from 1990 onwards by the Generalitat through the Valencian Institute for Entrepreneurial Competitiveness, IVACE, according to the model of Business & Innovation Centres, BIC, promoted by European Union DG Regional Policy in 1984 to disseminate entrepreneurship culture and innovation. Their mission is to provide a complete and integrated catalogue of activities and services for entrepreneurs and SMEs, with the aim of supporting enterprise creation or the introduction of new lines in existing companies, including innovation as a strategic element in any field: production, management or marketing. CEEIs have a public interest function, they are made up of the main economic stakeholders from each geographical area and their services contribute to local and regional development. The Valencia region has four CEEIs, located in Elche, Alcoy (both cities in the province of Alicante), Castellón and Valencia, which, together with 14 Technological Institutes, make up REDIT, the network of technological institutes run by IVACE to support SMEs.

The available services, which each CEEI offers with their own specialisation, can be summarised in the following four action lines:

1. **Promotion of entrepreneurship and innovation services**: talks, seminars, events, support for Entrepreneurs' Day (FOCUS Innova Pyme), website, Enrédate meetings; entrepreneurship vocation study; training sessions and competitions on four subjects: Decide yourself E+, Idea E+, Trends E+ and Plan E+; prizes;

2. **Advice and enterprise creation services**, from identification of business ideas; information on markets, financing, technology; business plan drafting and training on entrepreneurial management; mentoring and availability of infrastructure and accommodation: enterprise centre with personalised advice, training sessions and courses, financing activities such as forums, and entrepreneurs and investors' school;

3. **Consolidation and growing services**, in order to launch business plans, viability studies, search for financing, innovation management and detection of business opportunities, diversification, promotion of new activity lines in existing enterprises, through networking sessions and financing activities: entrepreneurs and investors' school, financing and investment forums; investment committees; enterprise acceleration and advanced services for entrepreneurs and recently-created SMEs;

4. **Cooperation and territorial diversification services**, through organisation of meetings and events and support for local development agencies and other local entities for the development of projects to promote entrepreneurship and territorial diversification (Impended +, territory sessions).

Valencia (ES)			
Macro-economic profile**	GPD	2011 ESTAT	€48.051,00
		2015 JRC projection based on ECFIN	€45.756,16
		2030 JRC projection based on ECFIN	€56.484,74
	Employment	2011 ESTAT	973.800,00
		2015 JRC projection based on ECFIN	897.046,68
		2030 JRC projection based on ECFIN	940.536,36
	Population Territory	2011 ESTAT	2.559.194,00
		2015 JRC projection based on ECFIN	2.511.614,06
		2030 JRC projection based on ECFIN	2.292.422,17
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Spain	
Regional Innovation Monitor Plus Score Results (RIM Plus)		During last years, the Valencian Community has made significant progress in strengthening infrastructure and agents making up the structure of R&D system. Research and technological development focuses on the network of public and private universities, which includes 5 institutions and several prominent research centers of international levels. Additionally, the network of 14 technical institutes that form the structure REDIT, has contributed decisively to research and innovation and the development of technological applications specifically demanded by the companies according to their needs. Industrial activities with greater presence of innovative companies are related to energy, sanitation and waste treatment followed by manufacturers of wood and paper, machinery and equipment, textile and footwear, rubber and plastic products and minerals metal. During last years, innovation performance and R&D expenditure within the Valencian companies has decreased in a percentage up to 32.84% in the period 2009-2012, mainly due to the economic crisis, which have caused an important reduction in R&D investments. Additionally, during this period, a lot of companies, most of them small technology-based companies with high R&D expenditures, have gone bankrupt. During the 2013, according to recent data, this negative trend has been changed, achieving an increase of up to 12% in comparison with 2012.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/valencian-community	
Smart Specialization Strategy	Strategy	The S3 process in Spain shows that most Spanish regions, with some variation across regions, have made important efforts to widen stakeholders' participation to give regional actors from the public and private sector the opportunity to reach consensus and to jointly take decisions on a common vision of the future, creating commitment to the selected priorities. Link Official link to the Spanish RIS3/ S3 related material: www.redidi.es/politicas-y-estrategias-de-idi/la-ris3-en-las-comunidades-autonomas The Valencia's RIS3 was approved by the Delegated Commission of the Council for Science, Technology and Innovation ""Comisión Delegada del Consell para la Ciencia, la Tecnología y la Innovación"" on 12 July 2014	
	Sectoral priorities	The S3 priorities areas: Advanced materials and nanotechnology; advanced manufacturing; ICT; Biotechnology; Micro and nano electronics, and photonics; Energy and environmental technologies; Logistics.	
	Link	www.ivace.es/index.php?option=com_remository&Itemid=100124&func=fileinfo&id=1919&lang=es	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Vila Real de Santo António

Focus on Innovation in Tourism and Fishing

Regional **Innovation Ecosystems**

@cmvrsa

https://www.facebook.com/cmvrsa

http://www.cm-vrsa.pt

Luís Gomes

Leader of Vila Real de Santo António Municipal Council, PT
Member of the European Committee of the Regions

The potential of our city is not harnessed in effective implementation alone. Today, innovation presents itself as a mission, continuous and insistent, to promote local and regional economic growth, requalification of the public spaces, regulation of its occupation and its decisive restructuring of the dynamics and image of the city.

Vila Real de Santo António

Focus on Innovation in Tourism and Fishing

Introduction

Vila Real de Santo António[1] (VRSA) - The Marquis' City[2] - was built on an orthogonal grid and became a key landmark of Portuguese Absolutism, Enlightenment, and Urbanism. Built from 1773 to 1776, it rapidly became the commercial metropolis for the fish industry in the restored Kingdom of the Algarve, and played a vital role in the economic and administrative reform aimed at fostering national fisheries and reducing dependence on imports, in particular from Spain. In this context, the "the Kingdom of the Algarve was created and it remained active until 1836.

Requalification of Manta Rota

During the entire nineteenth century, the economy of Eastern Algarve was dominated by the tuna salting[3] and sardine industries, whose products were primarily exported to Spain. In 1853, the most important Portuguese canned tuna company - Ramirez & C^{a} (Sons) S.A. - was established in VRSA because of the quality of its port and the availability of vast sandy areas on which to build factories, and by 1941 the firm had 24 factories. During the Portuguese industrial revolution[4], the fisheries industry experienced significant fluctuations owing to volatility in the quantity of fish caught. Then, the global economic turmoil experienced during the first half of the twentieth century increased the consumption of canned fish worldwide and led to a boom in the local economy. However, the growing demand and concurrent overfishing turned tuna into an endangered species[5]. This setback prompted the search for alternative sources of income within the VRSA area, and tourism became its main economic sector. Nowadays, VRSA's location and climate, along with its natural and architectural heritage, are drivers for socioeconomic development.

Given the scope of the initiative, two plans were drawn up by the local authorities. Both endeavours were based on a multidisciplinary approach and their successful implementation helped to establish benchmark models for strategic growth that reconciled different municipal development policies with spatial planning and management, thus furthering the harmonisation and sustainability of the area as well as the quality of life of its citizens.

[1] http://www.cm-vrsa.pt.

[2] Marquis of Pombal, Secretary of State for D. José I.

[3] Thunnus Albacares and Thunnus Thynnus.

[4] Second half of the nineteenth century.

[5] Classified in the Red List of Threatened Species by IUCN - International Union for Conservation of Nature.

VRSA at Open Sky (2013)

VRSA At Open Sky targeted the city's historic centre and emerged from the need to boost the local economy by promoting the local area, entrepreneurship, and adoption of the latest development trends to foster sustainable growth.

The initiative established a differentiated nucleus in the VRSA area by bringing about far-reaching change with strong visual impact in the heart of the city. It gave it a new identity that distinguishes it from other urban centres across our nation. In fact, it was the first time that a project of this nature had been implemented in Portugal in a consolidated urban nucleus. VRSA At Open Sky had three main pillars: the creation of a strong, distinct city brand; the creation of an outdoor shopping centre; and the rehabilitation of public spaces. The strategy consisted of regenerating and enhancing architectural heritage, revitalising and promoting the historical centre, encouraging downtown housing, stimulating a sustainable economy supported by tourism, rehabilitation and trade, promoting private interests, and fostering local and regional socioeconomic development by applying new approaches to land management and economic activities. This comprehensive project was financed by municipal funds and the European Union (EU)'s JESSICA programme[6].

The implementation of the project was supported by an innovative model that reconciled mobility with the enjoyment and protection of historical heritage, and it was designed taking into account the feedback collected from local stakeholders (economic and civil), intermunicipal and European entities (e.g. European Committee of the Regions), debates on the regional model of economic development, and presentations on the city's strategic guidelines for sustainable socioeconomic progress. This model comprised the establishment of interdisciplinary technical teams dedicated to: the pursuit of new business ventures originating from the aspirations of local economic agents; gathering of potential investors for innovative and ambitious projects; participation in national and international real estate fairs; building a digital platform[7] to facilitate interaction between city services and the community, and the implementation of proximity policies and technical support for local businesses – e.g. licensing, investment, training, and funding opportunities.


VRSA Open Sky

VRSA At Open Sky remains active thanks to the continued engagement of local stakeholders and economic agents who have ended up embracing this model as their own – thus becoming the de facto ambassadors of the city's new identity – "… citizens are the true drivers of development as customers but also as active contributors throughout the innovation processes"[8]. The

[6] Joint European Support for Sustainable Investment in City Areas.

http://vrsa-sgu.pt/pt/menu/48/centro-comercial-a-ceu-aberto.aspx

[7] My SGU at http://vrsa-sgu.pt.

[8] Markkula, Markku (4 June 2015). "*EU regional innovation must unite public, private and third sectors*". The Parliament Magazine – Politics, Policy and People. Web. 10 April 2016, https://www.theparliamentmagazine.eu/articles/opinion/eu-regional-innovation-must-unite-public-private-and-third-sectors.

degree of community involvement reflects the cultural infrastructure, tourist information and equipment, while at the same time promoting synergies that contribute to higher quality activities, and ultimately leads to an increase in volume and value of local tourism.

Regeneration Of The Manta Rota And Fábrica Beaches (2007)

The policies of VRSA's Territorial Plan are based on the preservation and enhancement of the landscape as a primary objective when developing urban intervention strategies. Man and the environment, are part of an ensemble that continuously adjusts according to the values that define it - social, cultural, environmental, heritage, and symbolic.

The sites of Manta Rota and Fábrica are located on the western borders of VRSA municipality and are characterised by the unique landscape and ecological systems of Ria Formosa Natural Park. This area is an important natural asset that must be preserved, enhanced, and promoted in order to contribute to the sustainable socioeconomic development of the region. In this context, it is necessary to monitor and manage land use capacity so that tourism promotion, although a driver for economic development, does not become secondary to the preservation of this prime natural resource.

Manta Rota and Fábrica have been popular seaside destinations in Portugal for many decades, which provides income for a significant portion of their citizens, though this has led to changes along the coastline and surrounding areas, such as the expansion of urban zones, thus imposing challenging constraints and potentially undesirable changes on the area's identity and natural resources.

In 2007, local authorities rehabilitated the Manta Rota and Fábrica beaches under the Vilamoura/VRSA owing to the need to restructure the coastline in order to reconcile different synergies and consolidate local strategies for the development and integration of urban areas with the natural landscape. This endeavour comprised the redefinition of vehicle circulation and parking; rehabilitation of the sand dunes ecosystem; restoration of natural resources in degraded areas; definition of beach access and the creation of recreation and leisure areas. The initiative covered 8.60 hectares along the coastline and aimed at fostering local socioeconomic potential and optimising it by harmoniously accommodating the urban and natural landscapes. The investment of EUR 2.6 million was co-financed by PROAlgarve[9] (65%), PIPITAL[10] (21%), VRSA municipality (8,5%), CCDR Algarve[11] and the ICNB[12] (5,5%).

In 2009, the regeneration of Manta Rota beach ranked first in the "Beach + Affordable"[13] award of by the "Accessible Beach - Beach for All" programme and became a benchmark model of rehabilitation and accessibility. In 2015, Fábrica beach was recognised by Condé Nast Traveler magazine as one of the top 15 beaches in the world. Since 2005, both beaches have been classified by Quercus[14] as having "Golden Quality".

The success of this project was to a large extent due to recognising local stakeholders and citizens as both constraints on and complements to the decision-makers' empirical process, as well as to taking into consideration the status quo of local authorities along with their local manage-

[9] Operational Program for the Algarve Region.

[10] Programme of Public Investments of Tourist Interest for the Algarve.

[11] Committee for Coordination and Development of the Algarve Region.

[12] Institute of Nature and Biodiversity Conservation.

[13] Awarded by the Instituto Nacional para a Reabilitação (INR), the Instituto da Água (INAG) and the Vodafone Foundation Portugal.

[14] National Association of Nature Conservation.

ment and planning policies. We recommend the adoption of similar strategies by our peers in order to minimise the likelihood of discord and bottlenecks and thus maximise the allocation of available resources to endeavours that de facto promote the values that characterise the unique nature of area, its people and the local competitive advantages.

Conclusion

The frequent changes in spatial aptitudes resulting from continuous urban growth require the implementation of territorial management policies that are often incompatible with the preservation of local values and the authenticity of the sites. In these contexts, it is necessary to organise the area according to the values that define it in physical terms, including existing buildings and traditional aspects, so as to enable the creation of mechanisms that support tourism activities. To stimulate such harmonious reconciliation there is a need for more and better- endowed EU funding programmes, and these must be more comprehensive and easier to comprehend, and adopt simplified bureaucracy, given that the identity of each region tends to have unique characteristics and thus standardised rules are likely to create unreasonable constraints. It is imperative to give municipalities more autonomy because of their greater knowledge and experience on the ground, in order for them to be effective and efficient leaders of the managerial process. Such changes will be help to improve the strategic interventions and give municipalities the opportunity to be entrepreneurs on their own territory[15].

[15] http://www.vrsainvest.pt.

Vila Real de Santo António (PT)		
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Portugal
Regional Innovation Monitor Plus Score Results (RIM Plus)		"Algarve has the fourth highest figure of PhDs in Science and Technological areas per 1000 inhabitants among the Portuguese regions (0.27 in 2011; national average was 0.60). The region has a total of 76 Research and Development (R&D) units (2011), which accounts for about 2.2% of total number of R&D units in Portugal. The regional gross expenditure on research and development (GERD) as percentage of the regional GDP was 0.45% (2011). In the same year, the national GERD was 1.52%. The Higher Education Institutions (particularly the University of Algarve) are the main players regarding RTD activities in the region: in the year 2011, 82.9% of the expenditure in R&D was made through activities implemented by Higher Education Institutions; 12.3% of the expenditure was made by business activities; 3.9% by the national government; and 0.9% by private non profit institutions. Within the regional business fabric, RTDI activities are primarily found in sectors such as trade, catering and housing and construction. The indicators available point mainly to incremental innovations in processes or management, being product innovation of minor relevance. The regional RTDI competencies, are associated to the specific indigenous resources available, which reflect good opportunities for the development of RTD activities in the region, namely: Agriculture and agro-food, aquaculture and biotechnology sectors: production of agricultural food products, fruit and vegetable products and the agro-biological cultures. Also the recovery of specific productions with tradition in the region (cork, sea salt, shellfish and bivalves) and of regional products (e.g. dried fruit, regional sweets, honey, liqueurs etc). Construction sector: operating, maintaining and managing systems of environmental protection and renewable energy. Wholesale and retail trade: enhancement of e-commerce. Tourism sector: diversification of products taking into consideration the global trends such as: activities related to sports, including golf, senior leisure and health components are emerging areas. Health sector: due to the existing competences and the potential for developing research in the regional health system.
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/algarve-region-portugal
Smart Specialization Strategy	Strategy	Algarve region has a RIS3 finalised in 2014.
	Sectoral priorities	The RIS3 identifies the following priority areas: Maritime activities; Tourism and diversification into related industries; ICTs and cultural industries; Health and life sciences that address social needs, such as care for older people from abroad; Agro-food. The S3 priority sectors are: Agriculture, forestry & fishing, Fishing & aquaculture, Tourism, restaurants & recreation, Information & communication technologies (ICT), Human health & social work activities, Agriculture, forestry & fishing, and EU priorities in Blue growth, Aquaculture, Digital Agenda, Social innovation, New products or services that meet social needs.
	Link	http://s3platform.jrc.ec.europa.eu/regions/pt15

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

Zuid-Holland metropolitan area

Test-bed for Europe's societal challenges

Regional **Innovation Ecosystems**

@zuid_holland

https://www.facebook.com/zuidholland/

http://www.zuid-holland.nl/

Rogier Van der Sande

Member of the Executive Council of the Province of Zuid-Holland, NL
Member of the European Committee of the Regions

I am proud to present the contribution of the triple helix partners of Zuid-Holland metropolitan area on the regional innovation ecosystem. We would like to join forces with other regions to tackle Europe's mayor societal challenges. Zuid-Holland has great potential for innovation in comparison with other European regions. Realising this potential calls for further cooperation and a cross-sectorial approach.

Zuid-Holland metropolitan area

Test-bed for Europe's societal challenges

Introduction

Climate change, energy, air pollution, feeding megacities, complex logistics, safety and security risks, and a fast growing population: these are the challenges for metropolitan delta regions across the globe. Challenges that are crucial to safeguarding the quality of life of current and future generations. Our innovative companies work closely with three universities and two medical centres, higher and intermediate vocational colleges and world-famous knowledge institutions in order to conceive solutions to these challenges, but also to develop and test them.

Zuid-Holland is home to a population of 3.5 million people and a labour force of 1.6 million people. The delta region, which includes the cities of The Hague[1], Rotterdam[2], Delft[3], Leiden[4] and Dordrecht, is one of the most densely populated areas in the Netherlands. Its gross regional product makes up 20.9% of the total GDP of our country. The region is very well connected to the rest of the world with direct train connections to major European capitals, two international airports and the Port of Rotterdam[5]: Europe's largest and smartest port.

The region ranks among the world's leaders in the fields of agri-food; maritime and logistics; health and life sciences and security and justice. Businesses that are heavily involved in R&D. The region offers a supportive environment. Delft University of Technology[6] is ranked among the top technological universities worldwide. Leiden Bio Science Park[7], next to Leiden University[8], is among the top five most successful science parks in Europe. The Erasmus Medical Centre[9] and Leiden University Medical Center[10] are leading clinical research centres in Europe.

[1] http://www.denhaag.nl/en/business.htm
[2] http://www.rotterdam.nl/home_english
[3] http://www.delft.nl/delften/Business
[4] http://www.visitleiden.nl/en
[5] https://www.portofrotterdam.com/en/business-opportunities/smartest-port
[6] http://www.tudelft.nl/en/about-tu-delft/
[7] https://leidenbiosciencepark.nl/
[8] http://www.universiteitleiden.nl/en
[9] http://www.erasmusmc.nl/research/?lang=en
[10] https://www.lumc.nl/research/research-alliances/academic-alliances/

Joining forces to be a part of Europe's leading innovative regions

The triple helix partners in the region have decided to join forces to be a real-life testing ground for metropolitan delta areas from all over the world. Zuid-Holland accommodates numerous strong economic clusters. Our smart specialisation strategy targets cross-over innovations focussed on Europe's societal challenges. For example: the application of big data for peace and for protection from, for example, floods, 3D printing in the maritime and medical industry, and new medicines based on plant extracts. The region has the highest R&D expenditure in the Netherlands, export growth that is well above average, and has doubled its foreign investments over the last fifteen years. Still, we have room to improve as regards turning our best ideas into new jobs and businesses and fully tapping our potential to be among Europe's leading regions.

Policy, collaboration and partnering model

The triple helix partners, united in the regional economic board (called: EPZ) focus on initiatives and investments on five priorities. First, to improve internal and international connectivity. Second, a transformation towards the 'next economy' with a focus on innovation through science parks and living labs. Third, a labour market policy that fits the main economic clusters. Fourth, stimulating the use of renewable energy. Fifth, improving attractiveness for talent and investors.

Our partnering model aims at cooperation with international partners, networks and the European institutions. The Vanguard network[11] and Knowledge and Innovation Communities (KiCs[12]) are important channels for cross- border cooperation with other European regions and its triple helix organisations.

[11] http://www.s3vanguardinitiative.eu/

[12] http://eit.europa.eu/activities/innovation-communities

Innovative instruments and regional approaches

Our region has a well-educated population, three universities and two medical centres with very high international rankings. Leiden University is a major supplier of legal expertise and spin-offs in health and life sciences. Delft University of Technology produces world-famous innovations in engineering, biotechnology, microelectronics, robotics and architecture and design. Erasmus University Rotterdam delivers top economists and medical innovations. This academic knowledge base is reinforced by six universities of applied sciences, putting theory into practice, and leading applied research institutes such as TNO[13] and Deltares[14].

Our regional innovation ecosystem is closely linked to the region's strong economic clusters, the Greenports (agri-food); Mainport (maritime and logistics); Medical Delta (health and life sciences); and Security Delta (security and justice). Players within these world class clusters need to join forces to be at the top of highly competitive sectors. Not only within Zuid-Holland, but also together with other European regions.

One example is Medical Delta, which has forged a "regional knowledge community" in the field of health and life sciences. The business world is closely linked via, for example, the Leiden Bio Science Park, home to the largest concentration of life science activities in the Netherlands, and among the top bioscience parks in Europe. Medical Delta was part of HealthTIES[15], four top European regions in biosciences, med-tech and health entrepreneurship, that joined forces to compete with American and Asian competitors. At present Medical Delta is one of the leading partners within EiT Health[16].

[13] https://www.tno.nl/en/about-tno/

[14] https://www.deltares.nl/en/about-us/

[15] http://vrr.healthties.eu/

[16] https://eithealth.eu/about-us/

"More intensive cooperation is urgently needed in Europe in order to tackle global challenges"
Henri Lenferink, Mayor of Leiden, CoR alternate

Innovation Quarter[17] is the regional economic development agency. In close cooperation with major businesses, educational and research institutions and government organisations, Innovation Quarter supports technological development, encourages entrepreneurship and invests in start-up companies. The instruments that Innovation Quarter uses are dedicated business developers and a revolving fund – partly financed by the ERDF – to stimulate innovation in the region. Innovation Quarter also actively promotes the region, attracts foreign companies and investors and facilitates them in finding the right locations and facilities for setting up or expanding their business.

[17] http://www.innovationquarter.nl/english

"It is a good thing that the EU recognises that towns and cities play an important role in generating jobs and growth using innovation" Bas Verkerk, Mayor of Delft, CoR member

By cooperating with business, government and civil society organisations, we can make our knowledge work to the benefit of wider society. This is facilitated, inter alia, by our "valorisation centres" and incubators like the YES!Delft[18] business incubator that secured 4th position in the European UBI Index 2015[19] list of excellent university incubators. Since its foundation 10 years ago YES!Delft has supported more than 160 start-ups[20] and hundreds of technologies have been patented. In 2015, the companies are active in more than 80 countries and jointly account for an invested capital of over EUR130 million and more than 1 000 jobs.

For small and medium-sized companies, the availability of open access research and development facilities are of increasing importance. The region hosts large-scale facilities that are unique within Europe, like the NeCEN[21] microscope in Leiden and the Bio Process Facility[22] in Delft, facilities financed by the ERDF[23]. Our universities also offer accessible research infrastructure. One example is the Faculty of Science at Leiden University[24], which welcomes all interested parties to take a look at our state-of-the-art analytical instrumentation and related expertise (OARI[25]).

The region has an excellent knowledge base, but its innovation performance needs to be improved. We are therefore investing in several field labs: practice environments in which companies and knowledge institutions develop, test and implement innovations. The Green Village[26] (Delft) for example will provide an environment to accelerate radical innovations in the field of energy systems. Other examples are a field lab for 3D printing[27] for the maritime industry, a Delta Innovations field lab focussed on water safety, Freshteq[28] aimed at innovations within the food and horticulture cluster and Applied Innovations in Maritime Automation for sustainable vessels.

[18] http://www.yesdelft.nl/about

[19] http://ubi-global.com/research/ranking/rankings-2015/#eu2015

[20] http://www.yesdelft.nl/our-companies

[21] http://www.necen.nl/about-necen-48

[22] http://www.bpf.eu/about-the-bpf/

[23] https://ec.europa.eu/commission/2014-2019/cretu/announcements/eu190-million-eu-funds-allocated-zuid-holland-noord-holland-utrecht-and-flevoland-innovation-and_en

[24] http://www.science.leidenuniv.nl/index.php/english/about_the_faculty

[25] http://oari.science.leidenuniv.nl/#/

[26] http://www.thegreenvillage.org/

[27] https://www.portofrotterdam.com/en/news-and-press-releases/rdm-rotterdam-to-acquire-a-fieldlab-with-3d-metal-printers

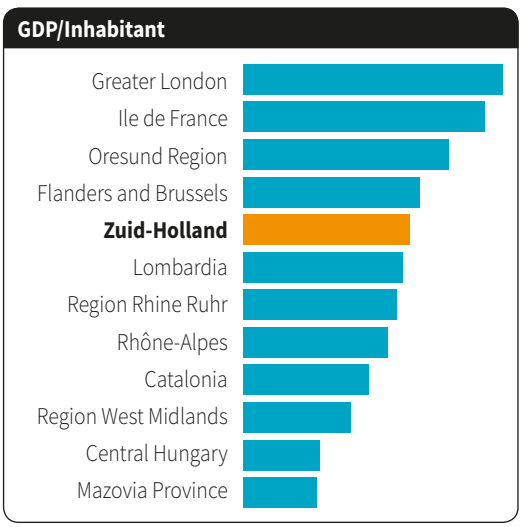
[28] http://fieldlabsmartfood.nl/

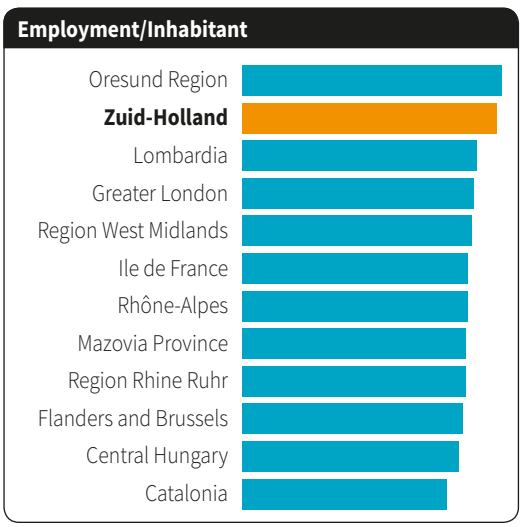
"Europe cannot do without innovative cities" Ingrid van Engelshoven, Alderman of The Hague, CoR alternate

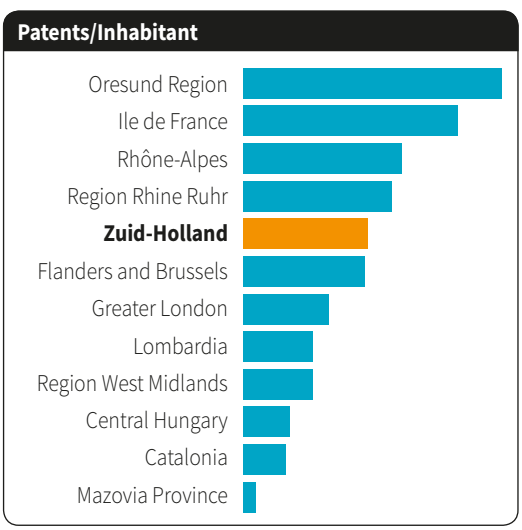
Outcomes and impact

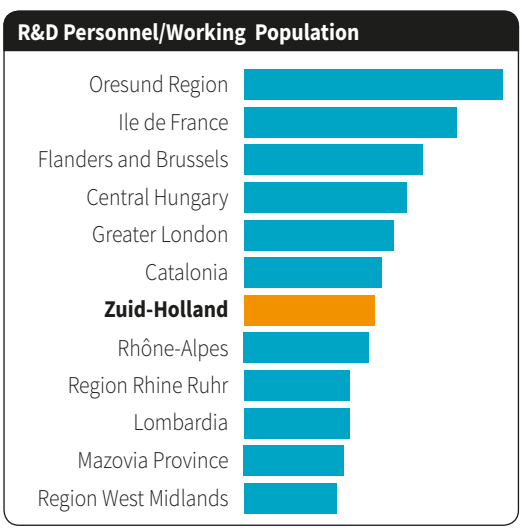
Our ambition is to be a competitive and liveable metropolitan delta region. We strive to improve ourselves by benchmarking and collaboration with European regions with a comparable economic profile. The following outcome indicators are relevant for us:

- economic growth;
- more jobs and less unemployment;
- more turnover from innovative products; and
- more innovative companies that cooperate with each other and with knowledge institutes









Conclusions: European growth through triple helix collaboration and experimentation

"Zuid-Holland is well positioned among Europe's vanguard regions tackling European challenges. We invent, make, test and sell innovations for a strong and liveable metropolitan delta. That is what we contribute to a competitive, innovative and inclusive Europe. The European Union is an important partner for companies, knowledge institutions and government in this region to build partnerships on challenges we face together." Ab van der Touw, Chairman of EPZ, the regional economic board

"We are on the cusp of a new economy. The necessary transition calls for innovations that do not fit the current inflexible rules. Europe is able to facilitate this process by giving towns, cities and urban regions the necessary scope for experimentation" Ahmed Aboutaleb, Mayor of Rotterdam and CoR alternate

But we could do even better, as the Commissioner for Innovation Mr Moedas[29] states: "Europe has excellent science, but we lack disruptive market-creating innovation. This is what is needed to turn our best ideas into new jobs, businesses and opportunities. While the number of start-ups created in Europe is on a par with competitors such as the United States, Europe lags behind in disruptive innovation and in scaling start-ups into world-beating businesses".

[29] https://ec.europa.eu/research/eic/pdf/eic_presentation.pdf

Zuid-Holland (NL)			
Macro-economic profile**	GPD	2011 ESTAT	€115.061,00
		2015 JRC projection based on ECFIN	€113.781,21
		2030 JRC projection based on ECFIN	€128.573,32
	Employment	2011 ESTAT	1.410.800
		2015 JRC projection based on ECFIN	1.701.404,86
		2030 JRC projection based on ECFIN	1.692.241,46
	Population Territory	2011 ESTAT	3.528.324,00
		2015 JRC projection based on ECFIN	3.594.934,00
		2030 JRC projection based on ECFIN	3.832.707,00
Research and Innovation Observatory *	Link	https://rio.jrc.ec.europa.eu/en/country-analysis/Netherlands	
Regional Innovation Monitor Plus Score Results (RIM Plus)		South Holland has a strong innovation potential because of its high business activity. The region has around 181,200 registered businesses. The Gross Domestic Expenditure on R&D in this province is €2,656m (in 2011), 2.12% of the total GDP, which is above the national average of 2.03% and EU average of 2.05%. The BERD in South Holland is 1.01% of GDP. The BERD of the Netherlands is 1.14% of GDP. The province boasts various centres of knowledge and expertise, including three universities in Leiden, Delft and Rotterdam. Leiden University has 20,684 students (bachelor and master), 4,000 staff members scientific and non-scientific (3,256 fte). In 2012, 5,350 scientific publications were produced. In Shanghai University's 'Academic Ranking of World Universities' Leiden University occupies 73th place in the global top 100 (2012). Delft University of Technology has 17,530 students (bachelor and master), 2,491 scientific staff members. In 2012, 5,604 publications were produced. In Shanghai University's 'Academic Ranking of World Universities' Delft University occupies 208th place in the global top 500. Erasmus University Rotterdam has 20,941 students (bachelor and master) and 2,662 staff members. In the Shanghai ranking (ARWU), the Erasmus University Rotterdam is listed 154th. There are also various bachelor universities (Hogescholen).Non-university public research institutes in the region are e.g. the TNO research laboratories (Delft, Leiden), Estec (European Space research, Noordwijkerhout) and IHE (Hydrology, Delft).There are also a number of private research centres including Unilever Research Vlaardingen, Shell Rijswijk, DSM Delft and a large number of smaller research intensive companies. Life Sciences is a specific strength around the universities of Leiden and Delft.	
	Link	https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/flevoland/flevoland	
Smart Specialization Strategy	Strategy	S3 Priorities: -1. Manufacturing & industry 2. Power generation/renewable sources 3. Energy production & distribution 4. Human health & social work activities	
	Sectoral priorities Link	http://s3platform.jrc.ec.europa.eu/regions/nl4/tags/nl4	
Stairway to Excellence	Link	http://s3platform.jrc.ec.europa.eu/documents/20182/91499/Ris+Southern+NL.pdf/eb5a7447-17f1-417a-8538-9b93cbba9fd4	

**UNITS

Employment: Employment is expressed as employed persons per region

Population: Population is expressed in persons

GPD: GPS is expressed in million euro, constant prices (base year 2015)

Proyections are performed by LUISA Modelling Platform: http://data.jrc.ec.europa.eu/collection/LUISA

The information presented is part of projects developed by the European Commission Joint Research Centre (DG JRC) in collaboration with the Directorates General for: Research and Innovation (DG RTD); Internal market, Industry, Entrepreneurship and SMEs (DG GROW); and Regional and Urban policy (DG REGIO).

"*RIO - The Joint Research Centre (JRC) Research and Innovation Observatory (RIO) is a new initiative of the European Commission to monitor and analyse research and innovation developments at Country and EU levels to support better policy making in Europe.

*** The Stairway to Excellence (S2E) project aims to support EU13 regions and countries in developing and exploiting the synergies between European Structural and Investment Funds (ESIF), Horizon 2020 (H2020) and other EU funding programmes.

Regional Analysis

Global urban challenges – Joint European solutions

Regional **Innovation Ecosystems**

Regional Analysis

Global urban challenges – Joint European solutions

Author:
Dr. Margit Knoll
Joint Programming Initiative Urban Europe

Urban transition towards sustainable and liveable urban futures

Today, it is more and more common to refer to current times as the urban age, which means that, on a planetary level, urban areas are the main loci that attract, process and channel the societal, cultural and economic matters at the core of human life. They act as regional innovation hubs for our businesses and are the places, where the majority of public investments take place in our economies. However, current forms of urbanisation are deeply unsustainable over most – if not all – sectors and dimensions that make up contemporary urban life, and with ecological footprints way beyond what is commonly considered manageable in the long term. Life in urban areas can be unpleasant and unhealthy in many parts of the world, and the struggle for a liveable urban environment is on the top of the agenda in many countries. Getting our cities and urban areas right is hence the key to set the planet right [1] [2].

JPI Urban Europe is therefore concerned with central questions for the future of our cities and regions. This requires supporting urban areas and regions to increase the quality of life, enhancing the welfare for all citizens and paving the way towards sustainable and inclusive cities. As urban areas across Europe show different dynamics and challenges, it is important to reflect this heterogeneity in all our efforts.

The JPI Urban Europe was created in 2010 to address these global urban challenges of today with the ambition to develop a European research and innovation hub on urban matters and create European solutions by means of coordinated research. Based on the principle of variable geometry, the JPI Urban Europe partner countries tackle the societal challenge of sustainable urban development by aligning national strategies and pooling national resources and competences for transnational cooperation and exploitation.

[1] JPI Urban Europe. (2015). Strategic Research and Innovation Agenda: Transition Towards Sustainable and Liveable Urban Futures. Retrieved from http://jpi-urbaneurope.eu/downloads/jpi-sria-def-pdf

[2] UN. (2014). Progress to date in the implementation of the outcomes of the second United Nations Conference on Human Settlements (Habitat II) and identification of new and emerging challenges on sustainable urban development. Report of the Secretary-General of the Conference, A/CONF.226/PC.1/5, 26 July 2014. United Nations General Assembly

JPI Urban Europe partners and network

Since its inception, JPI Urban Europe has gathered twenty European countries as full members, funding partners or observers to develop a joint strategy and set-up joint actions, in particular

joint calls for RTDI projects. So far two pilot calls and two ERA-NET Cofunds have been realised.

In addition JPI Urban Europe aims at teaming up with regional, national and European organisations to raise awareness of urban needs and solutions, identify opportunities for transnational and international cooperation and jointly exploit latest research results. Regular events are organised together with the EC, the Committee of the Regions, the European Parliament, the Member and Associated States and other stakeholder organisations to strengthen relationships, to define common interests, to compare and align urban agendas, to provide a platform for communication of priorities and aspirations.

The JPI Urban Europe Strategic Research and Innovation Agenda

A Strategic Research and Innovation Agenda (SRIA) was developed to identify and agree on research priorities and define joint implementation measures. The SRIA thus aims at considering the diversity of urban and regional research and innovation needs across Europe and opens the door also for small and less RTDI intensive countries to work together in JPI Urban Europe's activities. To ensure highest commitment and relevance for all JPI Urban Europe partners, a co-creative process was applied, involving representatives from all stakeholder groups and regions – scientists, funding agencies, cities, business and industry, civil society.

From a thematic point of view, the SRIA focuses on urban transitions pathways and five thematic priorities:

- Vibrant urban economies
- Welfare and finance
- Environmental resilience and sustainability
- Accessibility and connectivity
- Governance and participation

The main ambition of JPI Urban Europe's SRIA is to realise a new paradigm for urban research and innovation, to provide new kinds of urban innovation ecosystems for urban and regional RDI; to help bridging the implementation gap and support the exploitation of research results in urban development and business.

The four principles of the JPI Urban Europe's SRIA are therefore:

- Enhancing cities' and regions' capacities for transition
- Tackling the complexity of urban sustainable development
- Teaming up with cities and urban stakeholders, including civil society
- Raising the impact and support the exploitation of sociotechnical innovation
- The people and their cities have quite individual needs. However, we all together need to address common questions on how to improve the quality of life and sustainability in our European cities and to establish them as attractive places to live, work and enjoy.[3]

[3] JPI Urban Europe: For more information on how to participate in the various activities and to keep up to date with the news, events and activities visit the website www.jpi-urbaneurope.eu

Regional and Macroeconomic Views of R&D and Innovation Policies

Authors:
Carlo Lavalle, Enrica Chiozza, Mert Kompil, Claudia Baranzelli, Pilar Vizcaino Martinez, Filipe Batista e Silva, Chris Jacobs-Crisioni
European Commission DG Joint Research Centre

Introduction

The Joint Research Centre (JRC) and the Directorate-General for Regional and Urban Policy (REGIO) of the European Commission have decided to set up a pilot Knowledge Centre for Territorial Policies to provide scientific support for the implementation of the Cohesion policy priorities of the European Union.

In this context, the JRC and REGIO are developing an analytical framework for a better understanding of regional dynamics and territorial disparities in Europe, to enhance the effectiveness of European policies for social, economic and territorial cohesion.

One pillar of the framework is the LUISA - Land Use-based Integrated Sustainability Assessment modelling platform for the analysing of different scenarios of European territorial development at multiple spatial scales (macro-regions, countries, regions or urban areas) based on macro socioeconomic trends, local and regional growth factors, policies and investments. The provision of services and goods from regional ecosystems, and the presence of infrastructural assets and amenities, are integral components of the approach.

Based on the concept of 'dynamic land functions', LUISA has adopted a novel approach towards activity-based modelling and endogenous dynamic allocation of population, services and activities. LUISA can be employed both as a stand-alone model and as an integrative platform of inter-linked data, processes and models that allows analysis of the evolution of European territories triggered by investments at national, regional or urban level. The analysis is based on a number of indicators that can be projected in time (period 2010-2050).

The LUISA platform is equipped to combine the inputs provided by other models with spatial information on e.g. provision and access to services (e.g. public structures, ecosystems, recreational and cultural sites, etc.), availability of infrastructures for housing, transport, energy, etc. By using the LUISA platform it is therefore possible to monitor investments in different areas of interest. Moreover, the LUISA platform permits the monitoring of environmental indicators (e.g. pollution levels and mitigation measures) and the status of natural capital.

LUISA can perform sectoral and geographical down-scaling (regionalisation) of parameters provided by ECFIN and EUROSTAT, hence is able to generate endogenously specific scenarios of socio-economic evolutions at sub-national (NUTS-2 and3) level (Batista et al., 2016[1]).

The platform is an instrument to analyse different scenarios based upon the type of investments policy makers opt for at national, regional and urban level, and in a number of sectors of activities.

This section illustrates examples of products and applications of the LUISA Modelling Platform, focusing on the following two subjects[2]:

- Territorial Analysis of European Cities: Urbanisation, Land use and urban developments, air quality, accessibility, flood risk;
- Energy patterns at regional and local scale.

[1] Batista e Silva F, Dijkstra L, Vizcaino Martinez P, Lavalle C, Monfort P (2016) Regionalization of demographic and economic projections – Trend and convergence scenarios from 2015 to 2060. JRC Science for policy report. Luxembourg: Publications Office of the European Union. Forthcoming.

[2] https://ec.europa.eu/jrc/en/luisa

European Cities – Territorial Analysis with the LUISA Modelling

Cities lead economic growth and innovation in Europe. They host the majority of the population, providing opportunities for employment and an abundance of social and cultural activities. At the same time, cities are also confronted with important environmental, social and economic problems such as air pollution, flooding, congestion, risk of segregation and poverty, unemployment, and inadequate social services. Beforehand evaluation of the potential implication of policies at the city and EU level is becoming increasingly important.

The LUISA Modelling Platform has been applied to assess the current state of European cities and their possible future (2010-2050) developments. Some of the key findings from a recent study by LUISA Modelling Platform (Kompil et al., 2016) [3] can be herein reported:

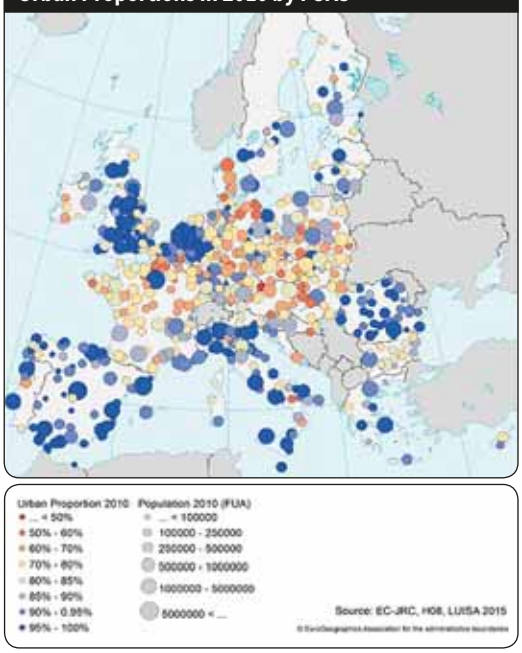
- The proportion of the population living in cities, towns and suburbs is higher in the EU than in the rest of the world. According to the LUISA forecasts, the urban proportion will continue to increase up to 2030; subsequently slow down, and reach a relatively steady state by 2050.
- In 2010, 65% of the EU population were living in Functional Urban Areas (FUA, the city and its commuting zone). This figure is expected to reach 70% by 2050. The total EU-28 population is expected to grow by 4.6%. Most of this population growth will occur particularly in FUA which will grow by an average 14%.
- As of 2010, the amount of artificial areas per inhabitant in the EU-28 was estimated as 498 m2: it becomes 539 m2 in 2050 with an 8% increase. Although there is not a unique spatial pattern, land take tends to start peak at 5 km distance from the city centre. This is due to the fact that land is often less available for development within city centres and that the majority of land take therefore will occur firstly in the suburbs and then in rural areas.
- By 2050, potential accessibility – as measure of economic opportunities - will be higher in the urban areas of north-western Europe, while it will not improve in lagging European regions. Urban form has a considerable impact on average travelled distances and thus potentially on the energy dependence of transport.
- Green infrastructure is mainly located at the periphery of urban areas. Its share per person is generally low or very low in most of the European cities, with few exceptions. Green infrastructure per capita in FUA shows a general trend towards a decrease across the EU-28 (by approximately 13%) between 2010 and 2050.
- Larger cities tend to have higher average flood risk, especially due to the higher sensitivity in terms of potential human and physical losses.

[3] Kompil M, Aurambout J, Ribeiro Barranco R, Barbosa A, Jacobs-Crisioni C, Pisoni E, Zulian G, Vandecasteele I, Trombetti M, Vizcaino M, Vallecillo Rodriguez S, Batista e Silva F, Baranzelli C, Mari Rivero I, Perpiña Castillo C, Polce C, Maes J, Lavalle C, 2015, European cities: territorial analysis of characteristics and trends - An application of the LUISA Modelling Platform (EU Reference Scenario 2013 - Updated Configuration 2014), EUR 27709 EN, doi:10.2788/737963.

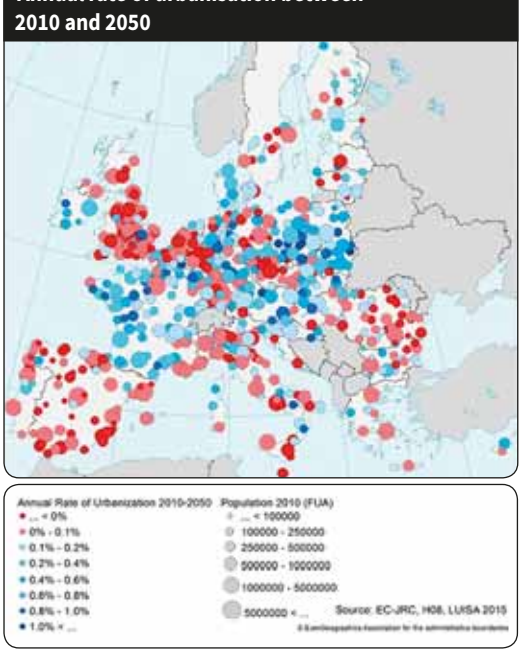
Urbanisation

As of 2010, the proportion of the population living in cities, towns and suburbs within the European Union was higher than the rest of the world with almost 80%. The forecasts imply that in the next twenty years, the urban proportion will continue to increase as in the past few decades; it will then slow down and reach its limit at 88% by 2050. Since most of the Functional Urban Areas (FUA) have already reached their thresholds, with 90%-95% urban proportion levels, smaller cities/towns and also rural areas will be the main subject of urbanisation in the future.

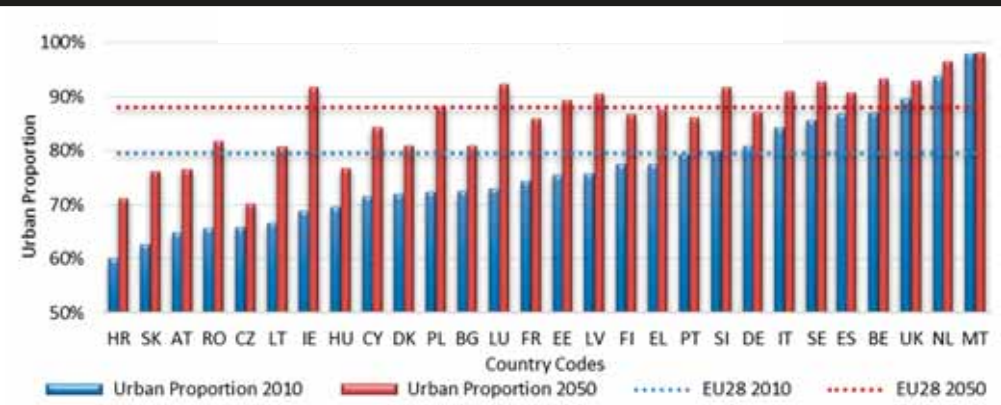
Urban Proportions in 2010 by FUAS



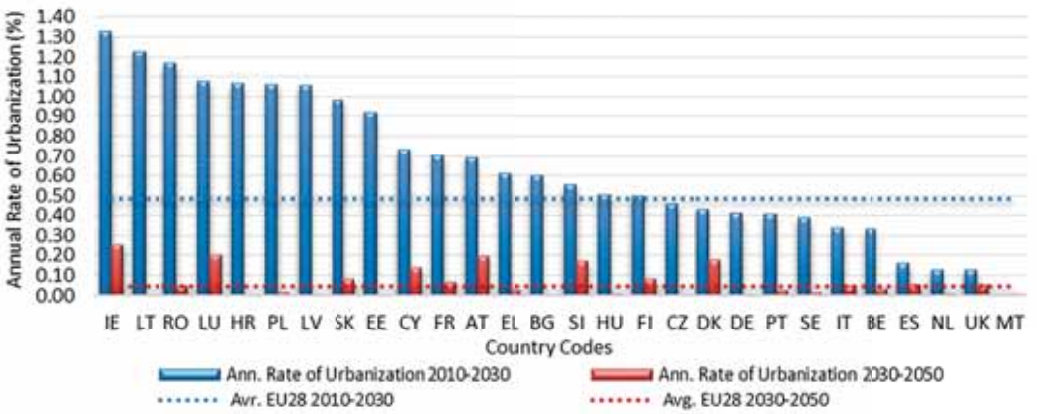
Annual rate of urbanisation between 2010 and 2050



Urban Population Proportion by Countries and Years



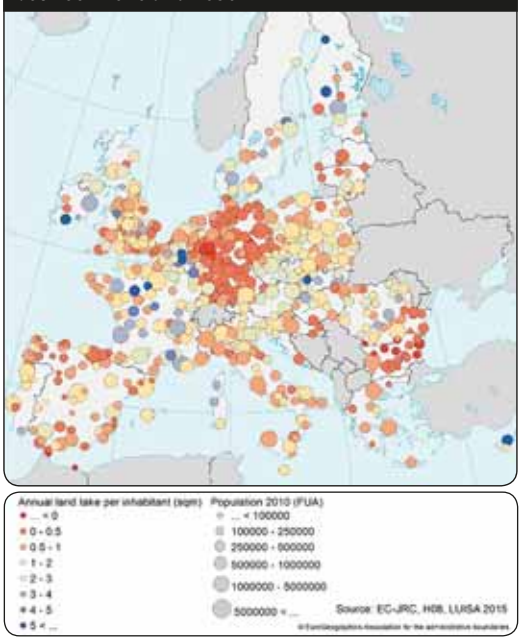
Urban Population Proportion by Countries and Years



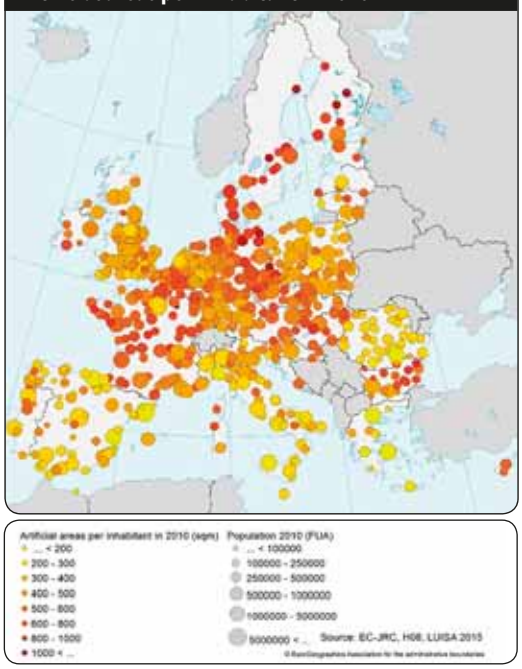
Land use and urban development

The annual land take between 2010 and 2050 at EU-28 level is approximately 1.6 m2/capita/year. It is much higher in rural areas with 3.08 m^2/capita/year than the cities with 0.80 m2/capita/year and the towns and suburbs with 1.93 m^2/capita/year. With a focused analysis, the land take tend to start peaking after a 5 km distance from the city centre, which means the land available for built-up within city centres has already been developed in the past, and that the majority of land take therefore will occur first in suburbs and then in rural areas. Apart from this, as of 2010, artificial areas per inhabitant in EU-28 were 498 m^2 and become 539 m^2 in 2050 with an 8% increase. In general, the local administrative units (LAU2) classified as cities use land more efficiently (228 m^2/capita), than the towns and suburbs (501 m^2/capita) and the rural areas (1084 m^2/capita).

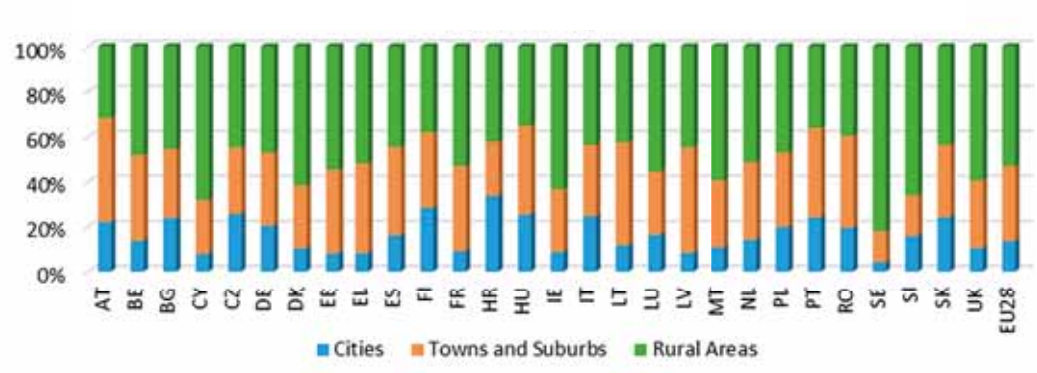
Annual land take per inhabitant between 2010 and 2050



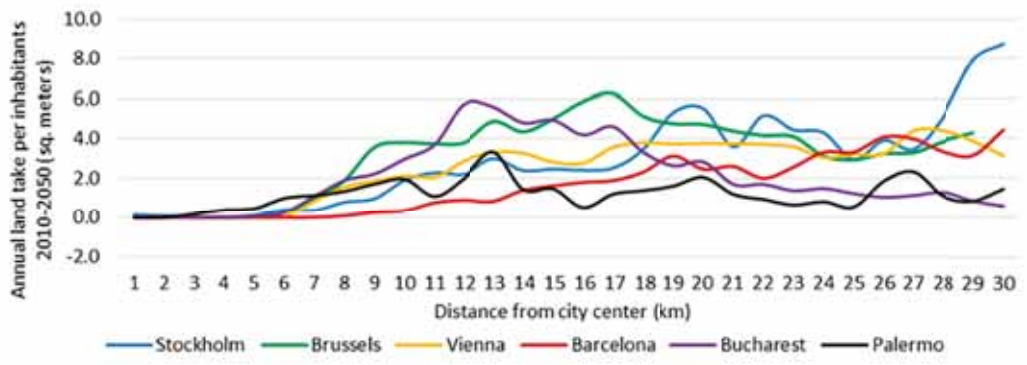
Artificial areas per inhabitant in 2010



Annual take per inhabitant between 2010 and 2050 – the ratio per degree of urbanization



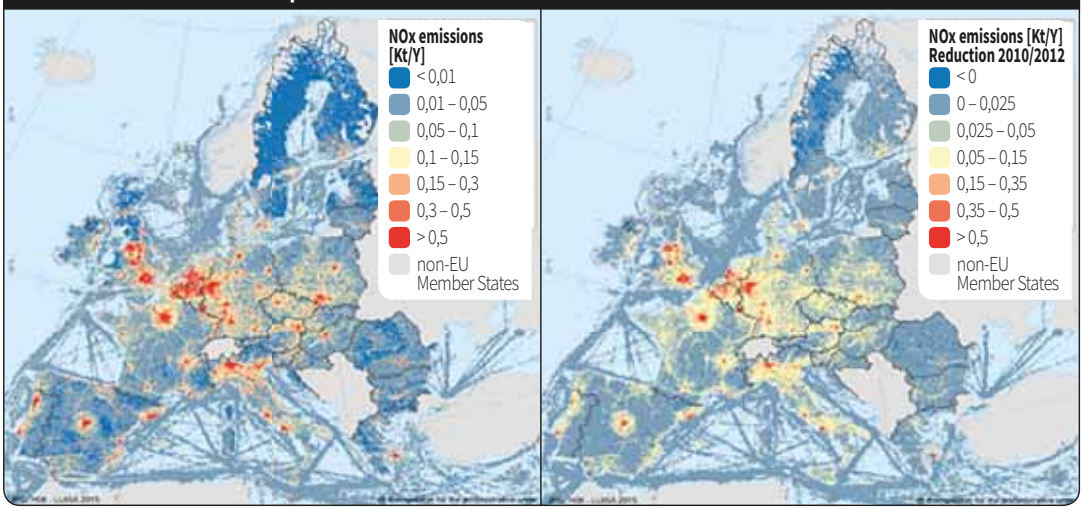
Annual land take per inhabitant between 2010 and 2050



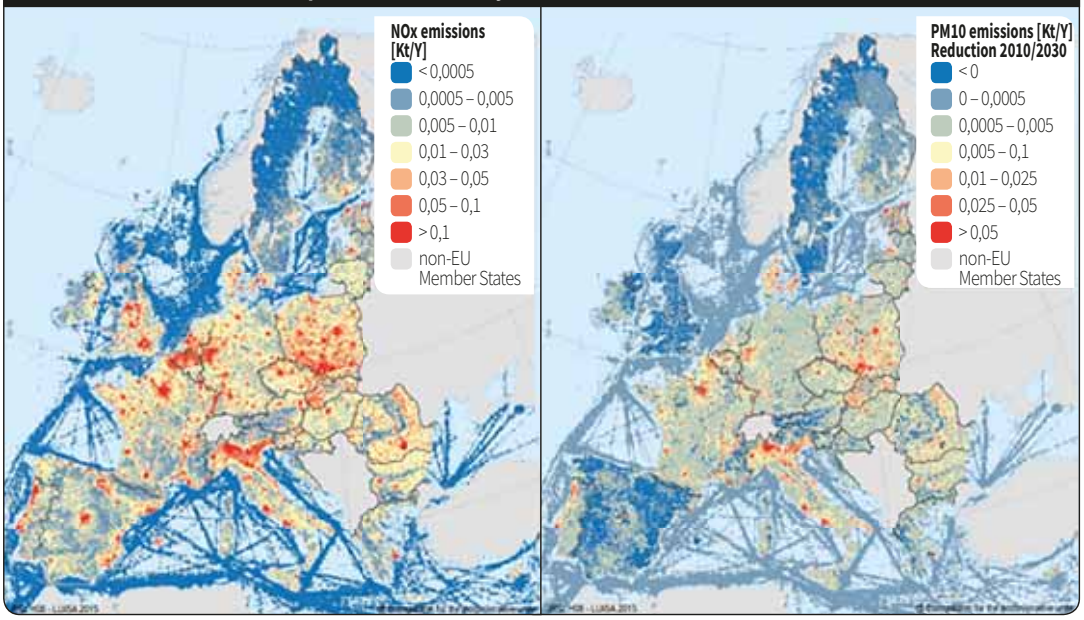
Air Quality

Results of concentrations for specific pollutants show high variability in FUA between and within countries. The methods used also allow the prediction of air quality patterns and the results show that, in general terms, concentrations will slightly increase between 2010 and 2050 if only land use related parameters (no specific air quality measures) are considered. If suitable measures are not taken, those slight increases can be further augmented by increased emissions from, for example, traffic and industries.

NOx emissions in 2010 and expected reduction in 2030



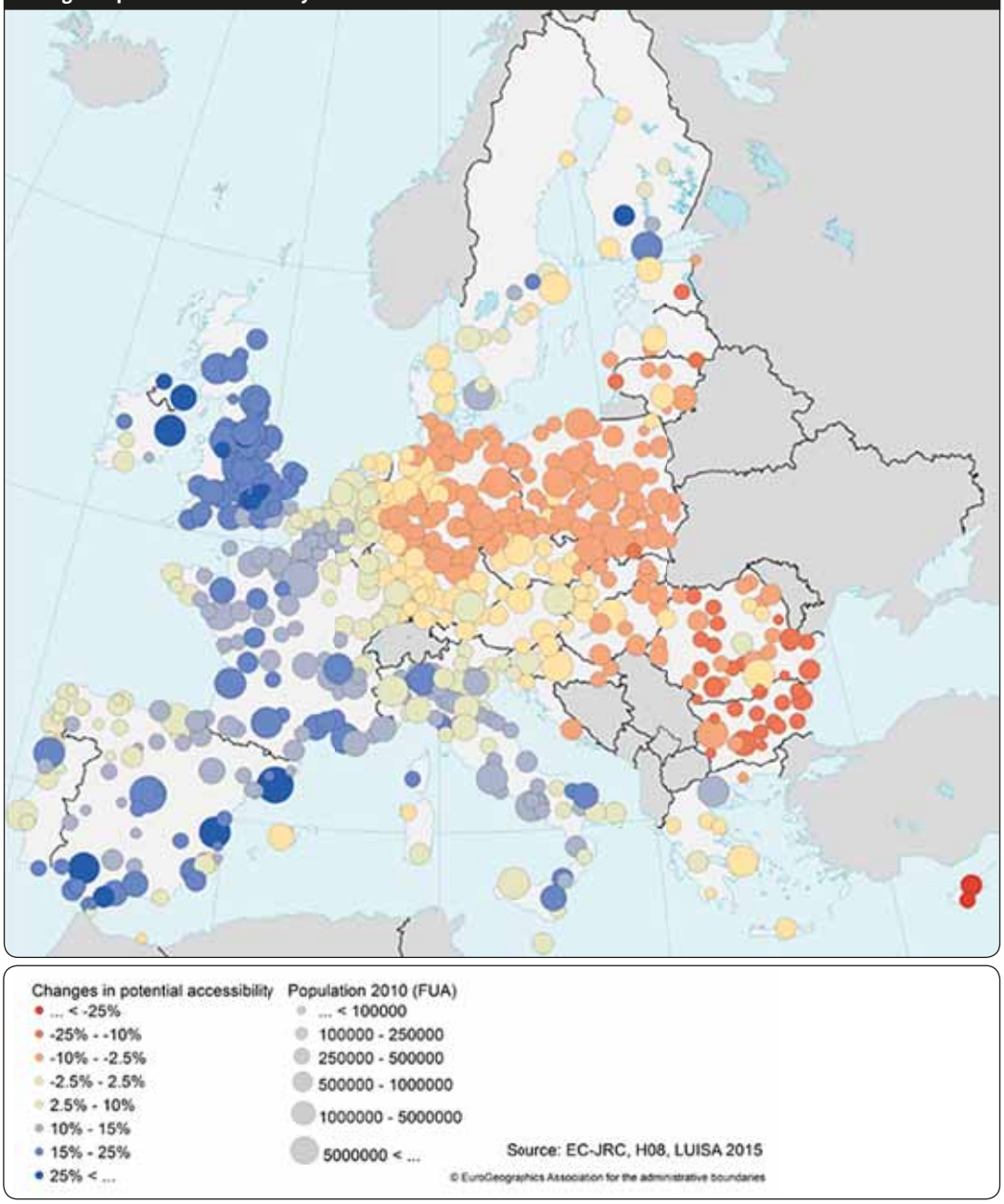
PM10 emissions in 2010 and expected reductions by 2030



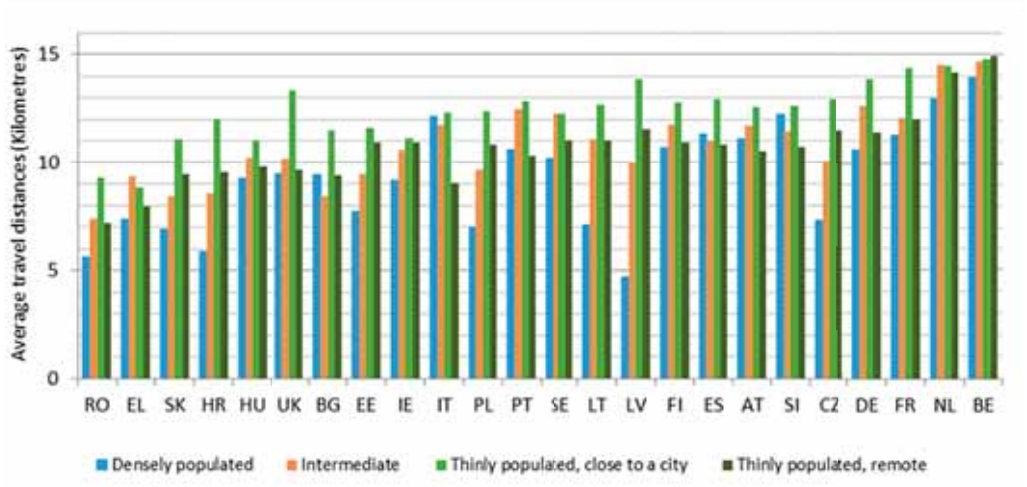
Accessibility

Potential accessibility values are higher in particular in the urban areas of north western Europe. Despite substantial investment in Europe's new member states, accessibility is expected to increase in particular in Western Europe, Great Britain and Ireland. Apart from this, it is obvious that urban form has a considerable impact on average travelled distances and thus potentially on the energy dependence of transport within cities.

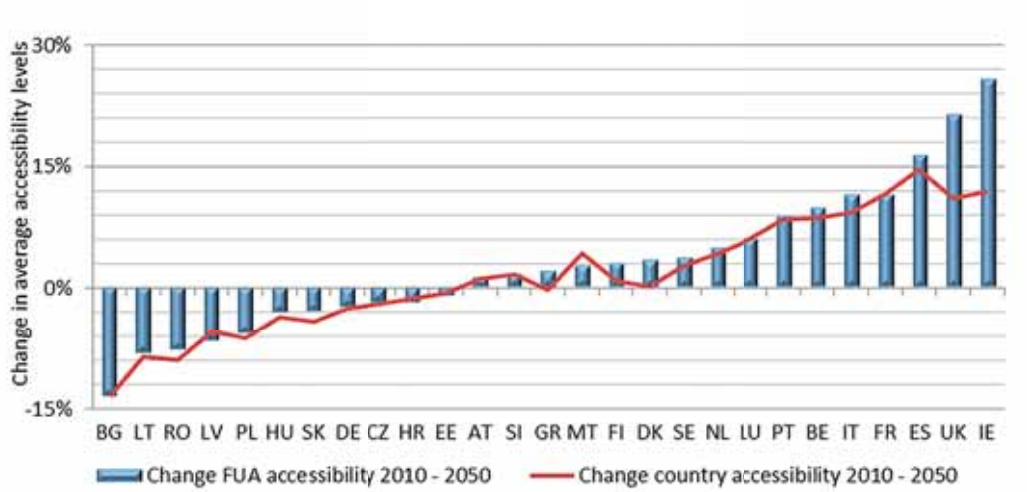
Changes in potencial accessibility between 2010 and 2050



Average travel distances in 2010



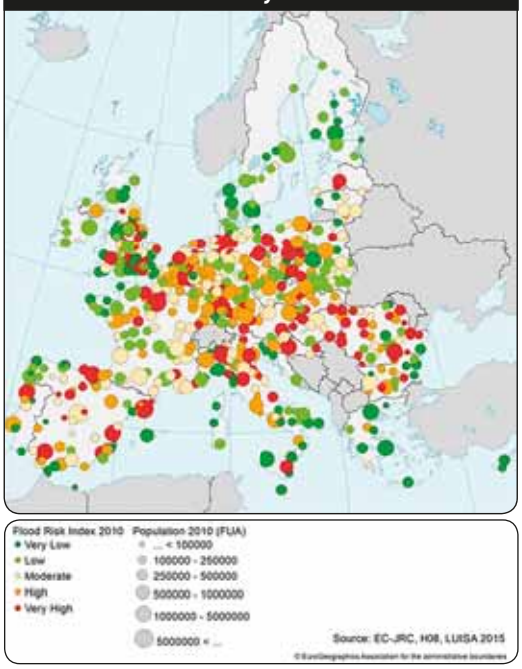
Changes in potencial accessibility between 2010 and 2050



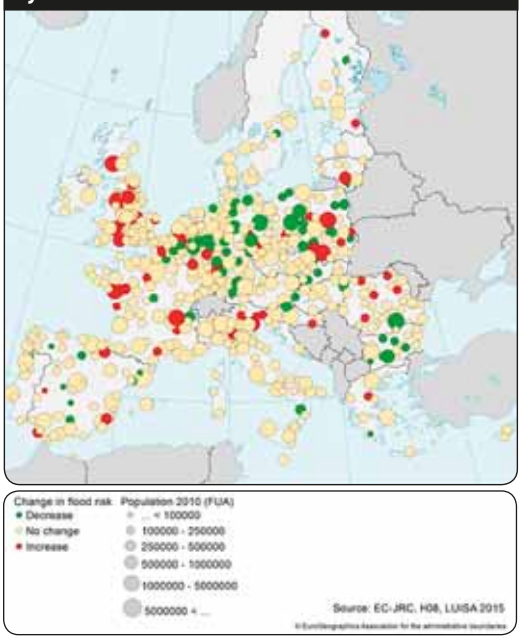
Urban flood risk

Potential accessibility values are higher in particular in the urban areas of north western Europe. Despite substantial investment in Europe's new member states, accessibility is expected to increase in particular in Western Europe, Great Britain and Ireland. Apart from this, it is obvious that urban form has a considerable impact on average travelled distances and thus potentially on the energy dependence of transport within cities.

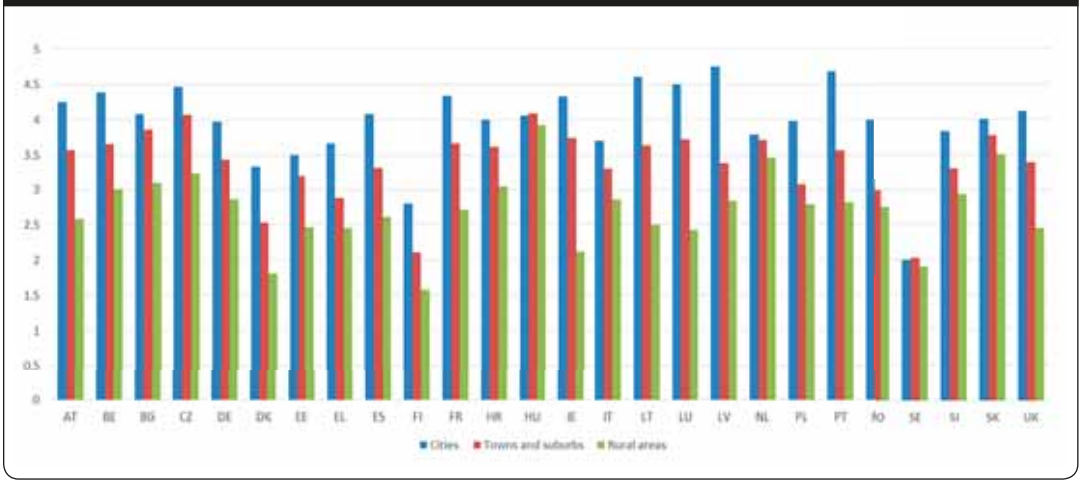
Flood Risk Index in 2010 by FUAs



Change in Flood Risk index between 2010 and 2050 by FUAs



Flood Risk 2010



Regional patterns of energy production and consumption

The Resilient Energy Union with Forward Looking Climate policy is one the ten priorities of the overarching Agenda for Jobs, Growth, Fairness and Democratic Change of the European Commission. The Communication on the Energy Union package (EC, 2015a[4]) and its Annex (EC, 2015b[5]) clearly identify EU-wide targets and policy objectives.

Although set at EU level, the realisation of energy targets requires an implementation strategy that is tailored at EU Member States and regional level. National and regional characteristics have to be taken into account when defining the priority of intervention for different sectors, from restructuring the energy sector to setting up efficiency targets for different categories of energy users.

EREBILAND (European Regional Energy Balance and Innovation Landscape, Baranzelli et al., 2016[6]) is an exploratory project which aims at supporting efficient patterns of regional energy supply and demand in the EU.

The approach is based on territorial disaggregation of information, and the development of optimisation scenarios at regional scale. In order to achieve these goals, a suite of modelling tools is deployed, to cover the territorial (LUISA platform, Baranzelli et al., 2014[7]), economic (RHOMOLO model, Brandsma et al., 2014[8]) and energy (JRC-EU-TIMES model, Simoes et al., 2013[9]) dimensions.

A selection of outputs from the EREBILAND are represented in Figure A and Figure B.: electricity production projected by the JRC-EU-TIMES model at country level are disaggregated at regional (NUTS2) level in LUISA.

Figure A reports the change in electricity generation over the period 2015 – 2030, for three renewable sources: hydropower, solar and onshore wind. Figure B reports electricity generation trends for three selected non-renewable sources: hard coal, lignite and gas. In both figures and for each source, the smaller box in the upper-right corner of each quadrant reports the respective average regional trend, computed for each country. The bigger map reports the regional trends in electricity generation: regions in warmer col-

[4] European Commission (2015a). COM(2015) 80 final. Energy Union Package - COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, THE COMMITTEE OF THE REGIONS AND THE EUROPEAN INVESTMENT BANK. A Framework Strategy for a Res. Brussels, p. 17, 2015.

[5] European Commission (2015b). COM(2015) 80 final. ENERGY UNION PACKAGE - ANNEX ROADMAP FOR THE ENERGY UNION to the COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, THE COMMITTEE OF THE REGIONS AND THE EUROPEAN INVES. Brussels, 2015.

[6] Baranzelli, C., Lavalle, C., Sgobbi, A., Aurambout, J-P, Trombetti, M, Jacobs-Crisioni, C., Cristobal, J., Kancs, D., Kavalov, B. (2016). Regional patterns of energy production and consumption factors in Europe. Exploratory Project EREBILAND - European Regional Energy Balance and Innovation Landscape. EUR 27697 EN. Luxembourg: Publications Office of the European Union.

[7] Baranzelli, C., Jacobs-crisioni, C., Batista, F., Castillo, C., Barbosa, A., Torres, J., Lavalle, C. (2014). The Reference scenario in the LUISA platform – Updated configuration 2014 Towards a Common Baseline Scenario for EC Impact Assessment procedures. EUR 27019 EN. Luxembourg: Publications Office of the European Union.

[8] Brandsma, A., Kancs, D., Monfort, P., Rillaers, A. (2014). RHOMOLO: A dynamic spatial general equilibrium model for assessing the impact of cohesion policy. Pap. Reg. Sci., vol. 94, no. November 2014, pp. S197–S221.

[9] Simoes, S., Nijs, W., Ruiz, P., Sgobbi, A., Radu, D., Bolat, P., Thiel, C., Peteves, S., L. P. O. of the E. Union (2013). The JRC-EU-TIMES model. Assessing the long-term role of the SET Plan Energy technologies. Institute for Energy and Transport of the Joint Research Centre - European Commission.

ours are characterized by a positive trend, and the darker the colour the further away from the national average, either above or below. On the opposite, regions shaded in cold colours, are characterized by a decreasing trend of electricity production between the years 2015 and 2030. Similarly, the darker the colour the further away from the national average, either above or below.

From this example it is clear the potential role of regional level-information in relation to energy issues, be it either measured data or simulated trends. A single country-level figure might not be enough to support the policy debate, especially in countries with strong regional differences e.g. depending on the availability of infrastructure and its characteristics, or presence of potential resources.

Figure A. Projected electricity generation by NUTS2 region, as trend over the period 2015 – 2030. Three selected renewable sources are displayed: hydropower, solar and on-shore wind (Source: Baranzelli et al., 2016)

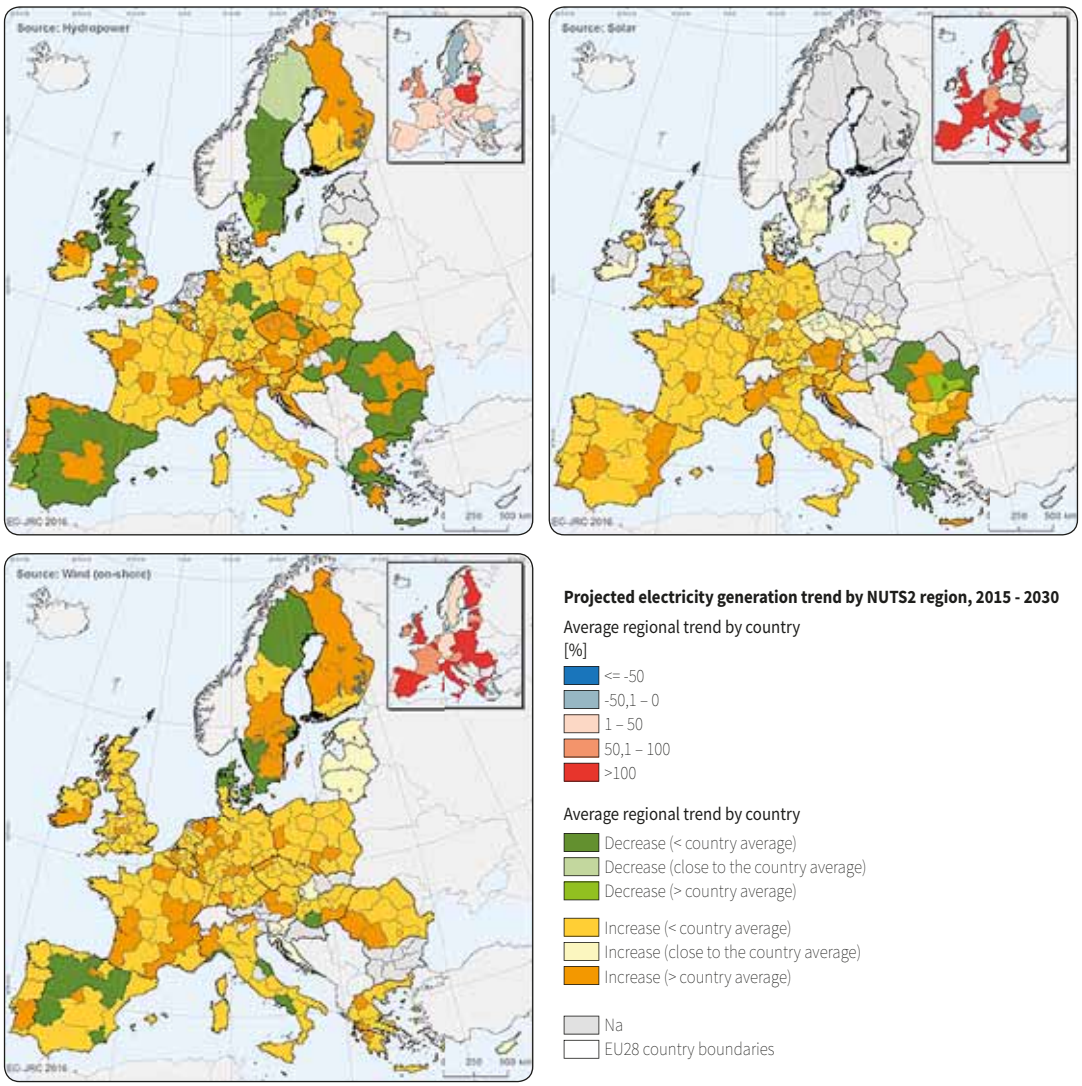
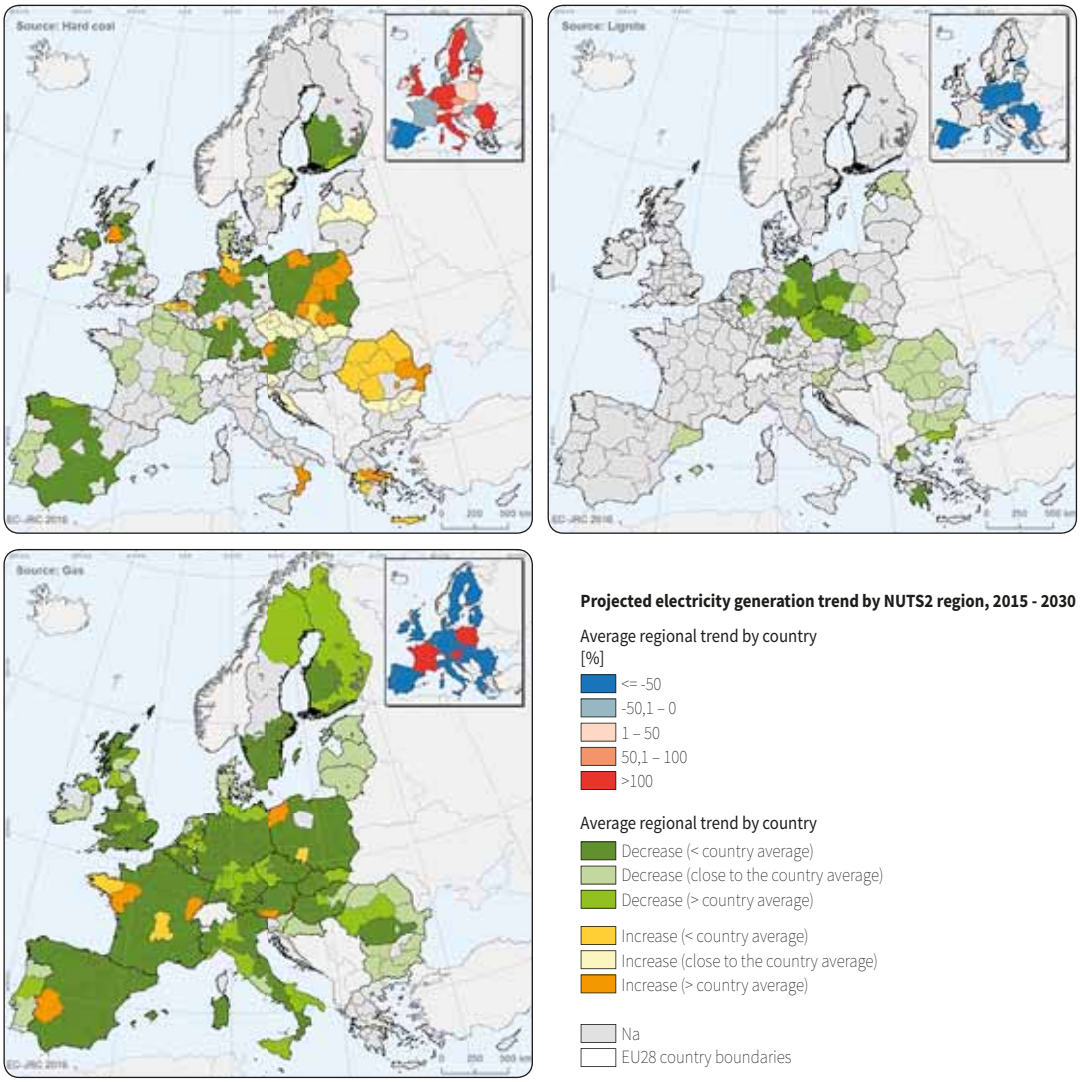


Figure B: Projected electricity generation by NUTS2 region, as trend over the period 2015 – 2030. Three selected non-renewable sources are displayed: hard coal, lignite and gas. Source: Baranzelli et al., 2016



Local patterns of energy consumption from the residential sector

Energy spent in buildings represents a large share of the overall energy consumption in the EU-28 (40% of total final energy consumption and around 55% of electricity consumption in 2012). The consumption is strictly depending on the functional and structural characteristics of each building, as well as on other factors such as for example location and climate-meteorological context.

The availability of accurate and precise information on these factors is of paramount importance to evaluate the energy performance of existing and new buildings, and to assess the costs

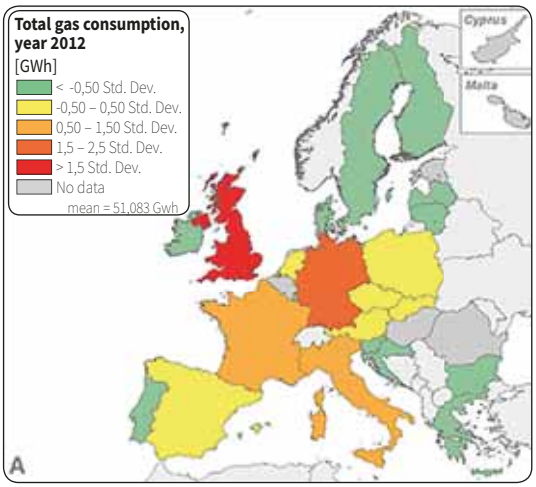
of effective improvements in terms of energy savings and production.

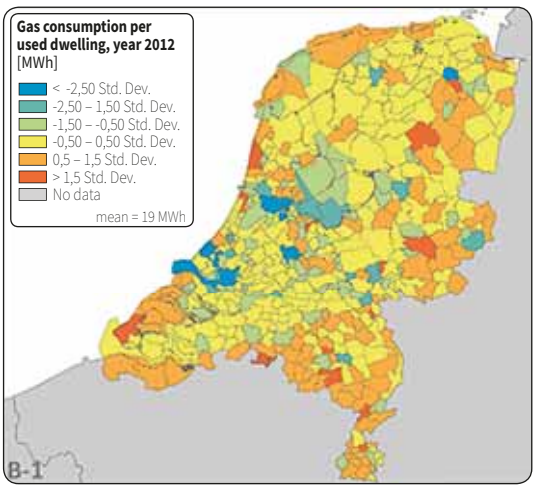
Figure C reports two examples of application of the LUISA platform to downscale and project energy consumption trends in buildings, from national (panel A) to local scale (panel series B and C), for municipalities in the Netherlands and in the Italian region of Emilia Romagna. The indicator represented is total gas consumption. At municipal level, also gas consumption per dwelling is represented (panels B-1 and C-1). In all panels, warm colours indicate values above the European (panel A), national (panel series B) or regional (panel series C) mean value. On the opposite, municipalities below the mean are shaded in cold colours.

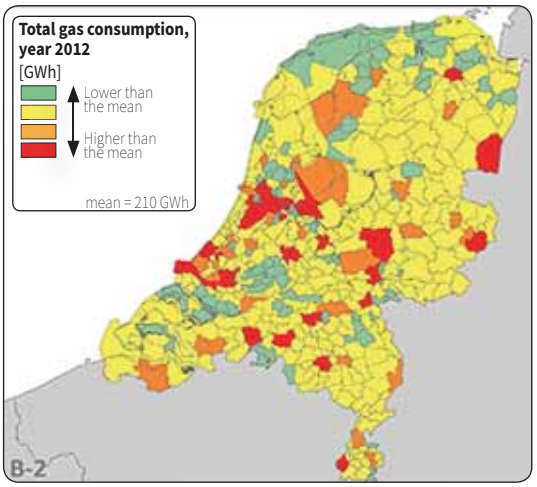
We used statistical regression techniques to estimate the influence of the above mentioned factors (predictors) on energy consumption in residential buildings at the local level (municipality). Similar statistical models can be fitted for municipalities that show similar population density patterns, urbanisation trends and climatic characteristics.

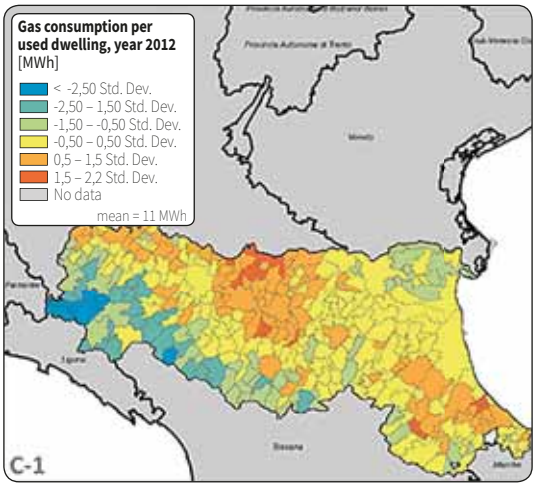
The applied methodology is a combination of top-down disaggregation of information available at the national and regional levels with detailed data collected from cadastral databases (or equivalent national sources). This approach allows reconstructing detailed maps of energy consumption levels, and building, dwelling and household characteristics as of now (reference year of their current status is typically between 2012 and 2015) and under expected future projections (2020, 2030 or 2050).

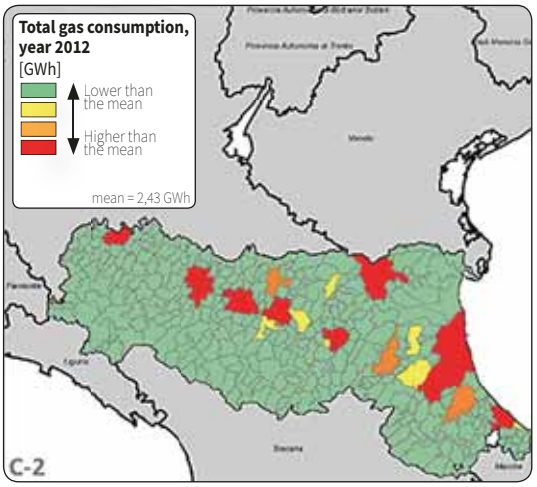
Total gas consumption for the year 2012 at national scale (panel A; source: ODYSSEE), and disaggregation at municipal level for the Netherlands and Emilia Romagna region in Italy (panels B-1 and B2, and C-1 and C-2, respectively; source: JRC-H8).











Macroeconomic Modelling of R&D and Innovation Policies

JRC Technical Report
Report EUR27084 EN

The Regional Holistic Model (RHOMOLO)[10] is a dynamic spatial general equilibrium model of the European Commission. It is developed by the Directorate-General Joint Research Centre of the European Commission (DG JRC) and used in collaboration with the Directorate-General for Regional and Urban Policy (DG REGIO) for impact assessment of Cohesion Policy, the European Investment Bank (EIB) for impact assessment of EU investment support policies, and other EU services. RHOMOLO provides sector-specific, region-specific and time-specific simulation results to support the EU policy makers on cohesion policies, structural reforms, growth policies etc.

Since the start of the project, DG REGIO has been the main client of RHOMOLO's output. A first set of simulation exercises have been undertaken in 2010 to assess the impact of Cohesion Policy for the 2007-2013 Programming Period. These illustrative RHOMOLO- simulation results were included in the 5th Cohesion Report. In 2014, RHOMOLO was used for ex-ante impact assessment of Cohesion Policy interventions for the 2014-2020 Programming Period. In tandem with the QUEST model, RHOMOLO provided detailed simulation results by the type of Cohesion Policy intervention, a time profile of expected impact, and growth spill-overs between the regional economies of Member States. These RHOMOLO simulation results were published in the 6th Cohesion Report.

The current version of RHOMOLO covers 267 NUTS2 regions of the EU27 and each regional economy is disaggregated into six industrial sectors (agriculture; manufacturing and construction; business services; financial services and public services, and R&D services). Goods and services are either produced by perfectly competitive or by monopolistically competitive firms and consumed by households, governments and firms. Spatial interactions between regions are captured through trade of goods and services (subject to trade costs), capital mobility, interregional investments and knowledge spill-overs. This makes RHOMOLO particularly well suited for analysing policies related to R&D and innovation.

[10] Further information can be found here: http://publications.jrc.ec.europa.eu/repository/bitstream/JRC89558/lfna27084enn.pdf

Simulation main results

The results of the RTDI input modelled as TFP shocks in RHOMOLO show positive effects in all regions, with few exceptions in the first years. Czech, Hungarian, Polish and Portuguese regions benefit the most; with impacts on regional GDP of 1% above the baseline in 2030. The impact on GDP in the less developed regions (LDR) is considerably higher than in the transition regions (TR) and the more developed regions (MDR). According to the simulation results mapped in Figure 3, the more developed regions show an impact, which is higher than the RTDI funding they receive, although, for some regions the cost advantages of neighbouring regions receiving the support seem to divert the trade away, leading to insignificant or even to slightly negative effects on output (see Figure 3). This is most visible for regions in the Member States around the North Sea, which receive little RTDI support under cohesion policy and, for instance, in Romania, which absorbs less RTDI support than Bulgaria and other neighbouring countries. These results are consistent with those of Brandsma and Kancs (2015).

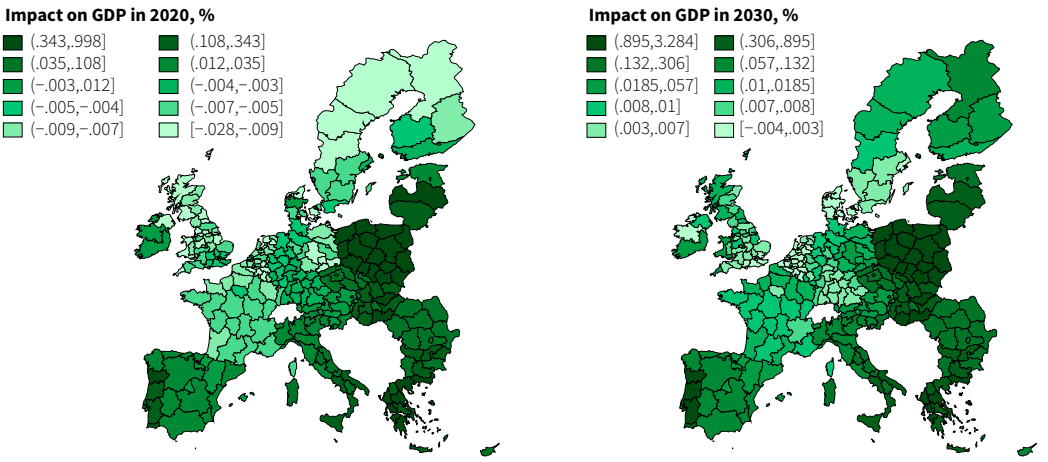


Figure 1: Simulated RTDI impact on real GDP, % changes in 2020 and 2030. Source European Commission DG JRC, 2015

Simulation Analysis

Figure 2 maps the GDP results in terms of fiscal multipliers: per one Euro invested and per one percent in productivity improvement. On average the less developed regions benefit more per one Euro of ECP investment than the transition and the more developed regions. Note, however, that in Figure 2 the results have been normalised, implying that they represent the relative values of multiplier effects across regions. In order to derive absolute values of fiscal multipliers of RTDI interventions, other elements of policies need to be modelled explicitly, e.g. collecting tax revenue to finance the policies, as it is done in the QUEST model (Varga and in 't Veld, 2011). Therefore, for policy simulations, the RHOMOLO model is aligned with the QUEST model.

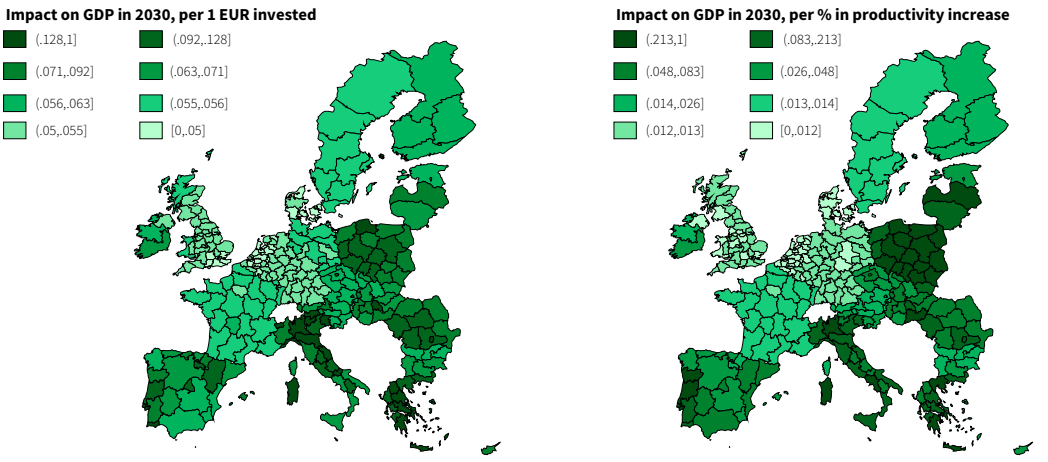


Figure 2: Simulated RTDI impact on GDP per 1 Euro investment and 1% of productivity improvement. Source European Commission DG JRC, 2015

Monitoring European start-ups

Author
Lisa Schreier
Head of Research German Startup Association and CEO European Startup Network

When looking at startups as one source for innovation in Europe, one can notice that not all European countries have established a so called "startup-ecosystem" yet and the level of sophistication of startup hubs differs. Ecosystem means the support structure for innovative companies that is given on a national/ international level. Startups are only able to be set up, scaled and to be successful with a beneficial environment. Supporting organizations, large companies, often called "old economy", universities and other research facilities, funding partners such as venture capital firms and angel investors and other service providers for entrepreneurs play a significant role in the development of a national startup ecosystem.

Berlin, London, Helsinki/Espoo and Paris, just to name a few, are well-known for their strong startup ecosystems and often lead the research-rankings for startup-friendly environments, access to finance or collaborations with traditional companies. When looking at the participating founders in the European Startup Monitor, we can see that innovation hubs can be found in unexpected places. Poland, Sweden, Austria, Belgium and many other countries are either developing an ecosystem right now or have already successfully been creating startups, especially in the area of technology-based products or services. It can be small communities, such as Umea Sweden, with few inhabitants but a good university, that are showing best practice in networking and collaboration with universities, incubators or accelerators.

European startups ranking

Ranking	Startups	Scale-ups
1	London	London
2	Amsterdam	Stockholm
3	Stockholm	Amsterdam
4	Helsinki	Helsinki
5	Copenhagen	Copenhagen
6	Paris	Paris
7	Berlin	Brussels
8	Dublin	Dublin
9	Brussels	Berlin
10	Munich	Munich

Before getting into the results of the European Startup Monitor, it is to be mentioned, that all ecosystems develop differently and there is not a one-fits-all-solution on how to build up an innovation-friendly environment. Different countries are taking different approaches. Great examples are e-citizenship of Estonia, startup-visas such as in the Netherlands and tax reductions and private investment regulations for startups in Great Britain. Innovation hubs shall therefore be developed with national culture in mind but often can make use of best practices from existing and more developed startup ecosystems. Factors that have benefitted the growth of an ecosystem tremendously are: communication of startup success stories and fostering a culture that accepts failure, authentic creation of ecosystems by founders in cooperation with relevant stakeholders, open-minded governments questioning existing models and showing fast legislative executing.

For the first time, the European Startup Monitor established valid data from EU-countries and Israel using an online questionnaire and direct input by founders and c-level employees only. The ESM represents over 2,300 startups with more than 31,000 employees.

Within the scope of this study, startups are defined by the following three criteria: A startup must not be older than 10 years, it must feature innovative technologies or business models and it must have/or strive for a significant employee and/or sales growth (scalability).

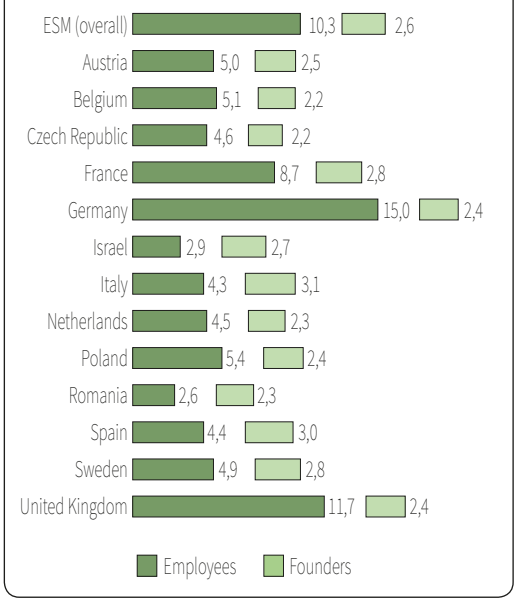
On average, European startups itself are 2.5 years old and half of the founders are between 25 and 34 years old. One of the most surprising findings of the study is the low proportion of female founders with 14,7 %. For a reliable interpretation of this low number as well as for an analysis of possible reasons we need, however, more detailed data on this subject. A further interesting finding is the internationality of both founders and employees. 11.9 % of the founders are from countries other than the location of their startup. The country with the highest share of international founders is the United Kingdom (33.3 %). The number of international employees is higher than the number of international founders: 31.6 % of employees come from other countries than where the startup is based. The countries with the highest proportion of international employees are the United Kingdom (50.5 %), the Netherlands (33.9 %) and Germany (34.7 %). Therefore, one conclusion to draw from the findings of the ESM is that the continued success of European startups depends, among other factors, on the access to international high-educated employees. 8 out of ten startups are planning further internationalisation in the next year and will need employees to grow.

The ESM identified sales/customer acquisition, raising capital and product development as main challenges for European startups. Compared with the Silicon Valley, the European venture capital market is still underdeveloped. To generate fast growth – which is needed to compete with startups from the Silicon Valley – venture capital

Ranking of startup ecosystems

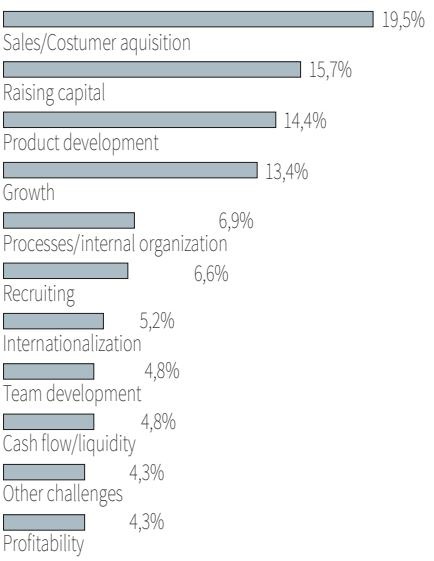
	Ranking		Performance	Funding	Market Reach	Talent	Startup Exp.	Growth Index
Silicon Valley	1	◂	1	1	4	1	1	2,1
New York City	2	▲3	2	2	1	9	4	1,8
Los Angeles	3	◂	4	4	2	10	5	1,8
Boston	4	▲2	3	3	7	12	7	2,7
Tel Aviv	5	▼3	6	5	13	3	6	2,9
London	6	▲1	5	10	3	7	13	3,3
Chicago	7	▲3	8	12	5	11	14	2,8
Seattle	8	▼4	12	11	12	4	3	2,1
Berlin	9	▲6	7	8	19	8	8	10
Singapore	10	▲	11	9	9	20	9	1,9
Paris	11	◂	13	13	6	16	15	1,3
São Paulo	12	▲1	9	7	11	19	19	3,5
Moscow	13	▲1	17	15	8	2	20	1,0
Austin	14	NEW	16	14	18	5	2	1,9
Bangalore	15	▲4	10	6	20	17	12	4,9
Sydney	16	▲4	20	16	17	6	10	1,1
Toronto	17	▼9	14	18	14	15	18	1,3
Vancouver	18	▼9	18	19	15	14	11	1,2
Amsterdam	19	NEW	15	20	10	18	16	3,0
Montreal	20	NEW	19	17	16	13	17	1,5

Average number of employees and founders (ESM countries)



and other forms of private investments must be supported by a suitable political framework. The European Commission already proposed the Capital Market Union as a possible enhancement. Another instrument to improve the supply with capital, in particular with venture capital, could be the establishment of an own stock exchange segment for startups.

Current challenges for the European startups (ESM overall)



On average, startups create 12.9 jobs after 2.5 years (including founders). Germany leads the way with 17.4 jobs, followed by the United Kingdom (14.1 jobs) and France (11.5 jobs). These figures prove the massive impact which European startups developed by now on the European labor market. One could assume, without being too optimistic, that this impact is likely to increase within the next years. Knowing that some startups are going to be the medium-sized enterprises or large companies of the future, it is important to provide the European startup ecosystem with the best possible framework and conditions to grow and to create jobs, the digital single market and capital market union are heading in that direction.

One observation from the study is that countries with good access to financial resources for startups such as venture capital tend to show a high number of jobs created by startups. It is therefore likely that there is a connection between the capital resources and the number of jobs. As an example, startups from Germany and the UK hire a lot more employees than startups from other countries.

More than 90 % of startup founders rate their current business situation as satisfying or even good. Only startups from Poland and the Czech Republic rate their current business situation as unfavorable with a proportion of 50 % in each case. Regarding the future business assumptions, most startups have a positive outlook. 72 % assume a positive development during the next 6 months and another 24.7 % as neutral. Countries that stand out with a very positive prognosis are Sweden (80 %), Poland (78.9 %) and France (76.7 %). A comparison between the current and future business situation shows that Eastern ESM countries, like Poland and the Czech Republic, have a high increase in optimism for the future. This attitude is something that all industries and countries should work to achieve.

The Leaders of the New eMarkets

Authors:
Hanne Melin
Director eBay Public Policy Lab

Samuel Laurinkari
Senior Manager eBay Government Relations EU

Introduction

Traditional forms of commerce over distance carry costs related to transportation and logistics chains, regulatory and administrative red tape, different legal systems, communication and marketing, uneven access to information, difficulties in matching supply and demand, trust, and enforcement. Economists have found that these costs increase as distance increases. So the further away market participants are from each other, the less likely they are to engage in commerce with each other.[11]

Due to the costs that come with distance, small enterprises have traditionally been confined to commerce within limited areas, such as the size of a city or the distance that a consumer would be willing to travel to the enterprise's place of business. Another way to think of it is that most traditional commerce models came with the cost of establishing certain facilities, and firms were able to capture commerce only within a range of their facilities.

Being limited to small markets in this way is an impediment to building a viable and sustainable business as there might simply not be enough demand available, or a local economy might suffer from economic shocks or tail winds that depress demand. This is exactly what happened during the recent financial crisis. Between 2008 and 2013, domestic demand dropped by 5% across the EU, while foreign demand has grown by almost 10%.[12]

Extending commercial activity to a market the size of the EU Single Market brings into play a potential customer base of 500 million people.[13] This creates opportunity for "[a] lot more businesses … starting up and existing companies … flourishing by finding new market niches thanks to the 'long tail[14]' effect".[15]

[11] Examples from economic literature on this are: "The Puzzling Persistence of the Distance Effect on Bilateral Trade" (2008), by Anne-Celia Disdier and Keith Head, in Review of Economics and Statistics 90(1), 37-48; "The Gravity Equation in International Trade: an Explanation" (2011), by Thomas Chaney; and "Information Frictions in Trade" (2011), by Treb Allen, Job-Market paper, Yale University.

[12] Annual Report on European SMEs 2013/2014. For a paper measuring distance effects on eBay, see "There Goes Gravity: How eBay Reduces Trade Costs" (October 2012), by Andreas Lendle, Marcelo Olarreaga, Simon Schropp, Pierre-Louis Vezina, Pierre-Louis, in World Bank Policy Research Working Paper No. 6253.

[13] The 2015 Digital Single Market (DSM) Strategy Communication.

[14] Chris Anderson introduced the concept of the "long tail" in his book of 2006, describing how "[t]he era of one-size-fits-all is ending, and in its place is something new, a market of multitudes… Seen broadly, it's … about the economics of abundance – what happens when the bottlenecks that stand between supply and demand in our culture start to disappear and everything becomes available to everyone…" A report by eBay ("Empowering consumers by providing access to the 21st century market", 2008) explains how this concept applies to online markets: http://ec.europa.eu/competition/sectors/media/ebay_call_for_action.pdf

[15] Communication from the European Commission, "A coherent framework for building trust in the Digital Single Market for e-commerce and online services", COM(2011) 942 final.

One of the fundamental revolutions brought about by the internet and digital technologies is through online commerce, where the cost of transacting over distance has fallen dramatically. The chief reason is how much easier it is online to overcome uneven access to information and difficulties in matching supply and demand. A 2013 report by the European Commission's Joint Research Center (JRC) concludes that distance matters far less online, explained primarily by the decline in communication costs.[16]

The work by the economists at Sidley Austin confirms that distance indeed has a much less negative impact on firms transacting cross-border in the online marketplace.[17] Based on a global data set, Sidley concluded that distance matters 83% less for international transactions compared to traditional transactions. [18]

Even within the EU, geographical distance has a negative effect on cross-border activity. However, the detrimental effect of geographic distance on trade within the EU is more than four times lower when commerce is conducted leveraging the online commerce platform model, as compared to traditional cross-border trade. This can also be seen in the 61% growth rate of EU cross-border commerce over the Marketplace for the period 2010 to 2014, compared to the modest growth of 15% for traditional commerce.

But overcoming distance to the extent where small businesses and entrepreneurs start engaging in international commerce takes more than simply adding the internet to retail.

While recent years have seen an increase in the use of the internet as a sales channel among retailers in the EU[19], there has been no clear upward trend in the level of cross-border activities.[20] The European Commission reports that, in 2014, only 12% of firms in retail sold online cross-border within the EU.[21] This is strikingly different to what is happening on the eBay Marketplace where 93% of firms, predominately micro firms with less than 10 employees, engage in cross-border sales.

The difference can be explained by how the online commerce platform model acts as an "e-commerce booster"[22]. It provides access to both the internet's global reach as well as to relevant technology tools that further mitigate commerce costs, such as fulfillment services, website design, sales insights and research tools, search

[16] "The drivers and impediments for cross-border e-commerce in the EU", by Estrella Gomez, Bertin Martens and Geomina Turlea (European Commission, Joint Research Center), Digital Economy Working Paper 2013/2: "the results show that the importance of geographical distance is strongly reduced in online trade, compared to offline trade, due to a drastic reduction in information costs in the digital economy that enables consumers to scan a much wider territory to satisfy their wishes and place their buying orders".

[17] "There Goes Gravity: How eBay Reduces Trade Costs" (October 2012), by Andreas Lendle, Marcelo Olarreaga, Simon Schropp, Pierre-Louis Vezina, Pierre-Louis, in World Bank Policy Research Working Paper No. 6253.

[18] See eBay's report "Commerce 3.0 for Development" (2013), available http://www.ebaymainstreet.com/sites/default/files/commerce_3.0_susdev_a4_fin_2015_0.pdf

[19] Flash Eurobarometer 359, 2013.

[20] The European Commission's Consumer Scoreboard, 9th edition 2013. The Scoreboard is based on the Flash Eurobarometer 359 which measures attitudes to cross-border commerce based on interviews with 400 companies with 10 or more employees.

[21] European Commission Staff Working Document, SWD(2015) 100 final, accompanying the 2015 DSM Strategy Communication. It references a forthcoming Consumer Conditions Scoreboard report with data from Flash Eurobarometer 396.

[22] Report on e-commerce by the High Level Group on Retail Competitiveness (July 2015), European Commission. See paragraph 31 which explains that online platforms "*constitute an opportunity for smaller businesses, which lack resources and expertise, to do business online since platforms can provide them with key services, such as marketing, payment and delivery*".

optimisation and paid search marketing, etc. In contrast, retailers selling online using their own website (which is 80% of online retailers[23]) must themselves make the investments required to attract consumers from abroad.[24]

The European Commission has since 2000 recognised the important role online commerce could play for economic, social and territorial cohesion: "new technologies … provide an opportunity, by overcoming geographical obstacles, for bringing the outermost regions closer to the heart of Europe and combating various forms of exclusion".[25] The Commission has called out the so-called Information Society as a real opportunity for regional development as it could help "even the remotest regions to network with the rest of the Union and beyond".[26]

Nevertheless, in 2008, the Commission let it be known that, in terms of economic activity, there "continues to be heavily congested urban areas and other areas with untapped potential" across the EU.[27] So whereas in 2000 there was confidence that "through the internet and e-commerce we can achieve the 'death of distance'"[28]; eight years later, the pattern of economic activity was still "more concentrated across the EU than population" [29].

This disappointing conclusion aligns with the literature and research where strong correlation is again and again confirmed between regional entrepreneurship or competitiveness and population density, GDP per capita and proximity to metropolitan and capital areas.

- Entrepreneurial activity is traditionally greater in densely populated regions. Research into regional entrepreneurship has concluded that the number of entrepreneurs is often linked to population growth and density.[30] A 2011 research paper found that "urban regions, indicated by high population density, are characterised by many nascent entrepreneurs per inhabitant".[31]
- Regional entrepreneurship and competitiveness are traditionally connected to

[23] Flash Eurobarometer 413, 2015.

[24] Consumers express much greater confidence purchasing online from within their own country than from abroad, according to the Consumer Scoreboard, 9th edition 2013.

[25] Press release by the European Commission with regard to a conference on the information society and cohesion, IP/00/1477 (14 December 2000), http://europa.eu/rapid/press-release_IP-00-1477_en.htm

[26] Press release by the European Commission in relation to the presentation of a study on structural funds and the information society, IP/03/396 (18 March 2003), http://europa.eu/rapid/press-release_IP-03-396_en.htm?locale=en

[27] European Commission Green Paper on Territorial Cohesion, "*Turning territorial diversity into strength*", COM(2008) 616 final, available: http://ec.europa.eu/regional_policy/archive/consultation/terco/paper_terco_en.pdf

[28] Erkki Liikanen, former Commissioner responsible for Enterprise and Information Society, press release, IP/00/1477 (14 December 2000).

[29] 2008 Green Paper on Territorial Cohesion.

[30] See "*The Regional Entrepreneurship and Development Index (REDI) – measuring regional entrepreneurship*" (November 2013), European Commission, http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/regional_entrepreneurship_development_index.pdf . The REDI report cites research by Bartik 1989; Audretsch – Fritsch, 1994; Keeble – Walker, 1994; Reynolds 1994; Reynolds et al., 1994, 1999; Delmar – Davidsson, 2000). As Keeble and Walker (1994) , Reynolds (1994), Sternberg (2004)

[31] "*Understanding regional variation in entrepreneurial activity and entrepreneurial attitude in Europe*", by Niels Bosma and Veronique Schutjens, Annals of Regional Science (2011), referencing Armington and Acs (2002).

economic growth.[32] Recent research presented by the European Commission's 2013 Regional Entrepreneurship and Development Index (REDI)[33] displays a close connection between entrepreneurship and economic development as measured by GDP per capita.[34] A strong correlation has also been found between GDP per capita and regional competitiveness – as measured by the Regional Competitiveness Index.[35] Taking this a step further, the literature has argued that regions with persistent high economic growth are characterised by positive attitudes towards entrepreneurship. [36]

Metropolitan and capital regions traditionally hold higher degrees of entrepreneurship and competitiveness**.** For instance, the regions Berlin, Ile-de-France and London top the national REDI ranking on entrepreneurship in Germany, France and the UK. Similarly, these metropolitan and capital regions are also found to have among the highest levels of competitiveness. The literature on regional entrepreneurship has described cities as "the centres of diversity, creativity and new ideas" and argued that urban areas attract people with a more positive attitude to entrepreneurship.[37]

[32] For instance a 2004 study of Germany found that the propensity to become self-employed is higher for persons living in faster growing and more densely populated regions, Wagner and Sternberg (2004).

[33] REDI is a systemic index measuring entrepreneurship in a mix of EU NUTS1 and NUTS2 regions; in total 125 regions were investigated and given REDI points and ranking.

[34] See page 51, Figure 5, of the REDI report.

[35] Eurostat Regional Yearbook (2014), chapter "Focus on regional competitiveness", http://ec.europa.eu/eurostat/documents/3217494/5786493/KS-HA-14-001-15-EN.PDF . For the purpose of the Regional Competitiveness Index, competitiveness is defined as "the ability to offer an attractive and sustainable environment for firms and residents to live and work".

[36] Bosma and Schutjens (2011), referencing Inglehart (2003), and Uhlaner and Thurik (2007).

[37] Bosma and Schutjens (2011), referencing Lee et al. (2004), Koster (2007), and Audretsch and Keilbach (2004).

New economic hotspots emerge

Our analysis of the impact that the online commerce platform has on the EU regions suggests that these traditional ties between entrepreneurial success and population density, GDP per capita, and proximity to metropolitan areas are getting weaker. While the ties have proved strong for decades (they have even been determined "persistent"[38]), a closer look at the digital economy reveals an on-going shift at regional level with new "economic hotspots" emerging outside of the conventional ones.

We have studied the level of small online business activity across the EU NUTS 2 regions[39] for 2014. By combining two indicators – (1) the number of eBay small businesses[40] per 100,000 inhabitants and (2) sales by eBay small businesses per 100,000 inhabitants – we have calculated what we call the "Digital Density" of each European region at the NUTS2 level.

[38] Bosma and Schutjens (2011)

[39] Our research has looked at the NUTS2 regions, and we have used the 2010 classification that divides the EU into 273 regions. All regions could be identified to have eBay sales, except Åland (Sweden).

[40] We have limited our assessment to sellers with more than USD 10,000 in annual sales on the eBay platform.

Our "Digital Density" assessment shows that metropolitan regions or regions holding higher GDP and/or larger population are not necessarily the ones with the greater community of active online small businesses when analysed on a per capita basis: many of the more remote and less privileged regions are also participating in the digital economy at very meaningful, even surprising rates. [41]

Our findings suggests that, when costs associated with commerce over distance are slashed as they are on the online commerce platform, economic opportunity expands to not only more enterprises but also more places. Herein lies a great potential of delivering on the EU's ambition of "***equal opportunities for citizens and enterprises, wherever they are located***".[42]

[41] See our interactive map: http://www.ebaymainstreet.com/digital-density-europe/country.htm

[42] Paragraph 8 of "Territorial Agenda of the European Union 2020: Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions" (TA2020).

A shift from regional variation to regional integration

Our "Digital Density" assessment is in no way the first attempt to understand how the digital economy touches the regions of the EU.[43] But, to our knowledge, ours is the first to detect a shift away from small business success being dependent on setting up operations in a metropolitan region with a large population and high overall economic activity.

The examples illustrated by the map below highlights that, in many places across the EU, the online commerce platform model is weakening the long-lived linkage between entrepreneurial success and population density, GDP per capita, and proximity to metropolitan areas. When distance is reduced as an impediment to building and sustaining operations in remote locations, small businesses have a greater chance to emerge outside of the previous "must-be-in" cities and areas: enterprises are no longer confined to consumers in their very proximity but can cover an immense range at little extra cost.

Close to 100% of the eBay small businesses in the regions as seen in the map sell across borders[44], and most of them sell both within the EU as well as to countries outside of the EU. In traditional commerce, this is something only fairly large enterprises located in economic hubs or with wide-spanning networks of facilities could dream of doing. Now small business owners can remain in their hometowns irrespective of where these are situated and they can contribute to the local economy and society thanks to their ability to access European and global markets.

"[E]conomic competitiveness can be enhanced by the development of globally integrated economic sectors and strong local economies. The global and local strands are mutually reinforcing and interlinked …." (Territorial Agenda of the European Union 2020)

Our research findings suggest a potential for economic progress that is more inclusive. The prospect of economic growth is becoming geographically more balanced in the digital economy than in the traditional economy, where thriving central hubs have been found to dominate.

[43] For example, the Regional Competitiveness Index also measures the technological readiness of regions. The findings of the Regional Competitiveness Index, REDI and the Regional Innovation Scoreboard are measurably similar and all correlate with GDP per capita, see pages 80-85 of REDI report.

[44] With the exception of export rates of 94% and 97% in the regions Liège (Belgium) and Nyugat-Dunántúl (Hungary) respectively, all the other regions see 100% of eBay-enabled SMEs exporting.

Leaders in the new commerce geographic

As the online commerce platform model reduces the costs of commerce over distance, it helps create economic activity and entrepreneurship in less populated, less prosperous and more remote regions. This is a force for enabling a great diversity of businesses across the EU.

The entrepreneurs showcased in the map are all emerging leaders in a new commerce geographic. They show that there is an alternative to market consolidation, uniformity and dominance by ever larger corporations; and they prove that self-employment is not only a viable option to traditional employment but a way of making ends meet with a deep sense of fulfillment and accomplishment.

This is good news in view of the recent downturn. Already in 2010, the European Commission warned that a continuing decline of small businesses due to competitive pressure from large merchants raises territorial and social cohesion concerns.[45] And in March this year, the Commission reported that "[t]he legacy of the crisis is still particularly acute, in particular on labour markets with unemployment remaining very high at EU level".[46]

Supporting these online, small, yet international, businesses is thus central in ensuring inclusive growth and job creation within the EU. Among the challenges such businesses face are international and intra-EU shipping costs and time, complex customs procedures, and lack of a supportive business and export climate. It must also be emphasised how the costs for scaling and expanding operations to serve cross-border markets would be prohibitively high for small businesses without access and ability to effectively leverage the online commerce platform model. Hence, contractual restrictions on retailers' use of the platform model as well as inhibited innovation capacity for platform service providers both amount to small business and export barriers.

[45] Commission Staff Working Document on retail services in the internal market, SEC(2010) 807, accompanying the Retail Market Monitoring Report.

[46] Communication by the European Commission, "Results of the public consultation on the Europe 2020 strategy for smart, sustainable and inclusive growth", COM(2015) 100 final, http://ec.europa.eu/europe2020/pdf/europe2020_consultation_results_en.pdf

Regional Comparison of Europe 2020

Authors:
Lewis Dijkstra and Stergios Athanasoglou
DG Regio and DG RTD

Europe 2020 Headline Targets

Europe 2020 has five headline targets covering employment, education, poverty, innovation, climate change and energy sustainability. The targets are translated into seven EU indicators to measure progress towards their achievement (table 1).

For the national level, all five headline targets have been taken into account. Each country receives between 0 and 20 points for each target. If a country has reached a headline target, it receives 20 points. The countries furthest removed from this target get 0 points. The rest receive a score proportional to the distance to the target. The index is the sum of these points. If a country has reached all targets it scores 100. Due to data availability, the climate change and energy sustainability targets had to be omitted at the regional level and innovation, climate change and energy sustainability at the city level. As result, at the regional level, each target is worth 25 points and at the city level 33 points. The construction of this index is for the rest identical to the national level.

Table 1: Europe 2020 EU-wide headline targets

1. Employment a) 75 % of the 20-64–year-olds to be employed (EMP)
2. Innovation a) 3 % of the EU's GDP to be invested in R&D (R&D)
3. Climate change and energy sustainability[12] a) greenhouse gas emissions 20 % (or even 30 %, if the conditions are right) lower than 1990 (GHG) b) 20 % of energy from renewables (REN) c) 20 % increase in energy efficiency compared to 2005 (EFF)
4. Education a) Reducing the rates of early school leaving below 10 % (ESL) b) at least 40 % of 30-34–year-olds completing third level education (TERT)
5. Fighting poverty and social exclusion a) at least 20 million fewer people in or at risk of poverty and social exclusion (AROPE)

Europe 2020 index – 5 EU headline targets, 2012

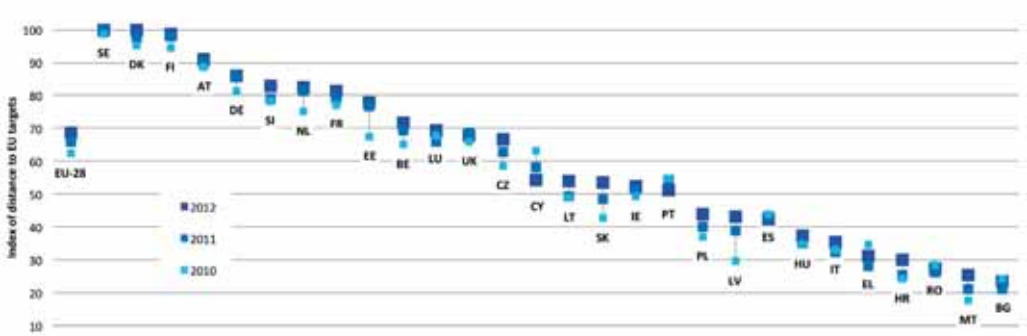
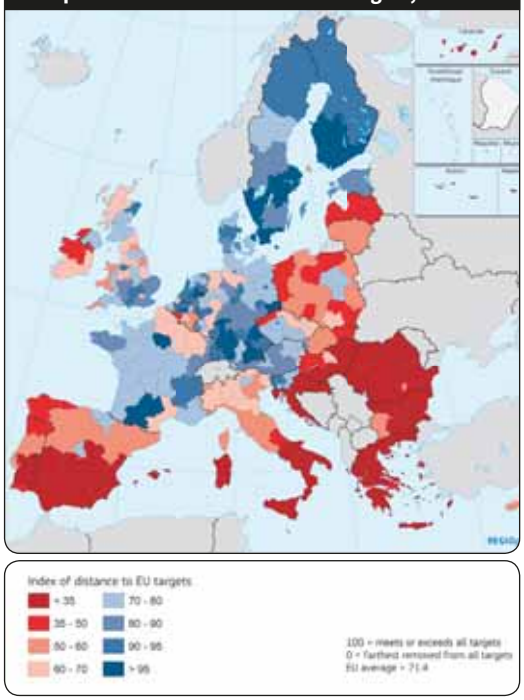


Figure 1: The Europe 2020 index at national level under EU-wide targets. 100 = meets or exceeds all targets, 0 = very far removed from all targets

Europe 2020 index - 4 EU headline targets, 2012



Next we turn to the regional level. The regions in the Nordic Member States and many of the regions in Germany, Austria, UK, France and the Benelux score high on the Europe 2020 index relative to the EU targets (see Map 1), while the southern regions and those in the EU-13 tend to score low.

In 2014-2020, Cohesion Policy distinguishes between three groups of regions: more developed regions with a GDP/head of more than 90 % of EU average, transition regions with a GDP/head between 75 % and 90 % of EU average, and less developed regions with a GDP/head of less than 75 % of EU average.

According to this categorisation, the difference in terms of scoring in the Europe 2020 index between the three groups of regions is striking. Employment rates, tertiary education rates and the R&D as a share of GDP are far lower in less developed regions compared to the other regions. Only early school leavers do not follow this pattern, with the highest rates in transition regions. More developed regions, on the other hand, score in general much higher on Europe 2020 indicators than the two other groups of regions. As a result, the EU-index relative to the EU targets is only 37 in less developed regions, compared to 55 in transition and 76 in more developed regions. However, all three groups of regions must carry out efforts to reach Europe 2020 targets set at European level. Only the tertiary education target of (at least) 40 % is reached in the more developed regions; none of the other targets is achieved in any of the three groups of regions.

Table 2: The Europe 2020 index of more developed, transition and less developed regions, 2012

More Developed regions		Transition regions	Less Developed regions	EU target
Employment rate aged 20-64, 2012	72 %	65 %	61 %	75 %
Early school leavers aged 18-24, 2011-13	12 %	17 %	12 %	below 10 %
Population aged 30-34 with tertiary education, 2011-13	41 %	32 %	27 %	at least 40 %
R&D expenditure of GDP, 2011	2.3 %	1.3 %	0.8 %	3 %
Europe 2020 index – 4 EU headline targets, 2012	76	55	37	100

A look at the best/worst performing regions reveals the following picture: Five regions, including the three Nordic capital regions, have met all EU targets (see Table 2). The top ten regions consist of four Swedish, three German and one region in Denmark, Finland and Belgium. The bottom ten regions consist of four southern Italian regions, two Romanian regions, and one region in Spain, Greece, Bulgaria and Hungary.

Table 3: Top- and Bottom-10 performing regions in Europe 2020 Regional Index (listed in descending and ascending order, respectively). An asterisk denotes regions that meet or exceed all the EU targets

Top-10	Bottom-10
Hovedstaden – DK01*	Ciudad Autónoma de Ceuta – ES63
Helsinki-Uusimaa – FI1B*	Sicilia – ITG1
Stockholm – SE11*	Sud-Est – RO22
Östra Mellansverige – SE12*	Calabria – ITF6
Vastverige – SE23*	Severozapaden – BG31
Sydsverige – SE22	Puglia – ITF4
Oberbayern – DE21	Sterea Ellada – EL24
Vlaams-Brabant – BE24	Észak-Magyarország – HU31
Tübingen – DE14	Sud-Muntenia – RO31
Stuttgart – DE11	Campania – ITF3

Capital regions are almost always among the top performers within countries (see Figure 2) and frequently outperform the EU-28 aggregate score. In a number of countries, the gap between the performance of the capital and next-best region is wide, for example in Bulgaria, Romania and Slovakia. As a result, the capital regions of Romania and Bulgaria outperform a number of EU-15 Member States such as Spain, Greece and Italy. The Bratislava region even outperforms 21 Member States. We can see large variation within countries, for example in Italy, Spain and Belgium. Although the size of the country matters, it is far from the only reason for variation. For example, the regional scores in the Czech Republic vary more than those in the UK.

Figure 3 presents the regional index relative to 2020 national targets. Comparing it to Figure 2, we see that northern European regions by and large retain their primacy even under their more ambitious national targets. Meanwhile, southern and central-eastern European countries generally perform better, occasionally significantly so, for example in Italy. Overall, the less performing regions in more developed countries have a much lower score relative to the national targets than to the EU targets. The more ambitious national targets of these countries reduce the score, especially of their least developed regions.

This regional focus presented three indices of the distance to the EU and the national target for EU Member States, regions and cities. The national level indicator is useful to monitor progress in the five headline targets. It shows that the Nordic Member States have (almost) reached all the EU targets. The Baltic Member States have made the most progress to national and EU targets. Portugal, Greece and Cyprus still felt a big impact of the crisis with a deterioration of their score in the

Europe 2020 index – 4 national headline targets, 2012

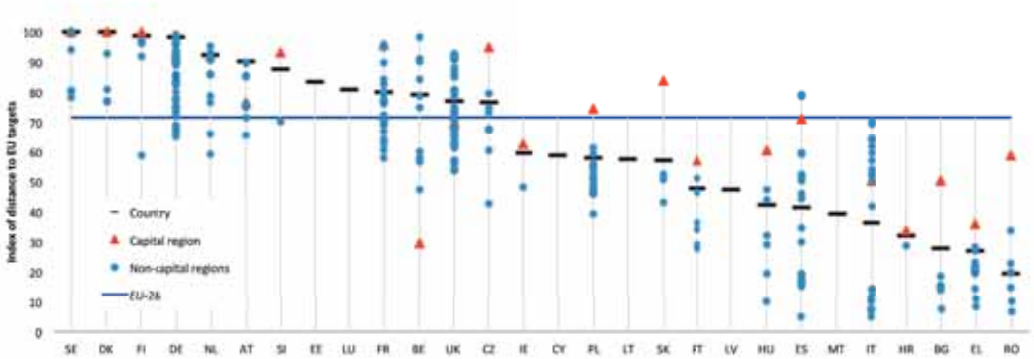


Figure 2: The Europe 2020 index at NUTS 2 level under EU targets. 100 = meets or exceeds all targets, 0 = very far removed from all targets

Europe 2020 index – 4 national headline targets, 2012

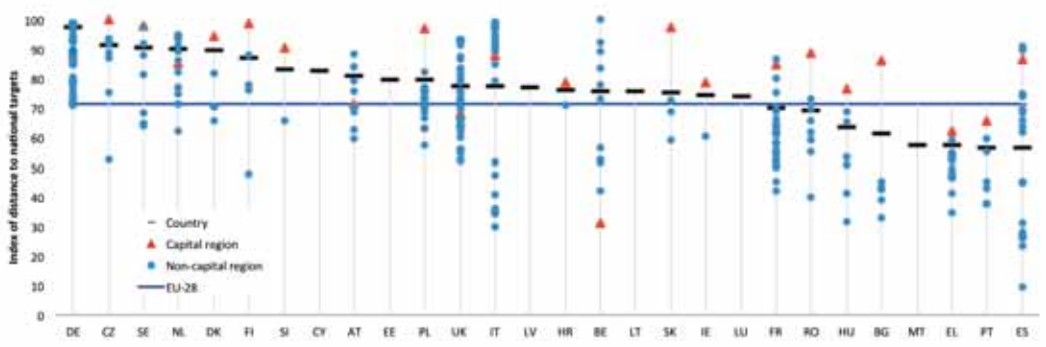


Figure 3: The Europe 2020 index at NUTS 2 level under national headline targets. 100 = meets or exceeds all targets, 0 = very far removed from all targets

period 2010-2012 and Spain's score also dropped. The big challenges remain reducing poverty and increasing employment and innovation, while maintaining the positive trends on education, climate change and renewable energy.

The regional index shows that the performance within a single Member State relative to the four headline targets can vary widely. The variation of the performance of the Belgian regions is almost as big as the variation between all Member States. In most countries, the capital region outperforms the other regions and in several cases the gap between the capital region and the second best is wide, especially in central and eastern Member States.

The 2020 index in more developed regions is double that of the less developed regions. This stark difference is fuelled by big gaps in employment, tertiary education and R&D. The transition regions occupy an intermediate position. This underlines that the EU will not be able to reach the 2020 targets without a significant progress, and catching up, in the less developed regions and a better performance of the transition regions.

Conclusions

The journey of pioneering regions and cities

The road ahead

This guide on regional innovation ecosystems is first and foremost an illustration of Europe's pioneering cities and regions in practice. It showcases the everyday work of leading cities and regions in the field of societal innovation and depicts their collaboration and interdisciplinary teamwork.

The journey of this book began with a fundamental puzzle: what are pioneering regions and cities and why do they matter? Our starting point was the assumption that if we better understand how and why cities and regions become pioneers within their regional ecosystems then we can potentially harvest significant benefits for the society and the wider public. The aim of this exercise was thus to provide the building blocks to a better understanding of how pioneering cities and regions work, as well as to establish a roadmap and inspire other regions to follow.

A quick-scan of studies and several conversations with experts yielded a variety of characteristics, which we decided to present as a framework for storytelling based on 'critical success factors'. In our invitation to our members to tell the story of their regions and cities, we developed a concept for describing pioneering regions and cities in terms of a number of critical success factors. All are important, and ideally a city or region should address all of them. Pioneering cities and regions do address most of them. And often, they set interesting examples for all regions that strive to exceed expectations.

The European Committee of the Regions continuously stresses that every region and city in Europe can be a pioneer, which actively promotes entrepreneurship and open innovation, realizes its smart specialisation strategies and takes measures for sustainable development, while collaborating with other cities and regions. Throughout this guide, we got to know them as excellent examples, and drew lessons from bench-learning. Sharing knowledge about successful practices supports collaborative learning, and stimulates good practice everywhere.

The objective of this guide was mainly to raise awareness of pioneering regions and cities in Europe. With the network of the Members of the European Committee of the Regions we can stimulate more bench-learning and make this guide an important instrument for European dialogue and partnership.

A Europe built on innovative, pioneering regions and cities is a Europe of many possibilities, resilient in the face of societal challenges, global competition and financial uncertainty. A Europe of diverse regions can leverage diversity, moving at different speeds along diverse paths in the future. Within this diversity, different regions will play different roles on the road forward. One role of crucial importance is that of the pioneer, the region that explores new ground, sets examples, shows the way, and prepares the ground for others. Pioneering innovative regions can take advantage of their capacity to experiment and their drive to excel to become leaders on the journey that other regions will eventually take.

A tentative conclusion of this guide thus is that understanding the importance of innovation, entrepreneurship, and partnering is essential to the future success of Europe's cities and regions. Even though the attitude towards pioneering and

bottom-up initiatives is positive and already developed enormously in Europe, this guide shows that there is still an immense need to establish a mechanism to scale up such initiatives in Europe.

Finally and maybe even most importantly, we want to stress that the story of this book is the story of a journey—from cities and regions to regional ecosystems and the steps taken to arrive where we are today. The authors of the articles in this guide –our CoR members- have shared the story of their journey with us by describing some of the milestones that highlight what they have learned along the way, which allows us to see where we have come from, where we are now and what future mutual endeavors lie ahead.

It is important to recall that above all this is a learning journey: the ecosystem is a learning space and – for many of its authors – this book has been a learning process. One thing is certain about the future of regional innovation ecosystems: it will be curiosity driven, underpinned by research, powered by creativity, driven by entrepreneurial spirit and the courage to act. Becoming a societal pioneer is a highly recommendable journey and we hope to inspire others to undertake a journey on their own.

***

This book is produced by the Members of the European Committee of the Regions in close collaboration with Europe's cities and regions. The book is all about pioneering cities and regions - or reviewing the content of the book from activities perspective: about regional innovation ecosystems.

In recent years it has increasingly become apparent that only through sharing knowledge and working in partnership it is possible to create truly competitive and sustainable economies meeting the needs of the 21st century. In order to achieve this, the European Union can and must work with and for our citizens. For this to happen we need to achieve a change in mindset.

This publication therefore seeks to stimulate bench-learning between regions and cities, sparking new ideas and fundamentally stirring economic development. Presenting some of the most inspiring projects across the EU, this book offers readers an opportunity to understand and explore how Europe's cities and regions are breaking new ground in regional development.

The European Committee of the Regions is the EU's Assembly of 350 regional and local representatives from all 28 Member States, representing over 507 million Europeans. This book is an essential part of the process of implementing our political priorities for 2015-2020 and giving Europe's citizens the fresh start they need. In order to overcome its current challenges, Europe must establish a culture of co-creation and break its boundaries by moving towards entrepreneurial discovery, open innovation, experimentation and action.

Contributions by:

Adam Struzik, President of Mazovia Region, Poland | **Ahmed Aboutaleb**, Mayor of Rotterdam, The Netherlands | **Augusto Rollandin**, President of the Autonomous Region of Valle D'Aosta, Italy | **Bas Verkerk**, Mayor of Delft, the Netherlands | **Basílio Horta**, Leader of Sintra Municipal Council, Portugal | **Christian Buchmann**, CoR Chair of the Commission for Economic Policy & Member of the Styria Regional Government | **Corina Crețu**, European Commissioner for Regional Policy | **Daiva Matoniene**, Member of Šiauliai City Council & Vice-minister of Environment of the Republic of Lithuania | **Eberhard Van der Laan**, Mayor of Amsterdam, the Netherlands | **Emiliano Garcia-Page Sánchez**, President of the Regional Government of Castilla-la Mancha, Spain | **Enrica Chiozza**, European Commission DG Joint Research Centre | **Fernando Medina**, Mayor of Lisbon, Portugal | **George Redmond**, City Councilor of Glasgow, United Kingdom | **Günther Oettinger**, European Commissioner for Digital Economy and Society | **Hank Kune**, Director EDUCORE bv | **Hanne Melin**, Director eBay Public Policy Lab | **Hella Dunger-Löper**, State Secretary and Representative of the Land of Berlin to the Federal Government with Responsibility for European Affairs, Germany | **Henri Lenferink**, Mayor of Leiden, the Netherlands | **Íñigo de la Serna Hernáiz**, Mayor of Santander, Spain | **Íñigo Urkullu**, President of the Regional Government of the Basque Country, Spain | **Ioannis Sgouros**, Member of the Regional Council of Attica, Greece | **Ivo Nesrovnal**, Mayor of Bratislava, Slovakia | **Jacek Krupa**, Marshal of the Malopolska Region, Poland | **Jean-Louis Missika**, Deputy Mayor of Paris, France | **Kevin Peel**, Member of Manchester City Council, United Kingdom | **Lambert van Nistelrooij**, Member of the European Parliament | **Lisa Schreier**, CEO European Startup Network | | **Luis Gomes**, Leader of Vila Real de Santo António Municipal Council, Portugal | **Malina Edreva Audoin**, Councilor for the Municipality of Sofia, Bulgaria | **Margit Noll**, Joint Programming Initiative Urban Europe | | **Markku Markkula**, President of the European Committee of the Regions | **Pawel Adamowicz**, Mayor of Gdańsk, Poland | **Piero Fassino**, Mayor of Torino, Italy | **Raffaele Cattaneo**, CoR Chair of the Commission for Territorial Cohesion Policy and EU Budget & President of the Lombardia Regional Council | **Rogier Van der Sande**, Member of the Executive Council of the Province of Zuid-Holland | **Sirpa Hertell**, City councilor of Espoo, Finland | **Sławomir Sosnowski**, President of Lubelskie Region, Poland | **Tadeusz Truskolaski**, Mayor of Białystok, Poland | **Violeta Bulc**, European Commissioner for Transport | **Ximo Puig I Ferrer**, President of the Valencia Region, Spain | **Yoomi Renström**, CoR Chair of the Commission for Social Policy, Education, Employment, Research and Culture & Member of Ovanåker Municipal Council

EUROPEAN UNION
Committee of the Regions

Rue Belliard/Belliardstraat 101 _ B-1040 Bruxelles/Brussel _ BELGIQUE/BELGIË
Tel. +32 25468202 _ Fax +32 22822085
www.cor.europa.eu

@EU_CoR
https:/www.facebook.com/committee.of.the.regions
LinkedIn
www.linkedin.com/company/committee-of-the-regions

QG-01-16-501-EN-C
ISBN: 978-92-895-0876-6
doi: 10.2863/64485
2995_05/2016