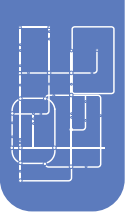




# Empowering Cities: Urban Agenda of the *Eixo Atlântico*







Biblioteca dos Estudos Estratégicos

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# Empowering Cities: Urban Agenda of the Eixo Atlântico



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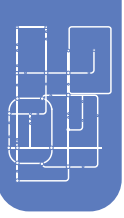
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## EMPOWERING CITIES: URBAN AGENDA OF THE EIXO ATLÁNTICO

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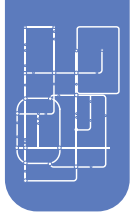
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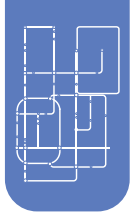




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MS. CORINA CRETU

## Commissioner for Regional Policy



The European Union is one of the most urbanised regions in the World, with nearly three in four European citizens living in an urban area. The United Nations forecast that, by 2050, the percentage of people living in urban areas will reach 80% worldwide. Therefore, the development of urban areas will have a major impact on the future sustainable development of the European Union and its citizens - economic, environmental, and social development. And we must use this as an opportunity for reinforcing the role of urban areas, of all sizes, as engines of the economy and so boost growth, create jobs for citizens and enhance the competitiveness of Europe in a globalised economy.

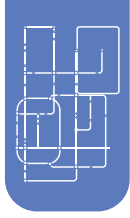
Urban areas play also a key role in pursuing the Europe 2020 objectives and in addressing many of its most pressing challenges, including the current refugee and asylum crisis, segregation, unemployment, and poverty. Here urban authorities have a special responsibility, as they are often the level of government that is the closest to EU citizens. And the Urban Agenda for the EU is here to support them, as it enables the European Union to better take into account the needs and potential of urban areas and so achieve better regulation, better funding and better knowledge for all.

Of course, more can be done for delivering the full potential of urban areas. Sound urban governance and policy is essential; and for this we need a balanced, sustainable and integrated approach towards urban challenges, which focuses on all major aspects of urban development. To this end, we need to involve all levels of governance and ensure coordination and effective interaction across policy sectors, in full respect of the subsidiarity principle and in line with the competences of each level.

On the international side, the adoption of the New Urban Agenda constitutes a pivotal step forward in the implementation of the 2030 Agenda for Sustainable Development. Cities are also protagonist at global level, as it is in our cities where the global community will win or lose the battle for a sustainable development and shape the future of the next generations. In the EU, the Urban Agenda for the EU is a key delivery mechanism for the New Urban Agenda. It is encouraging to see that the concept of an 'Urban Agenda' is gaining ground and has inspired the Union for the Mediterranean Urban Agenda, as well as Eixo Atlântico.

What we always say is that in order to address the increasingly complex challenges in urban areas, it is important that urban authorities cooperate with local communities, civil society, businesses and knowledge institutions. Together they are the main drivers in shaping sustainable development, with the aim of enhancing the environmental, economic, social and cultural progress of urban areas. Hence EU, national, regional and local policies should set the necessary framework, in which citizens, NGOs, businesses and urban authorities, with the contribution of knowledge institutions, can tackle their most pressing challenges. This is how the Urban Agenda for the EU offers a new form of multilevel and multi-stakeholder cooperation, with a view to strengthening the urban dimension of EU policies, where each stakeholder is free to set its own scope of participation.

I would like to congratulate the Eixo Atlántico for taking the initiative to develop its own urban agenda in a cross-border context. It constitutes a response at local level to the dynamic of the Urban Agenda for the EU and it offers a concrete response to the challenges ahead of us. I would like to encourage the authorities of Eixo Atlántico to commit to ambitious objectives linked to the New Urban Agenda and the Sustainable Development Goals, for the benefit of your regions and the Union as a whole. Let me wish you all the best with the implementation of the Urban Agenda to Eixo Atlántico.



## MR. ALFREDO GARCÍA

President of *Eixo Atlántico*



The process of building an urban agenda should be characterized by rigor and plurality. Only in this way we can guarantee a participative process in which territorial agents feel involved in both the construction and the subsequent development of the action plan. Building the future is not something that should be undertaken with frivolity or with errors that negatively influence the perception of the process.

More than four hundred social leaders, politicians from two countries (Spain and Portugal) who discussed and validated the process of the Urban Agenda of

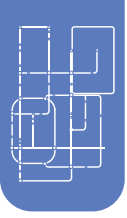
*Eixo Atlantico*, guarantee its transparency and governance.

But before that, a last-generation document with an integral vision that built the global from the local level had to be elaborated. And in this task we have been lucky to count on the contribution of relevant people from the main areas involved in an Urban Agenda. The result is a summary document that must not forget the contributions on which it is based.

That is why we wanted to bring to light, in the form of complementary materials, the high-level contributions on the basis of which the final document was written. We believe that each one of them, not only has a high level of knowledge and reflection, but is fundamental to understand the final document and the process that led to it.

Enjoy and learn with your reading as I have done.

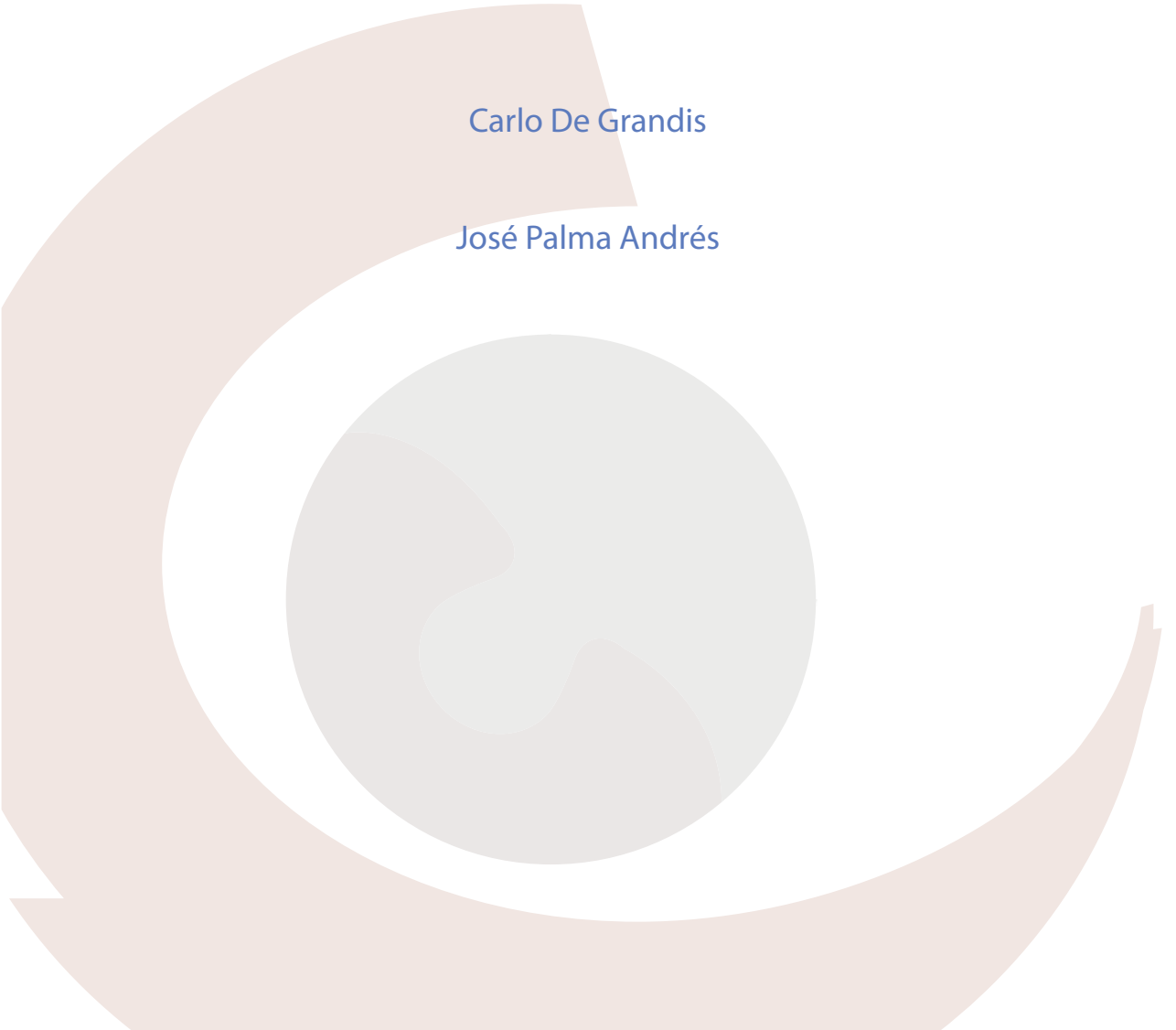




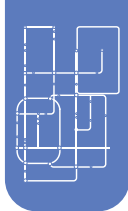
# THE ORGANIZED URBAN SYSTEM: THE NEW TERRITORY

Carlo De Grandis

José Palma Andrés







## TOWNS AS COMPONENTS OF AN ORGANISED TRANSPORT SYSTEMS

Carlo de Grandis

### SHORT CV

ME (Engineer) (Milan Polytechnic University)

Policy Officer – European Commission - DG MOVE Rail Safety and Interoperability (2017), in charge of Rail digitalisation

Policy Coordinator - European Commission - DG MOVE (2009-2017) - Trans European network

Transport Desk Officer - European Commission – DG REGIO (2005-2009)

Responsible for Organisation and Development – Public Transport Company (AMT SpA) – Verona (2000-2005) – repr. in the national coord. body for public transport (ASSTRA)

Plant Mgr Akzo Nobel (1998-2000)

Territorial Plan for Verona Province

### ABSTRACT

Towns and cities interact increasingly in polycentric systems, notably in Europe, due to the specific features of its urban network, as well as for the common policies aimed at preserving and enhancing the territorial cohesion in the European Union.

These systems, however, are still confronted with barriers of different typology along the internal borders that still hinder citizens' mobility and freight flows, thus limiting positive interactions between nodes.

The implications on mobility and logistics for towns and cities as nodes of functional – not administrative – polycentric systems are examined in this article, focusing on samples of functional systems that span across national borders of the EU, building on the know-how gathered in ESPON since its inception.

A qualitative analysis of related European policies, cross-border governance structures and cases of cross-border interactions on transport is presented, in order to:

- assess the potential of cross-border relationship in a network of nodes;
- highlight the main obstacles to overcome to deliver territorial cohesion through transport (mobility and logistics) services in a transnational polycentric structure;
- present successful examples of cross-border interaction.

A first section deals with polycentrism, borders and territorial cohesion vis-à-vis the European vision for spatial development, with a short analysis of the European specificities underpinning these policies, in contrast with polarisation-prone views.

Then examples of “Euroregions” and European Grouping of Territorial Cooperation (EGTC) are presented as structured forms of cooperation between local entities in different Member States; their role as reference for the governance of these polycentric systems and for the territorial cohesion agenda is shortly analysed with concrete examples.

The concepts of Functional Urban Areas and of “borrowed size” are introduced confronting them with the description and functioning of polycentric systems, highlighting the fact that “Borrowed Size” can fit into the logic of **polycentric specialisation and cooperation** as opposite to **polarisation**, if redefined in a more open way to take stock of the opportunities offered by nodes cooperation / integration and specialisation.

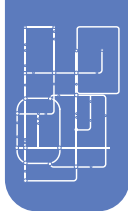
Two specific sections deal respectively with passenger mobility and freight mobility within polycentric systems spanning over internal borders. The sections start with models (of integrated transport / logistic platforms and functions), then comparing cases of cooperation between local entities at different level of political integration and joint governance development.

On logistics, the potential synergies with ports and cross-border corridors (TEN-T) are highlighted.

Criticalities and potential for integrated transport systems in polycentric cross-border areas in the EU are highlighted on the basis of the case story examined.

Lessons to be drawn on both passengers/citizens mobility and logistics are listed in the conclusions.

Reference to the specific case of the Euroregion Galicia-Norte de Portugal is made in a specific part of each section.



## TOWNS AS COMPONENTS OF AN ORGANISED TRANSPORT SYSTEMS

### 1. Cross-border polycentric urban systems

#### **The EU Polycentric specificity**

The Union's urban structure and network is, in comparative terms, rather polycentric than polarised / hierarchic, as reflected by the converging views of the European Spatial Planning and the European Territorial Cohesion policies<sup>1</sup>.

This feature is peculiarly European; it stems from a shared vision of Territorial Cohesion as a value, aiming at limiting the divide between regions, preventing loss of population of rural, peripheral and sparsely populated areas, enhancing interactions within functional regions.

Among the reasons justifying this territorial-oriented political choice by the EU, the following elements have to be considered:

- the presence of a variety of local assets in terms of cultural, artistic and natural heritage (this “diffused asset” is linked to the wide-ranging structuring of urban areas in the EU that has taken place in the past centuries);
- the concentration of specialised skills, know-how and dedicated structures in urban areas that supports and enhance the competitiveness of specialised SME clusters;
- the opportunity represented by the partially underused existing urban fabric, to limit concentration and to contribute to the affordability of housing;
- last but not least, the synergy of territorial cohesion with the Common Agricultural Policy (CAP)' support to rural areas, largely aiming at an environmental conscious management of soil and agricultural land – thus requiring an “intensive maintenance” of these areas, which benefits from a diffused presence of nodes and population<sup>2</sup>.

The structure itself of the European land-use underpins these elements, being its urbanisation historically developed over most of its territory since the remote inception.

<sup>1</sup> EU Cohesion Policy aims at ensuring the Union's Economic and social cohesion – as defined in the 1986 Single European Act – by 'reducing disparities between the various regions and the backwardness of the least-favoured regions'. This concept has been qualified by the Lisbon Treaty referring to 'economic, social and territorial cohesion'. Accordingly, the cohesion policy promotes more balanced, more sustainable 'territorial development' – see also DG REGIO website - [http://ec.europa.eu/regional\\_policy/en/faq/](http://ec.europa.eu/regional_policy/en/faq/).

<sup>2</sup> The common agriculture policy includes among its goals:

- ensuring the sustainable management of natural resources, and climate action, as well as;
- achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment; among its most meaningful elements are:
- the ad hoc fund for Rural Development (EAFRD);
- a wide use of Agri-environmental measures (Voluntary environmentally conscious schemes that go beyond mandatory standards, covering more than 25% of the total utilised agriculture area, according to EUROSTAT (2009 data). Such an articulated land-use policy calls for a diffused network of centres in parallel with territorial cohesion vision aiming at tackling depopulation and ensuring the provision of services / a diffused network of centres.

In fact, the urbanisation in the continent was characterised by a diffused structure of rural/defensive centres linked to the Celtic civilisation in western Europe<sup>3</sup>, a wide colonisation by the Greeks along the coastline, being the sea the connective structure, and a more even urban centres structure developed by the Romans, where nodes provided secondary and tertiary activities at the service of the whole productive territory - although the resulting network was denser along the main communication routes.

This widespread structure was then reinforced and endowed with new centres during the trade re-development starting from the 10th Century, and from then evolved in parallel with the formation of small-scale states, before their progressive aggregation in larger national entities.

This historical continuum has generated over the time a rather dense<sup>4</sup> European urban structure composed of relatively small towns, strongly linked to their hinterland – a complementarity that still allows one third of the EU population to live in rural areas.

Europe is therefore characterised by relatively short distances between urban nodes (this distance between closed nodes averages 45 km in the EU versus around 70 km in the case of Northern America<sup>5</sup>). Moreover, EU urban areas are on average better connected to the neighbouring ones than in other continents, thus strongly interacting within polycentric structures; these structures and their neighbouring rural areas currently host around 75% of the EU population, mostly in and around small and medium-sized towns<sup>6</sup>.

Noteworthy, the European political concern to favour an equilibrated spatial development and polycentric structure is a continental specificity, marking a sharp divide with other regions of the world, where much stronger concentration in metropolitan areas<sup>7</sup> and long-range workers mobility have been not only allowed but encouraged– these factors stands out for being embedded in the growth models in Asia, which host to 16 out of 28 mega-cities in the world.

In fact, both concentration in metropolitan areas and workforce mobility occur extensively in Asia, with concentration in large metropolitan areas is notably, but not exclusively, acute in China and India, where scale economies and concentration of secondary and tertiary activities close to the main logistics and administrative hubs, often close to coastal areas prone to global trade, has been steadily exploited to fuel the economic growth<sup>8</sup>.

<sup>3</sup> E.g.: M. Almagro-Gobrea "From Hillforts to Oppida in 'Celtic' Iberia – Proceedings of the British Academy, 86.

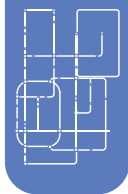
<sup>4</sup> The network density is anyhow relatively uneven: denser in the centre (from UK to northern Italy, passing through BeNeLux, Southern France, Germany, Poland and the Czech republic – see FUAS map in the text), and along the EU coastal areas, hosting more than 200 Million people, due to the historical connectivity function of the sea, notably in the second millennium ([http://ec.europa.eu/environment/lcm/index\\_en.htm](http://ec.europa.eu/environment/lcm/index_en.htm)) that has fostered trade, financial (inter coetera: Luis Lobo-Guerrero, Insuring Security: Biopolitics, security and risk and productive activities -2011, Routeledge), evolved also in network of nodes such as the Hanseatic League.

<sup>5</sup> European Commission, Directorate General for Regional and Urban Policy – United Nations Human Settlement Programme "The State of European Cities in 2016 – Cities leading the way to a better future", Brussels, 2016.

<sup>6</sup> Only 3 mega-cities are present in Europe as a whole (Paris, London and Moscow, to which the diffused system of the Ruhr-Rhine is added by some analysis).

<sup>7</sup> As stated by the United Nations Department for Economic and Social Affairs, - <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html> - The urban population of the world has grown rapidly from 746 million in 1950 to 3.9 billion in 2014. Asia, despite its lower level of urbanization, is home to 53 per cent of the world's urban population, followed by Europe with 14 per cent. By 2050, India is projected to add 404 million urban dwellers, China 292 million.

<sup>8</sup> China urbanisation has been increasing over 1% per year over the last decade, as recalled in the In-Depth Analysis on China's Economic outlook (2015) by the DIRECTORATE-GENERAL FOR EXTERNAL POLICIES of the European Parliament; this increase is linked to large cities urbanisation, rather than towns and suburbs, as shown is "The State of the European Cities previously mentioned (5) and (6) .



The United States as well tend to be closer to Asia than the EU on both towns size and labour mobility - thus reaffirming the Union's specificity; the American economic development, more volatile and prone to asymmetric innovation, specialisation and competition between states, in fact relies on larger-size towns/metropolitan areas where highly skilled and specialised workers and know-how is concentrated; this phenomenon is synergic with a long-range mobility-prone workforce: inter-State mobility is around 10 times higher in US than in the EU<sup>9</sup>.

### **Focus on cross-border polycentric structures**

Cases of cross-border polycentric structures composed of different neighbouring urban areas belonging to two or more Member states are examined herein.

This specific subset of urban systems is relevant at EU level for two main reasons:

1. these systems are confronted with additional problems due to the presence of different administrative structures and hierarchies on the sides of the borders concerned, which still act as barriers within the Union in planning and deploying transport services; the perception of these problems is soaring together with the expectations of fully reaping the benefits of the fundamental freedoms;
2. at the same time, they have a larger unexploited potential than national systems, linked to the European Added Value<sup>10</sup> generated when overcoming these historical barriers, in terms of:
  - a. effectiveness gain through an enhanced / smoother mobility for both EU citizens and goods, thus leading to a more effective internal market (and creating the conditions for two of the fundamental freedoms in it);
  - b. efficiency and synergy gains through enhanced interactions and cooperation between specialised centres (poles), thus contributing to the territorial cohesion of the union;
  - c. efficiency gains linked to scale economy associated to the provision of high order services from an urban pole to a wider market (e.g.: Universities, regional logistic centres, airports, etc.).

<sup>9</sup> Due also to linguistic barriers, intra-EU mobility appears to be modest in comparison with the US, where the share of persons who lived a year ago in a different state, accounted for 2.7% of the population in 2011-12, while mobility within the EU relative to the population represents roughly one tenth of that level (annual cross-border mobility rate estimated around 0.2%) - European Commission – MEMO on Labour Mobility within the EU, Brussels, 25 September 2014.

<sup>10</sup> As recently reasserted by the Commission Staff Working Document "Examples of EU added value", SWD(2015) 124 final, Brussels, 26.6.2015 EU added value is best defined as the value resulting from an EU intervention which is additional to the value that would have been otherwise created by member states alone, and can be assessed on the basis of the following 3 criteria:

- Effectiveness: It may be more **effective** where it is the only way to get results to create missing links, avoid fragmentations, and realise the potential of border-free Europe.
- Efficiency: It may also be more **efficient** where the EU offers better value for money because externalities can be addressed, resources or expertise can be pooled, and action can be better coordinated.
- Synergy: It may create **synergies**; where EU action is necessary to complement, stimulate, and leverage actions to reduce disparities, raise standards.

### Territorial cohesion, spatial development and polycentrism in EU Policies

Territorial cohesion has been introduced by the Lisbon Treaty as a goal of the Union, adding it as third dimension the economic and social cohesion; its concept and scope has been investigated through a broad consultation triggered by the specific Green Paper<sup>11</sup>, and further evolved in the framework of the EU2020 Strategy.

While there is a broad consensus on linking the concept to territorially (locally)- focused integration of policies, it is worth highlighting that relevant cross-border territorial entities connected it explicitly to polycentrism as a feature of territories – the Baltic Euroregion, in contributing to the above mentioned consultation, proposed the following definition:

“EU Territorial Cohesion policy aims to ensure a balanced, polycentric and sustainable development in all parts of the Community, and to allow all citizens to benefit equally from the basic freedoms set out in the Treaties and implemented through the EU policies, including access to knowledge as well as basic social and health services.”

The main idea of territorial cohesion is to contribute to Europe’s sustainable development and competitiveness – but sustainable development itself implies preserving the “territorial own resources” and exploiting them in a sustainable way, as specified by the United Nations’ Brundtland Report: “sustainable development covers not only environmentally sound economic development which preserves present resources for use by future generations but also includes a **balanced** spatial development.”

EU Territorial cohesion concept is directly linked to the European Spatial Development Perspective (ESDP)<sup>12</sup>, where the concept of polycentrism is further detailed in the ESPD components – accordingly, the Union’s spatial policy guidelines define the following political directions:

1. Development of a **polycentric** balanced urban system, and strengthening of the partnership between urban and rural areas, so as to create a new urban-rural relationship.
2. Promotion of **integrated transport and communication concepts**, which support the polycentric development of the EU territory, so that there is gradual progress towards parity of access to infrastructure and knowledge.
3. Wise management of the natural and cultural heritage, which will help conserve regional identities and cultural diversity in the face of globalisation.

<sup>11</sup> Brussels, 6.10.2008 - COM(2008) 616 final “Green Paper on Territorial Cohesion: Turning territorial diversity into strength”

<sup>12</sup> Informal Council of Ministers responsible for Spatial Planning, Potsdam, May 1999 “ ESDP - European Spatial Development Perspective: Towards Balanced and Sustainable Development of the Territory of the European Union” [http://ec.europa.eu/regional\\_policy/sources/docoffic/official/reports/pdf/sum\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf)

The **Euroregion Galicia-Norte** is located on the North-Western Atlantic coast of the Iberian peninsula; it is characterised by a linear structure along the westernmost coast of continental Europe orientated north-south that hosts 10 Million inhabitants.

This dense series of centres (and ports) has not, anyhow, generated urban continuity or conurbations.

The area presents several small-scale centres in its hinterland and few medium-sized ones, with a marked lower density, even when water bodies (e.g.: Douro river) provided a larger accessibility.

Two main corridors (Galicia-Madrid and Aveiro-Salamanca-...) connect it to the centre of the Iberian peninsula/France, although the maritime connectivity has a prominent role.



The structure is highlighted in the satellite's night images (<http://favim.com/image/595449/>) <http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/doc/maps/es-pt.pdf>

## 2. Polycentric nodes vs. Functional Urban Areas and "Borrowed size"

In order to define the needs and opportunities of polycentric structures in terms of mobility of people, goods and logistic services, it is necessary to identify the interrelations between the nodes and between nodes and hinterland, and the way to characterize them.

Two concepts are described herein – the widely used Functional (Urban) Areas, developed under ESPON and further detailed by OECD in relationship with workers mobility, and the "borrowed size" notion, both mentioned as reference on the EU territorial policy-making; while the former consider the periodic mobility of commuters around a pole, the latter stems from a different perspective, entailing influence between different interacting nodes – and therefore suits the need to highlight actual or potential synergies and specialisation.

The two concepts are compared with the observed behaviour of polycentric urban systems, and their potential development, quoting concrete cases applied to transport.

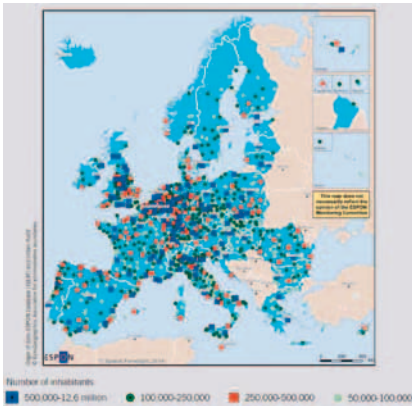
Specific cases of cross-border polycentric cooperation are examined in the subsequent part of this article to appraise how these concepts apply to polycentric structures, and under which conditions (notably in terms of barriers, governance integration, ownership).

### Functional Urban Areas

The concept of Functional Urban Area (plural: Functional Urban Areas or FUAS) has been defined by EU and OECD in 2011<sup>13</sup> as a city and its commuting zone, therefore strongly linked to passenger local mobility and labour market.

The commuting zone is delimited by the threshold of 15%, according to the following definition that allows gathering together different municipalities within a single urban area (whereby “City” is a local administrative unit with the majority of the population living in urban<sup>14</sup> area and whose population exceeds 50.000 – as a difference from a generic municipality):

- If 15 % of employed persons living in one city work in another city, **these cities are treated as a single city**.
- All municipalities with at least 15 % of their employed residents working in a city are identified - it is assumed that **these cities share the same commuting zone**.
- To identify which municipalities should be included, the commuting to both (or more) cities will be added together.
- Municipalities surrounded by a single functional area are included, and non- contiguous municipalities are dropped.



The above map below shows the updated (2014) structure of FUAS in the EU<sup>15</sup>

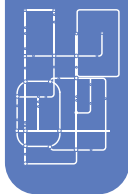
This process leads to the identification of areas surrounding a single pole; although this pole can however be constituted by more than one administrative municipality, nonetheless **FUAS are therefore polarized**, unless a single FUA includes more than one independent centre / a whole polycentric structure.

Therefore, having twins adjacent urban zones classified as FUAS is quite unlikely, since it would imply that two or more centres exchange on daily bases more than 15% of their population reciprocally – which is difficult to except for non- contiguous urban areas – which brings the situation back to a single pole-scenario, although fragmented from an administrative point of view but not from the urban structure, as in the case of conurbations.

<sup>13</sup> See EUROSTAT glossary: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Functional\\_urban\\_area](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Functional_urban_area)

<sup>14</sup> An urban area is formed, according to EUROSTAT and ESPON, by contiguous elements (cells) of a grid of 1 km x 1 km with population exceeding 1500 ab (or, which is equivalent, with population density above 1.500 ab/km<sup>2</sup>).

<sup>15</sup> [http://www.espon.eu/export/sites/default/Documents/Publications/Posters/posters\\_May\\_2014/199733\\_ESP\\_ON\\_016-2014\\_POSTER\\_functional\\_urban\\_areas.pdf](http://www.espon.eu/export/sites/default/Documents/Publications/Posters/posters_May_2014/199733_ESP_ON_016-2014_POSTER_functional_urban_areas.pdf)



Europe is seen in ESPON analysis as a polycentric structure of FUAS, with **complementary** functions – therefore specialisation is, at least partially - acknowledged, considering that these functions are not univocally concentrated but can be split among two or more interacting nodes.

But FUAS provide no indications, per se, on the interaction between nodes – in several cases two strongly interacting nodes are shown as separate FUAS; this is the case for Copenhagen and Malmo, described afterwards, but the same often happens both for nodes within the same region or across borders – as shown in the map enclosed.

It can be inferred that economic interaction and specialisation is not defined in the cases of FUAS with different sizes co-existing in the same region, as in the very dense linear structure along the Atlantic coast of the Iberian Peninsula.

This is of course consistent with the way FUAS are identified, that has unclear consequences, within the domain of transport, on logistics, being FUAS based exclusively on commuters flows, therefore linked mainly to the labour market and tertiary/upper education.

#### **Territorial cohesion, functional regions vs. FUAS**

It is worth noting that “wide (cross-border) functional regions” (vs. **administrative** regions) and functional areas have been recently - during the Polish presidency<sup>16</sup>- attributed a prominent role for their potential to achieve a higher territorial cohesion - as well as territorial reference to deliver EU2020 agenda through site-specific, integrated policies, according to the “Barca Report”<sup>17</sup>; this element is based on the opportunity and potential of overcoming the negative effects induced by national borders and other administrative barriers.

Territorial cohesion has been therefore re-defined as the process of “reshaping functional areas to make them evolve into a consistent geographical entity”, thus entailing that the interaction of the several Functional Areas (as components of a polycentric system) is the key element leading to territorial cohesion.

A key assumption is that interaction between urban areas of similar order – as an alternative to polarisation - is taking place at a growing rate, according to ESPON11; this interaction takes place “co-operating and pooling (poles’) resources...”, by developing complementary functions or sharing facilities and services”.

Therefore such synergies are based on complementarity and specialisation, allowing a pool of cities to reach the critical mass of demand that justifies the development of services of higher order in the urban hierarchy – a sort of “meta- central place” of higher order, as in the classical land-use theory by W. Christaller; this concept is further developed herein.

<sup>16</sup> [http://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/challenges2020/2011\\_territorial\\_dimensi\\_on\\_eu2020.pdf](http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/challenges2020/2011_territorial_dimensi_on_eu2020.pdf)

<sup>17</sup> [http://ec.europa.eu/regional\\_policy/archive/policy/future/barca\\_en.htm](http://ec.europa.eu/regional_policy/archive/policy/future/barca_en.htm)

### **Borrowed size and governance in polycentric structures**

Synergies leading to higher-order functions being located in a centre belonging to a wider polycentric structure are described as “**Borrowed size**”; the concept is based not only on a wider market, but also on the increase of the overall productivity of cities and urban areas relatively close to each other, as reported in “The State of European Cities 2016” (see footnote 4).

In its definition, a place borrows size when it hosts more urban functions than its own size could normally support.

This phenomenon has often been seen as a meta-polarisation, meaning that the most important pole of a given FUA deprives the others of part of their functions, thus generating an “agglomeration shadow”, where the other centres host fewer urban functions than they would otherwise<sup>18</sup>.

Borrowed size has been seen in the framework of FUAs as a potential concentration factor in an urban nodes thus generating an “agglomeration shadows” in the neighbouring nodes.

However, it could be argued that different specializations and cooperation lead to synergies rather than concentration, notably in combination with transport systems integration (a key enabler for this synergic distribution of functions) - as clearly shown by the examples highlighted in this article e.g.: the Oresund Euroregion.

This is intuitively linked to both specialization and the critical mass that a set of nodes can reach at the same time, while competing for the same limited market and functions can prove disastrous in terms of aggregated costs for the provision of services of general interest, as well as for the attraction of investors.

Another example of positive, win-win interaction accruing the potential of individual nodes is provided by the Euregio Tyrol, South Tyrol, Trentino, favoured by historical bond and a shared interest for a common axis (Brenner), that led to enhanced cooperation between the local entities.

This cooperation was structured on several sectors - transport of passengers, goods, project financing of large infrastructures but also upper studies (Universities – providing a set of highly specialised centres, favoured by bilingual teaching in secondary education), innovation and industrial policies.

The interaction between the nodes allowed the three provinces to act as a medium- size region, and to overcome the barrier represented by the Alpine range and the national borders.

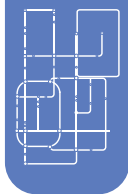
In general terms, there is academic consensus over the positive influence of borrowed size – as in general size shows a positive correlation with regional productivity, which has also been measured statistically, together with the positive influence of the presence of other nodes within a radius as large as 300 km<sup>19</sup>!

But positive interactions require specific conditions to take place: fragmented governance can hinder synergies between nodes that could otherwise benefit from them; this is notably true for non-large nodes - as reasserted by OECD analysis on cities productivity<sup>20</sup>.

<sup>18</sup> Martijn Johan Burger et Al. “Borrowed Size, Agglomeration Shadows and Cultural Amenities in North-West Europe”, European Planning Studies, December 2014

<sup>19</sup> E.J. Meijers, M.J. Burger and M.M. Hoogerbrugge- Borrowing Size in Networks of Cities: City Size, Network Connectivity and Metropolitan Functions in Europe - Papers in Regional Science - Volume 95, Issue 1, March 2016.

<sup>20</sup> Divergent Cities Conference, Cambridge, 2015.



Horizontal and vertical administrative barriers can in fact prevent cooperation and coordination - notably the provision of public services – and generate red tape and administrative barriers for users.

Another negative element generated by the absence of a common **governance** structure is the lack of **ownership**; both elements prevent the development of common projects (any shortcoming in accessibility becomes therefore hard to overcome) as well the provision of common / coordinated services between two nodes of a polycentric structure where such integration has not taken place.

As acknowledged by ESPON, “the discussion of the potential of polycentricity is based on morphological proximity. A ... important precondition for polycentricity is that of functional **integration and co-operation.**”

What will be further investigated and included among the conclusions is the set of conditions that are needed to allow this process to take place, and lessons to be drawn by selected cases of cross-border interactions.

In spite of these obstacles, a growing number of cases of positive interactions in a range of sectors, notably in the fields of universities and research, or logistic centres, due to specialisation, complementarities and cooperation between poles, that shows the possibility to reach formal agreements and to set-up a joint governance to exploit common services/structures.

Several cases concerning transport are further analysed in this article in the sections concerning respectively freight transport/logistics and passenger transport/mobility.

An example worth referring to here to exemplify the (European) added value of joint governance is the Öresund region, with a remarkable integration process in the Port sector.

The Danish region of Zealand (Copenhagen) and the Swedish region of Scania (Malmö) were connected in 2000 with the multimodal Öresund fix link (consisting of a toll road and double railway line sharing the same infrastructure – a bridge- tunnel).

A large share of both Copenhagen and Malmö ports activity was linked to the ferry connectivity, whose market was eroded by the fix link. The two ports then reacted deciding to exploit synergies between them and with the fix corridor that was created (thus, enhanced accessibility led to the interaction between the two logistic platforms): the two port administrations merged under a single, multinational, port authority and launched a development strategy to become specialised terminals of the same platform (Malmö notably for container, Copenhagen notably for cruises); as a result, in spite of losing a large share of traffic linked to ferries, the overall turnover of the port system increased significantly!

For the above-mentioned reasons, the potential role of formal / informal Euroregions is explored in the following section, as embryonal development phase of transnational governance, as well as shared structures enabling cooperation and shared planning.

### **Galicia-Norte: Functional areas and territorial cooperation**

The map of the Functional Urban Areas (FUAs) of the Euroregion recalls obviously the urban structure mentioned in chapter 1, highlighting the multiplicity of different centres of similar order (green and red – differentiated by a threshold of 250.000 habitants, and the absence of strong polarisation, in spite of the presence of a node classified as MEGA by Espon - the urban area of Porto - Vilanova de Gaia [MEGA: Metropolitan European Growth Area, FUAs with metropolitan functions as identified in ESPON in quali-quantitative assessment of their urban order].



The Euroregion components are involved in a variety of territorial cooperation programmes, first and foremost among them, but additional are contributing to wider networks, mostly linked to the Atlantic dimension, as shown by the maps below for transnational and cross-border cooperation).

The recently adopted communication on the Atlantic Action Plan (which does not own the status of Macro-Regional strategic) is therefore a reference for setting synergies between them and contributes to define the wide context for local development policies.

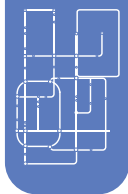
The Atlantic Action Plan strategy aims at delivering growth, reducing the carbon footprint, using the sea's natural resources sustainably, responding effectively to threats and emergencies and implementing an "ecosystem" management approach in Atlantic waters.

Its operational priorities are:

- promote entrepreneurship and innovation;
- protect, secure and enhance the marine and coastal environment;
- improve accessibility and connectivity;
- create a socially inclusive and sustainable model of regional development.

### **3. EU Cross-border structures as potential political reference: Euroregions and EGTC**

This section shortly explores the concept of Euroregions as defined by the policies and European entities, but also less formal international agreements between local administrations, in order to determine how these entities could contribute filling the gap of governance (and ownership) in polycentric cross-border structures.



An element to be assessed is the relationship between national regions (generally identified as NUTS 2<sup>21</sup> entities according to Eurostat) and Euroregions, in relationship with territorial cooperation and macro-regional strategies.

Notwithstanding a wider geopolitical scope of Euroregions acknowledged by the Council of Europe, Euroregions often constitute the geographical reference for the territorial cooperation objective of the EU Cohesion Policy; they usually are co-operation structures between contiguous territories located in different European countries.

The cooperation can be more or less structured, according to:

- formal political arrangements;
- established coordination bodies (usually Euroregion have at least a common representation in Brussels).

Euroregions can be empowered, among the others, by transnational elements such as:

- policy developments associated with a macro-regional strategy in which they can be included;
- a cross-border large project encompassing administrative unites (at NUTS 2 or NUTS 3 level) of the components of the Euroregion.

A legal European entity created to trigger and formalise territorial cooperation is the “European Grouping of Territorial Cooperation” (EGCT), foreseen by Regulation No. 1082/2006, officially registered at EU level. EGTCs allow local public entities of different size and nature (from municipalities/cities to regions) of different Member States to cooperate formally, tacking part to a new entity with legal personality.

Although these structures are generally associated to the joint management of Territorial Cooperation programmes, their scope often span beyond the programme boundaries / can differ from it.

Currently 62 EGTC are officially registered, many of which considered as Euroregions; they are composed by different local entities and common ground:

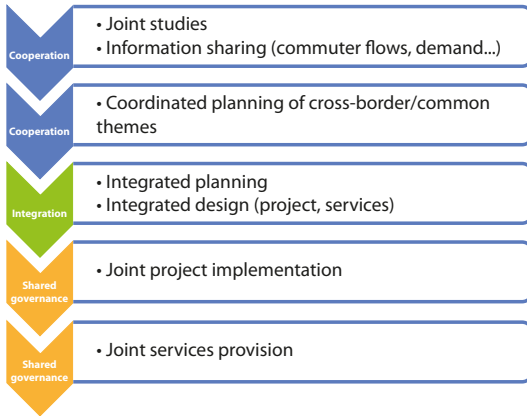
- grouping of urban nodes (usually strongly interacting nodes of polycentric structures): Eurométropole Lille-Kortrijk-Tournai (multilevel aggregation of local administration and state representatives, with an assembly of 147 municipal representative as a central node);
- cooperation between neighbouring regions - e.g.: Galicia – Norte de Portugal, Aquitaine-Euskadi; GECT Euregio Tirolo - Alto Adige – Trentino (strongly interlinked with the Brenner corridor);
- mix structures: Amphictyony of Twinned Cities and Areas of the Mediterranean;
- thematic networks: EGTC EFXINI POLI - Network of European Cities for Sustainable Development; European Grouping of Territorial Cooperation European Urban Knowledge Network (EUKN EGTC, involving 9 Member states and research institutes);

<sup>21</sup> For an overview of NUTS - Nomenclature of territorial units for statistics - according to EUROSTAT: <http://ec.europa.eu/eurostat/web/nuts/overview>

- management of natural goods (river basins – Douro/Duero; Parc européen / Parco europeo Alpi Marittime, ...) or specific structures providing cross- border services (Agrupació Europea de Cooperació Territorial Hospital de la Cerdanya).

The last three cases mostly concern thematic dimensions to which the cooperation (much needed when managing cross-border resources) is sectoral, and can be empowered with the governance, but and usually do not foresee element of general spatial planning, economic interactions and territorial cohesion in the wide sense, nor policy integration at local level.

The first two cases, which often include in their scope function of the last three, have a wider scope, albeit often having a less structured administrative power, and interaction often deals with economics, mobility of people and of goods, often struggling to overcome national barriers. Accordingly several examples of these

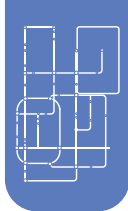


will be shortly analysed in the following two sections; when the entities are regions, the EGTC usually overlap with a Euroregion.

The entities involved can be municipalities, provinces (NUTS 3), regions (NUTS 2) – therefore, the geographical scope of a EUROREGION, EUGT, as well as Territorial Cooperation programmes, often struggle to fully overlap with the administrative boundaries of the entities typically in charge of territorial planning and wide-area service provision, thus limiting in several cases their potential; the inclusion of municipalities, directly or in a multi-level governance, can facilitate dealing with polycentric structures.

With regard to the interaction with a macro-regional strategy, it is worth highlighting examples such as the Territorial Cooperation programme “Alpine Space” which overlaps almost perfectly with the Alpine convention.





A specific EGCT (Euregio) includes three Regions (two formally autonomous provinces having the administrative power of regions) in Italy and Austria, cooperating along the Brenner Axis, having a proactive role in triggering the large project of the Brenner Base Tunnel, as well as having historical bonds and structured cooperation in a number of fields including upper education, research and mobility.

In these fields, the EGTC benefits from the specific Alpine Convention Protocol on transport, on one hand, and from the actions and policies brought about in the framework of the “Alpine Space” territorial cohesion programme, in a synergic view.

Therefore macro-regional strategies and wide-ranging territorial cooperation programmes act as a policy framework that contribute in creating cross-border connections and cooperation spanning over smaller Euroregions / EGTC structures.

It is not frequent to have the latter directly in charge of managing services on the ground, although shared services provision agreements are quite common.

EGTC and European Economic Interest Groups (EEIG), on the other hand, are usually in charge of joint planning, strategic cooperation and consultation mechanisms, or the implementation of pilot projects / small scale projects involving a high degree of exchanges between the national entities (e.g.: information-sharing, integrated ticketing in the transport sector, daily management of natural goods / areas) while the actual implementation of large scale projects, hard infrastructure, operation of services is usually deployed by either:

- the set of national authorities taking part to the EGTC / EEIG, or
- Societas Europaeas (SE), notably for the development of cross-border projects.

In this article, the different steps of cooperation / integration are represented as follow, according to empirical evidence:

#### 4. Accessibility & passengers mobility

##### **Accessibility and mobility in polycentric structures**

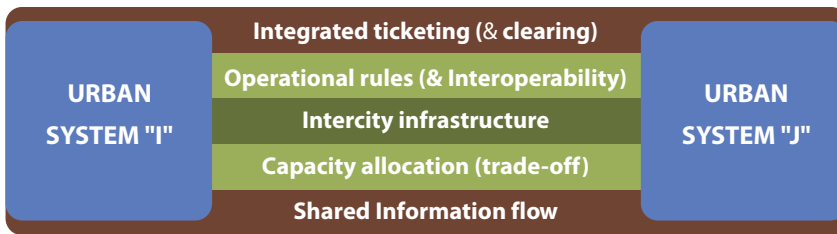
In a polycentric structure the access to urban nodes / areas and mobility within are obviously interlinked. A seamless passenger flow with regard to physical connections, availability of information and ticketing is called upon not only by the urban transport policy of the Commission but also in the Transeuropean transport network (TEN-T), as explicitly mentioned by Regulation 1315/2013.

This attention is justified by the important share of overall transport activities and the key role multimodality can play to ensure a high level of services, to decarbonise transport and to tackle congestion in the worst affected areas.

Concrete examples of spontaneous cooperation are arising, at different stage of maturity and ownership involving the transport system; they can evolve from horizontal cooperation of municipalities or districts without specific responsibilities and intercity transport planning, or being structured within Euroregion / facilitated by territorial cooperation programmes, where vertical integration take place between different level of territorial / transport governance, national and international. Some of these agreements are triggered by a joint cross-border project, and may develop synergies with EU macro-regional strategies.

A common feature of these cooperation structures is that all of them stem from a common concern about a mobility need which is hampered by barriers of administrative, technological, infrastructural nature, and often by governance and administrative issues.

Ensuring a good level of integrated mobility between two (or more) urban centres connected with intercity services has to be dealt with carefully, since it implies a multilevel governance but also a multilayer approach that, according to the author experience, can be schematically represented as follows:

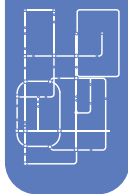


In fact, having represented with I and J two urban mobility systems belonging to the same polycentric entity, their integration calls for:

- the existence of an infrastructural link of adequate quality between the two nodes
- i.e.: its infrastructural, operational parameters and maintenance status shall allow a good quality of service, notably in terms of capacity, speed, safety; for public transport – quite obviously - an important reference is the commercial speed, in comparison with the journey with a private car, since time represents a key component of the generalised cost of transport<sup>22</sup>;
- common or at least compatible operational rules, including on interoperability<sup>23</sup>; this is a crucial element for any cross-border relation, notably on rail, but also on tolling systems; a lack of interoperability, in the case of rail, entails either the need to do massive investments on the rolling stock, or a technological barrier inducing additional operational costs and loss of time (e.g.: change of locomotive and/or driver, tail lights...);

<sup>22</sup> The generalised cost of transport for a given user is assumed in its simplest definition equal the financial cost of transport plus the value of time - for the latter as EU references refer to: <http://ec.europa.eu/transport/themes/sustainable/studies/doc/2014-handbook-external-costs-transport.pdf> [http://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/cba\\_guide.pdf](http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf)

<sup>23</sup> "interoperability" in the transport sector means the ability, including all the regulatory, technical and operational conditions, of the infrastructure in a transport mode to allow safe and uninterrupted traffic flows which achieve the required levels of performance for that infrastructure or mode, as defined by Regulation (EU) n°1315/2013 - Union guidelines for the development of the trans-European transport network (TEN-T).



- adequate capacity (level of saturation of the infrastructure) and, in the case of rail, of capacity allocation – this parameter refers to both the quantity of slots – compared with the demand, and with their quality – that calls for slots with adequate commercial speed and reliability, considering all the traffic component; the provision of cross-border services requires an ex ante fine-tuning of slots at the border – as Rail Freight Corridors, within their domain, set Pre-arranged paths (“PaPs”);
- a shared / linked ticketing system<sup>24</sup> – which calls for political arbitrations and clear negotiation of the trade-offs needed, to come to an attractive pricing of the integrated transport system; a win-win situation needs demand generated or transferred by other transport modes, and an adequate willingness to pay of the average user; contractual arrangements with the financial entities/institutions involved are also needed with each Member State or region – which can result in time-consuming process to launch new services;
- a shared information system, allowing for relevant information to be easily available in all the areas involved in the scheme – this include awareness raising on the availability of the service (service planned), real-time information on the service (service deployed), pricing, ticketing, etc.

The political commitment (**ownership**), as well as a joint/shared/coordinated **governance** are crucial to put an integrated mobility pattern in action; sharing technology and even strong passenger flows do not lead, per se to the adoption of such schemes: noteworthy, the diffusion of a single standard for electronic ticketing (Contactless standard ISO 14443<sup>25</sup>) and even its enhanced version (Calypso) aimed at developing interoperability (“Triangle”<sup>26</sup>), have not led to an integrated mobility among different centres using the same standard, but only within a single metropolitan area (as in the case of Brussels).

This integration process has in fact not taken place in spite of a critical mass of users of local transport commuting between nodes served with the above- mentioned ISO 14443 standard (e.g.: Paris, Brussels, London) and linked with high-speed services allowing for daily commuting<sup>27</sup>, thus highlighting the need for a parallel processing at political (consensus-building, ownership, planning), administrative (resources allocation, legal framework), and technical levels.

<sup>24</sup> Such systems can be quite cumbersome in terms of administrative and financial agreement, including agreements on toll collection / transfer, and to proceed to a clearing in more general terms; notwithstanding this, it is worth remarking that integrated ticketing does not necessarily require electronic ticketing in principle (as shown by the EU-wide, mono-modal examples of BIJ or Inter Rail, or by early multimodal public transport systems) – electronic ticketing, however, is useful to gather information on the demand, to fight frauds, and is necessary to perform ex post clearing between different transport operators according to the actual journeys, thus incentivising the operators that capture more public and compensating additional investments.

<sup>25</sup> ISO/IEC 14443-1:2008 Identification cards -- Contactless integrated circuit cards -- Proximity cards - [http://www.iso.org/iso/catalogue\\_detail.htm?csnumber=39693](http://www.iso.org/iso/catalogue_detail.htm?csnumber=39693)

<sup>26</sup> <https://www.calypsonet-asso.org/content/what-triangle>

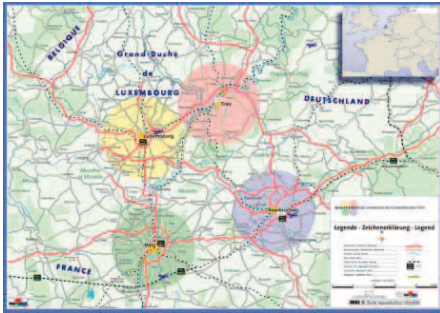
<sup>27</sup> Above 10 Million passengers in EUROSTAR and around 6.7 Million passengers using Thalys network Source: European Commission (2012) and press releases by Thalys and Eurostar

### Cases of cooperation on passenger mobility in cross-border polycentric structures

A sample of cases of cooperation at a different level of integration is shown in this section.

- Joint studies – **Eurekarail**: the Dutch Provinces of Limbourg and North Brabant applied for a joint study and setting up a contact point for commuters / users / citizens to improve the cross-border connections in the dense region – being directly affected by large commuters (and goods) flows between the Netherland, Germany, and Belgium. The study highlights a large potential market and 5 short bottlenecks, and calls for integrated transport planning, service deployment and ticketing for cross-border commuters.

- Stable association of local entities - **Quattropole**: Cross-border network of cities between Luxembourg, Metz, Saarbruecken and Trier, located in three neighbouring member states (Luxembourg, France, Germany). The association, set more than 10 years ago, does not have the status of Euroregion and is not currently structured in EGTC; Quattropole aims at exploiting synergies between the four poles with the creation of a virtual metropolis (polycentric structure with different specialisation), in line with the “borrowed size” concept; among its specific goals, it include enhancing the respective attractiveness through an integrated offer of heritage / services, as well as in facilitating the mutual accessibility, with a priority to public transport.

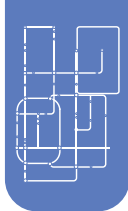


On an action promoted by the cities, the four regions involved (Saar, Luxembourg, Lorraine – now merged in the Grand Est, and Renan-Palatinat) agreed to define an articulated offer of tourist passes valid for public transport – on rail and on road, for each nodes and combinations of them, and to jointly advertise and commercialise it (such formula does not imply service integration nor complex clearing ex post / technological deployment). Further actions of service integration are pursued by Quattropole.

### - EGTC – **Eurometropole**

The Eurometropole Lille - Kortrijk - Tournai (agglomeration of 147 municipalities covering 3 provinces from 2 member states with 2 languages (similar to the Euregio but with a more local focus) foster territorial integration, inter alia, on the domain of transport.

Its operational structure - EGTC Eurometropole - does not manage directly services (most of which are either managed at urban level or at regional level), but develops studies, brings about the dialogue between the stakeholders (administrations, citizens), and facilitates agreements for the coordinated provision of homogenous transport services, with the aim of evolving toward a more sustainable transport pattern.



The EGTC set up joint WG with the aim of harmonising land use planning, develop coherent green corridors, on mobility and accessibility, it formulates recommendations for the joint management of public transport and motorway, rail and river networks (blue corridors)<sup>28</sup>.

These have focused on:

- increasing the frequency of public transport;
- covering the territory harmonising pricing;
- supporting the re-qualification of border crossing;
- developing low-impact modes of transport (Green lanes, cycle networks...).

#### - Euroregion Aquitaine-Euskadi - EGTC

Aquitaine-Euskadi is formally constituted as Euroregion with a dedicated EGTC «Eurorégion Aquitaine-Euskadi», set-up on December 2011.

The Euroregion has promoted, inter alia, a project ([www.transfermuga.eu](http://www.transfermuga.eu), with EU CO- financing), in cooperation with transport operators, to facilitate cross-border sustainable mobility (public transport, train, soft mobility).

The process has been carried out in cooperation with local authorities and users.

The study has collected information on actual flows and services developed analysis and IT tools for transport integration, highlighting a series of concrete measures, some of which already operational.

Among the results it is worth highlighting an electronic tool able to provide multilingual, multimodal, cross-border information on transport and a route planner; a range of measure at local level were devolved to municipalities (from parking to biking lanes/bus stops).

A structured cooperation between railway operators started to integrate regional services planning.

New cross-border services have been planned, involving national safety authorities, although with a limited scope due to the difference in track gauge that will last until 2019.

The regions are currently re-defining their local services accordingly.

#### - Euroregions-EGTC, macro-regional strategy and a joint project: **Euregio Tyrol – South Tyrol – Trentino**

The three regions<sup>29</sup> have included in the Public Service Obligation contracts with the railway undertakings (the national incumbents) additional cross-border services, following a Memorandum of Understanding and joint studies performed by the EGTC: currently 33 daily services connecting South Tyrol (Bozen) and Land Tyrol (Innsbruck and Linz), up from 16.

<sup>28</sup> Strategie Eurométropole Lille-Kortrijk-Tournai 2014-2020, Agence de l'Eurométropole, November 2013

<sup>29</sup> Formally Trentino and South Tyrol are autonomous districts, or provinces – endowed with the same power of Autonomous regions (and provinces) by the Italian constitution – they are considered NUTS 2 Regions with reference to EU Policies

The three administration already have integrated transport services compatible with railway transport by all the operating companies; they are currently finalising a project for integrated ticketing spanning across the whole Euregio, including rail, road and cable services. Extra costs for the additional Public Service Obligations (PSO) are financed by the each region’s budget.

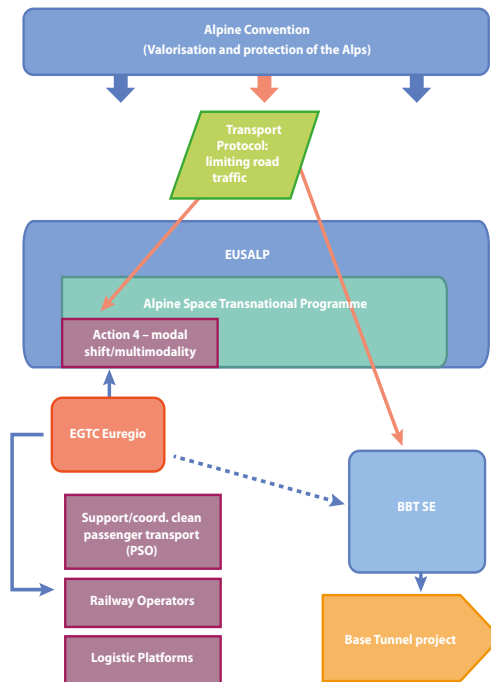
The EGTC is a cooperation structure, and manages directly a dedicated research fund financed by its Territorial Cooperation programme.

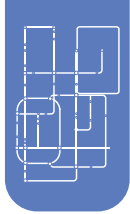
A remarkable feature of the context of this Euroregion is the synergies with the policy framework of the macro-regional Alpine strategy – EUSALP - and the joint implementation (AT-IT) of a transport project – i.e.: the Brenner Base Tunnel (BBT).

In the first case (EUSALP), the EGTC is the group leader of Action 4 - To promote inter-modality and interoperability in passenger and freight transport.

This is synergic with the role played as stakeholders in the implementation of the Brenner Base Tunnel, as explained in the section concerning freight transport / logistics.

The overall multilevel governance is therefore effective – in spite of being quite articulated, thanks to a strong consistency of the political objectives (in Red political reference/ influence, in blue: operational link)





- Euroregions-EGTC with common governance structures – **Oresund:**

The Oresund Region comprises the province of Skåne on the Swedish side of the Sound and the Danish islands of Zealand and other smaller islands (Lolland, Falster, Mön and Bornholm). It hosts about 3.7 million people.

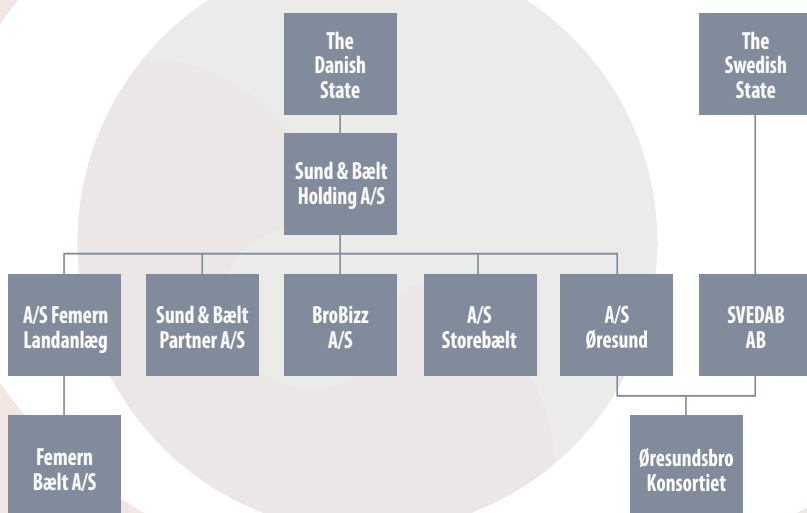
Oresund is commonly acknowledge as Euroregion; in spite of not having a specific EGTC, an ad hoc body - the Öresundskomiteen - has been the official platform for regional political cooperation between the Swedish province of Scania (Skåne) and Denmark’s major island Zealand since the ‘90s.

Remarkably, overcoming cross-border obstacles of any nature (including harmonization) to foster integration is acknowledged as political objective at intergovernmental level in the area: The Nordic council of Ministers and the (Nordic) Freedom of Movement Forum give impetus to overcoming the national borders on the basis of a database of the cross-border barriers constantly updated and monitored.

A common set of values, objectives and cooperation structures is enshrined by a Macro-regional Strategy (the EU Baltic Sea Region Strategy), endowed with its Territorial Cooperation programme, which acts as a forum for cooperation and contributes to the development of studies, joint planning and information sharing.

From an infrastructural point of view, the region is tied by the Oresund fix link - a bridge-tunnel infrastructure that links Copenhagen (downtown and its metro system on the access to the bridge) Malmo, the respective ports and Copenhagen international airport with rail and road along the Scandinavian-Mediterranean Transeuropean Corridor.

Implemented by a dedicated society - de facto a spin-off of the Danish Ministry for transport and infrastructure, it is managed at operational level by a joint Swedish- Danish body.



The fix link allowed for fast (motorway) road connections between the nodes, but also for public services provision by road and rail - frequent (20/30') fast train connections link the two cities, their harbours and Copenhagen International Airport.

Its impact was huge on territorial integration and synergies developed between the two nodes and Regions<sup>30</sup>:

- A significant part of the population relocated (mostly from Zealand to Scania), exploiting the better offer of the housing market, free education and land use.
- This process further enhanced regional attractiveness and passengers flow across the link, exceeding 35 M passengers since 2008 (all modes of transport).
- Under the Oresund label, 11 universities set up a structured consortium enhancing R&D and the (already excellent) skills level in the region, increasingly becoming a multinational identity - as acknowledged by OECD "its R&D expenditure (4.9% of GDP), mainly of private origin (73%), outperforms national figures."

#### **Galicia-Norte: enhance the north-south corridor and integrate local transport**

The backbone of the region's urban structure is served by a rail and road north-south corridor where a critical mass of actual/potential users justifies further enhancement, notably between Porto and Vigo, where a tragic accident has recently taken place, while between A Coruña and Vigo express rail services are already successfully provided.

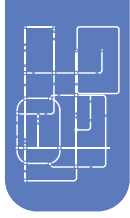


Interoperability of the electronic tolling systems by motorways has already been deployed.

The key priorities for a further development to be:

- Support the removal of the key bottlenecks along the cross-border rail connection, as well as the full electrification and the enhancement of its interoperability (signalling system), as well as systems encouraging rail – park and ride, etc.
- Evolve ticketing to multiple/periodic passes
- Analyse mobility needs as a contribution to an integrated offer to be proposed by the Regions
- Provide (e-)tools for real-time information and ticketing
- Gradually integrate local transport of the main urban nodes in a single pass (foster administrative agreements with the operators)

<sup>30</sup> See also Fokus Oresund – n. 2 – May 2010



## 5. Connectivity and logistics for freights

Logistic activity has a limited relationship with a single pole, except for the case of City Logistics; large logistic platforms, and ports, rather serve a territory, and therefore a network of poles / urban centres - they can play a major role in overcoming fragmentation and providing high-added-value services, enhancing the logistic chain of a polycentric system - this can take place as interaction of specialized centres - such as ports.

As shown by examples quoted in this section, Euroregion can contribute to enhanced logistic performances through cooperation of their components and integration of platforms.

### Freight logistic structures - terminals, logistic platforms and ports.

The fundamental components of freight logistic activities are terminals and logistic platforms.

The TEN-T Guidelines provided a clear definition of both elements, based on the reference by the UN-ECE working group on logistics:

- **‘freight terminal’** means a structure equipped for transshipment between at least two transport modes or between two different rail systems<sup>31</sup>, and for temporary storage of freight, such as ports, inland ports, airports and rail-road terminals;
- **‘logistic platform’** means an area which is directly linked to the transport infrastructure of the trans-European transport network including at least one freight terminal, and which enables logistics activities to be carried out.

Both are linked to the concept of multimodal transport, multimodal referring to transport by two or more modes; complementarily, intermodal refers to the the multimodal transport of unitized goods -e.g.: containers.

A specific subclass of freight terminals is constituted by dry ports, defined by UN-ECE as “an inland terminal which is directly linked to a maritime port”.

Logistic platforms are usually located at crossroads of **long-range corridors on two or more transport modes**, and dispose of a relatively large area to develop scale economies and host a variety of functions that can add value to the logistic chains of goods.

For these reasons these structures generally **provide services for a relatively large area** (empirically similar to a NUTS2 region, as in the case of the Italian and German networks, developed through a planned activity involving regional and central administrations), connecting it with long-range transport.

<sup>31</sup> a feature relevant to the Baltic States, the interconnections to the 1520 Russian gauge in Eastern Europe, and for the Iberian Peninsula - where a strategic plan of the gradual deployment of UIC gauge rail infrastructure is needed to set up adequate freight terminals and ensure efficient long-range and international connections of the “Iberian”-gauge network.

They can host a large range of activities synergic with transshipment / movement of goods - among which the following ones are frequently encountered:

- custom operations and any administrative activity (including the ones relative to hazardous good transport in different modes, phytosanitary products, registration of goods) - in synergy with maritime/logistic/custom single window;
- testing and commissioning of equipment (including cars and mobile assets);
- integrating them in the supply chain (with the aim of optimizing it) via tracing, storing assembling different components to facilitate transport / shipping operations, labelling, packing, grouping and preparing for shipping/forwarding; - these activities are synergic with maritime/logistic single windows;
- trading facility for specific goods;
- management of containers / reverse logistics;
- energy and ICT systems - tracking and tracing, single windows... - related to transport (an important innovative feature being the provision of new fuels - e.g.: LNG);
- safe parking<sup>32</sup> (and temporary storage) areas.

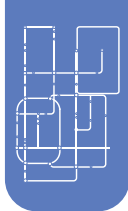
**Ports are logistic platforms** - all or part of the above-mentioned functions are present within port areas depending on land availability and synergies with the productive sectors; in specific, unconstrained cases, whole industrial zones linked to processing of goods shipped to the port are located within its boundaries.

This is typically the case for the big ports of the low-lying north coastal range of Europe, favoured by an historical concentration of capitals linked to trades since the late middle-age and renaissance (triggered by networks of trading centres and communities such as the Hanseatic League); in the case of the southern Atlantic and Mediterranean coast ports, however, morphological constraints have usually led to more wide-spread distribution of relatively smaller ports with limited area for activities in their immediate hinterland (with few exceptions such as Fos, or Gioia Tauro).

In these cases some of the logistic activities are / can be performed in inland logistic platforms (thus acting as service providers to both the ports and their own hinterland) - regular shuttle train services for inward custom operation can significantly increase ports capacity.

Another structure for different logistic functions not to be confused with the above- defined logistic platforms is encountered in **city logistics**: it is constituted by relatively small terminals aimed at optimising freight delivery to/from a single urban area, in order to reduce congestion and local pollution through grouping, exploiting dedicated cleaner vehicles, optimising the timing of the delivery. These structures are often mono-modal (road-road), with some positive exceptions as in the case of Paris (with new concepts of logistic centres being developed by Sogaris and local authorities).

<sup>32</sup> as defined by Directive 2008/96/EC and



Centres for City logistics are increasingly useful with the size of the urban centre served, but there are exceptions showing successful cases in relatively small urban areas (e.g.: La Rochelle), notably when traffic restrictions apply to an historical centre; inland waterway terminals provide in several cases city logistics services. City logistics functions can be hosted in a logistic platform.

### **Planning and governance of logistic platforms**

With regard to logistic platform, they are usually conceived and promoted by public planners, and managed by a **public-private partnership**, with several public and private operators operating in the area under contractual agreements with the managing structure.

**Public planning** - echoed at European level by the inclusion of these structures in the TEN-T network foreseen by Regulation 1315/2013, provides three useful elements of effectiveness and efficiency to these nodes:

- integration with infrastructure planning (access to primary road, rail and, possibly, inland waterway / sea / air transport) - Transeuropean rail network being a crucial one;
- integration with land-use planning (and therefore availability of an adequate surface and boundary conditions);
- creation of an adequate network of centres able to develop synergies among each other.

A careful consultation of the interested **private operators** (logistics, industries) is needed from the beginning to define functions and specificities of the structure to meet the actual/potential market needs.

Logistic platforms have been developed in Italy with a public support for the initial investments through a dedicated law (Law 240/90), and a support scheme for more than 300 Million EUR by 2006 (additional funding was provided by structural funds - ERDF, notably in Southern Italy), aiming at delivering a modal shift from road to rail.

More than 20 structures named “Interporti” have been developed, linked to primary road and rail networks, with terminals and usually leading to the successful development of most of the functions of logistic platforms above mentioned.

“Interporti” can host more rail-road terminals, managed by the incumbent railway company and/or by other operators in the same structure; a dedicated society can manage train operations and movement of goods. Custom corridors with ports are deployed in specific cases.

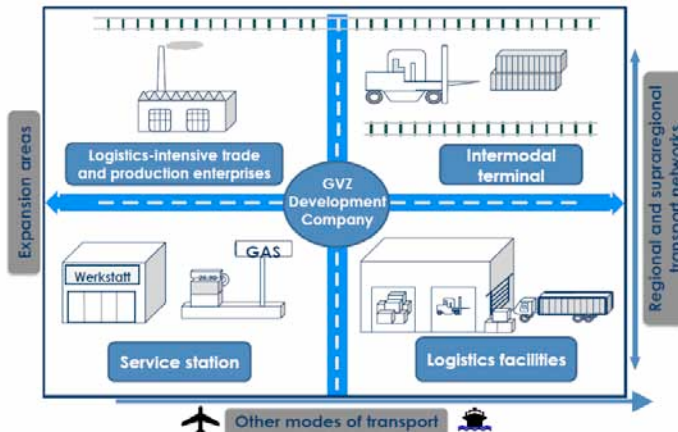
Connections with the primary (TEN-T) network are generally satisfactory and do not represent a bottleneck even for platforms generating large traffic (40-50 daily trains) - as far as the territorial coverage is concerned, anyhow, it is worth highlighting that the most prominent industrial region - Lombardy, whose GDP equals Belgium, is not provided with a primary logistic platform – this shortcoming in the planning phase is partially addressed by the presence of several large platforms at its borders (Novara, Bologna, Verona).

Germany has developed a similar model, with the landers as promoters and planners, in cooperation with industrial areas, the national railway company - Deutsche Bahn; it is worth recalling that Deutsche Bahn plays a specific role in keeping alive a customer-tailored rail transport service based on “isolated wagonload”, and has set-up - as in the case of SNCF - an ad hoc society for multimodal transport - DB Schenker.

Landers (usually comprising several NUTS 2 Regions) define within their boundaries specific areas where to locate multimodal logistic centres (“GVZ”), usually within planned/actual industrial zones, in synergy with their transport infrastructure endowment and plans – e.g. Lower Saxony (a highly industrialised Land with a population of about 8 M citizens) has 8 logistic platforms out of 35 in Germany.

The Germans logistic platforms fit into the model described – their goal being to favour multimodal transport and rebalance the modal split; they consist of a commercial estate, with the following functions typically present:

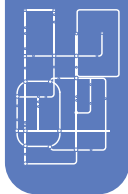
- Logistics enterprises
- Transport companies
- Logistics- intensive trade and production companies and
- Additional services, e.g. garages, filling stations, ...



Open access to all the operators (in line with TEN-TV regulation) has to be provided.

In 2010 the economic impact of these structures was already outstanding: German “Freight Villages” hosted around 1,300 companies are residing with about 100,000 employees, 52,000 of these employees have their workplace within the logistic platforms.<sup>33</sup>

<sup>33</sup> Ministry of Economy, Labour and Transport of Niedersachsen, Freight villages in Lower Saxony, 2011



Spain is in a transition phase from the traditional rail freight terminals, managed by the national infrastructure manager (ADIF) along the Iberian-gauge rail network, often still consisting of marshalling / classification yards, and setting up new areas, oriented toward container transport, involving private logistic operators, and logistic structures with bi-modal warehouses.

Dry ports are however providing successful examples of logistic operations - Madrid-Coslada, among the operational platforms, has shown competitive performances thanks to the functional connections with Algeciras, Bilbao, Barcelona and Valencia that have enabled it not only to serve the core node of Madrid but also to capture long-range rail transport, providing a variety to rail, road and ancillary services (including container management).

With containerization increasing is market coverage (efficiency gains are such that container transport is extending to raw material for the agro-industry, according to evidence collected in working groups of TEN-T Corridors and in dialogue with representatives of the Commission in UN-ECE committee for logistics), managing container flows is not only needed to enter higher added-value markets - it is a matter of survival for rail freight.

In specific cases, political and planning directions led to the creation of very large areas planned for logistics, notably in the case of PLA.ZA., in Zaragoza, where terminals gradually developed around activities linked to household devices, clothing industry, food cold chain and others; terminals within the logistic area were confronted with the existence of an external dry port linked to the port of Barcelona - cooperation between the structured is leading to positive results in terms of rail operations.

As far as network connectivity is concerned, Zaragoza terminals have access to both the primary road and rail network (in Iberian gauge), that was timely provided for the starting of operations, as well as to air freight dedicated terminals. As far as rail is concerned, the local terminals have successfully requested to Rail Freight Corridors the allocation of international slots toward France and Germany.

In the case of Spain, the development of new models for logistic platforms will have to go together with the network upgrade in terms of sidings (as enabling factors for 750-m long trains), and, notably, with UIC-gauge planning - a clear plan and program can determine the optimal location of terminals for transshipment to UIC gauge along the time, thus providing for the integration of the region's logistic platforms in the internal market by rail.

#### **Logistic platforms and networks - cooperation beyond borders**

Logistic centres can spontaneously integrate and cooperate, beyond the provision of transport services, under a shared vision or a market pressure. Often platforms perceiving each other as competitors tend to resist cooperation (this is rather common among ports).

Formal and informal **Euroregions** can contribute to a **cooperation and integration** process, developing synergies between platforms, based on specialization. The outcome of the process can prove successful for the whole system. Some examples of both cooperative processes (spontaneous platforms cooperation - triggered by a Euroregion) are mentioned herein.

An interesting case of spontaneous cooperation between ports and a logistic platform in the Iberian peninsula is represented by the case of Zaldesa - the logistic platform of Salamanca - with the ports of Aveiro and Leixoes (serving the node of Porto).

The overall goal is to facilitate cross-border flows, provide the entities with an access to a wider market, foster shift to rail. The three entities are jointly lobbying to achieve in a short timeframe a swift and unconstrained access to the TEN-T Atlantic Corridor.

The integration of services took place starting from the platform for the Port Community Single Window system evolved in Logistic Single Window between the three entities, and was fostered by sharing areas and capitals.

This process was confronted with administrative barriers linked to its border- crossing nature: over three years were needed to sign the agreement for shares and areas exchange to set ad hoc terminals / function.

Euroregions usually contribute to integrated planning and studies on network and logistics - referring to the cases previously quoted in this article, Eurometropole has a specific priority in its strategic plan aimed at developing a network of logistic platforms connected to the inland waterways to ensure a regional sustainable pattern for freight transport (a sort of city logistics serving the network of nodes, to be examined in its development.

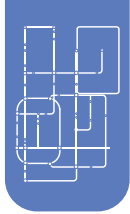
Aquitaine-Euskadi has promoted a project - CFA Effiplat, in the framework of the territorial cooperation for the Atlantic Arc, to promote a **modal shift and integration to the Atlantic Corridor**, involving the wide range of public and private stakeholders -including rail undertakings, logistic and port operators - in a transnational network.

In the case of Euregio, integration along a corridor and shared views on strategic planning at macroregional level are even more explicit:

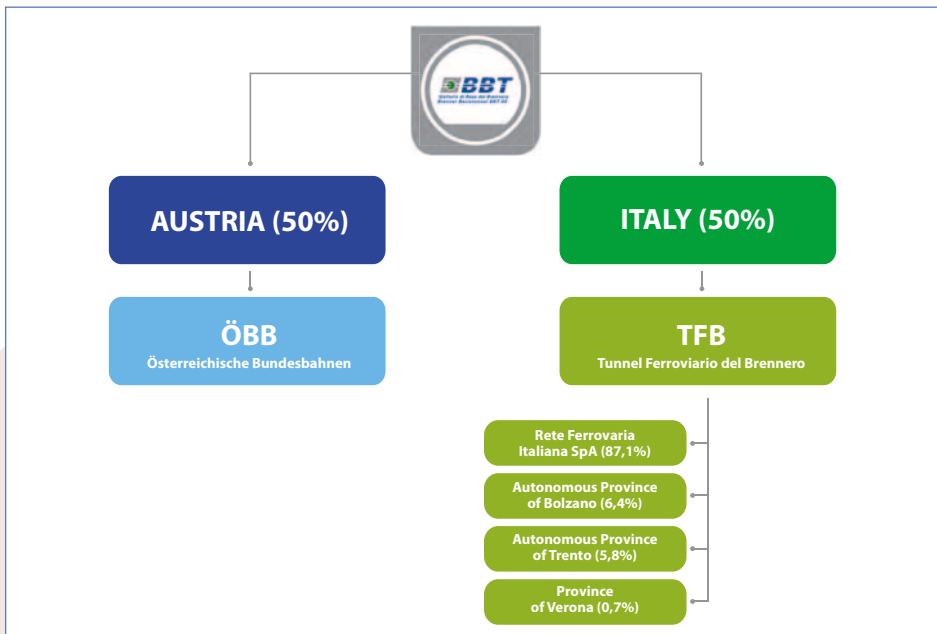
The policy framework of the macro-regional Alpine strategy – EUSALP - is fine- tuned with the joint implementation (AT-IT) of a transport project – i.e.: the Brenner Base Tunnel (BBT), which has specific fora for the involvement of logistic operators and local authorities.

In the Territorial Cooperation program for the implementation of the macro- regional strategy (Alpine Space), the EGTC Euregio is the group leader of Action 4 - To promote inter-modality and interoperability in passenger and freight transport.

Both BBT and Axis 4 of the Alpine Space can be seen as implementing tools of the Alpine Convention protocol on Transport - thus creating an intergovernmental and Community harmonized strategic framework.



As previously mentioned, this set a clear synergy with the role played by the Euregio as stakeholder of the Brenner Base Tunnel - BBT SE does not include the EGTC formally as shareholder, but the components of the EGTC are included in the structure, beside, they manage the motorway link across the corridor that provides cross-financing to the project:



In their proactive interpretation of the role, the Autonomous Provinces and Land Tyrol have set-up ad hoc societies aiming at facilitating the modal shift toward the railway, owing a railway company aimed at providing rail freight services and logistic platforms.

**Oresund** can be seen as a best practice of integration of ports and logistics; accessibility to both a wider region and to a long-distance corridor was provided by the multimodal fix link.

The most remarkable feature of this cooperation, as previously mentioned, has been the merger of Malmo and Copenhagen ports in a single international company - CMP, with on common provision of services, stronger administrative and financial status, specialization of terminals.

CMP was founded 2001, following the merger of port and terminal activities in Copenhagen and Malmö, as a proactive reaction to the opening of the Oresund fix link, that would have deprived the two ports of the intense ferry traffic.

The single port has become a logistic hub for the whole Baltic Sea region from liquid to dry bulks, container and cars - while keeping its attractiveness for niche markets such as cruises, favoured by its direct hinterland and by the sea, rail and road enhanced accessibility.

These conditions and strategic options, with selective investments based on specialisation, led to an impressive increase in traffic and net revenues over the following decade (+70% of sales, double-digit growth in 2012).

### **Galicia-Norte: integrating ports, logistics and corridors**

The Region is characterised by a high density of ports (9), not hierarchically coordinated - but horizontal coordination is present in Aveiro and Leixões as previously mentioned; some strong elements of specialisation (e.g.: on fisheries, liquid bulks, car) are emerging, but strategic planning coordination is not there yet.

Toward the hinterland, the Euroregion is endowed with two long-range connections, linking it with the TEN-T Atlantic Corridor: the line from Galicia towards the Madrid, and the branch of the Corridor Aveiro-Salamanca. No major logistic platforms have developed so far and ports are often (albeit not always) constrained in terms of area, due to the morphology of the coastline and urban development.

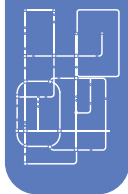


Still, maritime accessibility and connectivity play a major role for the area. Accordingly, the main priorities for development appear to be:

- build upon the experience of Aveiro-Leixões to evolve toward a wide ports/logistic community (single windows), considering e-freight at macro-regional level as the final goal;
  - create a partnership with the productive sector to develop motorways of the Sea
- consider structuring a (or two) strong logistic platform, with a concentration of functions to be seen in synergy with the ports, optimising the land use of ports' land and areas and the added value for the area;
  - support participation of logistic platforms to the Rail Freight Corridor terminal group
  - identify and communicate clear priorities for the removal of bottlenecks along the corridor

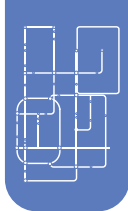
## **6. Conclusions**

- Setting synergies between cross-border polycentric structures require a multilevel governance with well-defined roles and separate discussion fora and stakeholders groups to deal with different issues at
  - o political / strategic level;
  - o administrative level;
  - o technical level.



- Both bottom-up and top-down approach is needed - Euroregions, EGTC, association of urban poles should play a prepositive role in calling for an intergovernmental response. Without the latter, however, it is difficult to overcome administrative barriers, notably, but not exclusively, at transport level; without the former, it is unlikely to ripe any benefit at local level, nor to seize the opportunities to change cross-border services according to local needs.
- Formal and informal Euroregions play a major role not only in establishing synergies between local economic actors and platforms (to which they are often stakeholders), but also in fine-tuning strategic planning across the borders.
- A concrete vision on the needs and opportunities of cross-border polycentric structures needs to be developed before starting major infrastructural investments – concrete actions should come from the final users - enterprises, logistic services providers, citizens and local administrative bodies.
- This vision should encompass the specialisation and integration of logistic centres - included entities with strong political implications such as ports and airports - fragmentation being a huge obstacle to overcome to achieve territorial integration.
- The integration process implies explicitly identifying trade-offs and economically inefficient rents of positions / market failures.
- Macro-regional strategies play an important role in focusing the components of multilevel governance on shared objectives, both at horizontal and vertical level.
- Synergies shall be aimed at from the first phases of the integration process, identifying soft measures that can deliver in the short range, to have the process up and running while carrying medium-to-long term investments - accordingly, based on a (potential) demand analysis, a set of actions shall be defined on:
  - a. fine-tuning land-use and investment planning;
  - b. defining administrative agreements to allow the provision of cross- border services;
  - c. integrating long-distance and local services (for people);
  - d. developing specialized services / terminals (notably for goods);
  - e. evolving toward an integrated provision of logistic services – increasing the added value of the supply-chain and the visibility of polycentric structures / Euroregions in the global markets;
  - f. pursuing system integration on logistic communities (“single windows, according to EU standards), information, ticketing / pricing, clearing of revenues.





## A CITY WITHOUT PROJECT OR VISION OF DEVELOPMENT HAS NO FUTURE

José Palma Andrés

### SHORT CV

Economist, studied in Lisbon University and London School of Economics (Post graduate). He was, until December 2014, Director in the European Commission – General Directorate for Regional and Urban Policy - responsible for ERDF interventions in the West Europe Countries (BE,FR,LU,UK,IRL) and Territorial Cooperation. As Director for the Territorial Cooperation he was also responsible for the preparation and implementation of the 4 EU Macro Region Strategies concerning the Baltic Sea, Danube, Adriatic –Ionian and Alpine areas. He is a specialist of the European Regional Development Fund joining the Commission as Head of Division being responsible for ERDF interventions in all the then 12 countries including Italy and France and later on, from 2002 onwards, as Director responsible for other several countries like AT,SK,SE,FIN,LT,LV. Before entering the EU Commission, in 1987, he was Director General in the Portuguese Ministry for Planning and Regional Development – responsible for Local and Regional Authorities, having started his career as expert and then Vice President of the Coordination Commission for the Lisbon Region.

### ABSTRACT

The article intends to contribute to respond the following **crucial questions for the elaboration of the EIXO ATLANTICO URBAN AGENDA:**

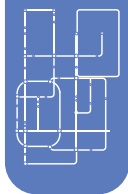
- Is the model of urban functional areas defended by the EU applicable to cross-border regions with a polycentric system of small and medium-sized cities?
- What role should play the rural areas, which surround cities, in urban planning play?
- Based on the principle that the urban functional areas model is applicable to the reality of cross-border regions, how can these areas contribute to the management of services between medium and dispersed cities?
- Given the fact that one of the characteristics of cross-border regions is urban sprawl, with an over-cost of public resources and an inefficient use of natural resources, what alternatives to resolve this dispersion?

- Taking into account the principle of the sustainability of the territory, how to make cities in the hinterland more attractive?
- European medium and small cities of the future move to vertical, horizontal or mixed cities.

The assumptions made integrates and discusses the EU vision on the concept of cities and urban functionality, and the thesis of existent literature on these different issues questioned above.

The **main conclusions** are:

- The Urban Functional Areas model seems to be, in the light of the different examples of ongoing initiatives, applicable to border areas based on a polycentric system of small and medium-sized cities.
- The Cities must encourage the participation of neighboring rural areas in the process of building the concept of ‘smart city’, making them benefit from the desired results. In their vision of the future and in the actions of urban planning and management of space and services, the Cities must integrate surrounding rural areas. Involving the rural spaces in their vision of economic development (eg areas of agricultural and forestry activity to be maintained or to be created, industrial areas in particular in agro-food and of future services, integrated tourism, logistics platforms, de-centration of services, etc.), as well as social and in the governance of the ‘integrated’ space, including the mobilization of residents and the different public and private actors. In a governance of a balanced model of co-development, and in which the partners are in equality and in a win-win relationship.
- Cooperation between cities is key to sustainable European urban development. This cooperation can take different forms like think development strategies jointly, provide common public services to citizens in a less costly and more rationalized way, in particular for those cities who are not far away and share same EU and worldwide competitive territories.
- With the urban dispersion, the social costs of implementing public services tend to be higher, since the service of these services are more dispersed in space. Alternatives to try to solve this situation and reduce the inefficient use of natural resources (water, energy, agricultural and forest soils, landscape, wetlands of the coast, natural spaces to preserve, etc.), lies for example on:
  - o Avoiding the enlargement of ‘dorm’ cities and the construction of new cities of this type by improving the living conditions of existing ones
  - o Increase the population density of urban areas, along with the improvement of living conditions (green spaces, leisure spaces, construction quality, mobility)
  - o Encourage the consumption of agro-food products produced in the rural areas next to the supermarket chains and promoting economic activities in these rural areas of the municipalities in order to fix the populations there.



- o In coastal areas, where they are often concentrated in addition to permanent residences, and in many cases almost exclusively recreational secondary residences (beach in particular), it is necessary to avoid or restrict an anarchic use of the soil
- o Promote a policy / strategy of urban and rural soils that takes into account these solutions, and urban planning and territory that is not limited to the city and Municipality, but in cooperation with neighboring municipalities (use of a cost benefit analysis of the soil utilization)
- To make hinterland cities more attractive we have to imagine a cooperation with cities with larger population sizes and smaller rural and urban areas, to enable them to become more attractive to the population and to establish sustainable economic activities, and in particular they have to assure:
  - o Availability of a strategic vision of its development to 15-20 years
  - o Availability of digital network. Very important prior condition of attractiveness.
  - o Plan and complete the network of quality accesses
  - o Plan and implement the land use plan
  - o Development of sustainable tourism, in network cooperation with neighboring municipalities and the rest of the Axis territory (supported by existing regional and inter-municipal organizations),
  - o Promotion of a policy of attractiveness of the city and surrounding territories:
  - o Protect and foster the use of renewable energy and environmental protection.
  - o Promoting a continuous information policy for the general public
- It seems reasonable to consider, and bearing in mind the fact that each city is a different case and as such should be taken into account, that the trend towards future evolution will be directed towards denser and more compact cities with a mixed solution, but with a strong preponderance of vertical city. With a concern to build / renovate the habitat according to the principle of energy efficiency and to reserve soils:
  - o for the protection of the environment and green spaces to be created to improve the quality of life of citizens,
  - o for the agricultural use required,
  - o for the development of economic activities necessary for job creation
  - o for the development of sustainable mobility (efficient public transport, pedestrian spaces, areas for cycling as a means of locomotion)
  - o to respond to the prospects of demographic evolution linked to the area of constructible land, and
  - o related to floodplain areas foreseen by the climatic changes phenomenon

## CITY WITHOUT PROJECT OR VISION OF DEVELOPMENT HAS NO FUTURE

This article intends to contribute to an answer to following questions considered important for the elaboration of the EIXO ATLANTICO Urban Agenda:

- Is the model of functional urban areas (FUA) defended by the EU applicable to cross-border regions with a polycentric system of small and medium-sized cities?
- What role should the rural areas that surround cities in urban planning have?
- Based on the principle that the model of urban functional areas is applicable to the reality of cross-border regions, how can these areas contribute to the management of services between medium-sized and dispersed cities?
- Given that one of the characteristics of cross-border regions is urban sprawl, with an over-cost of public resources and an inefficient use of natural resources, what alternatives to resolve this dispersion?
- Having regard to the principle of sustainability of the territory, how to make cities in the interior more attractive?
- Do the medium and small European cities of the future move to vertical, horizontal or mixed cities?

### 1. Is the model of urban functional areas defended by the EU applicable to cross-border regions with a polycentric system of small and medium-sized cities?

#### 1.1. *The concept of city and urban functionality - the European situation*

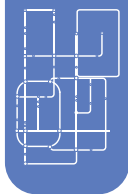
Europe is one of the most urbanized continents in the world. More than two-thirds of the population lives in urban areas, with a tendency to grow, and it will be the development of our cities that will determine the future economic, social and territorial development of the European Union.

The administrative boundaries of cities today no longer reflect the physical, social, economic, cultural or environmental reality of urban development, therefore new more flexible forms of governance are needed.

The European vision outlined in the European Union 2011 document “Cities of tomorrow” and which served as the basis for the definition of the European Urban Agenda - the Amsterdam Pact of May 2016, clarifies the concept of city and urban functionality:

#### **Concept of city**

“A city can be defined in many ways. The term ‘city’ may refer to an administrative unit or to a certain population density. A distinction is sometimes made between villages (towns) and cities (cities), the first being smaller (eg between 10 000 and 50 000 inhabitants) and the last , the largest (over 50 000 population). The term ‘city’ can also refer more generally to perceptions of an urban way of life and specific cultural or social characteristics, as well as to functional places of activity and economic exchanges.



The term ‘city’ can also refer to two different realities: the de jure city, ie the administrative city, and the de facto city, ie the wider socio-economic conglomeration. The de jure city largely corresponds to the historic city with its specific borders for trade and defense and a well-defined city center. The de facto city corresponds to the physical or socioeconomic realities that were approached through a morphological or functional definition. For analytical purposes, the European Commission and the OECD jointly developed a definition of a city based on a minimum density and number of inhabitants.<sup>1</sup>

### Concept of urban functionality

The notion of functional areas<sup>1</sup>:

*“The concept of ‘functional region’ is polymorphic, that is, it can have several meanings. And their analysis can be done by adopting an urban focus (urban-rural relations), rural (rural-urban relations) or transversal (for example, a holistic view of the various biophysical systems that cross urban and rural areas). A comprehensive and balanced approach to a ‘functional region’ should encompass these various perspectives. In any case, a ‘functional region’ is always characterized by having relevant interactions and by effectively or potentially holding a well-defined and hierarchical structure, although not always easily delimitable.*

CONCEPT	DEFINITION
<b>Travel-To-Work Area (TTWA)</b> <small>-GLA, UK Government</small> (functional nature)	Area corresponding to the employment basin of a large city or conurbation defined through the commuting movements home-work. In the particular case of the United Kingdom, the delimitation of these areas corresponds to the aggregation of municipalities where: i) at least 75% of the active resident population works in the area; ii) at least 75% of those working in the area reside in the area.
<b>Morphological Urban Areas (MUA) – ESPON</b> (morphological nature)	According to ESPON, <b>MUAs</b> correspond to urban / municipalities territories with at least 650hab / Km2. The <b>MUAs</b> are the densely populated urban centers of the <b>FUAs</b> , which in turn are the employment basins defined by the <b>TTWA</b> around the <b>MUA</b> .
<b>Functional Urban Areas (FUA) – ESPON</b> (functional nature)	For ESPON, <b>FUAs</b> correspond to an urban area with a center of at least <u>15 thousand inhabitants</u> and a total population of at least <u>50 thousand inhabitants</u> and are defined by their area of influence in terms of commuting movements home-work calculated at municipal level ). An <b>FUA</b> includes one or more <b>MUAs</b> and their surrounding areas where at least 10% of the population works within the <b>MUA</b> boundaries. <u>It is possible to find cross-border FUAs</u> , although the data for these situations are still scarced (see, for example, ESPON Metroborde Project).
<b>Larger Urban Zones (LUZ) – Urban Audit</b> (political and administrative nature)	According to the Urban Audit, the <b>LUZs</b> are based on the <b>FUAs</b> and represent an attempt by EUROSTAT to harmonize the criterion of definition of a metropolitan area at the level of the European Union. The <b>LUZ</b> comprises the <b>FUA</b> with at least 500 thousand inhabitants adjusted to the respective administrative limits.
<b>Poli-Functional Urban Areas (Poli-FUA)</b> (functional nature)	<b>Poli-FUA</b> are neighboring <b>FUA</b> groups. To form a <b>poli-FUA</b> , one of the following conditions must be met: <ul style="list-style-type: none"> <li>• Metropolis (&gt; 500 000 inhabitants) with their centers less than 60 km apart and adjacent employment areas;</li> <li>• 2 large cities (&gt; 250 000 inhab.) With their centers distant less than 30km between each other and adjacent employment basins;</li> <li>• 1 metropolis and 1 city of medium or large size (&gt; 100 000 inhabitants) with their centers distant less than 30km from each other and adjacent employment areas;</li> <li>• Metropolis with its centers distant less than 60km between them and separated only by the employment basin of an <b>FUA</b> contiguous to both.</li> </ul>
<b>City-region – GLCA UK Government</b> (functional nature)	It corresponds to the city and its hinterland - defined by the labor market, transport network and commuting flows associated with home-work travel ( <b>TTWA</b> ) - and presupposes the existence of some form of supralocal government. Most widespread concept in the UK.
<b>Functional Region – OECD</b> (functional nature)	The OECD defines the functional region as a territorial unit resulting from the organization of economic and social relations in the territory to the detriment of conventional political-administrative or historical-geographical criteria. The functional region is generally defined by criteria relating to the labor market and commuting movements.

<sup>1</sup> Ref ‘Functional regions, urban-rural relations and cohesion policy post 2013, July 2012’ Joao Ferrao and others

In terms of public policies, the concept of ‘functional region’ implies four key ideas: a relevant territorial basis for integrating sectoral policies; an integrated development strategy; cooperation between different actors; specific governance systems.

*The importance of ‘functional regions’ from the point of view of both analytical (formulation of diagnoses and prospective scenarios) and intervention (development strategies, public policies) has been increasingly recognized by the European Union and the OECD. The following table illustrates some of the most commonly used definitions of “functional region”.*

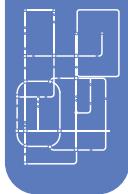
An Functional Urban Area (FUA) can be described by its employment basin and its commuting patterns of mobility (‘home-work’) and includes the wider urban system of neighboring clusters that are highly dependent on economic and social aspects of a large urban center.

For example, the administrative **city of London** has a population of 7.4 million inhabitants, its urban morphological area has 8.3 million inhabitants and its functional urban area is 13.7 million. The **city of Katowice** (Poland) has a relatively small administrative population of 320,000 inhabitants, while the population of its urban morphological area is seven times higher, or 2.3 million. The population of the **functional urban area of Lille** (France) is 11 times higher than the population of its administrative city: 2.6 million compared to 230,000. Functional urban areas may be monocentric or polycentric (ie, corresponding to closely linked city networks or agglomerations without a dominant center). Morphological areas and functional urban areas are not stable entities; as the urban landscape and economic patterns evolve, patterns of densification and mobility also evolve.

With the expansion of de facto cities, the delimitation between rural and urban became less evident or even lost its meaning. The border between the city and the countryside is disappearing as the rural and urban worlds have merged, giving rise to a new rurban condition. This concept is reinforced in regions where superimposed neighboring functional urban areas form large complex urban systems, as is the case in northern England, the Benelux or the German Ruhr region.

In the last century, Europe moved from an essentially rural continent to a predominantly urban one. It is estimated that about 70% of the European Union’s population, approximately 350 million people, live in urban agglomerations of more than 5 000 inhabitants. Although the pace of this transformation has slowed down, the share of the urban population continues to grow.

Europe is also characterized by a more polycentric and less concentrated urban structure compared to, for example, the USA or China. There are 23 cities with more than 1 million inhabitants and 345 cities with more than 100,000 inhabitants in the European Union, representing around 143 million people. Only 7% of the EU population lives in cities with more than 5 million inhabitants.”



CATEGORY POPULATION	NUMBER OF CITIES		POPULATION	
	Absolut	In %	Absolut	In %
Rural population			154.125.040	32.1
Cities and peripheries			156.398.720	32.6
50.000 – 100.000	387	52.9	26.690.068	5.6
100.000 – 250.000	221	30.6	35.708.402	7.4
250.000 – 500.000	62	8.5	21.213.936	4.4
500.000 – 1.000.000	36	4.9	27.041.874	5.6
+ de 1.000.000	23	3.1	59.292.080	12.3
TOTAL	735	100.0	480.470.140	100.0

Definition of cities according to population density in Europe (2011)

### 1.2 The concept of FUA is applicable to cross-border regions with a polycentric system of small and medium cities?

In the Europe of cross-border regions the existence of an urban-territorial system which is also polycentric is clear, that is to say, it is based on a network of cities with an area of influence of their own, linked to each other but without a clear dominant center.

The abovementioned definitions of FUAs are not mutually exclusive but rather are complementary, but the one that has been preferred by the EU (ESPON) and OECD seems to be the one that is easier to perceive overall and may include aspects evidenced by other definitions. Among the elements that can still be added to the basic criteria can be referred to belonging to, for example, the same hydrographic basin (which allows to solve in an integrated way the pollution of the watercourses as was decisive in the choice of area for the Macro European Region of the Danube), or sharing the same coastline (determining the areas of the European Macro Regions of the Baltic Sea or the Adriatic and Ionic), or sharing a same natural park to preserve or a same industrial basin in development.

The historical examples show that one tries to identify specific problems to solve (transport, missing links or infrastructure management, etc.) before moving towards a vision of the integrated development of space.

Due to the inherent difficulties of cross-border space between countries (sovereignty, various laws of application, etc.), the question of functional areas in the border area has only recently been more integrated and accelerated, particularly in the late 1990s.

Among the most emblematic cases in the past (after the Second Great War) and in the present, Geneva Airport (1958 agreement for an exchange of land to allow the construction of a 3900m runway and in which the new aerogare could have a French sector and at the time the signing of a treaty between the two countries), agreements on the management of road and rail border tunnels (particularly in the Alpine area and more recently in Tunnel linking France and the United Kingdom in the English Channel and the tunnel linking Denmark to Sweden) or more recently for the management of hospital care in the neighboring communities of Cerdanya on the FR - Spain border (to be built with European funds).

The most recent model to address cross-border problems between cross-border communities and cities is undoubtedly the EGTC - European Grouping for Territorial Cooperation (EGTC), which has evolved since 2010. By the end of 2015, 60 EGTCs across Europe, involving more than 800 national, local and regional authorities from 20 Member States and Ukraine, and another 14 are in organization. These initiatives are the result of the implementation of an EU Regulation (updated in 2013), transposed into national law, and which allows local and regional authorities, inter alia, to establish cooperation agreements on matters of their common interest on both sides of land borders.

Half of these groups are made up of local authorities and cities. The other group of more important groupings concerns initiatives of the Regions (average of 2 to 6 regions involved). Only one of these groupings has another component - the transnational one - along a corridor between the North Sea and the Mediterranean (EGTC Rhine-Alpine corridor).

In addition to the interest of these groups in managing European programs (or parts of programs), many of them focus on other areas of common interest such as a) EU enlargement and proximity policy, b) spatial development - transport and infrastructure, c) entrepreneurship - start-up - development strategy, d) civil protection - forest - nature - biodiversity - rural development, e) Scientific research - Education - vocational training, f) climate change - environment, g) tourism - culture, h) Health and i) energy.

GEOGRAPHICAL AREAS (BY COUNTRIES)	NUMBER OF AECT
Hungary, Slovakia, Slovenia, Romania	19
Czech Republic, Poland, Slovakia	4
Spain, France, Portugal	10
France, Belgium, Germany, Luxembourg	7
Italy, Austria, Slovenia	3

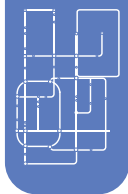
Geographical partnerships

TIPOLOGY	N° PARTNERSHIPS	COMMENTS
<b>Adjacent border location</b>	<b>28</b>	
Small 2 a 20 Municipios	18	Predominantly on the border between Hungary - Slovakia and Romania
Medium 21 a 100 Municipios	6	
Local - Regional (microregions, urban communities)	4	
<b>Regional fronteira contigua</b>	<b>17</b>	
Regional 2 a 6 partners	16	France and Spain
Regional nacional	1	Poland and Slovakia

Typology of partnerships

CITIES	N°PARTNERS	N° MUNICIPALITIES	POPULATION	COUNTRIES
Eurometropole Lille, Kortrijk, Tournai	14	147	2.100.000	FR - BE
Eurodistrict Estrasburgo - Outernau	86		914.000	FR - DE
Eurodistrict Saar - Moselle	8		800.000	FR - DE
Eurocidade Chaves - Verin	2	2	57.000	ES - PT

Types of cities directly involved



Another recent example of interest is: Eurocity Basque Bayonne - San Sebastián (more than 600.000 inhabitants) on the Atlantic facade of the Pyrenees. This cross-border cooperation project was born in 1993 with the signing of a protocol between the Bayonne - Anglet - Biarritz District President and Deputy General of the Deputation Foral de Gipuzkoa. In 1997 the parties established the Cross-Border Agency for the development of the Basque Eurocity in the form of a European Economic Interest Grouping with the aim of: (a) getting to know each other and mutual respect, (b) seeking a new governance model, (c) seeking of a binomial cooperation - competitiveness, (d) élan publico and public-private partnership, (e) long term vision. In June 2000, the Basque Eurocity White Paper was published which set three main objectives for Eurocity:

- to form an Atlantic platform of intermodality, communication and information, transforming the current urban and coastal corridor (of 50km) into Euro-corridor of development
- Structuring a linear metropole poly-centered in network, through a practice of a control of the space, of the infrastructures and an offer of services and equipment
- Protect and value the natural heritage, through environmental excellence applied to the concept of green metropole.

Other examples of cross-border European agglomerations which merit further consultation may be mentioned such as:

MAIN MUNICIPALITIES INVOLVED	COUNTRIES INVOLVED	POPULATION
Bâle - Hunique - Weil am Rhein	Switzerland - France - Germany	2.300.000
Sarrebruck - Forbach	France - Germany	700.000
Gorlitz - Zgorzelec	Germany - Poland	
Hendaye - Irun	France - Spain	
Longwy - Aubange - Pétange - Mont Saint Martin - Differdange	France - Belgium - Luxembourg	120.000

Or the examples in North American territory:

MAIN MUNICIPALITIES INVOLVED	COUNTRIES INVOLVED	POPULATION
Detroit - Windsor	United States - Canada	5.700.000
Niagara Falls	United States - Canada	140.000

With the abolition of land borders in the EU and the entry into force of the Schengen Agreement, the need to look at the management of cross-border areas in a different way than in the past has been evident and to seek flexible, integrated and adapted forms of cooperation. To their common problems and objectives for the development of their populations - neighboring cities and rural areas, with mutual respect, as shown by the examples given. This seems to be the current trend with simplification that does not necessarily require the creation of new administrative structures or the introduction of new regulations. The FUA's model seems to be, in the light of the different examples of ongoing initiatives, applicable to border areas based on a polycentric system of small and medium-sized cities.

## 2. What role should the rural areas that surround cities in urban planning play?

It is neither possible nor advisable to dissociate the role of rural areas that surround cities in future urban planning without first questioning and anticipating what might be the profile of the cities of the future.

What is the European and world vision of what future cities will be, what is a sustainable and smart city and what is the future role of rural areas?

### **The European and global vision**

In the European perspective:

“Cities are essential for the sustainable development of the European Union.

Cities are the privileged terrain of science, technology, innovation, culture and creativity, but they are also places where the problems of unemployment, poverty and social exclusion are most pronounced. They thus play a crucial role in the economic and social development of their territories and face the main challenges of growth, competitiveness, sustainability, cohesion and equity in today’s societies. On the other hand, the growth of the urban population and the increase in the resulting environmental pressures represent a critical challenge for cities, their ability to develop more sustainable ways of inhabiting the territory and to enjoy natural resources, insofar as constitute the major consumer sources of natural resources.

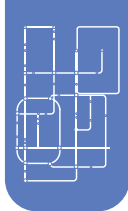
Cities play a crucial role as engines of the economy, such as spaces for connectivity, creativity and innovation, as well as service centers for the surrounding areas. Due to their density, cities offer strong potential in terms of energy savings and transition to a carbon-neutral economy.

Sixty-seven per cent of European GDP is generated in metropolitan regions, while its population represents only 59% of the total European population.

The importance of small and medium-sized cities should not be underestimated. A large part of the urban population lives in small and medium-sized cities throughout the continent. These cities play a role in the livelihoods and well-being not only of their inhabitants but also of the surrounding rural populations. They are centers for public and private services, as well as for the production of local and regional knowledge, innovation and infrastructures.

Small and medium-sized cities play a key role in regional economies. They constitute the main pillars of urban regions and give character and distinction to their regional landscapes. It has been argued that its structure of growth and development in Western Europe is the most balanced urban system in the world.

The general characteristics of small and medium-sized cities, especially their human scale, the quality of life, the sociability of their neighborhoods, their geographical integration and their historical character constitute in many aspects an ideal of sustainable urbanism.



Small and medium-sized towns are therefore essential to prevent rural depopulation and the exodus to cities and are indispensable for balanced regional development, cohesion and the sustainability of European territory.”

But the European model of sustainable urban development is under threat. From the diagnosis it is emphasized that:

“Demographic changes are at the root of a number of challenges, which differ from one city to another, such as the aging of populations, the depopulation of cities or the intense processes of suburbanization.

Today, Europe is no longer in continuous economic growth and many cities face a serious threat of stagnation or economic decline, especially the non-capital cities of Central and Eastern Europe, but also the former industrial cities of Western Europe.

Our economies, in their present form, are incapable of creating jobs for all - weakening the linkage between economic growth, employment and social progress has led a large part of the population out of the labor market or to low-skilled and service sector.

Income disparities increase, and the impoverishment of the poorest is increasing - in some neighborhoods, populations are confronted with multiple inequalities, such as poor housing, disqualification of education, unemployment and difficulty or inability to access certain services (health, transport and new information technologies - internet for example).

Social polarization and segregation are increasing - the recent economic crisis has accentuated the effects of the market and the progressive decline of the welfare state in most European countries. Even in the richer cities, social and spatial segregation are increasingly serious problems.

The processes of spatial segregation resulting from social polarization prevent the most disadvantaged or low-income groups from having access to decent housing at affordable prices.

The growing number of ‘excluded from society’ may lead, in many cities, to the development of closed subcultures, with very hostile attitudes towards society at large.

Urban sprawl and the spread of low density settlements are one of the main threats to sustainable territorial development: public services are more expensive and difficult to secure, natural resources tend to be overexploited, public transport networks are insufficient and the dependence of the automobile as well as the traffic congestion become intense both inside and around the city.

Urban ecosystems are under pressure - urban sprawl and soil sealing threaten biodiversity and increase both the risk of flooding and water shortages.”

### **The future model of urban territorial development**

It can therefore be deduced that the future model of urban territorial development will tend to:

- “to reflect a sustainable development of Europe based on balanced economic growth and balanced territorial organization with a polycentric urban structure;
- to contain strong metropolitan regions and other strong urban areas, such as regional centers, especially outside the main areas of Europe, which offer good accessibility to services of general economic interest;
- to be characterized by a compact settlement structure and limited urban expansion through tight control of land supply and speculative development;
- to have a high level of protection and quality of environment around the cities - nature, landscape, forests, water resources, agricultural areas, etc. - strong links and links between cities and their closest environments (such as rural areas and other smaller urban centers).”

### **What are the cities of the future?**

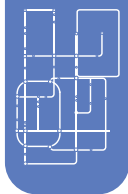
In their interest and of their residents, a city must ask itself about its future, analyze its present, its problems and foresee development scenarios from a broad debate with its population and all the economic and social agents.

But how can you imagine the cities of the future? The development of a city presupposes:

- Transform existing areas (renovate and rebuild), including degraded neighborhoods, in others better planned, thus improving the habitability of the entire city.
- Create new areas (and green belts) that should be developed around cities in order to accommodate the growing population.
- The application of intelligent solutions allowing cities to use the technology, information and data available to improve infrastructure and services.
- Comprehensive and integrated development, thereby improving quality of life, creating employment and increasing income for all, especially the poor and disadvantaged, leading to more inclusive cities.

As the European Union is a territory with polycentric characteristics, the future model will most probably be, that apart from the large metropolitan centers of several million inhabitants and composed of satellite cities, a territory composed of a network of cities with more than 50,000 inhabitants connected between them and closely linked to their territory of closest influence (urban and rural).

A network that must have quality accessibility (road, rail and inter-urban transport) with easy links to the nearest aerial and maritime transportation infrastructures.



*“They should be cities with a vision where all dimensions of sustainable urban development are taken into account in an integrated way and are:*

- places of advanced social progress: • with a high quality of life and well-being in all communities and neighborhoods of the city; • with a high level of social cohesion, balance and integration, security and stability in the city and its neighborhoods, with small disparities within and between neighborhoods and a low level of territorial segregation and social marginalization; with social justice, protection, welfare and solid social services, without poverty, social exclusion or discrimination, and a decent existence for all, with good access to general services, preventive health care and medical treatment; • with socially balanced housing and decent, healthy, adequate and affordable social housing adapted to new demographic and family standards, with high quality, diversity and high architectural identity; • with good education, vocational and continuing training opportunities, including for people living in disadvantaged neighborhoods; • where the elderly can live a dignified and independent life and participate in cultural and social life, where the neighborhoods are attractive for both young people and the elderly, where people with disabilities are independent, are professionally and socially integrated and participate in life where women and men are equal and the rights of children are protected.
- platforms for democracy, cultural dialogue and diversity: • rich cultural and linguistic diversity and social and intercultural dialogue; • where the rights of freedom of expression, of thought, conscience and religion are respected, as well as the right to manifest one’s religion or belief through worship, teaching, practice and rites; • with good governance based on the principles of openness, participation, accountability, effectiveness, coherence and subsidiarity where citizens have the opportunity to participate socially and democratically and are involved in urban development together with stakeholders.
- green, ecological and environmental regeneration sites: • where the quality of the environment is protected, eco-efficiency is high and the ecological footprint is small, where resources and material flows are managed sustainably and economic progress has been dissociated from consumption of resources; • with high energy efficiency and use of renewable energy, low carbon emissions and resilience to the effects of climate change; • with limited urban expansion and minimized land use, where green areas are left untapped natural areas for land recycling and compact city planning; • sustainable, clean, accessible, efficient and reasonably priced transport for all citizens at urban, metropolitan or intercity level with interconnection of modes of transport where non-motorized mobility is favored by good pedestrian and cycling infrastructures and needs have been reduced by promoting the proximity and use of mixed systems and integrated planning of transport, housing, work zones, the environment and public spaces.
- places of attraction and engines of economic growth: • where creativity and innovation take place and knowledge is created, shared and disseminated, excellence is stimulated with innovation and proactive

educational policies and ongoing training for workers and information and communication technologies. are used in education, employment, social services, health, safety, protection and urban governance; with a high quality of life, urban spaces, infrastructures and services of high architectural quality and user-oriented, where cultural, economic, technological, social and ecological aspects are integrated into land use planning and construction and where housing, employment, education, services and leisure are mixed, attracting companies from the knowledge industry, skilled and creative workforce and tourism; ● with local economies that have been restored, diversified local production systems, local labor market policies, and the development and exploitation of endogenous economic forces in neighborhoods that consume local ecological products and have local consumption circuits; ● where the heritage and architectural value of historic buildings and public spaces is explored together with the development and improvement of the urban landscape, landscape and place and where local residents identify with the urban environment. (EU cities of tomorrow, 2011)”

Because a city without project or vision of development has no future, by way of example, a set of ideas that globally identifies a smart and sustainable city is presented.

The experience of Bilbao 2030<sup>2</sup> is a good example of how it is possible to transform a city in industrial and port decline into a modern city and with a successful economic conversion thanks to the development of an integrated long-term development strategy that begins today to give its fruits.

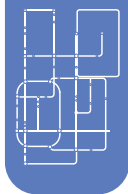
They should also be smart cities, taking advantage of existing new technologies.

There is currently no universally accepted definition for ‘smart city’ or ‘smart city’. This designation may have a different connotation for different people. But it is possible to use a concept that can hold a broad consensus - that is the involvement of digital technology in all the functions and competences of a city.

Throughout the world, smart technologies are transforming cities - reducing traffic congestion, reducing crime, modernizing the electricity grid, managing public services such as transport and all other services of the administration in their relations with citizens, for example. But so far, often these benefits are not being extended to the development of economic activities and to those who need them most - the poor, the physically handicapped, the homeless, those who do not have access to the internet. The interest is to know how the same intelligent technologies that improve the infrastructure can also improve the human condition since:

- not everyone has access to potable water and food under the same conditions.
- not everyone has access to decent housing (critical to breaking the cycle of poverty)
- not everyone has access to the same kind of mobility including digital
- many people still live below the poverty line, with all the consequences that this situation entails in terms of the physical and mental health of the marginalized populations.

<sup>2</sup> [https://www.inta-aivn.org/images/assets/inta33/cearra\\_inta33\\_metropolitan\\_bilbao\\_2030.pdf](https://www.inta-aivn.org/images/assets/inta33/cearra_inta33_metropolitan_bilbao_2030.pdf)

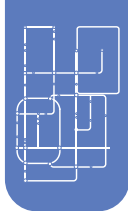


The aim of Intelligent Cities is to boost economic growth and improve people's quality of life by enabling local development and harnessing existing technology, especially digital technology, leading to tangible and intelligent results in the preparation of a strategic vision, in urban planning and territorial area of influence, effective management of services to the populations and effective management of public institutions (governance) with local responsibility (better service at a lower cost), simplifying the lives of citizens and companies, participation / information of the citizens in the decisions of collective interest, in the security of people and material goods.

1. AREAS OF THE RESPONSABILITY OF CITIES	EXAMPLES OF INTELLIGENT AND SUSTAINABLE ACTION
<p><b>Environment or built space</b></p> <p>Buildings, parks and public spaces, although most are not your property, the City has a huge influence on it.</p>	<ul style="list-style-type: none"> <li>• contain the expansion of the urban boundaries, protecting the surrounding rural area</li> <li>• urban rehabilitation in historical centers and promoting the recovery, improvement and reconstruction of the building (including abandoned industrial facilities)</li> <li>• promote and stimulate the rental market, favoring interventions in the existing housing stock or associated with regeneration operations.</li> <li>• to promote the creation, qualification, integration and accessibility of urban outer spaces, constituting systems of collective spaces such as squares, wooded walks, pedestrian areas, gardens, gardens, farms and parks, valuing the areas of leisure, sports and culture</li> <li>• limit urban pressure on water resources - rationalization of public consumption, reuse of gray and rainwater, etc.</li> </ul>
<p><b>Economic Development</b></p> <p>Digital technologies can have a dramatic impact on their prosperity, how to apply technology to affect growth and well being</p>	<ul style="list-style-type: none"> <li>• have a digital network providing a very high speed (defined as offering electronic communications services proposed in the market and including an internet access service with a throughput greater than 30 Mbit / s). A condition of attractiveness of companies, allowing access to all public and private activities on the Internet and allowing the improvement of the management of public services (to citizens and companies) within their competence, creation of intelligent buildings, a radical improvement of public security conditions and management for example of public transport and traffic management.</li> <li>• WI-FI access points in public spaces</li> <li>• digital applications for tourists in public spaces and not only</li> </ul>
<p><b>Energy</b></p> <p>Cities use gas and electricity. How best to use the technologies available to make infrastructure more efficient, more resilient and at lower cost</p>	<ul style="list-style-type: none"> <li>• consumer measuring instruments (counters) with digital technology</li> <li>• use of renewable energies in public housing, public buildings and</li> <li>• energy efficiency and 'green' buildings</li> <li>• electric vehicle charging stations</li> <li>• public transport 'green'</li> <li>• electric vehicles in the fleet of municipalities</li> <li>• automation of public lighting / control systems</li> <li>• Emission monitoring system (pollution)</li> <li>• buildings with energy monitoring systems and automatic lighting control</li> </ul>
<p><b>Health and Social Services</b></p> <p>How can digital technologies through innovation make these services more accessible to citizens and at a lower cost to all</p>	<ul style="list-style-type: none"> <li>• information systems on line for citizens</li> <li>• management of services (reservations of medical and other appointments, management of the services themselves, etc.)</li> <li>• updated database</li> <li>• card with device 'puce electronica'</li> </ul>
<p><b>Payment system</b></p> <p>The expenditure is at the center of the city's economic activity and its success. It forms the essential part of the economic flow - including wages, consumer spending, company procurements and taxes. The use of digital technologies can help facilitate the life of the city in particular its sustainability.</p>	<ul style="list-style-type: none"> <li>• online access to the forecast and realization of the municipality's expenditure and its monitoring</li> <li>• online access to the decision-making process of public tenders for supplies of consumables and works, allowing potential beneficiaries the total transparency of this process and greater accountability by the competent services in the application of established legal or contractual deadlines.</li> <li>• online access to the forecast of payments to private beneficiaries. Late payment is an important negative element for business management and has an economic impact on the city.</li> </ul>

## SMART CITIES

1. AREAS OF THE RESPONSABILITY OF CITIES	EXAMPLES OF INTELLIGENT AND SUSTAINABLE ACTION
<p><b>Telecommunications, Public Safety and Security</b></p> <p>The cities have an obligation to protect the citizens and an important part of this obligation passes by vehicles like the Police, Firemen and Ambulances. Digital technologies are revolutionizing how to locate, mitigate, and prevent security issues for populations.</p>	<ul style="list-style-type: none"> <li>• penetration of video surveillance in public places</li> <li>• sensors and control system for fire prevention</li> <li>• predictive systems and sensors for flood control</li> <li>• telecommunications and information systems dedicated to better coordination of security services and efficient communication between services of the city in general.</li> </ul>
<p><b>Transportation</b></p> <p>Mobility and traffic congestion are challenges for each city, that digital technology can help to improve and make mobility faster and cheaper.</p>	<ul style="list-style-type: none"> <li>• traffic and congestion monitoring systems</li> <li>• incentives for low emission vehicles</li> <li>• carpooling / carsharing initiatives (eg Rome)</li> <li>• intelligent semaphores</li> <li>• portals for transit information</li> <li>• passenger information systems on public transport (on-board vehicles and at stops)</li> <li>• teleworking policy</li> <li>• smart car parks</li> <li>• integration of multimodal transport</li> </ul>
<p><b>Waste Management</b></p> <p>Garbage will tend to increase in the next decade by around 50%, the use of integrated management solutions that goes beyond the classic way of proceeding (labor, garbage trucks and landfills ou incineration stations) is that of exploring waste as a use of recyclable materials, creating more sustainable cities with less waste to bury and incinerate and additional financial benefits.</p>	<ul style="list-style-type: none"> <li>• innovative ways of storing rubbish in urban buildings with benefits for public health, sharing the importance of tri-selective</li> <li>• collection, separation of waste for maximum recycling, including for transformation into energy (bio mass)</li> <li>• processing of waste into composting products</li> <li>• grouping cities and municipalities to create critical mass for better and less expensive waste management and to allow a greater volume for industrial recycling.</li> </ul>
<p><b>Drinking water and sewage</b></p> <p>Experts say the availability of water (or its hardship) will be the main challenge of this century. Intelligent digital technologies will minimize losses, superfluous expenses and costs.</p>	<ul style="list-style-type: none"> <li>• the ongoing experiences of groupings of cities and municipalities is to be developed and consolidated.</li> <li>• measurement instruments (counters) with digital technology in particular in private residences and areas of economic activity</li> <li>• identification of leakage and preventive maintenance of all components - plumbing, distribution centers, water collection areas, treatment plants,</li> <li>• water quality monitoring</li> </ul>



## SMART CITIES

2. THE FACILITATORS	EXAMPLES OF INTELLIGENT AND SUSTAINABLE ACTION
<p><b>Analysis and analytical capacity</b></p> <p>The City should have tools for analyzing the data and the ability to analyze them.</p>	<ul style="list-style-type: none"> <li>• management of the database</li> <li>• monitor the situation of networks being exploited and be warned of what happens in real time</li> <li>• optimization of operational capacity</li> <li>• optimization of facilities</li> <li>• forecast analysis</li> </ul>
<p><b>Involvement of citizens</b></p>	<ul style="list-style-type: none"> <li>• create a mechanism for listening to citizens on the quality of services provided and what is improved through online information for example.</li> <li>• attention to respect for the privacy of stored data</li> <li>• availability and quality of citizen relationship portals for all types of functions including online applications for certificates.</li> </ul>
<p><b>Computer resources and connectivity</b></p> <p>Including programmers, the ability to store data and special capabilities for smart cities.</p>	<ul style="list-style-type: none"> <li>• have an organized database (master plan) according to the objectives and responsibilities of the City</li> <li>• have a graphical-geographic information system, to know where everything is located and to allow a digital and effective urban planning.</li> <li>• back-office data sharing between City services</li> <li>• communication of smart city devices with each other and with the control center to allow information to circulate from where it is located to where it is analyzed and used (eg Wi-Fi network, mobile telephone networks, etc.)</li> </ul>

3. THE INSTRUMENTS	EXAMPLES OF INTELLIGENT AND SUSTAINABLE ACTION
<p>Situation analysis</p>	<p>Have a clear view of where the city is standing.</p>
<p>Long-term vision</p>	<p>Obtain a clear vision of what the final results are to achieve - in technological terms but also in terms of lifestyle and work improvements that are intended to be achieved with technology. The participation of the citizens is essential because this evolution will have implications in the form of organization of the services of the City and therefore on the day to day of the citizen.</p>
<p>Design of the main components of the intelligent city</p>	<p>This action may include master plans for land use, digital infrastructure, transport, location of industry and commercial services and for City services.</p>

The essential infrastructure elements of an intelligent city include at least<sup>3</sup> <sup>4</sup>:

- i. adequate water supply,
- ii. safe supply of electric power,
- iii. sanitation, including solid waste management,
- iv. efficient management of urban mobility and public transport,
- v. affordable housing, especially for the poorest,
- vi. robust IT connectivity and scanning,
- vii. good governance, especially e- governance and citizen participation,
- viii. sustainable environment,
- ix. protection and safety of citizens, particularly women, children and the elderly, and
- x. health and education.

#### **What a future role for rural areas<sup>5</sup> in its connection with cities and urban areas near?**

It is in this context of how cities of the future are imagined today that the role of rural areas in their connection with cities and other nearby urban areas can and should be equated.

The interaction between urban centers and neighboring rural areas is now an important challenge, together with the resilience and vulnerability of natural resources in this peri-urban space. Large cities now also need a larger area and conflict with other cities or areas of agricultural holdings may arise in relation to existing resources and their use. Ecosystems may be threatened by too intensive and poorly regulated land use, by demographic or market pressures where, for example, the priority given to intensive agri-food production destined for a global market rather than a shorter producer-consumer circuit with a diversified local production conflict.

One of the responsibilities that cities must assume is to plan their articulation with their rural surroundings, including agricultural and forestry areas of the hinterland and urban-rural inter-faces, exploring the economic, social and cultural complementarities that result from this relationship of proximity, improving the conditions of transport and logistics and promoting the supply of regional products, particularly in the horticultural sector.

The Cities must obviate the indiscriminate proliferation of scattered building on the peri-urban land, especially for housing, preventing urban diseconomies, and promoting the affectation of these soils to productive activities, namely agricultural and forestry, discouraging their abandonment and helping neutralize searches and adventitious interests.

<sup>3</sup> The functions of cities can become intelligent through technology and human capacity - the facilitators. The fundamentals of digital technology and the people who apply technology.

<sup>4</sup> The transition to a smart city is long and can last 5 - 15 years. It gives the importance of a script (roadmap) to arrive that is composed of 5 steps to give: Analysis of the situation; Long-term vision; Design of the main components of the intelligent city; Objectives to be achieved; The measure of progress made.

<sup>5</sup> The new typology is constructed in a two-phase concept to identify population in urban areas: a) density threshold of the population (300 inhabitants per km<sup>2</sup>); b) size threshold (5,000 inhabitants) applied to meshes of 1 km<sup>2</sup>. The population living in rural areas is the population living outside the urban areas identified according to the method previously described. (Eurostat 2010).

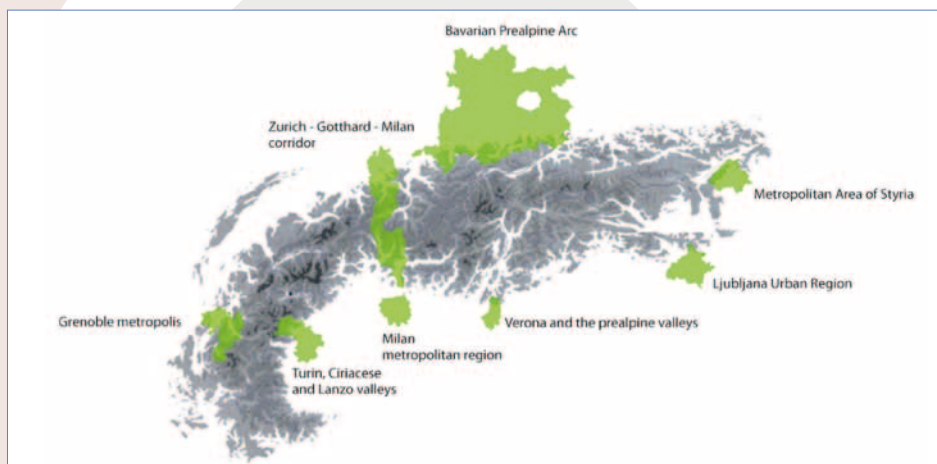
An interesting example is the experience of the Alpine area<sup>6</sup>, encouraged by the European territorial cooperation program of the same name. It is a project that considers rural and urban communities as equal partners, in a win-win relationship, where each can share knowledge, culture, development models, traditions, values and investments. The balance between territories and the contamination between urban and rural development models are a prerequisite for the competitiveness of all the areas involved, directed towards a local sustainability model that involves cultural, social, economic and environmental aspects.

In the Alpine area, urban areas and neighboring rural areas are confronted with problems such as landscape degradation, lack of quality water and soil, loss of biodiversity, territorial fragmentation, abandonment of the territory, heavy use of resources, social problems, reducing quality of life. A balanced development can not be achieved with sectoral interventions but only by the crossing of territorial policies. That is why this project has developed cooperative and integrated governance models aimed at joint Development Strategies. As a result, rural and urban communities have become equal partners in an inclusive decision-making process.

The idea is that a balanced model of economic development and lifestyle has to be found for these territories, combining the dynamism of metropolitan areas with the natural attractiveness and know-how of the nearby rural and mountain territories.

This concept has put partners on the following open questions:

- How to elaborate a common vision of territorial development where all territories are value-creating (economic, social, cultural and environmental)?
- How to create economic co-development by balancing the functional relationship between territories, preserving natural resources and providing efficient sustainable mobility?
- How to bring together public and private partners around a model of co-development?



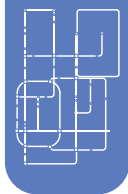
<sup>6</sup> [http://www.rurbance.eu/media/news/RURBANCE\\_Summary\\_Booklet\\_24x24\\_ENG\\_light.pdf](http://www.rurbance.eu/media/news/RURBANCE_Summary_Booklet_24x24_ENG_light.pdf)

The project involves 13 partners from 6 Alpine countries who have responded to these questions and are currently working on these issues, choosing the most urgent common themes and reflecting on a governance model appropriate for managing them together:

- AUSTRIA City of Graz Regionalmanagement Graz & Graz Surrounding;
- FRANCE
  - o Regional Council of Rhône Alpes, Mountain, Tourism and Natural Regional Park Direction
  - o Grenoble Alpes Métropole, Department of Prospective & Territorial Strategy Town Planning Institute of Grenoble, University Pierre Mendès France Urban Agency of the Grenoble Region;
- GERMANY
  - o Leibniz Universität Hannover, Chair for Regional Building and Urban Planning
  - o Allgäu Association for Dwelling and Tourism;
- ITALY
  - o Lombardia Region, Environment Energy and Sustainable Development Directorate (Lead Partner) in collaboration with Territory, Urban Planning and Soil Conservation Directorate
  - o Veneto Region, Urban Planning Section
  - o Piemonte Region, Environment, Land Government and Protection Department, Unit for Spatial and landscape planning;
- SLOVENIA Research Centre of the Slovenian Academy of Sciences and Arts, Anton Melik Geographical Institute Regional Development Agency of Ljubljana Urban Region;
- SWITZERLAND City of Zurich, Urban Development and Foreign Affairs Integrated policies and inclusive governance in rural-urban areas

*The Cities must therefore encourage the participation of neighboring rural areas in the process of building the concept of 'smart city', making them benefit from the desired results.*

*In their vision of the future and in the actions of urban planning and management of space and services, the Cities must integrate all these aspects, involving the rural spaces involved in their vision of economic development (eg areas of agricultural and forestry activity to maintain or create , industrial areas in particular in agri-food and of future services, integrated tourism, logistics platforms, deconcentration of services, etc.) and social and in the governance of the 'integrated' space, including the mobilization of residents and the different public and private actors. In a governance model of co-development, balanced and in which the partners are in equality and in a win-win relationship.*



## 2. Based on the principle that the urban functional areas model is applicable to the reality of cross-border regions, how can these areas contribute to the management of services between medium and sparsely populated cities?

Cooperation between cities is of key importance to sustainable European urban development.

The more recent expansion of cities beyond their centers and their increasing connectivity with a much wider territory have not only increased the possibilities of economic (and sociocultural) exchange but also stimulated competition. Currently, cities compete for domestic and foreign investment, human capital, commerce, tourists, etc. Such competition often leads to productive emulation processes but, in some cases, can be detrimental to economic development and territorial cohesion, as well as lead to an unsuitable use of resources.

There are, for example, limits on the demand for airports, universities, business parks and large enclosures in a given territory. In a situation of scarce public resources, cooperation on strategic issues such as public services, major development projects, knowledge infrastructures and transport platforms becomes necessary for sustainable urban and territorial development. It is therefore essential that cities in neighboring territories engage in cooperative competition rather than in pure and simple competition.

The main challenge for co-operative competition between European cities is the development of a strategic process of thinking, conversation, planning and creative and differentiated, but joint action, towards a future of sustainable and responsible success.

Cooperation can take place at different territorial levels depending on the field. Many local authorities already cooperate in areas such as the provision of school buses, management of multimodal transport systems, collection and treatment of waste, water supply, etc. Common functions in larger territories may include universities, major transport hubs, business parks, hospitals, etc. This inter-municipal cooperation, which exists in many European countries, is the basis for the creation of new governance entities in more flexible functional urban areas.

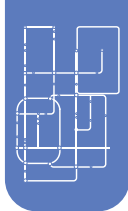
These cooperation entities allow not only the provision of public services with limited resources, but also ensure territorial development in line with the European model of sustainable polycentric development. Urban sprawl, undesirable concentration and depopulation, unsustainable use of land, depletion of resources, etc. can be limited through efficient cooperation in a functional area of a larger territorial dimension than the city itself. The competitiveness and viability of the economic sectors also depend on efficient co-operative competition that enhances the competitiveness and attractiveness of the larger area. This co-operation may be extended to larger geographical areas with some common specific characteristics, such as hydrographic basins, coastlines or mountain ranges, and cover tourist circuits, flood prevention, etc.

Cooperation may also be geared towards exploiting complementarities or specific common elements and can be developed over larger geographical distances, for example between cities housing clusters belonging to the same value chain or having advantages in the fields of complementary scientific research and of technology.

A third form of cooperation occurs when urban administrations share political learning and information acquisition to build human capacities for solving common urban challenges (a permanent foresight exercise to manage complexity). It is an exercise in shaping, debating, and thinking about the future. It is a systematic, participatory process of gathering information to think about the future and drawing up medium and long-term visions to make decisions and promote joint actions.

It seems therefore important, in parallel with this new cultural attitude of cooperation, to move towards ways of pooling public services (where they do not yet exist) between cities and municipalities in the same functional urban area, linked to the concept of smart cities ) to create economies of scale and reduce operating costs in public budgets by reducing taxes or using them more productively and efficiently. **Examples or ideas of mutualising public services include the following:**

- **Availability of digital network** - Provisioning at very high speed, with a minimum of 30MB / s (public data transport networks - fiber optics, widespread WI-FI availability, internet access in particular in gray areas where telecom operators have not yet sufficient market)
- **Management of own services of local authorities (Municipalities)**
  - o Central purchasing office - current consumer materials / public tenders
  - o Common management of machinery parks for municipal works and other vehicles
  - o Technical management of the computer park and web sites.
  - o File management (example - Syndicat Intercommunal des collectivités Territoriales informatisées des Alpes Méditerranée) / mediatecas
  - o Technical support for the development of public works and urban planning projects, including cooperation on integrated urban design in the landscape (the question of ending anarchy in habitat design - eg rules in the Provence area of France where is privileged the quality and a type of construction that benefits the tourist attractiveness and the harmony of the towns.
  - o Professional training of staff from municipalities
- **Management of basic sanitation equipment, energy and environment**
  - o Water supply
  - o Collection and treatment of sewage
  - o Collection, treatment and use of solid waste
  - o Electricity distribution network
  - o Management of coastal wetlands (littoral) - prevention of climate change
  - o Management of natural parks and other protected areas or to protect
  - o Management of emission monitoring system (air pollution) and noise management



- **Management of mobility services**
  - o Urban and sub-urban transport management / linking adjacent rural areas
  - o Inter-urban Transport Management
- **Management of services related to Health and Education**
  - o school park management (maintenance)
  - o Management of the stock of health centers (maintenance)
  - o School transport management
- **Management of services related to prospecting and promotion of economic and social development**
  - o Management of an economic and social Observatory of the territory.
  - o Management of a prospection service, with the participation of economic actors, aimed at elaborating proposals for Planning of economic development (creation of development basins for investment attractiveness, job creation, local fiscal policy, land use policy, help to companies that want to install, participation in international fairs, etc.)
  - o Technical Organization of events / fairs to attract investment in the territorial area and to promote contacts between the unemployed and the business world
  - o Management of a tourism prospection and promotion service - promotion of integrated tourism in the territorial area / cooperation with neighboring tourist areas / abroad
  - o Culture - promotion and dissemination of cultural activities with tourist interest, including the preservation of the existing historical heritage (monuments, etc.)

In the case of dynamical and evolutionary processes, it is not impossible to rule out the hypothesis that this natural evolution does not give rise to changes in national administrative boundaries in the future, as has already happened in the past with the merger of local authorities and is beginning to gain strength, for example in France in particular in terms of grouping of rural municipalities - 317 new municipalities were born in 2016 to group 1,090 former and there are 400 projects of fusion of rural municipalities underway. In this country, the law requires, for example, that associations of municipalities (Inter-communal) have as of 2017 at least 15,000 inhabitants.

### 3. Given that one of the characteristics of cross-border regions is urban sprawl, with an over-cost of public resources and an inefficient use of natural resources, what alternatives to resolve this dispersion?

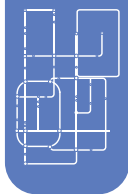
“The cities of the European Union (EU) continue to hold a growing share of the EU population and expand its physical boundaries. Recent assessments show that the area occupied by built-up areas increases faster than the population in many European countries (OECD, 2012). Many underlying factors have been attributed to the different rates of population growth and urban extension. Broad access to cars and mass transit allows people to live far from workplaces, which can lead to more widespread dispersed urban areas (Ewing, 1997; Burchell et al, 1998) -this trend has already been observed by Webber (1964). In addition, rising per capita GDP and household fragmentation have led to higher per capita demand for residential space.

Despite the important economic, social and cultural role of cities, their increasing size has raised concerns about environmental degradation, such as increased pollution, degradation of ecosystems, and destruction of soils and arable land that otherwise could be used for purposes such as agriculture (Seto, Woodcock, Song, Huang, Lu, and Kaufmann, 2002; Seto, Guneralp and Hutya, 2012). The expansion of built-up areas, in effect, constitutes a major change in local and landscape environmental conditions, and these changes are often considered as extremely costly to reverse (Seto, Fragkias, Guneralp, and Reilly, 2011). In addition, recent urban expansion forecasts reveal that, globally, urban sprawl by 2030 may be up to three times greater than in 2000 if current trends in population density continue at the same rate (Seto et al., 2012). [Indicators and trends for EU urban areas, JRC EU Commission, 2014. Study on 30 major cities between 1950 and 1990] “

**It is considered as urban dispersion** the process of deconcentration of the population within the urban space. That is, if at a time of urbanization the verticalization of the central areas favored the concentration of the population in the urban centers, today, a significant portion of the population has gone to areas farther away from the centers in search of factors such as quality of life, lower costs of land, better road access, among others. In addition, the specificity of the recent dispersion process is based on the movement of the medium and high yield population to a more dispersed housing pattern, that is, in individual lots with larger areas.

This type of urbanization has advantages for the residents, but it can increase the social cost of public investment, since to dilute services and infrastructure in low dense areas it is necessary to spend more. In these places, it is necessary to invest in infrastructures of various types - water, sewage, collection and treatment of waste, electricity, road network and public transport. But it also means a different use of the soil than was the traditional one - agricultural and forestry areas, reducing their area and possibly preventing a better use of these natural and landscape resources for sustainable economic development.

With the urban dispersion, the social costs of implementing public services tend to be higher, since the service of these services is more dispersed in space. In addition, it encourages the use of private cars, since it is not economically attractive for utilities to take over transport lines in regions of low population density (that is, where the regular volume of passengers is low). In terms of environmental factors, the increase in greenhouse gas emissions is encouraged, both by the intensive use of automobiles and by the higher standard of consumption that the population living in these contexts presents.



**The great problem of urban dispersion** is that with it there is a process of use of space in a more intensive way. Thus, the city occupies a much larger space, although in population terms it does not present proportional growth. This encourages the search for more intense daily journeys and in a society based on the automobile transport, this implies more automobiles circulating in the streets, aggravating congestion and emissions of greenhouse gases, for example. And more space is taken up around it, reducing agro-forestry development area of considerable added value.

This is due to the fact that contemporary urbanization goes beyond municipal boundaries. In much of the urban agglomeration, people attend more than one city for their daily activities, whether for work, study, leisure or shopping. In part, the municipalities of the same urban agglomeration end up competing among them, offering urban spaces and planning the supply of space without thinking about the set of other municipalities. With this, social searches can be created for one municipality, derived from what another municipality has planned. For example, increasing demand in the health or educational system of a municipality, due to the new urban spaces that another neighboring municipality has approved within the limits of its administrative area, but in which the nearest health or education service is in that neighboring municipality or in other Upcoming.

Bearing in mind the assumptions set out in the previous point for the necessary cooperation between cities in the future, and between these and the surrounding urban-rural spaces, what should be the best way to reduce the inefficient use of natural and financial resources (costs) that exist today in many territories, despite the fact that the effort has already been made in many cases, but perhaps still insufficient.

**Alternatives to try to solve this situation** and reduce the inefficient use of natural resources (water, energy, agricultural and forest soils, landscape, wetlands of the coast, natural spaces to preserve, etc.), are for example:

- Avoiding the enlargement of 'dorm' cities and the construction of new cities of this type, improving the living conditions of existing ones, by better urbanization (equipment - green spaces and leisure, etc.) decentralization of public services, giving them a life (promoting trade and industry), where people can find stable employment opportunities, thus reducing daily commutes.
- Increase the population density of urban areas, along with the improvement of habitable conditions (green spaces, recreational spaces, construction quality, mobility), avoiding the construction as much as possible of horizontal housing and without unnecessarily exaggerating the height construction (vertical). Thus avoiding costs for infrastructure (water, sewage, electricity and street lighting, urban and suburban transport, security, road network, etc.) that in the long run become unbearable for inhabitants and municipalities, without increasing taxes excessively and unbearable for residents.
- Encourage next to the supermarket chains the consumption of agri-foodstuffs produced in the nearby rural areas, creating a closer economic relationship between urban and rural areas and allowing the rural areas to be an attractive and additional source of income. And promoting economic activities in these rural areas of the municipalities in order to fix the populations there.

- In coastal areas, and where they are often concentrated in addition to permanent residences, and in many cases, almost exclusively recreational secondary residences (beach in particular), it is necessary to avoid or restrict an anarchic use of the soil, since this use causes, by nature seasonality of their occupation, high costs for municipalities in terms of providing disproportionate public services when compared to a permanent occupation.
- Promote a policy / strategy of urban and rural soils that takes into account these solutions, and urban planning and territory that is not confined to the city and Municipality, but in cooperation with neighboring municipalities. In addition to measures such as the pooling of public services and owning a 'smart city', urban planning should be accompanied by a cost-benefit analysis of land use decisions to be made in the future, and an annual way of monitoring results (with indicators of results explainable to populations).

#### 4. Taking into account the principle of the sustainability of the territory how to make cities in the interior more attractive?

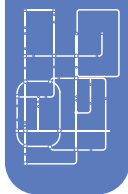
A region or territory that does not have a development strategy based on the potential of its cities (large, medium or small population) and its coastal and rural - interior space risks not having a sustainable future for its populations.

Each city, which is more than a space because it is also a human community, needs to highlight its values and what distinguishes it from others. But also to see with the territory that surrounds them the potential of joint attractiveness in a process of cooperation, including if necessary a strategy and a joint planning, as they share in many cases natural resources, historical-cultural heritage and landscape and environmental conditions to defend similar.

A common project for the future (strategy) of the same functional urban area (FUA) would be ideal because it would allow a link between the activities of coastal cities and those of the interior of the same functional area and between cities in the functional areas typically of the interior, an equation of the common potentialities of development and joint prospection of potential markets for their productive activities.

Today's cities, which have become actresses of the same world market, depend for their survival and development on practically one criterion - their attractiveness, that is, their ability to attract investment. This is cities are required to have a strategy, a positioning and to have a long-term project or vision of development.

The cities of the interior, of the fact of their geographic position deserve special attention because they accumulate handicaps that the cities of the coast do not possess. The future of the development of cities in the interior is nowadays closely linked to what is currently understood by rural development.



For OECD countries **a key element of rural development is job creation**. The globalization of the economy, with increasing emphasis on technological innovation and the quality of human resources, has led to a significant structural change in the demand for labor in the last decades of the twentieth century to reduce considerably the need for unskilled labor and to change categories of skilled work needed (the reference is the OECD member countries); the difficulties of adapting labor supply have led to high unemployment rates.

In order to address the problem of job market readjustment, a number of strategies have been implemented (worker qualification programs, increased public employment, etc.), some of which are directed to the rural context. These strategies should take into account the diversity of rural areas between countries and within each country, according to a classification that reflects their degree of development.

The OECD produced a set of work on rural development and proposed a territorial classification in three types of rural areas, based on their degree of integration in the national and international economies:

- **economically integrated areas**: prosperous rural areas, generally close to an urban center to which they are integrated by a well-developed communications network, combining the best advantages of life in the countryside and in the city, and taking advantage of economies of scale and agglomeration; diversified demand and supply of employment;
- **intermediate rural areas**: these are areas traditionally developed on the basis of a thriving agricultural sector and the activities associated with it; are generally not closed to urban centers, but with sufficient transport infrastructure to access them; are areas in the process of economic integration, where new activities (industry, commerce, tourism) begin to transform the structure of employment;
- **isolated rural areas**: those that have a dispersed population and are located in peripheral areas well away from urban centers (mountains and islands, for example); infrastructure and local services are precarious, production is traditional (agriculture and small local handicrafts), rents and labor qualification are quite low.

The proposed approach to stimulate the 'endogenous development potential of rural areas' is therefore to adopt measures that take into account the specific characteristics of each type of zone, but in the foreground, and in common for all areas, such measures should aim at to the "improvement of the quality of life and the fight against isolation". This approach "aims to redefine the economic support space of rural areas through appropriate structures and networks of relationships both inside and outside each zone.

It is a means of reinforcing the 'identity' of the local sphere and re-linking actors and activities so as to form circuits to improve relations with the outside of the region and to create new relations. "(OECD, 1995-97) . Epstein and Jzeph (2001) suggest, for developing countries, a "development paradigm based on rural-urban partnership". Based on the finding that poor countries, even those in which the rural population is still the majority, tend to concentrate scarce resources on urban industrial development, thereby accelerating urban rural migration and the problems it brings to cities, the authors suggest a redirection of development efforts to make rural areas more attractive in order to retain the poorest population, ie potential migrants.

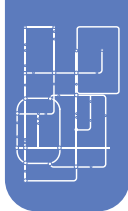
**The productive function**, previously restricted to agriculture, now includes a range of activities, from the crafts and processing of natural products to those related to rural tourism and environmental conservation; **the population function**, which in periods of accelerated industrialization consisted in supplying labor to the cities, has now been reversed, requiring the development of infrastructure, services and jobs that ensure the retention of population in the area rural; **the environmental function** begins to receive more attention after the initial stages of industrialization (including the countryside) and seeks the rural environment with the creation and protection of public and quasi-public goods, such as landscape, forests and the environment in general.

In this sense, **rural development**, besides being multisectoral, must also be multifunctional. It is also possible to extract from the approaches presented a set of elements that favor (or make up) rural development:

- Mercantile integration of cities in the region: the economic dynamism of medium-sized cities, mainly through the creation of “tertiary” activities, favors the development of “adjacent” rural communities; (Veiga, 2000: page 195)
- regions of consolidated family agriculture, combined with urbanization process and endogenous and decentralized industrialization: it allows a local market of consumption of diversified products and supply of raw materials and rural labor for the local industry; (idem)
- the pluri - activity of rural families, which allows the retention of the rural population and reduction of the exodus;
- the diversity of income sources, which allows for greater autonomy (less dependence on exclusive agricultural activity) and less income instability;
- employment creation and quality of life programs to reduce migration and the fight against isolation (OECD, 1995);
- the existence of territorial resources that allow production for specific markets (wines, tourism, etc.), allowing the internalization of positive externalities. (Mollard, 2003) [Rural development: concept and an example of measure, 2004 Angela Kageyama]”

It follows from this analysis that it is possible to imagine a set of criteria for inland cities in cooperation with cities with larger population sizes and smaller rural and urban areas to enable them to become more attractive to populations and sustainable economic activities:

- **Availability of a strategic vision of its development to 15-20 years**
- **Availability of digital network. Very important prior condition of attractiveness.**
  - o Provisioning at very high speed, with a minimum of 30MB / s (public data transport networks - fiber optics, generalized WI-FI availability, internet access in particular in gray areas where telecommunications operators do not yet have sufficient market ). Essential condition for attracting resident populations and economic activities - trade, industry, artisan, tourism and allow agriculture activities the use of new technologies of information / management / commercialization; and the installation of public services.



- o In order to provide citizens and companies who want to set up an online service of quick access and quick decision on administrative matters of their interest.
- o To enable to organize the services of the city and the Municipality in the best conditions to respond to users, rationalize their provision and reduce operational costs (efficiency and effectiveness).
- o To enable them to move towards the provision of public services based on the concept of smart cities.
- **Plan and complete the network of quality accesses** (road and rail) that allow them to access potential markets in the best conditions.
- **Plan and implement the land use plan**, which ensures, with clarity and transparency, the necessary surfaces for a quality dwelling (with adequate densities, quality of construction, enough green spaces to guarantee an attractive landscape for living, leisure areas, etc.), for the installation of public and private services (including social economy) trade, industry, agriculture and forestry, job creators.
- **Development of sustainable tourism in a networked cooperation with neighboring municipalities and the rest of the EIXO territory (supported by existing regional and inter-municipal organizations)**, allowing the development or improvement of activities such as:
  - o Tourism of nature (in existing natural parks)
  - o Rural tourism (hotels, pousadas, estalagens, paradores and tourist accommodation of recognized quality) including touristic circuits in velocipedes, associated with the discovery of the historical - cultural heritage of the territory (monuments, churches, etc)
  - o Nautical tourism (in existing water plans or to be created)
  - o Business tourism (in connection with rural tourism - availability of accommodation conditions for residential seminars and conferences) with the possibility of sporting activities Golfing, hunting, swimming, spa and jogging (activities also associated with Health and Wellness Tourism - Thermalism)
  - o the Gastronomy and Wine (to imagine where it does not already exist, a circuit of gastronomic restaurants and wine tasting where possible)
  - o Religious tourism
  - o the Cultural Tourism (circuit of Tourism of Parties and traditional Pilgrimages, rock art and traditional sports, etc.)
  - o Health and Wellness Tourism (supported by the network of existing thermal zones) and in mountain areas - guided walking and walking tours, etc.
  - o the Sun & Sea Tourism for rural coastal areas

- **Promotion of a policy of attractiveness of the city and surrounding territories:** availability of soil, affordable price conditions, and taxation appropriate to the attraction of housing areas, commercial, industrial, tourism and agroforestry activities.
- **Protect and foster the use of renewable energy and environmental protection.**
- **Promotion of a policy of continuous information to the general public.** Regarding the strategy and development plan, as well as of the conditions of attractiveness itself. Via a portal of the city, the Municipality or Association of Municipalities and the media (newspapers, TV and social network-facebook, etc.).

**5. Do European small and medium-sized cities of the future move to vertical, horizontal or mixed cities?**

This question is important because the response to give it much depends on the future quality of life of the residents and their economic, financial and environmental sustainability.

It is necessarily linked to problems such as:

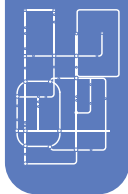
- the urban dispersion referred to in point 4,
- the vision of urban development without expansion
- the ideal density of a city (compaction, densification) / land use and soil availability for urban construction
- governance and integrated planning of cities and surrounding rural and urban spaces

**Urban sprawl** is a problem today in the organization of the territory in any European country, it is not exclusive to large metropolis, nor is it due exclusively to the existence of medium and high income classes, it is also a problem of frontier areas and it has to be considered in its different explanations and to find for it a coherent answer of the future.

The factors that, as a general rule, explains this dispersion can be summarized as:

<b>Economic (macro and micro)</b>	Economic growth, availability and price of land, globalization.
<b>Demographic</b>	Population growth.
<b>Characteristics of city centers</b>	Noise, insecurity, traffic, absence of green areas, poor quality of public spaces.
<b>Personal preference</b>	More space, areas far from the center.
<b>Transportation</b>	Private car, highway design based on motorways, apparent availability of energy.
<b>Regulation</b>	Insufficient or inadequate territorial planning, poor implementation of plans, lack of coordination and collaboration.
<b>Others</b>	Cultural, social.

Source: DPP (2011) cadernos de arquitectura urbanística 2013.



### **The European Vision is one of urban development without expansion**

**To reduce urban sprawl**, tomorrow's cities improve the density and attractiveness of city centers in terms of quality of life, affordable housing and openness to families by encouraging families with children to establish themselves in cities. They provide public transportation services and infrastructures, which reinforces the densification of already dense areas. Tomorrow's cities will develop polycentric territorial models to ease the pressure on the largest central agglomerations. They design green waists and ecological corridors inside the cities and in their periphery as structuring elements for the ecological mobility (pedestrian areas and tracks for cycles).

Tomorrow's cities are implementing sound land management policies accompanied by support measures such as tax incentives or land pricing policies. They develop tools for dynamic monitoring of land use, as well as benchmarking of land use in other cities and European urban areas. This process is justified by the need for an integrated land use plan.

### **Urban sprawl is difficult to reverse. However, it can be controlled, oriented, coordinated and minimized.**

A vision of a sustainable growth of urban centrality (Form, sustainability and territories of intervention). The cities of tomorrow will stop growing abroad and will grow internally according to various forms of redensification. There will be cities grouped with various centers and different forms of neighborhoods. Sustainability is based on redensification, densification is based on social agreements and social agreements are based on social innovation. The different social classes and generations must be willing to live together again, in an even denser territory. Old neighborhoods must be adapted to receive new families, generations, and an increasingly multicultural and multiethnic society. The post-war residential blocks and the first neighborhoods of housing suburbs are meant for redensification. Satellite cities, monotonous and monofunctional, will be subjected to a process of urbanization that will make them more colorful, socially mixed and multifunctional. The old suburban neighborhoods are demographically obsolete, and the passage from the old generation to the next provides a unique opportunity for such interventions. Later, the vast suburban spaces built in the 1990s will be ready for reappropriation and redensification.

The city and its peripheral region should be analyzed in terms of density of habitat and workplaces and these densities should be strengthened and closely linked to the transport hubs. In some cases, up to 80% of people working in a city live outside it. In other cases, people living outside cities have to travel to the city to take their children to schools or to use health, social or cultural services. It would therefore be pointless to plan mobility in a city without taking into account the mobility patterns of people living in the extended urban functional area and the inflows and outflows of goods into the city. The planning and management of public transport at the level of functional urban areas requires the creation of partnerships and collaboration between all local authorities involved and pose specific challenges in terms of cooperation, coordination and funding. Many Eastern European cities have well-developed metropolitan electricity networks. Some experts see the renewal

and modernization of these networks as a top priority as they offer a unique opportunity to develop low carbon modes of travel across a large territorial dimension. But given the metropolitan dimension of these networks and the costs of modernization, implementing this renewal in all of the municipal structures involved is a major governance challenge. “

**On the ideal density of a city (compaction, densification) / of the use and availability of the soil for urban construction**

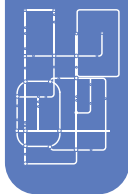
The debate exists and far from unanimity on both how to measure and impact of solutions, and each case is different from another, in the parameters (ex-inhabitants / ha) and how to organize the same space.

The **spatial structure of a city is very complex** because it is the physical result of the subtle interactions over decades or centuries between land markets, topography, infrastructure, regulations, taxation, society and its territorial appropriation. Thus, the complexity of urban spatial structures and their interacting aspects often discourages attempts at analysis in their processes, inhibiting the search for planning tools that can relate urban policy to city shape and market performance. The lack of monitoring of urban evolution shaped by the complex interaction between market forces, public investments and regulations, generate spatial aspects of urban development that can have important impacts on the economic efficiency, density and quality of the urban environment.

**In the urban aspect, the spatial structure is constantly evolving**, so the lack of political consensus or a clear vision of spatial development coupled with the combined effects of land use regulations and infrastructure investments may become inconsistent with each other, potentiating negative implications and impacts on the city, which in the future will become costly to the public finances and to society. It is therefore important that municipalities can monitor spatial trends in urban development and take regulatory corrective measures if this trend is contrary to municipal objectives and collective interests.

The urban in view of its inherent complexity requires a systemic view of the processes that make up the city and its development. In market economies, municipalities can not only influence the form of urban development through design alone, but also through the implementation of a coherent and consistent system of land use rules, investments in infrastructure and the application of taxes or territorial incentives. Since the external economic conditions are constantly changing and are unpredictable in the medium and long term - as in the constant international crises in the global economy - directly affecting the city and the planning and investment process.

The diversity of uses in higher housing densities is a potentiating element of urban quality, while in addition to good infrastructure and the availability of better public facilities, with good urban furniture and signs, they tend to generate intense use of the public areas of a whole of housing. The adoption of open, compact blocks with internal flows in blocks sets is a design criterion that induces the flow of people, uses and the dynamism of local commerce. Therefore, with the adoption of these criteria of architectural and urbanistic design more qualitative, it is possible to constitute greater indices of vitality and urbanity for the condominiums.



Certainly, the denser urban design defines a more cohesive, close, and thus, communal set. While the design of isolated lots, in lower densities, walled and with individualized families, they eventually produce housing blocs and neighborhoods that segregate and minimize collective conviviality. From this point of view, housing complexes in closed condominiums are even more incoherent, even more so in a society that lacks a sense of collectivity and community, capable of coexisting differences in harmonious and respectful living together. And civility is also constituted by urban design.

Urban morphology may influence mobility patterns. Even if there is no unanimity about what the urban form would be more or less sustainable, the compact city is probably the most energy efficient morphology, promoting socioeconomic and environmental advantages.

But why densify? To respond to the dispersion of the urban nuclei, rehabilitate, revitalize (identity of the place), act in empty spaces and return them to the daily life of the urban environment.

And Why does this phenomenon of densification arise? Because of the urban occupation, the city limits itself, the degradation of the public space, the high costs of public services (infrastructure), heavy dependence on the automobile, the growing expansion of neighborhoods on the outskirts of cities, growing use of cars, traditional style of living (garden dwelling), high population growth, urban growth, greater land use, Large urban plans, models of cities that offer better living conditions.

The sustainability of cities runs through the discussion of their density as morphological imposition in the urban space, since this is one of the main elements of spatial and occupational control and monitoring in urban space as a phenomenon of territorial dispersion. It is the urban density inserted in the morphology that will determine the degree of accessibility, proximity and access to employment and housing, with adequate infrastructure for the economically disadvantaged population. In turn, the efficiency in infrastructure and in the use and occupation of urban land in synergy with the availabilities and environmental supports of the system-environment are vital points in the process of planning and managing sustainable cities. *[Density, dispersion and urban form Dimensions and limits of housing sustainability Geovany Jessé Alexandre da Silva, Samira Elias Silva and Carlos Alejandro Nome]*

There is currently a re-evaluation of high population densities by urban researchers.

Jane Jacobs (2000) considers the low densities of the American suburban model as the main factor in the decline of United States cities. According to her, low densities reduce the diversity of uses of urban areas, making them more deserted and accentuating problems such as crime and vandalism.

According to Haughton & Hunter (1994), larger urban densities have been considered important for achieving sustainable development, evoking that:

- The large concentration of people maximizes the use of the installed infrastructure, reducing the relative cost of its implementation and reducing the need for its expansion to peripheral areas.

- High densities also reduce the need for travel as the concentration of people favors economic activities such as commerce and service at the local level.
- Lastly, they encourage pedestrianization and enable the implementation of a collective transport system.

“According to the UN Department - Habitat (Alain Guimard, 2016) cities offer services to more people if they are compact. Even in cities like Barcelona that is a city with more than 2000 years it may not be possible to densify the whole city, but it is possible to do it in neighborhoods, blocks, it takes time, it can take 20-30 years, but it is always possible to densify.

**With the densification the costs of the public services will lower**, in each km<sup>2</sup> it will be possible to offer the same service to many more people. Whether with water, sanitation, transportation, education, economies of scale are achieved by densification.

For UN-HABITAT, compaction should be based on 5 principles:

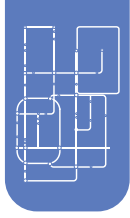
- Suitable spaces for streets and efficient street networks
- High densities. In Europe the average is 7-8 thousand inhabitants per km<sup>2</sup>. The recommended density is around 15,000 inhabitants / km<sup>2</sup>. In Asia this figure reaches more than 30,000
- Mixed soil use
- Social mix, with availability of housing at different levels of prices and property in any neighborhood to accommodate different incomes
- Limited land use specialisation, the aim is to limit neighborhoods with unique features, such as those in which residents only go to sleep, shop or work

The planning of cities, or their neighborhoods, is a public function that can not be delegated to the private, since deciding on the use of the ground (streets, buildings, green spaces, etc) is a matter of the public forum that will have a consequence in the life of citizens affecting generations.

And if there is no vigorous economic activity the city can not function well. Many industries and businesses are located in or near urban areas, offering work for residents. It is because most of the labor supply is in urban areas that cities attract a large part of the rural population in search of opportunities. The authorities can not forget to be attentive to the economy of cities, which is a source of well-being for citizens.”

**In effect, the compact city model associated with the idea of the importance of the urban form:**

- makes the city more attractive: interesting, dynamic and appealing
- makes the urban experience richer
- allows to respond to current needs without compromising the needs of future generations
- allows for heterogeneity: diversity essential factor for the success of a city
- allows mixing of primary uses



- allows short blocks, as long blocks make the city's network of roads poor (monotony)
- allows the need for a dense concentration of people
- encourages the appearance of people in the same place: at different times of the day, for different purposes
- The scale of the pedestrian in the streets and public space to enjoy
- Lets keep some old buildings together with new indispensable for the essence of the city and diversity in the urban landscape; allows to rehabilitate the building, in particular in the historical zones of the city
- allows the esteem of the people for the city and respect for the historical value of the same
- High density is different from overdensity
- allows attracting qualified young people
- the car becomes less essential

Housing policy plays an important role in the use and availability of land for urban construction - what the existing demand (including real income levels), what an adequate supply taking into account the evolution of the population in the next 15-20 years. This will determine the best solution for the housing stock to be renovated / rebuilt and rebuilt. Hence the need for an analysis of existing land availability or areas to be made available by redevelopment, densities to be respected, equipment and infrastructure required (with their cost and budgetary possibilities) can not be ignored if the quality of life is to be improved and / or maintained of people (pleasant residential neighborhoods, well served with green spaces, infrastructures and means of transport of collective preference).

The recent examples of the evolution of cities, described briefly below, are proof of this trend.

**The city of Bilbao**

BILBAO 2030 is an example of regeneration of a heavily affected city in the 1980s by an industrial decline, based on the reconversion of the old industrial and port areas, in the implementation of strategic projects related to new economic activities (including culture - museums / concert hall , new residential areas, investment in port and airport, investments in sustainable urban mobility (environmentally friendly modern urban transport) and the environmental regeneration of the Nervion River and a process of broad consultation with residents and the active participation of professionals in economic activities.

([https://www.inta-aivn.org/images/assets/inta33/cearra\\_inta33\\_metropolitan\\_bilbao\\_2030.pdf](https://www.inta-aivn.org/images/assets/inta33/cearra_inta33_metropolitan_bilbao_2030.pdf)).

This strategy applied to Bilbao has an important reference in the urban policy of the Basque Government which is summarized in the study 'Sustainability criteria applicable to urban planning' (Basque country government website [www.ingurumena.net](http://www.ingurumena.net)).

The compaction is identified in the General Urbanization Plan - Title III Urbanistical Division of the territory and land regime.

### **Eurometropole of Strasbourg 2030 (integrated in the l'Eurometropole Strasbourg – Ortenau)**

The Urban Community of Strasbourg created in 1967 became Eurometropole in 2015, with a surface area exceeding 315 km<sup>2</sup>, including 28 Municipalities and a population of 474,000 inhabitants. This is in the center of a metropolitan area that leads on the whole Bas-Rhin department and the Kreis Ortenau in Germany and is situated in the center of a larger cross-border territory of the Rhin-Superieur including also the southern German state Rhineland-Palatinate and the Swiss cantons of Bale, Soleur, Jura and Argovie (21,500 km<sup>2</sup>; 6 million of inhabitants and a density of 275 hab / km<sup>2</sup>).

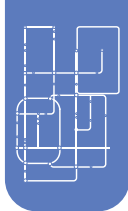
MUNICIPALITIES	POPULATION	SURFACE (ha)	SURFACE URBAN USE (ha)	PART FOR URBAN USE (%)	DENSITY BUILT (hab/ha)
2nd Crown (rural)	77.147	18.194	4.474	25	17
1st Crown (peri-urban)	121.834	5.585	3.058	55	40
Strasbourg (city)	274.394	7.829	4.690	60	59
Eurometropole	473.375	31.608	12.222	39	39

Situation of the 28 Municipalities

The three main objectives of the Eurometropole strategic plan<sup>7</sup> are:

- An attractive, European-influenced metropole in the Rhine area - to enhance its attractiveness from an economic point of view but also in terms of habitat, quality of life, equipment, etc.
  - o Implement new zones of economic activity to respond to the growth of local companies and hosting new companies.
  - o Favor the location of companies in mixed zones, provided they do not have negative effects
- A nearby metropole
  - o Develop a supply of housing in quantity and quality, services and equipment of proximity, public spaces and green spaces for all, spread evenly in the territory, to avoid a social specialization of the sites of life that would be negative for social cohesion.
  - o Ambition to welcome 50,000 new residents
  - o Prevent new construction in already urbanized areas (at least 60%, the remaining only in extension of the already urbanized ones).
  - o The limits of minimum densities are also fixed in order to favor more compact habitats
  - o A diversified supply of housing, including for more vulnerable populations, with quality and responding to energy saving targets.
  - o Urban renewal operations, and the aim of combating the vacancy of dwellings and unworthy dwellings.

<sup>7</sup> (Le Projet d'Aménagement et de Développement Durables (PADD) - l'Eurometropole de Strasbourg les grandes orientations du PLU à l'horizon 2030)



- A sustainable metropole

- o Encourage less energy-consuming journeys (walking, cycling, public transport)
- o Ensure the sustainability of agriculture (there are around 200 exploitations) and encourage short distribution channels.
- o Control of soil consumption, limiting urban extension, and achieving a balance between development and preservation of natural and agricultural spaces.

### **Dublin 2022<sup>8</sup> (but a 30 year vision)**

Dublin is made up of 3 areas (the city itself, the Dublin region and Greater Dublin) and has a population of 530,000 inhabitants, which expects a population increase of more than 59,000 by 2022. It is composed of 8 Administrative Units - the Key District (KDCs): 1. Clongriffin and Belmoyne (North Fringe East & West) 2. Northside 3. Ballymun 4. Finglas 5. Ballyfermot 6. Naas Road 7. Rathmines 8. Phibsborough.

They work in the area of the Municipality of the city about 350,000 people, and more than 750,000 in Greater Dublin.

The principles of the Development Plan for the City, which not only have a short-term vision but a 30-year forecast, are as follows:

- A. Economic - Develop Dublin as a national gateway and the heart of the Region and the engine of the Irish economy, with a network of thriving spatial and prosperous clusters that are a precondition for employment and creativity.
- B. Social / Residential - Develop the City of Dublin as a compact city with a network of sustainable neighborhoods that have a range of services and type of housing enabling housing, promoting social inclusion and the integration of all ethnic communities. Dublin plans to build 34,000 new housing units by 2022, with a density of 100 units / Ha and with a 50% share of residential use in mixed areas.
- C. Cultural / Patrimonial Heritage - Establish facilities for the diffusion of culture through the city and increase awareness of cultural heritage, and promote safe and lively streets through the design of real estate and public domain.
- D. Urban Form - Create a linked and readable city based on active streets and quality public spaces.
- E. Mobility - Help build an integrated transport network and encourage the availability of a large choice of commutes on active public transport.

<sup>8</sup> ([http://dublincitydevelopmentplan.ie/downloads/Vol1\\_Draft-Written-Statement-Web.pdf](http://dublincitydevelopmentplan.ie/downloads/Vol1_Draft-Written-Statement-Web.pdf))

In summary, the work areas can be summarized as three large closely interconnected blocks:

1. Compact city with quality and green
2. Prosper, entrepreneurial and creative city
3. Create sustainable neighborhoods and communities.

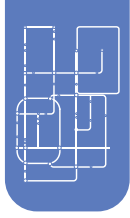
Other examples of strategic territorial planning could be mentioned with interest, and which highlight the same concerns of urban and intermunicipal development, prevailing the densification / compacting of land use including urban regeneration in general and of historical centers in particular, the use of abandoned spaces, preserving the surrounding territorial space, economic development and social cohesion and sustainable mobility, such as the cases of:

- Bordéus 2030 - França (<http://www.bordeaux.fr/p33514/plan-local-d-urbanisme>)
- Barcelona – Espanha (BASES PARA UN NUEVO PLAN ESTRATÉGICO METROPOLITANO DE BARCELONA Horizonte 2030)
- Netanya 2035 (Israel) – metropolitan coastal area and Mediterranean tourist area (Metropolitan Core Outline Plan)
- Città di Milano (Italia) - <http://www.cittametropolitana.mi.it/export/sites/default/PSM/doc/Piano-strategico-della-Citta-metropolitana-di-Milano.pdf>
- Firenze – Italia ([http://www.comune.fi.it/export/sites/retcevica/comune\\_firenze/piani\\_progetti/piano\\_della\\_citta.htm](http://www.comune.fi.it/export/sites/retcevica/comune_firenze/piani_progetti/piano_della_citta.htm))
- Bologna – Italia: Piano strategico metropolitano di Bologna (<http://psm.bologna.it/Engine/RAServeFile.php/f/documenti/Documento-di-piano.pdf>)

## 6. In conclusion

It seems reasonable to consider, bearing in mind the considerations set out above and the fact that each city is a different case and as such should be taken into account, that the trend towards future evolution will be directed towards denser and more compact cities with a mixed solution, but with a strong preponderance of vertical city. With a concern to build / renovate the habitat according to the principle of energy efficiency and to reserve soils:

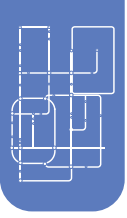
- for the protection of the environment and green spaces to be created to improve the quality of life of citizens,
- for the agricultural use required,
- for the development of economic activities necessary for job creation
- for the development of sustainable mobility (efficient public transport, pedestrian spaces, areas for cycling as a means of locomotion)



- to respond to the prospects of demographic evolution linked to the area of constructible land, and
- related to floodplain areas foreseen by the climatic changes phenomenon.

This tendency is necessarily associated with the concern to develop strategies that are not confined to the simple territory of the city as such but to all the surrounding territory (metropolitan area, smaller rural and urban areas of influence) from a perspective of integrated planning and governance, and in the respect of a balanced development of the cities and the neighboring urban and rural areas, via a wide participation of the citizens and the economic agents in the process.



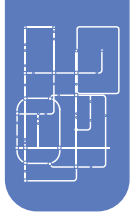


# THE COMPETITIVE CITY: GROWTH AND EMPLOYMENT

Charles Landry

João Aguiar Machado





## CULTURAL POWER & DISTINCTIVENESS: ITS CREATIVE POTENTIAL

### Charles Landry

#### SHORT CV

Charles Landry is an international authority on the use of imagination and creativity in urban change. He invented the concept of the Creative City in the late 1980's. Its focus is how cities can create the enabling conditions for people and organizations to think, plan and act with imagination to solve problems and develop opportunities. The notion has become a global movement and changed the way cities thought about their capabilities and resources.

Charles helps cities identify and make the most of their potential by triggering their inventiveness and thinking. His aim is to help cities become more resilient, self-sustaining and to punch above their weight.

Acting as a critical friend he works closely with decision makers and local leaders in the short and longer term.. He stimulates, facilitates and inspires so cities can transform for the better. He helps find apt and original solutions to seemingly intractable dilemmas, such as marrying innovation and tradition, balancing wealth creation and social cohesiveness, or local distinctiveness and a global orientation. His overall aim is to help cities get onto the global radar screen.

Charles facilitates complex urban change and visioning processes and undertakes tailored research often creating his own projects. These include the 'Creative City Index' in collaboration with Bilbao. 'and developed with colleague Jonathan Hyams. It is a strategic tool that measures, evaluates and assesses the innovative eco-system of a city and its capacity to adapt to radical global shifts and adjustments. So far 23 cities have taken part from Helsinki to Adelaide, Taipei, Mannheim and Plymouth.

His latest major project 'The Civic City: Urbanity & Citizenship in a Nomadic World' brings together how work over the last decade including the concept of 'civic urbanity', the 'creative bureaucracy' and 'the management of fragility'. Is it due to be published in early 2017.

Charles was born in 1948 and studied in Britain, Germany and Italy. In 1978 he founded Comedia, a highly respected globally oriented consultancy working in creativity, culture and urban change. He has completed several hundred assignments for a variety of public and private clients and given key note addresses and workshops in 58 countries across the continents including: Britain, Australia, Germany, Finland, Spain, Italy, Portugal, Brazil, the Netherlands, China, Japan, Korea, Cambodia, India, the UAE, Qatar, Albania, Croatia, Hong Kong, New Zealand, Poland, Russia, South Africa, Sweden, Taiwan, Ukraine, South Africa, Ecuador, Canada, the USA and Yemen.

His many books include most recently a series of short, illustrated books, including: *The Digitized City*; *Cities of Ambition*; *The Fragile City & the Risk Nexus* with Tom Burke; *The Sensory Landscape of Cities*; *The Origins and Futures of the Creative City* and *Culture & Commerce*. He is best known for *The Creative City: A toolkit for Urban Innovators* (2000); *The Art of City Making* (2006); and *The Intercultural City: Planning for Diversity Advantage* with Phil Wood. *Diversity Advantage* with Phil Wood.

Recent books published:

*The Digitized City: Influence & Impact* (2016)

*Cities of Ambition* (2015)

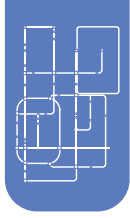
*The Fragile City & the Risk Nexus* with Tom Burke (2014)

## ABSTRACT

Culture is who we are and creativity shapes what we can become. So more people, more organizations, more towns, cities, regions and countries for more reasons are finding culture and creativity has something in it for them. There is a simpler and a more complex approach to understanding their power. Over the last decade there have been more than a hundred studies of the economic and social importance or impact of the arts, culture, heritage, the recycling of buildings for cultural purposes, creative quarters and the creative economy across the world. Yet there is much more to culture and creativity and city development. Places in transition as an urgent priority need to develop a culture of creativity cutting across all domains even though this can be a painful exercise as old certainties crumble and systems, like education, need rethinking. Yet this can unleash new social innovations, new business models and new forms of citizen engagement.

In fact renewal and transformation is itself a cultural project involving a shift in mindset and perspective. Creativity in this context is the primary resource as it creates the conditions from which innovations can emerge. Within this, however, the creative economy sectors especially when aligned to the dramatic digitization dynamic play a significant role in developing new economy products and services, generating jobs, anchoring identity and helping expression. Cultural activities and programming are clearly important and the physical assets of the region, its heritage and older industrial buildings are significant elements in getting the region onto the global radar screen. This is part of the repertoire that provides local confidence, empowerment and pride that also acts as a tourism draw. There are numerous examples of projects, some listed here, that show the tangible and intangible value of investing in culture and creativity although it inevitably can be risky.

I believe 2nd 3rd and 4th tier cities have renewed opportunities as the dynamic towards major centres could shift over the next decade and every city or region needs to prepare for these opportunities. Here developing a good quality of life becomes the significant tool as larger centres are in danger of becoming more dysfunctional. Within that potential going with the grain of local cultures can generate energy that when aligned to the power of creativity can be transformative.



The connection between culture and creativity is complex. We can either address this in simple terms, such as what arts programmes work well, or bringing a church into new uses or turning an industrial building into an incubator. Alternatively as is proposed here it can be approached with greater depth and impact since **the scope of their contribution is far broader**. Places and regions in transition often suffer from apprehension and doubt thus developing cultural confidence is of prime importance.

This report addresses these issues in a series of steps. We start by highlighting digitization as a major game changer that shapes potential in innumerable ways. The link between knowledge and creativity is then established and how creativity was seen as a resource before building an argument to stress that coping with transition is in itself a cultural project as it concerns mindset shifts and behaviour change. We then show how this became part of the evolving urban agenda and propose a method to assess the culture of creativity in a city or region. This focuses on four themes: How do you identify and nurture potential; how do you enable and support it; how do you harness and exploit it and finally how do you create a lived experience for people to commit to a place to help it become the best it could be.

Then we focus on a narrower ground highlighting the power and potential of the creative economy sectors and how it they emerged as key sectors for the new economy. Yet there is a bigger story unfolding that reveals the power of these sectors given how in the experience driven economy their skills are required to enhance the value of other fields. It is important therefore to assess how the creative economy platform is merging with other economic fields. These sectors then became an intrinsic part of urban renewal and urban competitiveness strategies. A series of examples focus on the use of culture and creativity and discuss community empowerment, innovative responses in addressing problems that really matter, the development of creative quarters and the adaptive re-use of buildings with cultural purposes. Finally there is a brief 'what to do next' section.

## CULTURAL POWER & DISTINCTIVENESS: ITS CREATIVE POTENTIAL

### 1. Digitization: The game changer

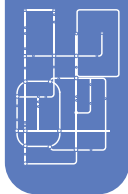
The bigger operating context is key in discussing the culture and creativity agenda as this shapes its scope and potential and within this digitization is the major driver. It has created a completely new environment. It is a game changer and a merger between computing power and the Internet with the creative economy sectors are its animating force. Together they are creating experientially rich urban environments, a new economy and new job opportunities even possibly with good prospects for 2nd, 3rd or 4th tier cities such. Rarely does an invention create a gravitational pull that sucks everything into its orbit like a maelstrom. Our culture is now digital and the digital shapes our culture. It is omnipresent, like the air we breathe and the electricity that flows. It shifts people's understanding of time, space and place. A dramatic transformation is underway with the digitized city already with us, both in the more and less developed world. Yet it needs a jointly created cultural vision of where next.

Digitization represents a tectonic shift, whose devices with their disruptive potential are changing cities, society and social life, connectivity, the economy, cultural institutions and cultural life. Its impacts and influence will be as powerful as the climatic changes that swept through our world with the Industrial Revolution 200 years ago. Those who make decisions, the digital settlers, have mostly migrated into this world, whereas for the young digital natives, it is all they know. This highlights a misalignment as, for the first time in history, the young are teaching the old rather than the reverse. Are the young being sufficiently brought into decision making?

Every new means of production changes the physical and mental landscape and how our systems operate. Its drama is clear when the world's largest taxi company, Uber, owns no taxis; when Facebook, the world's most popular mediaowner, creates no content; when Alibaba, the most valuable retailer, has no inventory; and when Airbnb, the world's largest hotel chain, owns no hotels.

We are in the midst of redesigning the world and all its systems - legal, moral, political and economic - and infrastructures for a digital age with ICTs as one backbone. This project has immense cultural implications. Yet our built environment has been designed for how we lived and worked 50 years ago and more. To adapt to the digital age, a reverse engineering process is necessary to create new intelligent infrastructures, sensing technologies and objects that live within its hard-engineered fabric. This is The Internet of Things that allows urban objects to communicate, from fridges to dog collars, adding to our vast data mountains. This is big data and only a tiny fraction has been tapped to enable algorithms to interpret the chaos.

Decision-makers have a once-in-a-lifetime opportunity to rebuild their towns and cities differently, including harnessing social media capabilities, interactive platforms or open data to deepen democracy, so making it more responsive to peoples' desires and needs. The crucial question is: will the public interest be given centre stage? Cities must remain alert to ensure their priorities and values are acknowledged, as the digital industrial complex has discovered the city as a major new market. Crucially, we should not only talk about new hardware infrastructures but also of empowering people to be 'smart citizens'.



The triad of words, 'culture', 'creativity' and 'the city' and the deeper concepts underlying their connection are now constantly used in unison. We need now to add another word 'digitization'. Seen together these issues exert a powerful force that is inextricably interwoven. They create an unfolding dynamic with far-reaching impacts on urban life, wealth creation prospects, well-being, overall vibrancy and vitality and how towns, cities and regions can get onto the wider radar screen and resonate across the globe. We see then that to discuss culture is more than merely thinking of the obvious physical expressions like churches, or thinking about reusing old buildings or that creativity is merely the arts.

## 2. Knowledge & creativity

Taking a step back we can see that slowly and with gathering force from the 1960's onwards it became clear that Western societies were changing profoundly and becoming post-industrial **based less on muscle power and more on brain power** and its resulting knowledge. The raw materials of this new knowledge intensive system were increasingly information, knowledge and creativity. Yet there was increasing concern about a lack of creativity in the economy as a whole. Old management structures were pervasive with their top down, more hierarchical approach which did not unleash or empower their workforce. The increasingly mobile workforce had choices shifting to companies where they felt their talents could be expressed.

Knowledge combined with creativity is both a product in itself and crucially also a tool to enhance the value of other activities through judgement and analysis by which it adds value to any idea, product or service. To have knowledge entails having a variety of subject and technical expertise and the intellectual capacity to problem-solve and discover opportunities. The latter is of course concerned with being creative. Knowledge is essentially human capital. It accentuates too the different types of skills and workers needed to run a society. In a more knowledge intensive economy, the specialized labour force was initially seen as largely maths and computer literate and data savvy. This it was felt is not enough. The key point was the realization that a pre-condition for knowledge and ultimately the capacity to innovate was the ability to be imaginative and creative. This was the talent the new economy increasingly needed.

**Knowledge**, crucially, can grow rather than deplete by being shared and applied. This **shifts the economy from one of scarcity to potential abundance**. Creativity is in essence a renewable resource. Here, the new forces unleashed by the Internet and digitization and especially the interactive and immersive Web 2.0 processes came into their own. The possibilities of open source innovation and co-creation intermeshed with the IT driven economy with that of new social media activists associated with the creative economy. Together they have challenged the predominant business models enabling disruptive companies like Airbnb or Uber to flourish and the sharing economy to emerge. This dynamic pushed people to think about the culture of their organizations and whether they were adapting to the new conditions.

### 3. Culture centre-stage

Renewal and adaptation at its core is a cultural project as it involves not only economic and physical transformation, but also a shift in mindset and perspective. To bring people with you cities need to engage them in their renewal story. **Cities on the move need a compelling story** to drive motivation and commitment and artistically trained people are particularly good at storytelling.

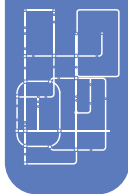
The last 30 years has seen more people, more organizations, more towns, cities, regions and countries for more reasons find culture and creativity has something in it for them. **‘Culture’ is a slippery, all-embracing term**, but at its core it describes the essence, the identity, the special and the unique of a place. This derives from its history, its location, its resources and what people have made of them and how that is etched into peoples’ character, their sense of being and how this is reflected in how they deal with their circumstances and potential.

Self-evidently mountain people differ in character from sea farers as do inland plains people from trading towns or port citizens. Being at a physical crossroads clearly fosters exchange and interaction and the ability to live with diversity and more openness. Here ideas exchange is more natural and innovations spread more quickly. Equally major historical events shape prospects. Having been once a powerful capital city of a region and then no more, can create a yearning for the great times lost. This can make a place nostalgic, arrogant and backward looking. History becomes a burden. Yet equally a great past can provide inspiration and confidence acting as a backbone to do so again. Glasgow’s and Bilbao’s reinvention are examples here.

By contrast having experienced a disaster like an earthquake or losing a battle can drain confidence, create a sense of loss as it lingers in the collective memory. Yet, too, it can spur community action and create cohesion and become a force to move forward.

The reaction to circumstances crucially depends on how places have nurtured and developed themselves. This expresses itself in traits, personality, the level of emotional energy, or even a soul. Some cities we call sober, others constrained, thwarted, stifling and reduced or edgy, ‘can do’ and open or welcoming. By describing cities in these simple words we are encapsulating vast complexities of urban experience. Yet they have validity and vast implications. These traits make up a personality both in humans and cities. They shape a psychology. Atmospheres consequently differ sharply as does the sense of confidence. This should not surprise us since cities are its people, the organizations they form or the tribal allegiances they form. In short, everything is determined by local culture.

At times, however, like those we are living through now **events are beyond our control**. This can make people, organizations and places feel helpless or powerless as overwhelming global forces shape local circumstances and prospects. They become victims, pawns or casualties rather than energetic actors shaping their destiny. These global economic dynamics cause local companies to collapse and negative cycles begin to unfold.



A growing place differs from one that is declining as the young leave for pastures further afield and they are often the most ambitious or talented. This breaks community, it reduces vitality, it shifts the mood. It is why a collective, new story is so significant in turning the tide by focusing on a common purpose, a joint agenda and as a means of reaching new goals.

Culture then becomes the vital force. It needs resilience to regain the strength to respond to look outwards and beyond oneself, to recognize that alone we can do less than when we work together both locally and with our neighbours as well as our region. Combined there is more strength.

#### 4. Creativity: The energetic engine

Culture is what we are and creativity shapes what we can become. Creativity at its simplest is multi-faceted resourcefulness relying on qualities such as openness and being alert. Creativity is both generic, a way of thinking and a mindset, and it has specific applications and is task oriented in relation to particular fields, such as being a creative artist, an IT expert or engineer or a creative organization. Creativity is legitimized within the arts and should spread to other spheres from encouraging social innovations or establishing more creative bureaucracies.

**A lengthier description** is that creativity is a general, all-purpose problem-solving and opportunity-seeking ability. It helps a process of discovery through the supple capacity to imagine possibilities, to conceive and originate concepts and ideas and downstream to help bring them into being. In this way it enables potential to unfold. It is applied imagination using qualities like intelligence, inventiveness and reflexive learning along the way. Its essence involves the ability to assess and find one's way to solutions for intractable, unexpected, unusual problems or circumstances. It is valuable in the social, political, organizational and cultural field as well as in technology and the economy. It can be applied to all spheres: from rethinking schools and teaching, inventing new systems of healthcare and delivery, recasting organizational structures. Crucially, it is now recognized that creative inputs add value to businesses which are not normally considered creative, such as engineering, facilities management or the hospitality industry as distinct from design, film or music. Crucially creativity without implementation is just having ideas and speculating.

**Creativity requires certain qualities of mind, dispositions and attitudes.** These characteristics include: curiosity, openness and a questioning attitude, the ability to stand back, listen and re-assess, the courage not to take a given credo, practice or theory for granted and to dare to think outside of the box, the gift of seeing relevance and connections between apparently different things. It involves fluency and flexibility and the ability to draw on ideas from across disciplines and fields of inquiry, to think laterally and to blend concepts from seemingly unrelated domains. It is based on divergent thinking, which opens out possibilities, reveals patterns and helps find solutions before prematurely closing in on a specific answer. Importantly it needs convergent thinking to close in on potential and to turn ideas into reality. This attributes would have to apply to a city as a whole too.

To be effective in **being creative means having judgement** and knowing when to be flexible and open and when to be more focused and closed or tenacious and persistent. A misconception is that being creative is about being unconstrained. Being creative requires just as much attention as being a scientist or an engineer. The central point is that it is a different kind of attentiveness and approach.

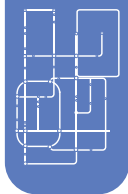
Everyone is in principle creative, but not everyone is equally creative, yet **everyone can be more creative** than they currently are. The same applies to organizations, neighbourhoods and city regions.

### 5. The urban creativity agenda

The Creative City idea was launched by the author in 1988 in response to the increasing levels of globalization, restructuring of the world economy and growing blandness and homogenization of cities. This was leading to a loss of a sense of belonging, identity and declining distinctiveness of places. At the beginning the idea focused on the contribution of the arts and cultural/creative industries in averting these trends. ‘Creativity’ was seen as a primary asset since human cleverness, desires, motivations and imagination are replacing location, natural resources and market access as the key urban resources. Early on the major expressions of creativity were focused on the arts and cultural forms but not limited to them given scientific and other forms of inventiveness. From the mid 1990’s the definition of a creative city broadened dramatically to include for instance creativity in governance models as you **cannot have a creative ecosystem if parts of the city are riven with obstacles**. Yet for some the concept was still concerned with artistic creativity.

At its simplest a **creative city or region provides opportunities** for people, organizations and the place as an amalgam of entities **to think, plan and act with imagination** in solving problems and creating opportunities. In summarizing the collective knowledge and experience of creative places we can conclude that they are places where people feel they can fulfil themselves, there are opportunities and things get done. It is a place where people can express their **talents which are harnessed, exploited and promoted for the common good**. These act as a catalyst and role model to attract others in a self-reinforcing cycle. Here there are myriad, high quality learning opportunities, formal and informal, where self-development is easy. There are ladders of opportunity and choices and a sense that ambition and aspirations can be met. There is a ‘can do’ mentality. The city is an engine of possibilities. There are places to meet, mix and exchange. There is multicultural colour and diversity. This implies distinctiveness and varied insights.

The confidence to be outward looking comes from a sense of familiarity with family, friendship and professional networks, their neighbourhood, their workplace and crucially physical landmarks be that a street, a café or set of facilities. This anchors their sense of safety and security with a community feeling, but an evolving one that adapts to changes and so is resilient. This confidence encourages exploring and being curious. This creative place exudes a sense of a ‘higher purpose’ - soulful places perhaps a gallery, a site of interest or religious place.



The overall physical environment functions well for its inhabitants, it is easy to move around and connect with each other. **Its high level urban design and attractiveness inspires, stimulates and generates pride** and affection. The architecture, old and new, is well-assembled, and the street pattern is diverse and interesting. Webbed within the ordinary is the occasional extra-ordinary and remarkable or memorable. It is an environment in which creators of all kinds are content, but not complacent, and motivated to create and where there are outlets and channels to communicate their ideas or research or sell their work. It is a natural market place, where people exchange ideas, develop joint projects, trade their products, or work in its advanced industries. It offers a rich register of vibrant experiences through for example gastronomy, the arts, heritage and its natural surroundings, including thriving mainstream and alternative scenes and a healthy network of third spaces. Opportunities abound: the place is welcoming and encouraging. Its dynamism makes it a magnet and so generates critical mass and attracts people from outside and this guarantees longevity.

This more developed understanding of creative place making started two decades ago with the 25 largest global cities and regions beginning the battle for talent as cities increasingly became aware that skills, expertise and talent were their major resource. This changed the urban agenda. Strategies were developed, funding schemes launched, emblematic initiatives created especially high profile cultural buildings or incubation centres or creative quarters. Now every city of substance across the globe has embedded this. Think here of Shanghai's creative economy focus on its creative hubs policy, which was very much driven from the top. Think of London which has projected itself as a global creative hub. Yet here the existing dynamic and critical mass of firms meant this was happening in any case, but the British national lottery played a major part in renewing and creating new cultural infrastructure. Berlin, Amsterdam or Paris followed an equivalent pattern. Rapidly these concerns moved down the urban scale. Now second and third level cities have begun to recognize the potential, such as Ghent, Umea, Oulu or Porto in Europe. Consider too the 64 large and small cities that are part of the Japanese Creative Cities Network as well as the Canadian network of creative cities. The Argentine government is in the process of setting up a 24 creative cities network. These developments coincided with greater networking capacity enabled by the internet and its innovations. Since so many transactions can happen virtually time and space flattens and you can be here and there anywhere and anytime. This more seamless connectivity poses challenges for all cities and is an opportunity for smaller cities as with their intimacy, quality of life and scale they can now compete with larger cities.

In fact this movement is astonishing. The city has always been a centre of transactions, power and intellectual resources. Yet it is now hard to imagine that in the 1970's there was a fear that the city was in such a decline, that it might not recover as their city centres hollowed out with businesses leaving and the flight to the suburbs. The result was urban wastelands as industry declined and began to move to the Far East.

Remember New York barely avoided bankruptcy in 1975. A significant phenomenon emerged in the transition to knowledge intensity from the early 1980's onwards. **The city was 'rediscovered'** and cultural facilities and activities played a major role as cities **began again to exert a gravitational pull**, because of their resources in learning, their capacity to help exchange and transactions, their cultural institutions and richer artistic life and vibrancy, their stock of buildings and infrastructure and their transport links. The city was seen as an accelerator of possibilities and as a dense communications system that is not easy to replicate in other settings.

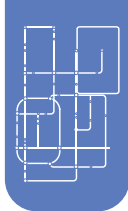
Once this urban focus re-emerged a vast urban regeneration process began with the tearing down of the past to make the city ready for professional services related industries, offices and residential developments that frequently pushed out older tenants as a result of the gentrification process. Often the results were negative in that older communities were torn apart or displaced. Getting the balance within gentrification processes is one of the most difficult dilemmas for urban development.

City planners then tried to recreate the qualities of well-functioning cities with their mixed uses and intense interactions. The industrial period had fostered segmented land use planning in order to separate dirty or less healthy functions from living and recreation. In the cleaner knowledge economy this separation is less necessary and mixed uses and new configurations for living and working have emerged.

Simultaneously an extensive retrofitting exercise began. **World-wide several hundred old warehouses, breweries; train, bus or fire stations; cement, coal, textile, tobacco or steel factories; old markets or military barracks or older working class districts were transformed** into culture or experience centres, incubators and company breeding grounds and as hubs for wider urban regeneration. The creative professionals, such as web designers, IT companies, musicians, graphic designers, artists in particular were drawn to these places. Their mere presence made them the vanguard of regeneration, a process that is well documented, but also led to gentrification and as costs spiralled often pushed those creatives out later. Indeed some property developers specifically enticed and incentivized artists and other creatives to move into declining areas in effect using them to trigger the regeneration process. Typically then cafes and restaurants move in attracted by the bohemian atmosphere and cheaper rents followed by younger professionals which over time change the ambience. This process was first documented by Sharon Zukin in New York in the 1970's.

It is strange that those same places that had had **horrible working conditions began to be celebrated as places for the new and the hip**. Why do these structures resonate? They exude memory and the patina of ages in an age where novelty erases memory increasingly and of course, physically their spaces are large and allow for flexibility and interesting structures. As the celebrated Jane Jacobs noted: 'New ideas need old buildings'.

The Oliva Factory in São João da Madeira is a prime example. They include most famously those in the Ruhr such as Zeche Zollverein in Essen or Duisburg Landschafts Park; the Tate North and waterfront development in Liverpool; the Roubaix Piscine or Tourcoing textile mills in Lille Metropole; the Manifattura delle Arte district in Bologna, the Alhondigabilbao in Bilbao; the revitalization of Kazimierz in Krakow and especially its Jewish Quarter. There are too the Distillery District in Toronto, the Cable Factory in Helsinki, Halles De Schaerbeek in Brussels, the Custard Factory in Birmingham, the refurbishment of old industrial buildings



in Pyrmont Ultimo in Sydney, Metelkovo Ljubljana, the Truman Brewery area around Brick Lane in London and many, many more. The renewal of these large buildings often led to the wider regeneration of whole districts.

There is a **crucial contrast** between the traditional **‘urban engineering paradigm’** to city development, which is largely hardware focused and which focuses more on the idea of the ‘city as a collection of projects’ to the notion of **‘creative city making’** which sees ‘the city as the project’ and which integrates hardware and software thinking and initiatives. The latter focuses on which physical conditions can foster and create relationships, networks and bonding between and within groups. It pays attention to how a place feels and its atmospherics.

## 6. The culture of creativity

Creativity is the pre-condition for downstream innovations to occur. It starts with environments where curiosity is encouraged, from this imagination can flow from individuals or organizations, out of which creative ideas, processes and projects emerge and many of these do not pass the reality checker. Those that do become inventions that when applied become innovations. Curiosity, imagination and creativity are the soil as innovations do not come out of nothing.

It is important to assess and to monitor a culture of creativity, the existence of a creative milieu or creative ecology. One method is the evaluation toolkit we developed in collaboration with Bilbao Metropoli 30 called the ‘Creative city Index’<sup>1</sup>. This is both an evaluation of the creative eco-system, yet crucially the process of interpretation quite automatically leads to a set of recommendations or strategic conversations and suggestions. The aim initially was to highlight how Bilbao could assess the capacities of their people and organizations to reach a new stage of urban development. In addition Bilbao later undertook a ‘Creative Administration Audit of Bizkaia and Bilbao’ as it recognized that only with an reinvigorated and more flexible bureaucratic and governance system could its bigger aims be reached.

This methodology of **measuring and monitoring a city’s creativity** focuses on four core areas and specific domains within them, namely how does the city.

- **Nurture and identify its creative potential** and reinforce its cultural distinctiveness in order to generate more innovations and so make the city more resilient. Here it assesses:
  - o Openness, trust, accessibility and participation
  - o The talent development and learning landscape at all levels
- **Enable and support this creative capacity** so that opportunities and prospects are maximized. The evaluation here looks at:
  - o The political and public framework and its regulations and incentives regime
  - o Strategic leadership, agility and vision
  - o Professionalism and effectiveness

<sup>1</sup> <http://charleslandry.com/panel/wp-content/themes/twentyeleven/books/The-Creative-City-Index.pdf>

- **Exploit and harness its expertise, talents and aspirations.** The evaluation here concerns:
  - o Entrepreneurship, exploration and innovation capacity
  - o Communication, connectivity and networking
- **The lived experience of the city** physically and in terms of activity in encouraging creative potential so it assesses:
  - o Distinctiveness, diversity, vitality and expression
  - o The place and place-making
  - o Liveability and well-being

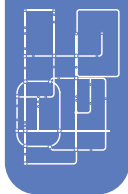
The Index is both a subjective and objective assessment and this distinguishes its' method from other ways of evaluating cities or regions as there are differences between the self-assessment of the various interest groups and the external evaluation. This is valuable as it brings up issues that normally do not emerge with other strategic assessments. For instance it might be that the main conclusion is that 'confidence' or 'collaboration' is a problem, but there is no department responsible for this. Furthermore the holistic approach ensures one is always looking at the city as a totality (and not only through one lens) combining all the factors from the economic, the social to the cultural as well as how the regulations and incentives regime provides conditions for the city to think, plan and act with imagination.

The evaluation looks at all kinds of innovative activity and investigates the spectrum from the individual, the firm, industry sectors and clusters, networks in the city, the city itself as an amalgam of different organizational cultures and as part of a city-region. It assesses how creative the private, community and public sectors are as well as areas like education, business, the arts and cultural scene, specific industry sectors, science and organizations that help the prosperity and well-being of the region.

In looking at the private sector the focus is on how they operate, how they generate new ideas, how they connect with the wider world or how they have adapted to disruptive innovations. Given the rise of social stress world-wide social entrepreneurship, the culture of self-help and self-organizing become significant areas to consider as they are recognized as vital means of empowering people in local communities.

The creativity of public sector organizations is key to being competitive, both in terms of policy development and delivering services. Given the financial constraints this has become ever more urgent and the agenda has been picked up by OECD and other global organizations such as the World Bank or Habitat III. This raises the question of civic creativity – that is imaginative problem solving applied to public good objectives. A key question is whether towns, cities or regions have re-thought their regulations and incentives regimes so that flexibility can be married to strong accountability principles.

Cross-disciplinary working is a central theme here. Organizations cannot be islands onto themselves. Levels of creativity in working across sectors and interorganizational networking can have explosive impacts given how value added is created through inventive partnering and networking, for instance between universities and their local communities.



Another focus should be boundary-busting creativity. For example, at the beginning of the 21st century a rapprochement began between the two great ways of exploring, understanding and knowing: science and art as well as technology. This collaborative activity has generated considerable momentum and become a powerful force for change and innovation in the development of new products, processes and services.

The learning system shapes how the conditions for creativity are being created. This should not be restricted to schools and institutions of higher learning but also includes professional development. Ironically these spheres are rather conservative.

Assessing the obstacles to generating creativity is significant, with mindset and behavioural change being crucial. It is increasingly recognized that highlighting obstacles (which themselves become targets for creative action) is at least as important as highlighting best practices. This seeks to address one of today's greatest paradoxes: the rise of the creativity agenda and simultaneous rise of an increased culture of risk aversion.

Finally, the physical context is vital to support the development of a strong culture in order to encourage creatives to stay or be attracted to the region. This brings to the fore questions like the overall attractiveness of place and creative quarters.

This methodology looks inwards into the city and outwards. It explores how potential can be enhanced and strengthen a city's position on the global radar screen and whether it is punching above its expected weight.

Three cities within the Atlantic Arc, Bilbao, San Sebastian and Gijon have undertaken this assessment in detail and a fourth Coimbra a shortened version.

## 7. The creative economy

The creative economy sectors, music, the new media, design, performance and literary expression are an increasingly important sector within urban economies and these are increasingly powered to digitization.

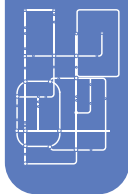
The first discussions about these sectors originated way back in the 1930's with the original work by Theodor Adorno and especially Walter Benjamin ("The Work of Art in the Age of Mechanical Reproduction" 1936). Interest revived in the early 1970's the sector was given a positive twist to signal the role of the cultural industries in transmitting identity, the image of place and its perception as well as symbolic messages. In the 1970's too a movement developed where many smaller oppositional cultural industries companies emerged, often funded by state institutions, who created the alternative media movement. This provided in part the soil from within which the interest in the sector emerged. Its later manifestations were far less political and often driven by the lifestyle choices of those starting micro-business based on music, graphics or design and especially design thinking. Whilst the sector's landscape was still dominated by powerful large scale companies, such as those in Hollywood, the major music companies or companies like Bertelsmann, this vibrant sub-sector became very important in revitalizing segments, districts and even whole cities.

An important shift was when the British Labour government returned to power in 1997 and its Department of Culture, Media and Sports renamed the cultural industries the creative industries, perhaps trying to avoid its political connotations. It set up a Creative Industries Task Force and an analysis and benchmarking system that has since become a global reference and model. Other interesting terms have also been used, such as in Hans Magnus Enzensberger's book 'The consciousness Industry'. John Howkins proffers the term 'copyright industries' in his 2001 book 'The Creative Economy: how to make money from ideas'.

These shifting definitions highlight the difficulties in describing these disparate yet connected sectors. For instance, many parts of the sector have copyrights, that are tradable, yet it includes art projects many have no intention of having a marketable value. Of course, some art works are involved in market processes like auctioneering.

The rising importance of the creative industries emerged along a number of trajectories in responding to the major economic shifts from the late 1960's onwards. These included: the restructuring of the global economy and the search for new growth sectors as production moved inexorably to the East forcing every city in the West to reassess its sources of wealth creation; the recognition that the entertainment industry was vastly significant well beyond Hollywood and growing; the increasing global importance of marketing and communication and the special role of these sectors from corporate video to graphic design; the understanding that the different sub-sectors were connected and cross fertilizing and so were larger than they first appeared. A pivotal moment, for instance, for Britain was when music industry exports overtook car exports 30 years ago. In relation to their own organizational mission UNESCO and the Council of Europe were in the vanguard and undertook major research in the early 1970's in what they called the cultural industries. Their primary purposes were twofold, first to look at employment prospects within less developed regions, but especially to highlight the potential of a sector that embodied distinctiveness in an increasingly homogenizing world. Crucially they too recognized that music, film, design, literature or performance embed and project the identity and belonging.

Separately, somewhat later from the early 1980's onwards, **two worlds began to mesh, that of arts and cultural policy and economic development.** First, arts and cultural funding came under serious threat with the economic crisis of the 1980's and all cultural organizations had to find a further set of justifications for public funding. This was threefold. Internally organizations were being asked to increase their level of self-generated earned income. This involved both becoming more efficient and effective internally and thus a focus on their management and economic health became a priority. Second, the need to diversify funding including sponsorship rose dramatically. Initially the mutual benefit was based on providing new resources in exchange for enhancing the image of sponsors. Over time the dynamic of these relationships with non-cultural organizations changed. Some were based on unexpected consequences, such as the possibility of artistic organizations to provide services to the commercial sector like theatre groups running leadership or communications workshops. In addition the corporate social responsibility agenda meant that links were less based on patronage and more on exchange of services. Third, the public sector, whether state or city, increasingly began to develop what were in essence contract relationships in return for funding, such as providing outreach or educational services.



At the same time high unemployment levels meant that initially cities, and later governments like in Britain from 1997 onwards, saw the creative industries and even the subsidized arts areas as sources of employment and a decade later the European Union began to take the sectors seriously. As larger industrial combines began to break down the need to develop start-up companies grew and the creative sectors were especially vibrant. This required a major rethink in terms of how economic development entities operated since their criteria historically had been based on assisting larger organizations rather than one to five people organizations. The alignment of interests between the cultural and economic worlds drove the interest in the creative economy in the public policy arena.

First it was the global first tier cities that took an interest. The first study called ‘The Arts as an Industry: The economic importance of the arts’ was conceived and guided by Martin E. Segal and commissioned by the New York Port Authority in 1983 and followed up again in 1993. In 1985 John Myerscough undertook a similar study for Britain. Another significant study was undertaken by Llewellyn Davies in 1991 on world cities with authors such as Sir Peter Hall and where Charles Landry assessed the cultural dynamics economically of Paris, London, Tokyo, New York and Los Angeles.

Simultaneously from the mid-1980s onwards first Britain cities as diverse as Birmingham (1985), Liverpool (1987) Manchester (1988) or Sheffield (1987) struggling with industrial restructuring viewed developing the arts and creative industries as **a possible answer to a mixed conundrum of problems**, such as the need for new jobs, how to anchor identity in a changing world, how to foster social inclusion. The author was involved in many of these studies.

Meanwhile more broadly within European cities similar developments began to take place although with a time lapse. The forerunners were the Barcelona study by the author in 1991 and Nordrhein Westfalen’s government which commissioned its first Kulturwirtschaftsbericht, encompassing also the Ruhr in 1992 from StadtArt, which has been updated continuously; in Krakow’s a smaller study was undertaken in 1992. Recognition of the importance of the sector was confirmed by the European Union with the first comprehensive assessment of the sector in 2001 called ‘Exploitation and Development of the Job Potential in the Cultural Sector in the Age of Digitalisation’. Bilbao and the Biscay region, as an instance, only undertook its first assessment in 2008. An important landmark was the UNCTAD creative economy study of 2008 gave the sector global credibility.

Since then **several hundred studies of the economic importance or impact of the arts and culture have been undertaken** across the world. There are specialist journals of cultural economics and global conferences on the theme practically every week. Over time the focus shifted. The first studies, in the early 1980’s, highlighted the arts impact on life quality and their function as amenity. Increasingly then the role art as an industry was highlighted and the connection between culture and commerce were emphasized. Attempts were made to describe music, film or performance more in terms of their employment impact and their gross value added to the economy rather than in terms of their artistic content. The power of the argument was to link the combined sectors from music, to design to dance together, which showed that in many cities they represented between 5% and 10% of their local economies. In some central places like New York and London the proportion is even higher.

Later increasingly other arguments were brought into play such as the spin-offs from investment in arts, heritage and cultural institutions. These included their role in establishing identity and their ability to transmit values; their capacity to assist integration and to foster social inclusion; their help in building reputation and distinctiveness or in encouraging civic engagement; their contribution to adding value to property developments as well as in helping regenerate areas in transition and especially former industrial sites; their ability to increase the perceived quality of life; to foster communication within the city and between cities; their role in fostering innovation and creating the conditions for a creative milieu.

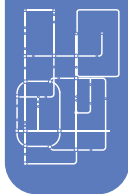
In sum, the art and cultural sectors are seen as an important economic factor in their own right, they contribute to tax revenues, they help increase property prices; they are a location factor, they help drive the experientially driven economy, they help add value to other economic sectors for instance through design input or ability to help communicate and sell other products and services and of course they create work, encourage SME development and tourism growth.

Overriding everything has been **the rise of the new public management ethos** and its demand to provide evidence. This came in various forms. Justifications for culture, which essentially for public funders means investment in art forms and cultural institutions like museums or galleries, have varied over time and older arguments have merged with the new. To simplify, first advocates argued for culture's wider civilizing role; then from the 1960's more strongly for its educational function and later its community development and social effect. Then as cultural budgets globally were under threat the economic argument was forefronted. Now with global urban competition the indirect benefits of investing in culture in terms of image are highlighted, which ultimately, it is claimed, has an impact on talent attraction, foreign direct investment and employment.

The notion of value was narrowed down and transformed into economic value with the rise of the 'economic turn'. Everything including the arts became instrumentalized. Funding increasingly was justified because of its economic impact. For many sceptics this was a form of economic entrapment through which it became less possible to discuss artistic or cultural content in its own terms. They felt there were too many compromises.

## 8. Changing the evolutionary trajectory

Normally discussions about the creative industries have focused on describing arts activities like singing or music making, performing or designing as the music, theatre or design industry. We know they are significant industries in their own right, such as music's role as an entertainment and performance industry. We know too they add value to other sectors in an obvious communication and marketing sense through graphic design, creating adverts or corporate videos. We know they completely mediate our perception of the world and thus how we experience it. In the long term advocacy process to establish their importance their direct and indirect effects have been calculated and their economic worth estimated. This is fine as far as it goes, but it is limiting.



Consider **what lies behind music, the visual arts, design or new media?** Then add the additional power generated by digital capacities. At its core music is sound and vibration; the painting arts are about visualization and with vast mountains of data these need to be visualized to aid understanding; film about moving images; design is in essence a moulding, patterning and problem solving activity and the new media are largely focused on connections. Of course, each medium has its own history, styles and genres. Yet these core attributes are vital and an integral part of any activity, product or service. They enhance their value, usability, relevance and resonance. Crucially **these sectors contribute** not just to adding economic value and jobs, but more importantly, **to the evolutionary process of the economy and society as a whole.** They are thus even more important than we have previously considered. The creativity/culture nexus linked to digitization will have as much impact as did the discovery of electricity which has transformed the way we live. The contention is that **their combined impact is immense, insufficiently understood and under acknowledged.** Indeed they are like electricity or a nervous system. Our lives, our cities and their economies cannot work without them. They are constantly changing places and how we live in them.

**Examples include:** Perth is the hub of Australia's mining, oil and gas industry. A closer examination shows how creative economy sectors are deeply involved. Sound and vibration helps us discover oil and gas in deeper sea beds where sound helps create seismic surveys and 3-D interpretations of underwater conditions. Visualization enabled by data streams and converted by converging computers and graphics creates live images to help us understand what is going on underground. The use of film in mining helps explore dangerous terrain and virtual reality simulations explain safety procedures.

Consider medicine and long distance diagnostics and treatment where telepresence is now possible. This essentially uses cutting edge creative industries related communications technologies, such as high speed data connections or videotelephony combined with robotics to allow for remote surgery where the patient can be kilometres away. The broad category of telemedicine or telenursing helps provide health care at a distance through hand-held mobile devices that allow healthcare professionals to view, discuss and assess patients as if they were in the same room. Equally ultrasound devices, using sound to see, can emit high frequency sound waves that help create images or reflect points of differing density so helping the identification of a disease at a distance.

Consider developments in e-commerce, where Lille is a leader with the presence of companies like Auchan. It also houses France's e-commerce centre of excellence. To make e-commerce function at its best means creating immersive, interactive experiences, which even allow for fitting on clothes virtually. Essentially buying then becomes a filmic experience that you the user control.

Consider logistics also a strength of Lille, where real time tracking requires visualization as does the monitoring of most production facilities where the film of the process determines the decisions you make.

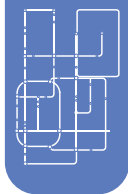
Consider smart city thinking requires digital literacy and a reliance on big data. To become meaningful the smart city relies on a combination of soft and hard skills from web and industrial designers, civil engineers and importantly combinations of software engineers, technologists and those with artistic or graphic backgrounds. And new jobs are coming along think of recent job titles from growth hacker, UX or UI designer, content strategists, to information and data architects. They speak for themselves.

The sensors help cities respond in smart ways from the simple to the complex: when is the next bus or metro coming, where is a free car parking space? More powerfully, we can control how a city works from a distance, or with apps that help the sighted and the visually impaired to find where they are, or self-regulating mechanisms to control energy use, monitor levels of pollution or adjust light levels. The ‘sharing economy’ becomes possible, built around sharing human and physical resources. Innumerable apps foster swapping, exchanging or joint purchasing with car-sharing technology, such as ZipCars. Opening data is a must and creates easier feedback loops between citizens and city decision-makers, helping to reinvigorate local democracy and making collaborative governance models possible. Perhaps ‘the city is software’, as its operations are completely software-driven.

Antwerp has two linked projects its year long 2016 ‘Born in Antwerp – Harbour of Creativity’ initiative and the longer term ‘The City of Things’ project. The latter is a unique quadruple helix based partnership set up by iMinds, the Flemish government’s ICT research institute; the City of Antwerp; Mobile Vikings, an innovative mobile provider and citizens. The partners all use the city as a shared resource with each providing rich data sets. Starting in January 2016 this local innovation platform aims to bring the Internet of Things to life and it started by tagging its several thousand traffic cones, that get lost, stolen or misused on a daily basis. It seeks to create an enabling environment to link open data provided by the city and others as well as open innovation processes that rely on sharing insights and knowledge and that stimulate co-creation. Together the city of Antwerp and its citizens then act as the living lab and real-life test bed. Here users, service providers and producers can jointly develop innovations in a trusted, open ecosystem that spurs business innovations. This closely networked system provides instant feedback loops to research behaviour and to monitor results as well as the technological capacities to respond to issues and to innovate along the way.

These merging processes are all pervasive. Consider the Sci-art movement, initially largely funded through a long term initiative of the Wellcome Foundation. It has now become part of the mainstream. There is no city that has taken this on board as a strategy, yet there are increasing examples across the globe from ZKM in Karlsruhe, programmes at the University of Chicago or MIT and organizations such as Arts & Science Collaborations <http://www.asci.org/> or Arts Catalyst <http://www.artscatalyst.org/>

Seen in this light the activities of the creative economy are all pervasive. It then becomes the platform through which practically any form of innovation is generated and determines how the economy works. Importantly too these activities need to be anchored in place and this is where the notion of creative quarters becomes important.



## 9. Creative Quarters

Successful creative quarters typically include the following features: An overall balance between ‘local buzz and global pipelines’; there is an older fabric, with a diversity of building styles with a street pattern that is intimate, diverse and not dominated by well-known brands and chains and with built structures from different historical periods; the overall atmosphere creates a multi layered experience visually and in terms of activities, including combining the intimate and the iconic, the somewhat shabby and clean and potentially sanitized new; an environment that feels open, diverse and mixed, where the presence of different cultures and people finds expression in the built form and facilities from restaurants to cultural centres; it is somewhere that is not too self-consciously orchestrated and planned, so it allows unpretentious authenticity to develop and come through; there are a variety of structures for work and living at different price ranges to ensure start-ups and young innovators have a place to live and work. Cheapness is key to innovation; there is an overall physical setting that combines the high quality ordinary and small with the occasional extraordinary gesture; there is blending the old fabric and heritage with the challenging new; a landmark within the quarter is mostly present which may often be a reused old industrial structure; a good mixed of uses is necessary which provide the ability to work, research, to live, to recreate and to relax and buildings with flexible structures allow for adaptable uses. Human scale developments are crucial that encourage interaction and mixing and a diversity of third spaces that are accessible for talking, eating and relaxing. Another balance is between production facilities and consumption, thus the quarter enables the full value chain from ideas generation, learning, through production to consuming to be present.

The district combines commercial and non-commercial activities and uses, such as research centres, public entities, not for profits, cultural facilities and low cost subsidized spaces. There is lively mainstream and alternative scene, a rich set of cultural facilities from the commercial to non-commercial such as galleries or museums which blend well tradition and innovation. Overall playfulness and humour is fostered through temporary installations and unusual activities. A public management structure is necessary, like a public private partnership or development agency, that is alert and tries to ensure a fine balance between gentrifying and remaining accessible in terms of cost and cultures. This also provides a marketing and promotional structure that can ensure the right level of events. Over time this may not be necessary as self-generated activity can take over. It is important to make sure the intent of the quarter is visibly communicated through its urban design or its activities. Finally the location be large enough to generate impact and critical mass.

## 10. Culturally driven creative projects

Surveying the landscape of culture and creativity and its link to town, city and regional development we can detect some themes: The desire to engage, empower and to express potential; the desire to anchor and explore identity and belonging; the wish to connect; the wish to create jobs and the intention to create a better world.

These themes are part of the funding repertoire of cultural councils across the world. To describe its scope and to encapsulate some examples we briefly describe 20 of the shortlisted candidates for the N.I.C.E. (New Innovations in the Creative Economy) awards for which the author is the chair of the jury. In total over 400 projects have been assessed. We focus here more on examples from the Iberian Peninsula. Its overarching theme is 'Solving the world's major challenges'. See <http://nice-europe.eu/>

Julie's Bicycle from London for over 10 years has highlighted how the creative and cultural community can contribute to addressing one of the biggest challenges of our age - climate change. Their efforts, for instance, influenced all British arts and cultural funding to provide an environmental assessment of their activities and its toolkits show how festivals can become sustainable.

Refugee Open Cities from Berlin challenges us to look at things afresh. How can you reconceive a refugee shelter, that harnesses residents' talents and potential and how can they become part of a neighbourhood. In short how can they become makers, shapers and co-creators of their destiny.

Public Residence - Die Chance has created a new neighbourhood currency. Their attractive fake money is backed elsewhere with real money. Residents earn this money through voluntary work and then invest it in projects suggested by community members that foster social good and regeneration.

Conexiones Improbables from Bilbao brings artistically trained people together with organizations outside their field who want to explore creative approaches to problem solving.

Makerversity is more than a creative incubator. Based in London and Amsterdam and soon to spread further afield, it links social and creative enterprise in an important synergy and with an added twist - everyone who joins has to give something back for free. Here the entrepreneurs have created 'a faculty' to teach the young to make the most of their potential.

The ID Factory in Dortmund connects artistic thinking and planning with scientists and economic development institutions in order to create 'technology transfer'.

The LX Factory in Lisbon has regenerated a complex site as an innovation and cultural hub.

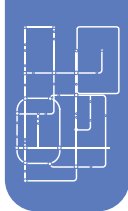
The Unperfekthaus in Essen is a privately owned 5000sqm office building, events centre and hotel that encourages innovative cultural organizations to collaborate. It has a differential rental scheme to encourage less commercial projects often arts driven.

The Internet of Clothes from Birmingham is a wardrobe where every item of clothing is digitally tagged and when not used sufficiently automatically communicates with a charity which picks them up and recycles them.

Touching the Prado is a project supported by ONCE has created a sophisticated technology by which blind people can touch famous paintings and 'see' them.

Oroimena Bizigune from Bilbao uses young people to interview older people as a means of overcoming the violent past of the region and to act cathartically.

URBANAUTS in Vienna creates innovative accommodation for modern nomads by revitalizing empty shops and by using local services to enhance the local economy.



ElCasc from Villena is an urban festival that acts as the climax of a participative social process in helping to renew the town.

Smart Citizen from Barcelona seeks to empower citizens to monitor their urban environment through the use of bottom up digital tools in an open source philosophy.

Waves of Energy from San Sebastian is an innovative approach to citizen participation which aims to get people to understand the problems of transition.

Home back Home from Madrid proposes ways of self-build techniques to adjust the family home for un- or under-employed people who have insufficient resources to live independently.

The Data Ethical Cultural Observatory from Paris seeks to find a new model to give the big data revolution ethical principles to operate.

Creative Technologies in the Classroom from Barcelona is a collaborative learning curriculum to incorporate emerging technologies into the classroom.

AuLAB in Gijon creates new learning experiences for younger people to be able to cope with the new economy including working with experimental television, digital fabrication, programming and art/science linkages.

The 20th example is Creative Partnership. It was the UK government's flagship creative learning programme, established in 2002 to develop young people's creativity through artists' engagement with schools. It was transferred in 2009 to: [https://en.wikipedia.org/wiki/Creativity,\\_Culture\\_and\\_Education](https://en.wikipedia.org/wiki/Creativity,_Culture_and_Education)

Creative Partnerships facilitated long-term links between schools and creative professionals, such as artists, architects, scientists and multimedia developers. It reports include literature reviews about creativity and education, teacher identity, pupil wellbeing and tracking progression in creativity; evaluations and surveys of the programme; and qualitative research investigating pedagogy, wellbeing and progression.

As a brief coda on the examples we highlight Obidos and Ivanha da Nova that have managed to become part of UNESCO's global Creative Cities Network, respectively for literature and music even though they are not at a global scale. This involved outrageous ambition and courage, but has already had an effect on their prospects. See <http://en.unesco.org/creative-cities/home>

## 11. Drawing the thread together

The best creatively driven cultural policies and their associated programmes, adapting Dorte Skot-Hansen's ideas combine a focus on:

- **Enlightenment**, which fosters insight, knowledge, education and reflection. This helps broaden horizons, raise aspirations and understanding of our own others cultures.
- **Empowerment**, which concerns strengthening identity, focusing on social inclusion, finding ways to strengthen cohesion and joint working and visioning.

- **Entertainment** is important for its elements of playfulness, leisure, fun and recreation and relaxation.
- **Employability** captures the ability of the arts and involvement in creative activities to increase competence, confidence, communication skills and overall capabilities, which can migrate and be relevant to working in all sectors.
- **Economic** impact is one of the major direct and indirect benefits of good cultural policy focus by highlighting the need to work within economic imperatives, such as job creation, skills enhancement, helping start-ups and fostering an entrepreneurial culture.

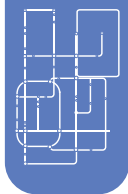
Clearly this culture and creativity agenda implies that **cities cannot work within a silo mentality**. It requires new ways of working that are strongly inter-disciplinary and cross-departmental, linking for instance, those concerned with culture, economic development and social welfare.

**2nd,3rd, 4th and 5th level cities can play significant roles** as advantage and disadvantage is constantly shifting. Difficulties will always remain for relatively smaller ambitious cities in moving up the value chain and in capturing centrality. Yet **there are a vast number of niches that a city can become known for**. Now that gifted people increasingly choose the place first before the job within that place **smaller cities can compete on a new terrain that of quality of life**. Their relatively smaller size, the ease of transactions and exchange can counteract some of the disadvantages of lack of centrality.

There are a series of balancing acts and strategic dilemmas places need to consider in using a cultural perspective in development. They include: Focusing on production, company formation and economic supports or consumption and spectacular events; emphasizing the heritage of the city or its innovations; highlighting arts forms or broader themes within which art forms fit; looking more at older media or the newer experimental forms; taking community development more seriously or primarily being concerned with the prestige arts; encouraging the mainstream institutionally funded cultural scene or also the alternative, fringe and provocative scenes; being aware of the interconnections between the physical hardware of the city and its software priorities which are the activities people undertake, how they interact and bond; balancing developments and programmes on the city centre or the suburbs and outlying areas; managing cultural activities in an art form department or linking cultural concerns to the remits of all departments; short-time political expectations of visible progress or creating the long-term public conditions for sustainable, self-generating success.

All places are special in their own way and when they work well one can imagine them being able to create the ultimate mix, which is becoming a:

- Place of distinctiveness and anchorage. Somewhere that feels like home, that generates a sense of the known and comforting. A place that celebrates where it comes from, but is confident in where it is going.
- Place of connection and reconnection. Somewhere that is locally bonded yet at ease with the global and that has seamless connectivity from the physical to the virtual.
- Place of possibility. Somewhere that is open minded and encourages curiosity and which provides choices and opportunities in differing phases of life.



- Place of learning: Somewhere with many possibilities to self-improve from the formal to the informal, a place where a discussion culture is vibrant and things are thought about afresh.
- Place of inspiration: Somewhere with a visionary feel, where aspiration and good intent is made visible in interesting ways and that therefore create a positive virtual spiral.
- Place of adding values and value simultaneously in any major initiative it undertakes. Thus its economic drive is framed by an ethical value base.

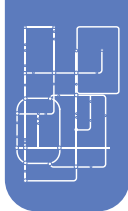
## 12. Next steps

There are various ways to maximize the potential of culture and creativity in a city or region. What this might be depends on context and we highlight several examples. First some city regions still do not consider that a cultural perspective or creativity focus is important to which the response is: We need to switch the question from what is their value to what is the cost of not taking culture and creativity seriously in urban development. Others, and these are many, take these issues seriously on an ad hoc basis and as an optional add-on without integrating them into their development processes or recognizing their intrinsic value. More serious places have set up a 'cultural development agency' and a number of these were set up in Britain in the 1990s and 2000s. Typically they focused on a combination of cultural initiatives ranging from encouraging animation programmes like festivals to community participation projects to fostering the reuse of old buildings for cultural purposes or as start-up hubs. What they did not do sufficiently was seek to embed creative thinking in an integrated way into how a city or region operates.

Another approach has been to create a 'call to action' such as the Memphis Manifesto written in 2003 involving representatives from 40 US cities. This stated as a summary: Cultivate and reward creativity; invest in the creative ecosystem; embrace people of different backgrounds and experiences as they contribute a diversity of ideas; nurture the creatives; support the connectors; collaborate to compete; value risk-taking; invest in opportunity-making, not just problemsolving; be authentic and dare to be different; invest in and build on quality of place; remove barriers to creativity; take responsibility for change in your community, and ensure every person, especially children, has the right to creativity. Lublin in Poland in October 2016 also developed a Creative city Manifesto as part of the city's strategy.

A third is the ECCE model (European Centre for Creative Economy) which stems from RUHR 2010 when the region was European Capital of Culture. It has evaluated the size and scope of the region's creative economy (86,000 persons and 10,000 companies) and supports these actors as well as the development of creative locations and spaces in a region of larger and smaller places. It is an important driving force in communicating the Ruhr area as a location of the cultural and creative economy. In collaboration with the State of North Rhine-Westphalia and the Regional Association Ruhr, the regional business development agency ECCE were commissioned to develop a series of the Creative Quarters. Within these there are mentoring schemes, co-working spaces and linked programmes with learning institutions.

A fourth approach to pull the threads together is to create 'A culture and creativity platform' as a means of shifting perceptions about their value and an example has been proposed for Taipei, although other cities like Buenos Aires have similar initiatives although not called 'platform'. Platforms are an orchestration device and they need a paced and purposeful timetabled project plan to drive the process. The aim is to nurture an integrated and set of actions that show creative thinking and imaginative problem solving can generate inventive new opportunities. The goal is to foster openness about creative approaches to city visioning and to managing the city or region itself. A task is also to choose key ideas that can be catalytic, that communicate well and can be iconic in impact. One of these might be a creativity assessment of the region. There needs to be a good mix of visible and less visible projects, such as establishing a model curriculum for schools or new methods of teaching at universities; supporting and celebrating projects that imaginatively deal with social issues; encouraging a start-up culture for smaller firms; creating a series of hotspots in the region. One important element is to measure the region's 'talent churn', the in- and outflow of talented and expert people, systematically. Some of its activities could be high profile like a creativity summit, whereas others would inevitably be lower key. The best programmes tend to have a mix of easy, short-term low-cost projects and more difficult and expensive long-term ones. This makes it easier to create achievable staging posts along the way and to establish early winners that build confidence and momentum as well as generate the energy to do more difficult tasks. Typically such a platform needs a mixed task force made up of cross disciplinary experts from the economic, educational, physical planning, design, social, cultural and technological fields. A platform's strategy of influence should aim to give confidence, to raise aspirations and expectations and to unleash potential in the population specially the young.



## ATLANTIC REGIONS: OPPORTUNITIES AND CHALLENGES IN REALISING THE BLUE GROWTH POTENTIAL OF THEIR MARITIME DIMENSION

João Aguiar Machado

### SHORT CV

1983-1984: Diploma of advanced studies on European integration, College of Europe, Bruges, Belgium.

1978-1983: Masters Degree in International Economics and Finance, Instituto Superior de Economia, Lisboa, Portugal

#### **Professional experience in the European Institutions:**

- As from September 2015: Director-General DG Fisheries and Maritime Affairs (MARE)
- May 2014 to August 2015: Director-General DG “Mobility and Transport” (MOVE)
- January 2009 to April 2014: Deputy Director-General, for services, investment, intellectual property, government procurement, bilateral trade relations with Asia, Africa and Latin America, DG TRADE
- September 2007 to December 2008: Deputy Director-General in charge of Asia and Latin America, DG EXTERNAL RELATIONS.
- January 2007- September 2007: Director, for trade in services and investment, bilateral trade relations with the Americas and the Far East, DG TRADE.
- April 2004-December 2006: Director, for trade in services and investment; agriculture, SPS; sustainable development. Bilateral trade relations with China, DG TRADE.
- April 2001-March 2004: Head of Unit, Trade in services, DG TRADE.
- November 1998-March 2001: Head of Unit, WTO Dispute settlement and trade barriers regulation, DG TRADE.
- October 1994-Septembre 1998: Counsellor for WTO Affairs at the Commission’s Delegation to the International Organisations, Geneva.
- December 1990-September 1994: Commercial Counsellor at the Commission’s Delegation in Tokyo, Japan.
- May 1989-November 1990: Participation in the European Communities Executive Training Programme in Japan, Tokyo.
- January 1986-April 1989: Administrator, Japan Division, Directorate General for External Relations.

#### **Professional experience before joining the European Institutions:**

- May 1985-November 1985: International Monetary Fund, Exchange and Trade Relations Department, Washington DC, USA.

## ABSTRACT

The EU's "Blue Growth" initiative aims at promoting and supporting sustainable growth in the marine and maritime sectors as a whole. It is therefore clear that maritime areas have the greatest potential to benefit first and foremost from such growth. This growth, if properly harnessed, will also benefit urban and rural communities, irrespective whether located at the coast or inland. The Atlantic area is a clear example of sea basin with such potential, offering many opportunities for the development of the blue economy.

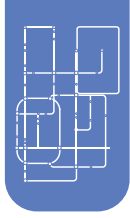
But to realise this potential, key actors, in particular cities and regions, will have to take full advantage of their unique assets, namely those related to the maritime dimension. Indeed, closeness to seas and oceans makes that these areas they are well positioned to develop industries of the future, such as marine biotechnology or renewable marine energy, or to further advance well established sectors such as shipping, maritime transport or coastal tourism.

Entrepreneurship, research and innovation are key "enablers", allowing stakeholders to realise such potential. The EU has put in place a number of instruments (e.g. Horizon 2020) to support marine knowledge activities, enabling the development of new products and services, but also the protection of marine ecosystems. These instruments also facilitate the creation of "competence centres", bringing together companies, research institutes and other relevant actors to add value and competitiveness. To maximise the impact of these supporting instruments a series of strategies and action plans have been developed for seabasins (e.g. Action Plan for the Atlantic area), or at national and/or regional level.

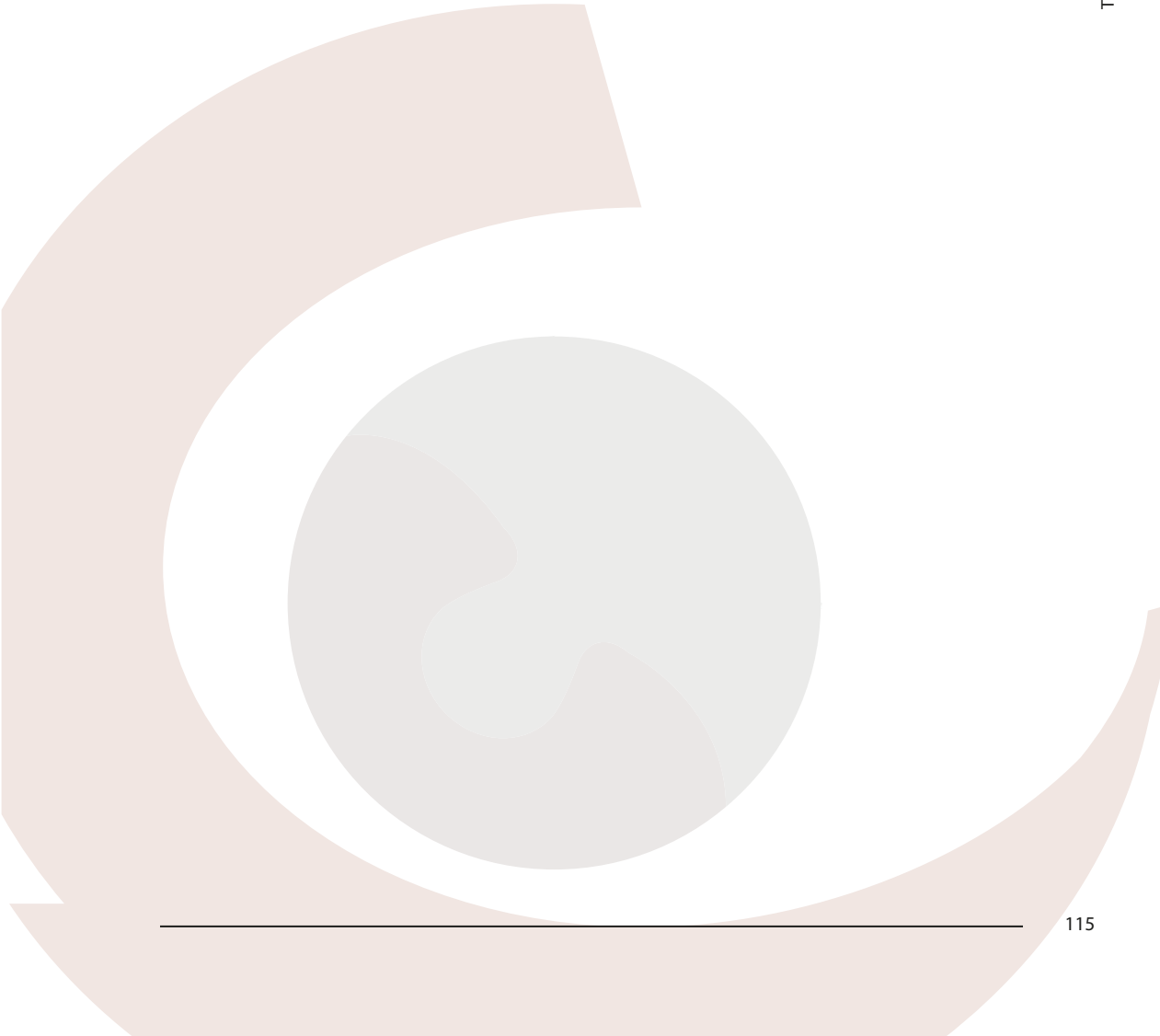
Another essential enabler of sustainable "Blue Growth" is the protection of the environment. Healthy seas are a precondition for a thriving blue economy. Coasts are part of the marine ecosystems, with wetlands playing a prominent role because of their critical importance for ecosystems and human life. Wetlands also create economic value, especially in sectors such as coastal tourism. The EU's Action Plan for the Atlantic includes a number of actions relevant for wetlands. Other EU instruments, such as environmental directives, or the LIFE programme, are intended to protect wetlands.

Without adequate accessibility and connectivity for coastal areas, and their hinterlands, there can be no flourishing maritime economy. This is why the improvement of infrastructure, and transport links, is of vital importance to achieve "Blue Growth". The article reviews the challenges posed in this area, such as the recent expansion of the Panama Canal, but also the opportunities offered by EU funding programmes, or the increase in international trade flows.

But the development of the blue economy can bring a number of challenges when aiming at a balanced and inclusive growth, above all in non-coastal areas. Developing hubs and nodes that connect coastal areas and broad hinterlands, or linking up coastal and inland tourism are avenues that policy makers and policy managers could consider to achieve the aforementioned balance.



The final section of the article discusses tools for stakeholders in the Atlantic area to find funding and partners for their projects. It also presents the reader with novel EU funding initiatives (e.g. in the context of the Integrated Maritime Policy) and with instruments to boost investments, such as the European Fund for Strategic Investments (EFSI), or the “Connecting Europe Facility”, the latter comprising specific funds for the maritime sectors.



## ATLANTIC REGIONS: OPPORTUNITIES AND CHALLENGES IN REALISING THE BLUE GROWTH POTENTIAL OF THEIR MARITIME DIMENSION

### 0. Introduction

“Blue Growth”<sup>1</sup> is the EU’s long term strategy to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the European economy and have great potential for innovation and growth. It is the maritime contribution to achieving the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth.

Coastal and maritime regions in the Atlantic area have unique assets and potential to create jobs and growth in the blue economy. Their maritime dimension makes that they are well positioned to develop industries of the future such as marine biotechnology or renewable marine energy, or to further advance well established sectors such as shipping, maritime transport or coastal tourism.

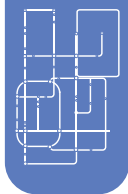
This article will look at how these regions could take advantage of their maritime dimension to promote development in the coast and hinterland, but also in urban and rural areas. In doing so, it will look at initiatives and actions that different stakeholders (e.g. cities, regions) across the EU have undertaken to bring about sustainable and inclusive growth in a comparable context.

### 1. Promoting entrepreneurship and innovation

Entrepreneurship, innovation, and for the same purpose, research and development, are essential enablers for the transition to a more competitive, and knowledge-based, blue economy. To support initiatives and actions in the aforementioned fields the EU has set-up a number of instruments that have as common objective of promoting cooperation and excellence across the EU, in line with the Europe 2020 strategy. The new Framework Programme for Research and Innovation (2014–2020), Horizon 2020, is the flagship EU initiative that provides a strategic framework for research and innovation. Horizon 2020 is financing projects in the blue economy, not only through a specific “Blue Growth” action but also by means of cross-thematic opportunities in the areas of food security, energy, transport, materials, information technology, and research infrastructures. These instruments also facilitate the creation of “competence centres”, bringing together companies, research institutes and other relevant actors to add value and competitiveness.

To maximise the impact of these supporting instruments a series of strategies and action plans have been developed for sea-basins (e.g. Action Plan for the Atlantic area), or at national and/or regional level. A common feature of these strategies is that they identify the sectors of the blue economy, with high potential in terms of job creation and growth potential, and set out measures to foster entrepreneurship and innovation and investments,

<sup>1</sup> Commission’s Communication “Blue Growth opportunities for marine and maritime sustainable growth” COM(2012) 494 final of 13 September 2014.



including through public-private partnerships. A clear example of blue economy sector, being a component of such strategies, is the marine biotechnology industry.

Finally the internationalisation of innovation and research, that is cooperation with third countries, will ensure that EU actors are best positioned when competing in the international market. The “Transatlantic Alliance” set-up by the EU, the US and Canada is the perfect illustration of how international cooperation in research and innovation in the blue economy can be accomplished.

### *1.1 The role of scientific and technological research institutions and the development of competence centres in key economic sectors, including in the blue economy*

At EU level research and innovation play a critical important role in supporting “Blue growth”. This has been highlighted by the Commission in the EU’s Atlantic Strategy<sup>2</sup> and in the Action Plan<sup>3</sup>. Other Commission’s documents in the field of the Integrated Maritime Policy also contain concrete proposals to reinforce the role of marine knowledge to support growth and jobs in the blue economy<sup>4</sup>.

In the EU it can be said that marine research and innovation are world class and that the EU’s Research Framework Programmes have contributed to this success, also by fostering cooperation between Member States in recent decades<sup>5</sup>. As an illustration of this, it has been estimated that for the period 2007-2010 the EU contributed EUR 1,377 million to projects selected for funding under Framework Programme 7 (FP7). This means that, per year, around EUR 350 million went to marine research<sup>6</sup>.

#### *1.1.1 The Horizon 2020 framework programme and the blue economy*

The EU’s superior track record in investment in research and innovation, in areas relevant to the blue economy, was confirmed with the launch of the “Horizon 2020” framework programme.

This is number eight, in a series of European research framework programmes, and the biggest ever with an expected budget of almost EUR 80 billion. The aim is to tackle large and complex subjects such as climate change, marine technology, ocean and human health via the three marine strategic priorities: innovation for moving research to the market; engaging with society and support to regional sea basin strategies/challenges.

<sup>2</sup> Commission’s Communication “Developing a Maritime Strategy for the Atlantic Ocean Area” COM(2011) 782 final of 21 November 2011.

<sup>3</sup> Commission’s Communication “Action Plan for a Maritime Strategy in the Atlantic area Delivering smart, sustainable and inclusive growth” COM(2013) 279 final of 13 May 2013.

<sup>4</sup> See for example the Commission’s Communication “Innovation in the Blue Economy realising the potential of our seas and oceans for jobs and growth” COM(2014) 254 final of 8 May 2014.

<sup>5</sup> The Joint Programming Initiatives (or JPIs) are intended to pool national research efforts. It is a structured and strategic process whereby Member States agree, on a voluntary basis and in a partnership approach, to implement together joint Strategic Research Agendas. In the marine sector the Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans), established in 2011, is a coordinating and integrating strategic platform, open to all EU Member States and Associated Countries who invest in marine and maritime research (see <http://www.jpi-oceans.eu/>)

<sup>6</sup> See report “Marine-related proposal 2007-2010 – An Analysis and Inventory across FP7” [http://ec.europa.eu/research/bioeconomy/pdf/ki3111104encmnm\\_en.pdf](http://ec.europa.eu/research/bioeconomy/pdf/ki3111104encmnm_en.pdf) page 12.

After two and a half years into the current framework programme (Horizon 2020), and even if there is still no full information for all marine related funding, it is likely that it will equal or exceed the amounts invested under its predecessor (Framework Programme 7). A first estimation carried out by Commission's services points to EUR 525 million spending in blue economy projects (across all the H2020 activities) for the first H2020 Work Programme (2014-2015).

Under Societal Challenge 2 (SC2)<sup>7</sup>, the 2014 “Blue Growth” call for proposals resulted in 21 projects of relevance to for the blue economy being funded. For the 2015 the figure was 7.

### *1.1.2 Horizon 2020 and opportunities for development of competence centres*

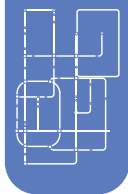
The 2<sup>nd</sup> Horizon 2020 Work Programme (2016-2017) presents an array of opportunities to develop competence in domains such as agriculture, tourism (including gastronomy connected to the sea coastal and maritime), processing of fisheries products, blue biotechnology, (biomedicine, biodiversity in general, etc), ocean energy and other renewable energies, seabed mining exploration, etc.

The above mentioned Work Programme includes a call labelled “Demonstrating an ocean of opportunities”, with a total budget of EUR 129 million, which will cover four areas:

- 1) Boosting innovation for emerging Blue Growth activities;
- 2) Linking healthy oceans and seas with healthy people;
- 3) The Arctic dimension, and
- 4) Valorising the Mediterranean Sea Basin.

Of these four areas the first two are of special relevance for key actors in the development of such competence centres. The table hereunder provides an overview of the topics that will be covered by these two areas, with details on the year of the call and the planned budget.

<sup>7</sup> Horizon 2020 Societal Challenge 2: Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy. <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/food-security-sustainable-agriculture-and-forestry-marine-maritime-and-inland-water>



SELECTED HORIZON 2020 CALLS (2016-2017) SUPPORTING RESEARCH IN BLUE ECONOMY SECTORS			
Area	Call number and year	Topic	Budget
<b>1) Boosting innovation for emerging Blue Growth activities</b>  (57 M€)	BG-1 (2016)	Large-scale algae biomass integrated biorefineries	22 M€
	BG-2 (2016-2017)	High value-added specialised vessel concepts enabling more efficient servicing of emerging coastal and offshore activities	15 M€
	BG-3 (2016)	Multi-use of the oceans marine space, offshore and near-shore: compatibility, regulations, environmental and legal issues	2 M€
	BG-4 (2017)	Multi-use of the oceans' marine space, offshore and near-shore: enabling technologies	8 M€
	BG-5 (2016)	ERANET Co-fund on marine technologies	10 M€
<b>2) Linking healthy oceans and seas with healthy people</b>  (21 M€)	BG-6 (2017)	Interaction between people, oceans and seas: a strategic approach towards healthcare and wellbeing	2 M€
	BG-7 (2017)	Blue green innovation for clean coasts and seas	12 M€
	BG-8 (2017))	the safety and dietary properties of seafood	7 M€

Table 1 : Selected Horizon 2020 calls (2016-2017) supporting research in blue economy <sup>8</sup>

### ***1.1.2.1 The Baltic Sea and EU's Strategy for the Baltic Sea Region (EUSBSR) and the BONUS Programme***

With a long tradition of cooperation, countries around in the Baltic Sea are working together in areas of special relevance for the blue economy. Research and innovation is one such area. This cooperation is taking place in the context of the EU's Strategy for the Baltic Sea Region (EUSBSR) and through the BONUS Programme. This programme brings together research institutions from countries bordering the Baltic Sea, with the EU as a partner<sup>9</sup>. There have been numerous projects launched in the context of the EUSBSR and of BONUS. Some of these projects aim at tackling problems and issues that have to face many regions in Europe, in particular in coastal and maritime areas.

<sup>8</sup> See document HORIZON 2020 - Work Programme 2016 – 2017 Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy available at: <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/food-security-sustainable-agriculture-and-forestry-marine-maritime-and-inland-water>

<sup>9</sup> Article 185 of the Treaty on the Functioning of the European Union (TFEU) [ex Article 169 of the Treaty establishing the European Community (TEC)] enables the EU to participate in research programmes undertaken jointly by several Member States, including participation in the structures created for the execution of national programmes.

**BONUS: the joint Baltic Sea research and development programme for years 2010-2017<sup>10</sup>**

BONUS was launched Treaty on the Functioning of the European Union (TFEU) Article 185 activity. In support of sustainable development and ecosystem based management of the Baltic Sea region, the HELCOM Baltic Sea Action Plan and the EU Marine Strategy Framework Directive and other European, regional and national coastal and marine environmental policies and plans, the BONUS programme:

- issues calls on ecosystem research and innovation for scientific community and SMEs
- funds projects of high excellence and relevance 1) to produce knowledge, scientific evidence and innovation solutions needed by policymakers and 2) to engage end-users and the society in the knowledge based governance of the fragile Baltic Sea.

BONUS responds to the EU's growth and jobs strategy by implementing many principles of the EU Horizon 2020 (2014-2020) by e.g. pursuing challenge-oriented interdisciplinary research, bringing closer science and innovation and involving stakeholders across multitude of sectors in all phases of the programme

While BONUS is a programme focusing on research activities, the EUSBSR has a broader scope and encompasses actions and projects, some of which have as main objective to promote not only research, but also innovation, in the area covered by the Strategy. This cooperation, among countries and regions, is possible because the Strategy is equipped with well-developed coordination mechanisms. Nevertheless similar projects and actions could be also undertaken in other parts of EU, where cooperation among countries and/or regions is less structured. An example of such an action is the SUBMARINER Network in the Baltic. This EUSBSR action promotes sustainable and innovative uses of marine resources. It offers a cooperation platform to related actors and initiatives in the Baltic Sea Region. The box hereunder provides 3 examples of projects set-up in the context of this network.

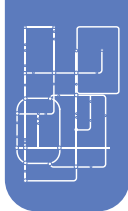
**Projects in the SUBMARINER Network in the Baltic<sup>11</sup>**

Three new SUBMARINER Network projects will make significant contributions towards turning the Baltic Sea Region into a model region for sustainable blue innovations and smart combinations:

*Smart Blue Regions:* Lead by the Ministry of Economic Affairs Schleswig-Holstein (Germany), the project will seek to enhance blue growth opportunities based on increased capacity of regions around the Baltic Sea to implement blue smart specialisation strategies (RIS3).

<sup>10</sup> <http://www.bonusportal.org/>

<sup>11</sup> <http://www.submariner-network.eu/>



Partner regions and their research and innovation actors will develop implementation schemes for RIS3, make blue growth visible via an indicator system, optimise their policy mix for blue growth, explore its cross-sectoral potential and identify smart transnational cooperation opportunities.

*Baltic Blue Biotechnology Alliance:* Lead by GEOMAR (Germany), this project will bring together blue biotechnology actors from across the Baltic Sea Region to develop innovative marine bio-based products. By systematically pooling national capabilities for joint product development and marketing the participating research institutes and business clusters will be able to reach the critical mass for action.

*Baltic Blue Growth – Initiation of full scale mussel farming in the Baltic sea:* Lead by Region Östergötland (Sweden), the project will initiate large-scale, business-based feed-mussel farming to harvest nutrients from the Baltic Sea. Concentrating on four focus farms and two test farms in Sweden, Åland, Denmark, Germany and Latvia, this project aims to proceed from pilot stage to real cases and build up an awareness and capacity concerning blue growth and mussel farming among the private and public sector.

Many more projects and actions are supported in the context of the EUSBSR. These projects and actions are showcased in the document “Completed and ongoing flagships of the EUSBSR”. This document is an Annex to the Baltic Strategy’s Action Plan and provides an overview of projects and actions that because of their characteristics are labelled as “flagships”. The SUBMARINER Network is one of such “flagships”.

As regards clusters worth mentioning is the “BSR Stars” programme, which was intended for clusters and SMEs networks in the Baltic region.

### **BSR Stars programme<sup>12</sup>**

BSR Stars is a transnational programme and policy collaboration that aims at strengthening competitiveness and economic growth in the Baltic Sea region by fostering transnational linkages between specialised research and innovation nodes. BSR Stars is a flagship within the EU Strategy for the Baltic Sea Region. BSR Stars was jointly developed by the ten countries involved in 2009-2010.

The StarDust project 2010-2013 was the first step in achieving the long term goals of BSR Stars. The project was seen by the partnering countries as an essential way to test and to learn more about what was needed for a full-scale implementation of BSR Stars. In total StarDust mobilised 34 partners from the public and semi-public sector. These partners were supported by 43 associated partners from national, regional and local levels in the participating countries.

<sup>12</sup> <http://www.bsrstars.se/>

In StarDust there were five testbeds for transnational innovation collaboration:

- Active for Life – new solutions for wellbeing and active ageing
- Clean Water – excellent network for higher water quality
- Comfort in Living – kitchen concepts for elderly
- MarChain – a platform for maritime collaboration
- Mobile Vikings – a platform for increased innovation capacity in mobile telecom

### **1.1.2.2 Initiatives in the Mediterranean: BLUE-MED**

Similarly to what happens in the North of Europe a number of initiatives are being undertaken in Mediterranean to promote cooperation and coordination among stakeholders in research and innovation.

The BLUE-MED initiative includes a Strategic Research and Innovation Agenda (SRIA) which is intended to facilitate cooperation and coordination among relevant actors in research and innovation in the blue economy.

#### **BLUEMED Strategic Research and Innovation Agenda (SRIA)<sup>13</sup>**

The “Research and Innovation Initiative for Blue Jobs and Growth in the Mediterranean Area (The BLUEMED Initiative)” aims to advance a shared vision of a Mediterranean Sea that is healthy, productive, resilient, understood and valued so as to promote the well-being and prosperity of our citizens and future generations and boost socio economic growth and jobs.

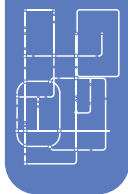
It was jointly developed by Cyprus, Croatia, Greece, France, Italy, Malta, Portugal, Slovenia and Spain and was presented by the Italian Presidency during the Competitiveness Council of 04-05 December 2014.

In the context of BLUEMED, representatives of governments of EU Members States around the Mediterranean signed the Venice Declaration on 16 October 2016 launching the “Strategic Research and Innovation Agenda” (SRIA).

The SRIA offers a toolbox for interested implementing bodies of the Mediterranean (national ministries, regional authorities, international organisations, academia, the private sector, the general public) to facilitate their R&I programming and the local countries’ cooperation via Joint actions, Bilateral/multilateral R&I initiatives and programming actions, etc.

An Horizon 2020 Coordination and Support Action (call BG-13-2016), labelled “Coordination of marine and maritime research and innovation activities in the Mediterranean” with a maximum budget of EUR 3 million will provide support to this initiative and to enlarge the process to non-EU Mediterranean Countries and to the Black Sea

<sup>13</sup> [https://www.researchitaly.it/uploads/12493/Bluemed%20SRIA\\_A4.pdf?v=2f01909](https://www.researchitaly.it/uploads/12493/Bluemed%20SRIA_A4.pdf?v=2f01909)



The SRIA, supported by a Horizon 2020 funded (Coordination and Support Action), will address 12 “Key challenges” grouped in 3 areas, namely: “Key enabling Knowledge for the Mediterranean”, “Key sectoral enablers for the Mediterranean” and “Enabling technology and capacity creation for the Mediterranean”, with an implementation model built around the concepts of “Goals”, “Actions” and “Objectives”, the latter corresponding to the 12 “Key challenges”.

Some of these “Key challenges” are similar to those faced by countries and regions in the Atlantic area and could be compared to the “Priorities” mentioned in the Action Plan for the Atlantic. Examples of SRIA’s “Key challenges” are:

- Hazards and the protection of coastal areas in the Mediterranean
- Sustainable tourism in the Mediterranean
- Maritime clusters in the Mediterranean
- Smart, greener maritime transport and facilities in the Mediterranean
- Marine and coastal cultural heritage in the Mediterranean: discovering, protecting and valuing.

## *1.2 The transatlantic cooperation in research and innovation*

### *1.2.1 Cooperation with the U.S. and Canada: the “Transatlantic Research Alliance”*

May 2016 was the third anniversary of the signing of the “Galway Statement” and the Commission has committed EUR 120 million in research projects related to Galway.

With this “Statement” the EU, the US and Canada agreed, in 2013, to join forces on Atlantic Ocean research. One key feature of this agreement is that is focus on aligning the ocean observation efforts of the three partners. The goals are to better understand the Atlantic Ocean and to promote the sustainable management of its resources. The work will also study the interplay of the Atlantic Ocean with the Arctic Ocean, particularly with regard to climate change. The EU and its Member States alone invest nearly two billion euro on marine and maritime research each year.

The agreement recognises that Atlantic research will in many areas be more effective if coordinated on a transatlantic basis. Areas identified for potential cooperation under the agreement include: a) Ocean observation, b) Sharing of data, such as on temperature, salinity and acidity, c) Interoperability and coordination of observing infrastructures, such as measurement buoys and research vessels, d) Sustainable management of ocean resources, Seabed and benthic habitat mapping and e) Promoting researcher mobility, Identifying and recommending future research priorities.

A number of projects have already been launched in the context of this “Transatlantic Research Alliance”<sup>14</sup> and currently the “Atlantic Ocean Research Alliance”<sup>15</sup>, a Horizon 2020 funded CSA (Coordination and Support Action), is supporting a number of actions to make this cooperation effective in a number of areas.

For the 2016-2017 Work programme of Horizon 2020 the Transatlantic Research Alliance can benefit from funding that will be provided in the context of research topics:

- “An integrated Arctic observation system” (call BG-09-2016, with a budget of EUR 15 million).
- “Impact of Arctic changes on the weather and climate of the Northern Hemisphere” (call BG-10-2016 with a budget between EUR 7 and 8 million).

### *1.2.2 Further internationalisation of cooperation in research in the Atlantic*

But this Transatlantic cooperation is not limited to the “neighbours” of the Northern Hemisphere (US and Canada). Putting to effect the internationalisation of the Atlantic Strategy, the EU Commission is exploring tighter cooperation in Atlantic research with other coastal states.

Brazil is an example of such efforts. On 17 November 2015 the European Commission and the Brazilian government signed in Rio a joint declaration for Atlantic Ocean Research, to enhance marine cooperation between Europe and Brazil. As a concrete step to put into effect this declaration a coordinated call was launched for project proposals on bio-fuels together with FAPESP (the Research Funding Agency of the State of São Paulo), CON-FAP (the Council of State Foundations for Research) and the Ministry of Science, Technology and Innovation.

Another concrete result of the Rio Declaration is the set-up of INCOBRA<sup>16</sup>, a consortium of research and innovation organisations from both sides of the Atlantic, with as overall objective to focus, increase and enhance research and innovation cooperation activities between key actors in Brazil and European Union.

Finally, contacts are underway with South Africa to further explore the possibilities to strengthen cooperation in research and innovation in areas related to the Atlantic Ocean and the blue economy in general.

### *1.3. Opportunities and challenges in developing a marine biotechnology industry*

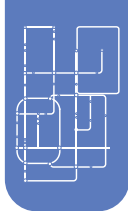
There are a number of areas presenting opportunities and challenges, for which a marine biotechnology industry could help deliver answers, and by so doing create sustainable growth and jobs. Among these challenges the following can be mentioned<sup>17</sup>:

<sup>14</sup> Some of these projects were showcased in the event “The Atlantic – Our Shared Resource. Making the Vision reality”, which took place on 16-17/04/2015 in Brussels (Belgium) <https://ec.europa.eu/programmes/horizon2020/en/news/atlantic-our-shared-resource-making-vision-reality>

<sup>15</sup> [www.atlanticresource.org/aora](http://www.atlanticresource.org/aora)

<sup>16</sup> See [www.incobra.eu](http://www.incobra.eu)

<sup>17</sup> Prof. Marcel Jaspars, Marine Biodiscovery Center, University of Aberdeen. Presentation on “Grand Challenges for Current and Future Marine Biotechnology Research in Europe” July 2011 <http://ocean21.inegi.up.pt/info.asp?id=162&idpai=62&LN=EN>



- Food: High quality, healthy, nutritionally complete, sustainable production
- Energy and industrial feedstocks: algal biofuels, sustainable platform chemicals from marine bio-resources
- Human health: new pharmaceuticals, diagnostics, nutrition and personal care
- Environment: monitoring, remediation
- Materials and industrial processes: biomimetic and biocompatible materials, novel enzymes for greener processes.

Equipped with the assets already described at the beginning of this article, coastal and maritime regions can take maximum advantage of the support provided by the EU through the different funding instruments (e.g. Horizon 2020, ERDF, EMFF, LIFE, COSME) to put itself firmly on the map of the EU's blue biotechnology industry.

In some EU regions key actors have worked together to prepare strategies and plans to develop their marine biotechnology industries. The reader will find hereunder two examples of such strategies and plans, which could provide inspiration for similar initiatives in other regions.

### *1.3.1 Examples of strategies and plans to develop a marine biotechnology industry*

#### **1.3.1.1 The Canary Islands' Strategic Plan (2014-2020) for the biotechnology sector**

The Strategic Plan (2014-2020) of the Government of the Canary Islands for the biotechnology sector could prove a useful source of inspiration for what a region could do, in terms of analysis of the current situation and of design of a strategy, for the development of a blue biotech industry.

In terms of concrete measures, the aforementioned Strategic Plan<sup>18</sup> includes the following actions that could serve as example for other regions:

- A program for to attract and retaining of scientific personnel in the region: one of the problems encountered when developing such an industry is the uncertainty and instability surrounding research jobs. This has a negative impact on research projects, which in the marine biotech area might take years to come to results<sup>19</sup>.
- Support for projects for the development of products for SMEs active in sectors related to the marine biotechnology. This action would consist in promoting and supporting of SMEs with a good technology base by the creation of a business environment (legal, economic) enabling these companies to create spin-offs specialised in such products.

<sup>18</sup> The actions mentioned correspond to items "12.1.1.1.1. Programa de captación y mantenimiento de científicos" and "12.1.1.2.3. Proyectos de desarrollo de productos dirigidos a las PYMEs" on pages 129 respectively 142 of the "Informe final Plan estratégico para el desarrollo de la biotecnología en Canarias (2014-2020)" [http://www.gobiernodecanarias.org/industria/temas/oic/doc/PLAN%20ESTRATEGICO\\_BIOTECNOLOGIA.pdf](http://www.gobiernodecanarias.org/industria/temas/oic/doc/PLAN%20ESTRATEGICO_BIOTECNOLOGIA.pdf)

<sup>19</sup> Important to note is that the "Campus do Mar" is running the "Fellow Sea" Program aimed at financing 10 long term contracts for post-doctoral for international researchers with at least 4 years' experience.

### 1.3.1.2 Schleswig-Holstein's Master Plan for marine biotechnology

In the context of its “Sea Our Future” maritime strategy, the German State of Schleswig-Holstein outlined in 2012 a comprehensive plan to develop its marine biotechnology sector. This Master Plan was prepared as part of the already discussed SUBMARINER project, and it sets out the strategic framework for the future development of the sector.

The vision stated in the Master Plan is the following:

*“By 2030 the value creation Schleswig-Holstein achieves through biotechnological use of resources from the oceans will be comparable to that of conventional agriculture. With the development and implementation of sustainable technological solutions using marine resources, marine biotechnology will make a significant contribution to the resource-friendly use of the environment, to CO<sub>2</sub>-neutral energy provision, as well as to people’s health and quality of life.”*

To achieve the objectives of this vision the Master Plan identifies five central areas of action that offer a high potential for the development of the sector in the region, namely: Research, Industrialisation, Economy, Qualification and Dialogues & Structures. The strategic measures and proposed actions for the development of marine biotechnology in Schleswig-Holstein are implemented within these 5 areas of action. Figure 1 provides an overview of these 5 areas of the corresponding measures and actions.

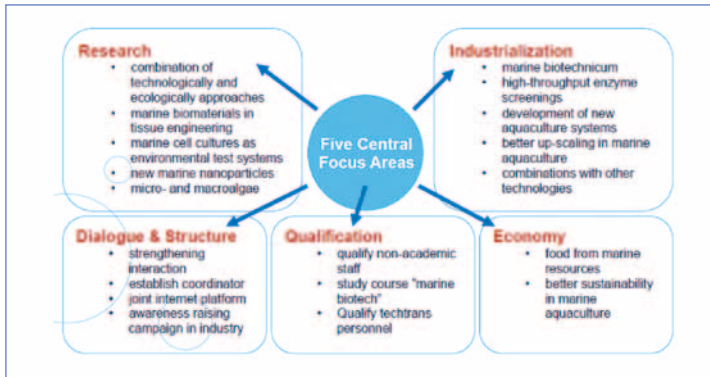


Figure 1: Schleswig Holstein focus areas in Master Plan for Marine biotechnology<sup>20</sup>

<sup>20</sup> From presentation “Sea Our Future”, by Hartmut Euler, Ministry of Economic Affairs, Employment, Transport and Technology of Land Schleswig Schleswig-Holstein’s, Gdąnsk, 5 September 2013 [http://www.submariner-project.eu/index.php?option=com\\_jdownloads&task=download.send&id=300&catid=79&m=0](http://www.submariner-project.eu/index.php?option=com_jdownloads&task=download.send&id=300&catid=79&m=0)

### 1.3.2 “Blue Growth” and marine biotechnology

The European Commission has carried out a “Study in support of Impact Assessment work on Blue Biotechnology”<sup>21</sup>. The study was conducted in support of the development of potential policy options for the EU and a possible impact assessment for marine or Blue Biotechnology, in the context of the EU’s Blue Growth agenda. The study usefully identified the value-chain stakeholder composition in the marine biotechnology process. This value chain is depicted in the figure hereunder:

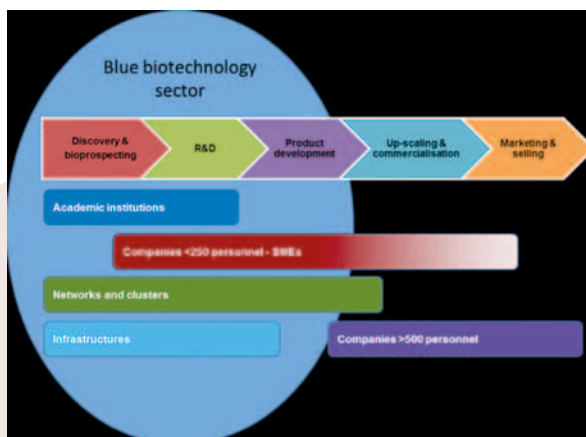


Figure 2 Value-chain stakeholder composition in the marine biotechnology process<sup>22</sup>

The above figure shows where the different actors or stakeholders intervene at the different stages of the value chain.

The OECD has also identified the areas covered and the tools used in marine biotechnology. The following figure, taken from an OECD document, provides an overview of the marine biotechnology industry. Key stakeholders in the development of the marine biotechnology industry are “Academic institutions”, SMEs (companies with less than 250 employees), “Networks and clusters” and “Infrastructures”.

Worth noting in the case of the “Campus do Mar”<sup>23</sup> where academic institutions and SMEs are working together in the context of well-established networks.

<sup>21</sup> From ECORYS and consortium partners. (2014). “Study in support of Impact Assessment work on Blue Biotechnology”. [http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/study-blue-biotechnology\\_en.pdf](http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/study-blue-biotechnology_en.pdf)

<sup>22</sup> See ECORYS (2014) Figure 2.4.

<sup>23</sup> See <http://campusdomar.es/en/>

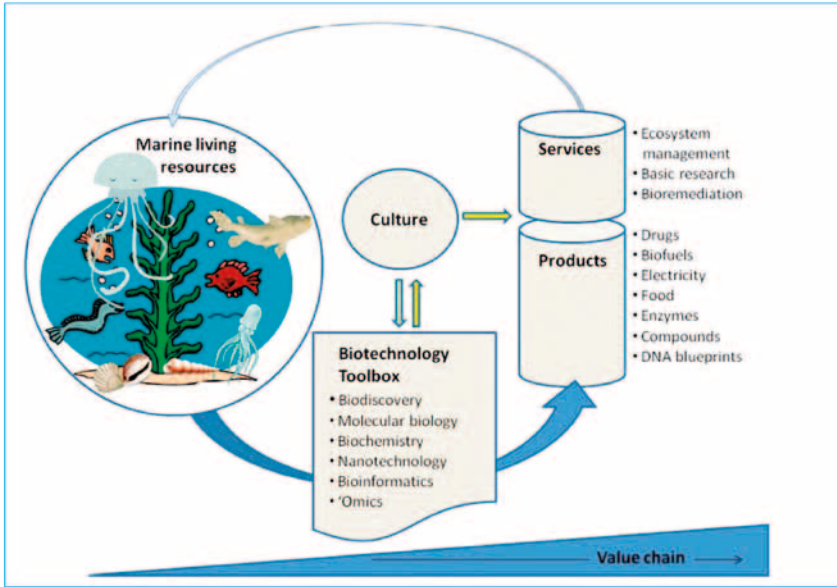


Figure 3 : the “field” of marine biotechnology<sup>24</sup>

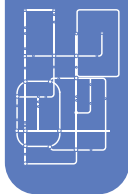
Important to underline regarding the above figure is that it illustrates the “building blocks” of the value chain, not in terms of stakeholders, but from the angle of natural resources at the basis of the industry, the tools and the activities (culture, services) performed and products delivered.

Atlantic regions have a number of assets, some of which can be clearly identified as belonging to the different building blocks of the industry. Marine resources are one clear example of such assets. The development of the “blue biotechnology” in the region could benefit for example from the stimulation of targeted production of marine resources (e.g. algae, fish) that could be used in the region to deliver “blue biotechnology” products.

## 2. Protecting the environment

The protection of the environment, and in particular of coastal areas, is one of the main areas for action identified in the context of the EU’s Action Plan for a Maritime Strategy in the Atlantic Area. This is reflected in Priority 2 “Protect, secure and develop the potential of the Atlantic marine and coastal environment” of the Action Plan, and within this Priority, by the objective “exploring and protecting marine waters and coastal zones”.

<sup>24</sup> From OECD. (2013). *Marine Biotechnology: Enabling Solutions for Ocean Productivity and Sustainability*. Paris: OECD Publishing. <http://dx.doi.org/10.1787/9789264194243-en>



## 2.1 Wetlands: an asset to be valued and protected

Wetlands are a feature of the EU's Atlantic coastal areas. They provide numerous environmental services and are of critical importance for ecosystems and human life. Wetlands play an important role in a number of areas such as: the supply of drinking water and the improvement of water quality by removing pollutants from surface waters. They also help in the irrigation of farmland and provide habitat for many species, including fish and shellfish. They also provide protection against flooding, while in many instances being a space for recreation and tourism activities. Last but not least wetlands are an asset in the fight against climate change as they act as carbon sinks, reducing greenhouse gases in the atmosphere.

## 2.2 Protecting and creating value from wetlands: EU instruments and initiatives

Another way of protecting wetlands is by implementing all relevant legislation related to wetlands. In the EU there are a number of legal frameworks, mainly Directives, which are of fundamental importance for the protection of these sites. Worth mentioning are:

- the “Birds Directive”<sup>25</sup> that explicitly recognises the need for the protection of wetlands as a vital habitat for water birds. Special Protection Areas (SPAs), as classified under the “Birds Directive”, and listed as Ramsar “Wetlands of International Importance” were established following the implementation of this Directive.
- the “Habitats Directive”, providing a framework for the conservation of natural habitats of wild flora and fauna. As of June 2007, the EU- 27 Member States had proposed 21,474 Sites of Community Importance (SCIs)<sup>26</sup>. Many of the SCIs include wetland habitat, and are also listed as Ramsar “Wetlands of International Importance”.
- The “Water Framework Directive”<sup>27</sup> (WFD), which required all inland and coastal waters to reach “good status” by 2015. This is to be achieved by establishing a “River Basin Management Plan”, within which specific environmental objectives and a corresponding programme of measures are set. The Directive clearly identifies the need for the protection and restoration of wetlands<sup>28</sup>,

EU legislation also deals with issues that are very relevant for the preservation of wetlands: prevention of pollution, that could affect wetlands, is addressed by the “Nitrates Directive” (91/676/ EEC), the “Groundwater Directive” (2006/118/EC), and the “Urban waste water Directive” (91/271/EEC).

<sup>25</sup> Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

<sup>26</sup> The Corrubedo dune, besides being listed under Ramsar's “Wetlands of International Importance” is also an EU “Site of Community Interest”.

<sup>27</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

<sup>28</sup> The “Plan Hidrológico - Demarcación Hidrográfica de Galicia-Costa” established by the Galician Region's government includes four Ramsar listed wetlands, where under the Corrubedo's site. <http://www.magrama.gob.es/es/agua/temas/planificacion-hidrologica/planificacion-hidrologica/planes-cuenca/>. In addition to these four wetlands the “Plan” also provides protection for four other “Zonas húmedas” that are listed in the “Inventario de Humedales de Galicia (IGH)”

Flooding is also an issue that concerns wetlands. In the context of the EU's "Flood Risk Management Directive"<sup>29</sup> which is to be implemented in conjunction with the WFD through the coordination of flood risk management plans and river basin management plans, wetlands play a vital role in water retention and act as an important buffer zone in the prevention of flooding.

A central instrument to support efforts in preserving and valorising wetlands is the EU's LIFE programme. Launched in 1992, LIFE (the Financial Instrument for the Environment) is one of the cornerstones of the EU's environment policy. For the funding period, 2014–2020 the budget is set at EUR 3.4 billion the LIFE<sup>30</sup> programme will contribute to sustainable development and to the achievement of the objectives and targets of the Europe 2020 Strategy, the 7th Union Environmental Action Programme and other relevant EU environment and climate strategies and plans.

The 'Environment' strand of the new programme covers three priority areas: environment and resource efficiency; nature and biodiversity; and environmental governance and information. The 'Climate Action' strand covers climate change mitigation; climate change adaptation; and climate governance and information.

The programme also consists of a new category of projects, jointly funded integrated projects, which will operate on a large territorial scale. These projects will aim to implement environmental and climate policy and to better integrate such policy aims into other policy areas.

In addition to the LIFE programme, other EU funding instruments can be brought into play to protect the environment. Structural funds, such as the ERDF, or the Cohesion Fund can provide the necessary finance for the protection of the environment, including wetlands.

### 3. Improving accessibility and connectivity

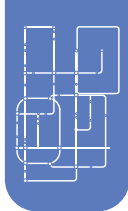
The Action Plan for the Atlantic would not be such if it had not included a priority reflecting the continuous need for better accessibility and connectivity in the EU's Atlantic area.

Ports in the so called "Northern range"<sup>31</sup> are often overloaded and that their hinterland connections, roads in particular, are subject to congestion. Another factor that puts in jeopardy the development of ports in this "Northern range" is the expansion of urban areas belonging to the "port cities". Such expansion means competition, not only for space but also for infrastructure (road, rail, utilities), in a time when maritime traffic is increasing.

<sup>29</sup> Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks.

<sup>30</sup> Regulation (EU) No 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EC) No 614/2007

<sup>31</sup> The expression "Northern range" is used to designate a concentration of major European ports, aligned along the southern coast of the North Sea coastline, and being the seaboard of a vast territory centered around the broad Rhine region and hinterland. Other expressions used to designate this range are: ANTHAM » (Antwerp-Hamburg Range), « ARA » (Amsterdam-Rotterdam-Antwerp Range), « ARH » (Antwerp-Rotterdam-Hamburg Range).



### 3.1 Opportunities and challenges for coastal and maritime regions in accessibility and connectivity

The above mentioned evolution presents opportunities in the areas of transport and logistics. In actual fact, it can be said that some coastal and maritime regions, provided they have a certain characteristics, can become a “multi-port gateway region”<sup>32</sup> serving wide and deep hinterlands.

Such “multi-port gateway regions” include very often Small and Medium Ports (SMPs) that have to compete with larger ports, some of which are located the “Northern range”. Regions, and the ports themselves, are key actors in facing this competition. To improve their position they can undertake a number of actions which will also have beneficial effects on surrounding urban areas and on hinterlands, in particular:

- By creating good, stable and sustainable jobs: the creation and development of logistics zones connected to ports needs the provision of skilled labour with workers who will most likely settle in urban areas bordering the port area. Better links by sea (Motorways of the Sea project) will also result in demand for workers with skills in the maritime sector but also in other areas of activity, such as tourism<sup>33</sup>, of direct importance for the hospitality and catering sectors.
- By using more environmentally friendly technologies in the port area. The switch to cleaner fuels, such as LNG, will deliver a direct contribution to the improvement of the quality of air in densely populated areas around ports as it reduces the emissions of particles and of SO<sub>x</sub> and NO<sub>x</sub><sup>34</sup>.

With regard to the use of cleaner fuels it is important to underline that their deployment in the maritime industry is being actively supported by the EU. As an example, the “Motorways of the Sea” (MoS) programme provides funds for a number of projects aiming at the wider availability of LNG in ports for bunkering operations.

#### **Motorways of the Sea “Blue Baltics”**

“Blue Baltics” consists of investments in LNG mobile facility for bunkering of LNG ships in Lithuania, Sweden, Estonia and Germany. The project will include the upgrade of Klaipėda LNG infrastructure, an expansion of LNG fuelling infrastructure in Estonia, and upgrade of a Swedish LNG distribution terminal, as well as the implementation of a bunkering vessel in Germany.

<sup>32</sup> Port cooperation through regionalisation was first proposed by economists T. Notteboom and J.-P. Rodrigue. This concept means a grouping of ports within the same gateway region to form a multi-port gateway region, where the location relationship to nearby identical traffic hinterland is a major criterion to cluster adjacent ports. A gateway represents the maritime land interface in which significant logistical cluster have become with the accumulation of terminal infrastructures, such as ports, rail terminals and freight distribution centres, with the aim to ensure continuity along supply chains around the world.

<sup>33</sup> Besides the port of Leixões, which has two cruise terminals, other ports in the region (Vigo, Ferrol, A Coruña) are developing cruise driven tourism development with dedicated terminals.

<sup>34</sup> In some port-cities the port authorities are taking initiatives other types of activities to reduce the ship-emissions. In the Port of Antwerp and to help reduce the level of particles' emissions, ships can claim a discount on their port dues if they can demonstrate that they either make effective use of “scrubbers” or are powered by LNG. In addition to this discount, more environment-friendly ships can benefit from an ESI discount. The ESI (Environmental Ship Index) is based on a system of credits that ships can earn for having environmental performance better than required by the regulations for NO<sub>x</sub>, SO<sub>x</sub> and CO<sub>2</sub>.

The Connecting Europe Facility (CEF) Coordination Committee on 8 July 2016 approved €15 million in financial support for the joint “Blue Baltics” project, which is intended to expand liquefied natural gas (LNG) bunkering network across the Baltic Sea.

The Blue Baltic project is said to be slated for completion in 2019’s second quarter.

### *3.2 Sectors offering new opportunities in port cities and coastal areas: renewable energy and the digital economy*

This section addresses two areas, namely renewable energy the digital economy, which offer new opportunities for port cities and coastal areas to develop the blue economy.

Ports can play a key role in the decarbonisation of the economy as they can become sources for clean and renewable energy. Besides this, and because of the vast amounts of data and information needed in shipping, freight and logistics operations, ports can become drivers for the development of the digital economy.

#### *3.2.1 Renewable energy*

Besides being the place from which wind-turbines (or components of) are shipped or transported for installation<sup>35</sup>, they can also transform themselves in renewable energy power houses. This can be done by deploying wind turbines in the port area<sup>36</sup> or by hosting biomass power plants in the port area. This transformation may be challenging, in particular as regards the investments needed and the mitigation of possible negative impacts on the environment<sup>37</sup> but it brings manifold benefits in the medium and long (e.g. high quality jobs, cleaner and sustainable energy).

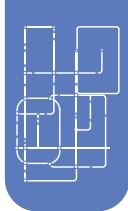
#### *3.2.2 The digital economy*

This is another area where ports can act as drivers for development. The variety, complexity and volume of information produced, and handled, in ports offers key actors in the digital economy (developers, users, infrastructure providers, investors, public authorities) a unique opportunity to develop this sector. Hereunder are some examples of how ports are driving forward the digital economy in areas relevant for their activities.

<sup>35</sup> Viana do Castelo is host to a wind energy cluster with companies that are producing wind-turbines, including for the offshore sector.

<sup>36</sup> As an example the wind turbines in the port of Rotterdam represent a total capacity of 200 megawatts (MW), which is about 10 percent of the total wind energy capacity in the Netherlands.

<sup>37</sup> This is specially the case for biomass installations.



### **“Big data” in the Port of Hamburg<sup>38</sup>**

The Port of Hamburg is teaming with an ICT company (SAP) to take advantage of what is now called “big data” to optimise the use of existing capacity, in particular as regards available space. The gathering and processing of information available with road transport companies and parking operators will enable truck drivers to access direct information about current parking and traffic situations at the port on a mobile device. Other information concerning ships, containers and terminal operators is also gathered and integrated so that port operations (including opening and closure of bridges) are carried out more efficiently.

### **Port of Rotterdam’s “hackathon”: promoting innovation in ICT technologies<sup>39</sup>**

The World Port Hackathon is a special event in the field of open data and big data. This event is supported by the significant parties in and around the port of Rotterdam. Furthermore, the education institutions in Rotterdam are closely involved.

The 2016 edition of the hackathon took place on 2 and 3 September, at the campus of the RDM University and was co-organised with the Port Authority of Singapore. It presented participants with the following “challenges”:

- Challenge 1: Infrastructure & Logistics
- Challenge 2: Energy & Climate
- Challenge 3: Disrupt the Port
- International Challenge: Advanced Information Coordination between Suppliers & Lighters

### **Brest “Ocean Hackathon”<sup>40</sup>**

In the context of Brest’s international Sea Tech Week (2016 edition) an “Ocean Hackathon” was held on 7 and 9 October 2016.

The main feature of “Ocean Hackathon” is to make available, during a 2 day non-stop challenge, sea-related digital data to produce results that correspond to the topics identified upstream of the contest.

It is a unique initiative in France and is part of the triple dynamic of the “Campus mondial de la mer”<sup>41</sup>, the “French Tech” label (Lannion Brest-Morlaix, Quimper)<sup>42</sup> and MORESPACE<sup>43</sup>, a project led by the “Pôle Mer Bretagne Atlantique”<sup>44</sup> and labeled “BOOSTER” by the French State.

<sup>38</sup> See <https://news.sap.com/4-examples-reveal-digital-economy-simplifies-business/>

<sup>39</sup> See <http://www.worldporthackathon.com/>

<sup>40</sup> Adapted from [http://www.bretel.eu/bretel\\_uk/News/Ocean-Hackathon-8-9-octobre-2016-Brest](http://www.bretel.eu/bretel_uk/News/Ocean-Hackathon-8-9-octobre-2016-Brest)

<sup>41</sup> <http://www.campus-mondial-de-la-mer.fr/Pr%C3%A9sentation-2426-0-0-0.html#>

<sup>42</sup> <http://frenchtech-brestplus.bzh/>

<sup>43</sup> [http://www.bretagne.bzh/jcms/prod\\_315618/fr/projet-morespace-le-satellite-pour-booster-les-activites-marines](http://www.bretagne.bzh/jcms/prod_315618/fr/projet-morespace-le-satellite-pour-booster-les-activites-marines)

<sup>44</sup> <http://www.pole-mer-bretagne-atlantique.com/en/>

The goals of “Ocean Hackathon” are the following:

- Enhance the skills of the region (sea and digital / researchers, entrepreneurs, students, developers) at national, European and international level;
- Enable a cross-disciplinary approach to innovate;
- Meet the needs of partners involved in the project, and more generally, societal needs;
- Promote start-ups and thus economic development.

What data are made available?

They will be varied (physicochemical, bathymetric, biodiversity, socio-economic, legal, historical, etc. ) and cross-referencing and linking these data will be the basis for innovation. Data will be pre-processed upstream to be easily and quickly usable.

Who are the participants?

- Developers, marine and maritime experts, students, businesses including start-ups, or any person having an idea for the innovative use of data provided.
- Multidisciplinary teams are assembled.

Coaches will be present to help the teams in the use of data during the contest.

### 3.3 *The changing landscape in world shipping lanes and its impact on coastal and maritime regions in the EU*

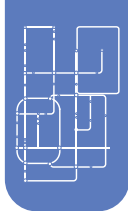
#### 3.3.1 *The Panama Canal Expansion*

The opening of the Panama Canal expansion on 26 June 2016 marked the beginning of a new era in world maritime transport and shipping on general.

After almost a century of existence the Panama Canal has been subject to an expansion of its capacity, in particular of its locks, to allow larger ships to cross from the Pacific to the Atlantic Oceans<sup>45</sup>. This expansion was necessary to cope with the evolution of the shipping industry which is using larger and larger ships for the transport of goods around the world<sup>46</sup>. Such expansion was also needed as, because of increased traffic, congestion at the entrance of the canal became a chronic phenomenon.

<sup>45</sup> Before expansion a Panamax vessel (container ship and passenger ship) was maximum 294.13 m long, 32.31 m wide and with a draft 12.04 m. A Panamax container ship would be able to load 4,500 twenty foot equivalent units (TEUs). After expansion “New Panamax” (NPX or “E” class) ships can have a dimension of 366 m (1,200 ft) in length, 49 m t (160.7 ft) in width and 15.2 m (49.9 ft) in depth. with a cargo capacity of up to 13,000 TEU.

<sup>46</sup> “Post-Panamax” (or PPX) container ships, i.e. ships larger than Panamax ships do not fit in the original canal locks with a capacity of 5,000 to 8,000 containers. Currently even larger ships, referred to as “Super-post Panamax” (SPPX), can carry over 9,000 containers.



It is perhaps too early to establish the real impact that of the Panama Canal expansion but there are a number of issues that ports should take into account, as they will have to handle larger and larger ships:

- Need to make investments in deeper docks and channels, longer berths, bigger superstructures (cranes) and larger areas for transit and temporary storage of containers.
- Better links and communication infrastructures to quickly route containers from ships to truck or rail, and so bring down hauling turn around times.

Most likely, these larger vessels will call fewer times, on fewer ports, and so reduce rotation times. Some ports in Europe have the physical characteristics to handle such vessels, nevertheless it is not excluded that additional investments as those mentioned above will have to be effected. On major issue for ports could become physical expansion, especially as regards land<sup>47</sup>.

The above mentioned investments and the development of communication links require long term planning, meaning that ports and relevant stakeholders have to make decisions years ahead, before larger ships can be handled<sup>48-49</sup>.

### 3.3.2 Impacts on ports

In Europe there are examples of how ports have made forward planning, and carried out the necessary investments, to cope with increases in vessels size and changing patterns in shipping, including those resulting from the expansion of the Panama Canal. Liverpool, Antwerp are showcased hereunder as examples of such ports.

#### Liverpool2 Deep Sea Container Terminal<sup>50</sup>

The Liverpool2 Deep Sea Container Terminal opened on 4 November 2016, less than six months after the opening of the Panama Canal expansion.

Private company Peel Group is the owner of the terminal and has invested £400 million in building Liverpool2. Construction started in mid-2013, meaning that planning was made well ahead the expansion of the Panama Canal.

<sup>47</sup> Some ports are constrained in their "physical" growth (land) because they are surrounded by urban areas, or they have to compete with other "users" for land, including cities that want to expand.

<sup>48</sup> An interesting analysis foreshadowing the impacts on U.S. ports, especially on the East Coast, of the Panama Canal expansion is to be found in Mitchell, C. (2011) "Impact Of The Expansion Of The Panama Canal: An Engineering Analysis" Master's Thesis, University of Delaware. <https://www.ce.udel.edu/UTC/Mitchell%20-%20Impact%20of%20the%20Expansion%20of%20the%20Panama%20Canal%20FINAL%20with%20Chapters.pdf>.

<sup>49</sup> See also an article by J.-P. Rodrigue and T. Notteboom titled "The Panama Canal expansion: business as usual or game-changer?" in Port Technology, issue nr. 51, Autumn 2011, pages 10-13 [https://www.porttechnology.org/technical\\_papers/the\\_panama\\_canal\\_expansion\\_business\\_as\\_usual\\_or\\_game\\_changer](https://www.porttechnology.org/technical_papers/the_panama_canal_expansion_business_as_usual_or_game_changer)

<sup>50</sup> See <https://www.peelports.com/campaigns/liverpool2>

The Liverpool2 terminal will be able to handle the largest cargo ships and provide links by road, rail and inland waterways (Manchester Ship Canal) to a hinterland where 35 million people, or half of the UK population, live.

In terms of new traffic the ambition of Liverpool2 is to generate new routes from the west coast of South America to Europe. The new terminal has also enabled some freight operators to develop new services and increase frequencies of “feeder<sup>51</sup>” vessels in with Scotland and in the Irish Sea.

### **New lock in the port of Antwerp<sup>52</sup>**

A new lock, now the biggest in the world, was inaugurated on 10 June 2016 in the Port of Antwerp (left bank). The construction of the lock was included in the port’s long-term financial plan for the years 2011-2025, representing a total investment of EUR 340 million.

The lock (now called the “Kieldrecht” lock) is Antwerp’s response to the increased dimensions of modern ships, thus maintaining and further strengthening its position within Europe. The lock has a length of 500 m, a width of 68 m and a depth of 17.80 m, making it the largest lock in service in the world.

The lock increases the handling capacity of the port area on the left bank from around 16 million tonnes in 2011 to more than 25 million tonnes (estimated) in 2020, an increase of 56%.

Besides the above mentioned investments in big ports, the changing patterns in maritime transport (larger ships servicing intercontinental routes) will have an impact on small and medium ports.

The increase in size of vessels, especially container ships, will result in a surge of “feeder vessels”, bringing cargo back and forth from the aforementioned small and medium ports but also between such ports (cabotage operations). Such development could benefit European ports located in the Atlantic façade, provided they have established links among themselves, in particular around large ports that will act as “hubs” for transshipment.

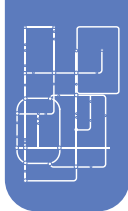
One of the issues that small and medium size ports will have to plan for is the likely “cascade effect” in container shipping. Such effect means that, as far as feeder (container) vessels are concerned, larger vessels will displace small vessels. On this “cascade effect” some experts<sup>53</sup> have predicted that Mid-Panamax (2.000 to 4.000 TEU) vessels will be replacing feeders with a capacity of 800 to 2.000 TEU.

The logical conclusion is that these ports will be impacted by this displacement and will have to make the necessary investments to cope with these larger vessels.

<sup>51</sup> Feeder vessels load containers in a regional area to be transferred to a “mother ship” for a long-haul ocean voyage.

<sup>52</sup> Adapted from Port of Antwerp Annual Report 2012 p. 30 <http://www.portofantwerp.com/en/report/download/full/3869>

<sup>53</sup> See article by Larry Lam and Ooi Bon Hoe “Tomorrow’s World” in Portek’s “Port strategy”, May 2008. [http://www.portstrategy.com/news101/port-operations/planning-and-design/portek\\_article](http://www.portstrategy.com/news101/port-operations/planning-and-design/portek_article)



### *3.4 Trade as growth factor for coastal and maritime regions: cooperation among key actors (ports, public authorities, companies)*

In the trade relations arena it is important to underline that the EU, which is an open and reliable trade partner with a large and solvent market, has negotiated, or is negotiating, a series of trade agreements with key partners. In this regard a coastal region's maritime and shipping links with port in the EU, and in particular with Northern Europe, has to be seen as a key asset when taking advantage of increased international trade following the implementation of such agreements.

To illustrate this suffice to mention that currently 45% of North American container traffic enters through Liverpool. Thus, an increase in trade between Canada and the United States, resulting from the conclusion of trade agreements with these two partners<sup>54</sup>, would be of direct benefit for ports of the EU's coastal and maritime regions in the Atlantic, provided they maintain and strengthen their links with aforementioned ports in the North of Europe.

Trade with Latin America will become more and more important, especially with those countries having trade flows covered by agreements with the EU. This is the case of Mexico, Chile, Colombia, Peru, Honduras, Nicaragua, Panama, Costa Rica, El Salvador, and Guatemala. Other trade partners in Latin America, some of which are of special relevance for the EU's Atlantic regions, are negotiating trade agreements with the EU. This is the case of Brazil, the biggest member of the MERCOSUR trading bloc.

### *3.5 Taking advantage of increased trade flows: Motorways of the Sea, Short Sea Shipping and cooperation among ports*

Projects in the context of the "Motorways of the Sea" programme will help coastal regions to take advantage of increased trade flows and the evolving patterns in international maritime transport.

#### **"Motorway of the Sea" Atlantic Interoperable Services (ATLANTIS)<sup>55</sup> project**

The objective of the ATLANTIS Project is to identify and then develop an investment programme for the implementation of necessary services at the three ports to provide integrated short-sea-shipping solutions along the pre-defined 'Atlantis' MoS freight route. This project, which includes the ports of Brest, Liverpool and Leixoes, is about working together for the preparations for the launch of new RORO (roll-on/roll-off) and LOLO (Lift-On/Lift-Off) MoS services along the Atlantic coast of Europe.

<sup>54</sup> The EU has concluded a "Comprehensive Economic and Trade Agreement" (CETA) with Canada, which is still to be implemented, and is currently negotiating a "Transatlantic Trade and Investment Partnership" (TTIP) with the U.S.

<sup>55</sup> See project CEF-Transport "Atlantic Interoperable Services (ATLANTIS)" 2014-EU-TM-0671-S <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/projects-by-country/multi-country/2014-eu-tm-0671-s>

An interesting feature of this project is that it also comprises the prototyping of an ICT, B2B Logistics service platform, and a collaborative network of ICT Logistics Single Window (LSW) platforms, following the formalized definitions established through other EC funded projects (for example e-Freight, MIELE and WiderMoS) and studying the adaptation to each of the ports' information systems.

The ATLANTIS service platform will allow customers of the MoS services to reserve and book capacity on a door-to-door basis.

Some practitioners<sup>56</sup> have pointed to the need for ports to make use of this programme to minimize container transportation on land and promote seaborne transport as much as possible. This implies that ports should provide incentives for operators for cargo to move over the sea rather than on land, by facilitating the flow through the port to the other transport modes.

They also underline that a successful implementation of “Motorways of the Sea” will depend depends on developing a network of ports that would seamlessly process the movement of cargo through them to take the sea routes (see discussion on “Forelands” hereunder). Facilitating and developing Short Sea Shipping (SSS) can play here a key role, but as already mentioned, it is on the basis of reliable port networks that SSS could thrive and expand. This means therefore that ports, and other stakeholders in the value chain, will have to work together. Cooperation is thus a key factor to reap the benefits of a more open EU market. Such cooperation among ports should concern:

Hinterlands<sup>57</sup>: key stakeholders (ports, cities, regional authorities) could work towards a common, cooperative approach to the various hinterlands that could be served by the ports. In concrete terms this could mean joint investments in logistics zones in transport nodes with appropriate connections and infrastructure with a high degree of intermodality. Such approaches have been extensively discussed and explored by academia and researchers. Figure 4 visualises such an approach with its different phases<sup>58</sup>.

Forelands: a similar approach could be adopted for forelands. To take full advantage of increased merchandise flows, in particular with overseas trade partners the region, and acting as a multi-port gateway, could further develop links and routes with other ports called “intermediate hubs” (see Figure 5 hereunder). These intermediate hubs will in turn ensure that the goods are transported to the final destination. The ATLANTIS initiative is fully in line with such an approach.

<sup>56</sup> Lam, Larry, and Adam Iskounen. “Feeder ports, Inland ports and Corridors—Time for a closer look.” (2014) [https://portek.com/publications/FeederPort\\_InlandPortsandCorridors\\_TimeforaCloserLook.pdf](https://portek.com/publications/FeederPort_InlandPortsandCorridors_TimeforaCloserLook.pdf)

<sup>57</sup> As stated by Lam and Iskounen in their article: “Port competition is basically naval battles fought on land, to quote from a source. How successful a port is, and how resilient it is against its competitor in retaining its customer base, depends to a large extent on how well integrated it is with its hinterland in terms of connectivity. Ports can no longer be just a single node by itself, but require to be supported by a system of nodes on the landside”

<sup>58</sup> See Rodrigue, J. P., & Notteboom, T. (2010). Foreland-based regionalization: Integrating intermediate hubs with port hinterlands. *Research in Transportation Economics*, 27(1), 19–29. <http://dx.doi.org/10.1016/j.retrec.2009.12.004>

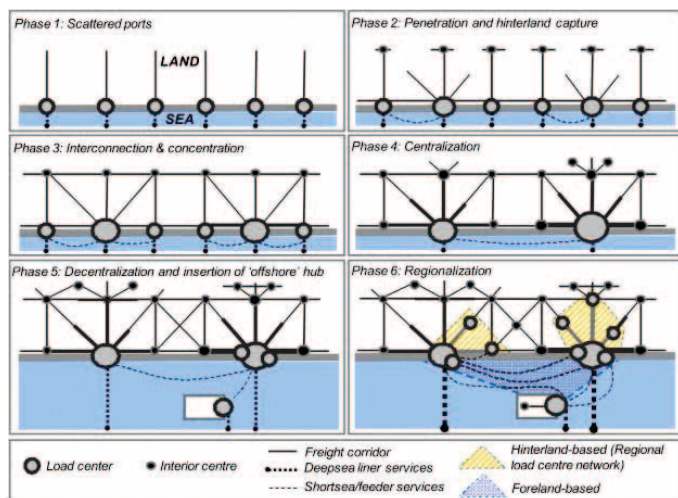
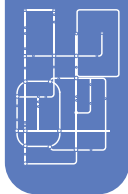


Figure 4 A model on port system development, including a revised sixth phase (Fig 7 in Rodrigue and Notteboom (2010))

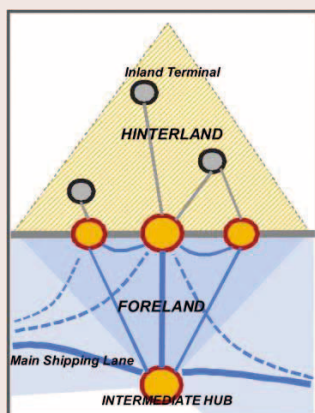


Figure 5: A graphical conceptualization of foreland-based regionalization (Fig 7 in Rodrigue and Notteboom (2010))

The above described approaches are especially relevant in the area of container transport and management. This is a very competitive sector where ports' competition, especially at international level, is very harsh. It is therefore crucial that regional actors join forces to reinforce the position of the region as a multi-port gateway, with a variety of well-connected hubs in its hinterland and foreland<sup>59</sup>.

With regard to forelands and "intermediate hubs" it should be stressed that for ports located in the Atlantic there is a potential to further develop transport links, with non-EU destinations having "historical" ties, such as those in the African continent. Direct and indirect traffic with Africa is going to grow in the coming years as trade agreements between the EU and regional groupings and individual countries in the continent will allow for increased commercial exchanges.

<sup>59</sup> As pointed by Notteboom and Rodrigue (2010) "[Thus], a good strategy for smaller ports is to link to more than one hub, providing more robustness in the network with improved flexibility in freight distribution, as well as a better synchronization between regional and global traffic flows."

#### 4. Creating a model for a sustainable and socially inclusive model of regional development

The Action Plan for the Atlantic reflects, in its Priority 3, one key dimension of the Europe 2020 Agenda, namely that growth must be inclusive and sustainable.

The development of the blue economy can bring a number of challenges with it as regards the objective of balanced and inclusive growth, above all in non-coastal areas.

These challenges need to be addressed by all relevant actors, and at all levels of government. There are several policy fields where action can be taken to facilitate growth, driven by the blue economy, for the benefit cities and rural communities outside coastal areas. Here are some examples of such actions.

##### *4.1 Development and creation of hubs/nodes (for transport, storage, production) that become part of larger value chains, linking coastal areas and broad hinterlands*

As already explained, ports and port-cities in coastal and maritime regions have an interest in building strategies that rely on increased connectivity, including by working with “hubs”. Among the factors that will enable the creation and development of these hubs/nodes, the following can be mentioned<sup>60</sup>:

- effective planning and development of intermodal hubs/nodes
- institutional incentive schemes;
- financing of the infrastructure (road, rail) related to intermodal facilities;
- developing logistics service providers and logistics professionals, including by organising and appropriate providing education and training;
- development of information technology and of digital infrastructure, and
- creating a regulatory and administrative environment facilitating the creation of these hubs/nodes and their interactions with ports.

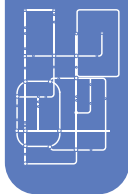
##### *4.2 Connecting coastal and maritime tourism with inland tourism<sup>61</sup>*

A recent study, commissioned by DG MARE, has looked in depth into the challenges that the maritime and coastal tourism sectors have to face to develop in a sustainable manner<sup>62</sup>. This study identified connectivity and integration of hinterland with tourist ports and attractions, as a key factor in creating a win-win situation for both areas.

<sup>60</sup> Adapted from Burchacz, M., Kowalczyk, U., Kuszewski, W., Sienkiewicz, K., & Barbara, S. (2012). Case Study on “HUB-AND-HINTERLAND DEVELOPMENT IN THE BALTIC SEA REGION”. Maritime Institute in Gdansk, Poland [www.transbaltic.eu/wp-content/.../Hub-and-hinterland-development-in-the-BSR.pdf](http://www.transbaltic.eu/wp-content/.../Hub-and-hinterland-development-in-the-BSR.pdf)

<sup>61</sup> <https://epthinktank.eu/2016/06/01/marine-fisheries-related-tourism-in-the-eu/>

<sup>62</sup> Ecorys, S.Pro and MRAG, “Study on specific challenges for a sustainable development of coastal and maritime tourism in Europe - Final Report” June 2016 <http://bookshop.europa.eu/en/study-on-specific-challenges-for-a-sustainable-development-of-coastal-and-maritime-tourism-in-europe-pbEA0416261/?CatalogCategoryID=epQKABstV.EAAAEJDZEY4e5L>



The study also highlighted the importance of an integrated approach when it comes to planning, spatial planning in particular. The EU has promoted this integrated approach in the framework of the Integrated Coastal Zone Management (ICZM)<sup>63</sup> and of the Maritime Spatial Planning (MSP)<sup>64</sup>. The study underlines that “MSP/ICZM processes identify conflicting and compatible uses in coastal and marine zones, and assign priority to uses. MSP/ICZM results in a forward-thinking vision for a given geographic scale, and provides a framework through which location-specific measures can be designed to balance uses, such as tourism.”

Of interest for coastal regions in the Atlantic areas, and in the EU in general, can be the illustrative examples proposed by the study with regard to the development in an ICZM/MSP framework of coastal tourism sites, specially leisure ports and marinas some of which relate to relationships between tourism in coastal areas and in the hinterland.

The study also includes examples of best practices. One worthwhile mentioning is the “The West Pomeranian Sailing Route”.

### **The West Pomeranian Sailing Route**

The West Pomeranian Sailing Route is a network of marinas and ports in the Szczecin area, the Szczecin Lagoon and the West Pomerania coast of the Baltic Sea, which offer natural as well as cultural heritage sights. The sailing route connects inland waters with the sea. The network was created to promote sustainable economic development also in rural regions of North-West Poland.

Around 30 marinas and ports with a modernised infrastructure and service offer belong to this network. Some marinas along the route were built or modernised through EU funded projects.

The route is marketed via the website <http://www.marinas.pl/>. In addition to that, the website <http://www.poland.travel/> provides information on the West Pomeranian Sailing Route in English. Some marinas, such as the Marina Kamien Pomorski, make reference to the route on their individual website. Marinas along the route cooperate in boat races.

For maritime and coastal tourism the Commission, DG MARE in cooperation with DG GROW, has compiled an “Annex”<sup>65</sup> to the “Guide on EU funding for the tourism sector”<sup>66</sup> with examples of funding for coastal and maritime projects.

Even if the main focus of this article is on the maritime dimension of the region’s potentialities, one should not ignore that sizeable groups of the population live in rural areas, which in many instances are part of the hinterland of ports and coastal cities.

<sup>63</sup> “Recommendation of the European Parliament and of the Council of 30 May 2002 concerning the implementation of Integrated Coastal Zone Management in Europe” of 30 May 2002.

<sup>64</sup> Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.

<sup>65</sup> [http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/guide-eu-funding-for-coastal-tourism\\_en.pdf](http://ec.europa.eu/maritimeaffairs/documentation/publications/documents/guide-eu-funding-for-coastal-tourism_en.pdf)

<sup>66</sup> <http://ec.europa.eu/DocsRoom/documents/18164/attachments/1/translations/en/renditions/native>

To support the development of better synergies between rural and coastal areas Horizon 2020 is funding research on this field with the call “Coastal-rural interactions: Enhancing synergies between land and sea-based activities”.

#### **Horizon 2020 supporting research in “Coastal-rural interactions”<sup>67</sup>**

The Horizon 2020 call for proposals RUR-02-2017 “Coastal-rural interactions: Enhancing synergies between land and sea-based activities” (opening date 4 October 2017) has a budget of EUR 5 million and is intended for projects that will:

- identify and analyse interactions between land (coast and hinterland) and sea,
- identify the various components of local economies at the interface of land and sea, and
- analyse their respective importance and short, medium and long-term development trends taking into account market, demographic, environmental and climate forecasts.

The analysis should highlight potential cross-sectoral interactions and innovation that could emerge from greater cooperation between sea-based and land-based businesses or organisations.

Concrete outputs would include a set of tools which could be used to foster synergistic relationships in different coastal areas of Europe, and concrete and operational governance models to be applied. Projects should also explore the potential use of instruments provided by the European Structural and Investment funds (ESIF) for the period 2014-2020.

## **5. European funding**

Information and analysis concerning a number of funding sources, in particular at EU level, has been the subject of extensive work by stakeholders in the Atlantic region<sup>68</sup>.

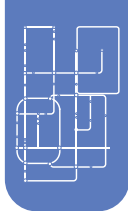
In the same line, the Commission’s Communication on the Action Plan for the Atlantic area refers to a number of EU funding tools that can be put to work to finance projects in the Member States concerned<sup>69</sup>.

This section will begin with a presentation of specific help provided to stakeholders in the Atlantic area to find financing and partners for their projects. Subsequently it will cover recently EU developed funding actions (e.g. in the context of the Integrated Maritime Policy) and/or instruments (e.g. to boost investments) that can be used by public and private actors, in coastal and maritime regions.

<sup>67</sup> <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/rur-02-2017.html>

<sup>68</sup> See for example the publication “CUADERNOS DEL EIXO ATLANTICO - OPORTUNIDADES DE FINANCIACIÓN EUROPEA 2014-2020” (<http://www.eixoatlantico.com/index.php/es/publicaciones-es>) includes exhaustive information on a number of EU financial support instruments, ranging from territorial cooperation programmes (in the context of INTERREG), funding for research (Horizon 2020), the environment (LIFE), culture (CREATIVE EUROPE) education (ERASMUS), or support for SMEs (COSME).

<sup>69</sup> See “Action Plan for Maritime Strategy in the Atlantic Area” section 3.1. Funding Channels, p. 9.



### 5.1 Helping Atlantic stakeholders find financial support for their projects and initiatives

To help stakeholders find their way in getting support for their projects the Commission (DG MARE) has organised targeted events<sup>70</sup> and put in place a team of experts, the “Support Team for the Atlantic Action Plan”, that provides guidance and proactive support for public and private organisations, research institutions and universities, institutional and private investors from the Atlantic region, wishing to engage in the implementation of projects in line with the Action Plan<sup>71</sup>.

The Commission (DG MARE, DG REGIO) has also worked to raise knowledge and awareness of the Action Plan, at the level of national and regional authorities that are involved in EU funding activities, in particular national and regional actors managing “shared management” funds, such as the ESIF funds<sup>72</sup>. It is the aim of this work to maximise the amount of money to be allocated to projects, and to facilitate the uptake of this funds by beneficiaries and project promoters in the Atlantic Area.

### 5.2 Targeted support actions in Integrated Maritime Policy

As regards specific funding for Integrated Maritime Policy, the Commission is supporting specific actions, through the European Maritime and Fisheries Fund (EMFF), targeted at the development and implementation of:

- integrated governance of maritime and coastal affairs
- cross-sectoral initiatives, such as integrated maritime surveillance, maritime spatial planning, marine data and knowledge
- sustainable economic growth, employment, innovation and new technologies within emerging and prospective maritime sectors.

A yearly budget of around 30 million EUR is allocated to such actions, in the context of the so called “Annual Work Programme” for grants and calls for proposals<sup>73</sup>.

As an example, in 2016, the Commission dedicated a budget of over EUR 7,5 million for Blue Growth related actions called ‘Blue careers’, ‘Blue labs’ and ‘Blue technology’. These actions, launched by way of “call for proposals”, will respectively help enhancing career opportunities in the maritime economy, stimulating the creativity of young researchers and set-up co-operations that will help bring research results to the market in promising blue growth technology areas<sup>74</sup>.

<sup>70</sup> See for example DG MARE’s webpage on the event “How to access and mobilise EU funds to pursue implementation of the Action Plan for a Maritime Strategy in the Atlantic area” [http://ec.europa.eu/maritimeaffairs/policy/sea\\_basins/atlantic\\_ocean/atlanticforum/events-2014/brussels/index\\_en.htm](http://ec.europa.eu/maritimeaffairs/policy/sea_basins/atlantic_ocean/atlanticforum/events-2014/brussels/index_en.htm)

<sup>71</sup> <http://www.atlanticstrategy.eu/>

<sup>72</sup> See DG MARE’s webpage on the event “The Atlantic Strategy in Action” [http://ec.europa.eu/maritimeaffairs/events/2016/06/events\\_20160608\\_01\\_en.htm](http://ec.europa.eu/maritimeaffairs/events/2016/06/events_20160608_01_en.htm)

<sup>73</sup> [http://ec.europa.eu/dgs/maritimeaffairs\\_fisheries/contracts\\_and\\_funding/annual\\_work\\_programme/index\\_en.htm](http://ec.europa.eu/dgs/maritimeaffairs_fisheries/contracts_and_funding/annual_work_programme/index_en.htm)

<sup>74</sup> <https://ec.europa.eu/easme/en/funding-opportunities>

### 5.3 Boosting investment in the blue economy: the European Fund for Strategic Investments (EFSI)

In addition to all the EU funding mechanism already mentioned in this article, there is one instrument that deserves special attention, namely the “European Fund for Strategic Investments” or EFSI<sup>75</sup>.

EFSI is designed to mobilise EUR 315 billion of investment in the EU within the next three years. It is an EU guarantee of EUR 16 billion, plus EUR 5 billion from the European Investment Bank (EIB), which will be managed by the latter. The rationale of the EFSI is, through the use of a financing mechanism, to support projects of a different risk profile, provide and trigger additional sources of financing and deliver greater societal and economic value.

EFSI has two main components to support projects with wide sector eligibility: an “Infrastructure and Innovation window” to be deployed through the European Investment Bank, and an “SME window” to be deployed through the European Investment Fund (EIF)<sup>77</sup> to support SMEs and Mid-caps<sup>78</sup>.

Hereunder is an example of how the EIB is making available funds to private investors, active in Spain and Portugal, to support investment in midcaps mainly in the technology and industry sectors

#### **EFSI supported private equity fund for investment in “midcaps” in the technology and industry sectors in Spain and Portugal<sup>79</sup>**

The EIB Group (EIB and EIF), is providing EUR 100 million for a private equity fund designed to support investment in midcaps mainly in the technology and industry sectors. With a first closing of EUR 400 million, the fund has also attracted a EUR 100 million participation by the Centre for Technological and Industrial Development (CDTI) as well as private investment. This is the first operation signed in Spain in 2016 under the European Fund for Strategic Investments (EFSI) and the first fund supported by EFSI aimed at capitalising tech and industrial firms.

The EUR 40 million provided by the EIB comes on top of the EUR 60 million committed by the EIF, making a joint EIB Group participation of EUR 100 million that sparked the interest of private investors and enabled the fund to achieve its target size of EUR 400 million at first closing.

Managed by N+1 Capital Privado, S.G.E.I.C., the fund will take majority stakes in unlisted Spanish and Portuguese companies. It is designed to invest in mid-sized firms with strong international growth potential, focusing mainly on the tech and industry sectors. Individual equity investments will range from EUR 35 million to EUR 75 million.

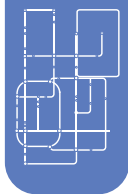
<sup>75</sup> Regulation (EU) 2015/1017 of the European Parliament and of the Council of 25 June 2015 on the European Fund for Strategic Investments, the European Investment Advisory Hub and the European Investment Project Portal and amending Regulations (EU) No 1291/2013 and (EU) No 1316/2013 — the European Fund for Strategic Investments.

<sup>76</sup> [http://europa.eu/rapid/press-release\\_MEMO-15-5419\\_en.htm](http://europa.eu/rapid/press-release_MEMO-15-5419_en.htm)

<sup>77</sup> The EIF is a specialist provider of risk finance to benefit small and medium-sized enterprises (SME) across Europe. It is part of the EIB Group and its shareholders are the European Investment Bank (EIB), the European Union, represented by the European Commission, and a wide range of public and private banks and financial institutions.

<sup>78</sup> The EIB defines “Mid-caps” as enterprises with less than 3,000 employees full-time equivalent

<sup>79</sup> See <http://www.eib.org/infocentre/press/releases/all/2016/2016-107-eib-group-provides-eur-100-million-for-new-private-equity-fund-investing-in-tech-and-industrial-firms.htm>



One feature of the “EFSI Regulation” is that it provides for the set-up of “Investment Platforms” as a tool for pooling investment projects with a thematic or geographic focus. These “Platforms” might serve to group a number of small investment projects, making it easier for the European Investment Bank / European Investment Fund, and the private sector to invest in them. The EFSI regulation leaves the structure flexible, allowing for various solutions from framework loans to building up of a dedicated vehicle like a “fund”.

National Promotional Banks, or NPB<sup>80</sup>s, have been identified as suitable “fund managers” for such Platforms. They are expected to contact the EIB to share their proposals. Any “Investment Platform” meeting the above characteristics is in principle eligible to benefit from the EU guarantee, subject to the approval by the “Investment Committee”<sup>81</sup>. Following the appropriate EIB analysis (which may vary depending on the type and extent of financial support required), the Investment Platform’s proposal is submitted by the EIB to the EFSI “Investment Committee”.

There are already examples of such “Investment Platforms”<sup>82</sup>, some of which could serve as a model, especially to achieve objectives such as the regeneration of urban areas, the development of infrastructure, or the promotion of renewable energy and of energy efficiency.

#### **Investment Platform to improve energy efficiency in Ile-de-France<sup>83</sup>**

Towns and cities are responsible for 70% of greenhouse gas emissions. Getting the energy transition under way in towns and cities is thus both a challenge and a necessity. That is why the Urban Agenda, to be signed in Amsterdam on 30 May, has made it one of its 12 priorities. Its goal is to implement the transition to renewable energy with a focus on promoting innovative approaches for energy supply, increasing local production of renewable energy and improving energy efficiency, particularly in buildings.

These are all areas of investment that are eligible for European Investment Bank loans guaranteed by the European Fund for Strategic Investment (EFSI) set up under the “Juncker Plan”. The energy sector consequently accounts for 29% of the projects financed by the EFSI to date. One of these is a housing renovation project being carried out by a platform set up in the Île-de-France (France).

The project has been led by Energies Positif, that was set up in 2013 and whose main shareholder is the Île-de-France Regional Council. The company specialises in the energy renovation of co-owned buildings in the Île-de-France and offers turn-key solutions that include a financing plan, project design and supervision of work.

<sup>80</sup> Instituto de Crédito Oficial (ICO) in Spain, Instituição Financeira de Desenvolvimento (IFD) in Portugal.

<sup>81</sup> The EFSI Investment Committee is responsible for approving the support of the EU guarantee in line with the EFSI investment policies and the requirements of the EFSI Regulation for EIB projects (see <http://www.eib.org/efsi/governance/efsi-investment-committee/>)

<sup>82</sup> Technical assistance for the creation of investment platforms can be made available via the European Investment Advisory Hub, (EIAH), a partnership between the EIB and the European Commission that supports projects which may be eligible for financing by the EIB (either under EFSI or otherwise).

<sup>83</sup> Adapted from <http://cor.europa.eu/en/news/Pages/The-Investment-Plan-for-Europe-an-asset-for-energy-efficiency-improvements-to-buildings-The-example-of-the-Ile-de-France.aspx>

The building renovation project being undertaken by Energies Positif, which was approved in May 2015 by the European Investment Bank (EIB), will be the first to benefit from this kind of loan. It aims to improve the energy efficiency of 8000 to 10,000 homes in the Île-de-France (France) area by 50 to 70%, and to reduce their energy bills by the same amount.

The company has signed an agreement with the EIB for a loan of EUR 100 million. The leverage effect of this funding should generate work to the tune of EUR 200-300 million and create 2 000 to 2 500 jobs. In the long term, this loan will above all offer an innovative solution, i.e. third party financing, which will encourage co-owners to commit to energy renovation work. The third party financing company can essentially advance funds to the (co-)owners (third party funding), which the latter then repay in the form of a fixed “rent”, calculated partly on the energy savings that will be made after the refurbishment. This makes energy renovation accessible to many more people.

EFSI related financing can be combined with other types of EU funding, in particular with European Structural and Investment (ESI) Funds. The Commission, in partnership with the EIB, has issued guidelines<sup>84</sup> designed to help local authorities and project promoters make full use of the opportunities of combining the EFSI and ESI Funds. The guidelines provide an overview of the possible combinations of EFSI and ESI Funds, either at project level, or through a “financial instrument”, such as the aforementioned “Investment Platform”.

#### *5.4 Financing for the maritime dimension: Connecting Europe Facility*

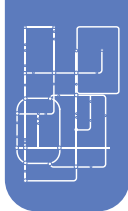
Several of the EU’s funds and financing instruments can be used to support the maritime economy. This is the case of the ERDF, the EMFF, Horizon 2020, COSME, or the LIFE programme. There are though instruments intended to promote the development of specific sectors that closely related to the maritime economy such as the maritime transport sector.

The Connecting Europe Facility is such an EU funding instrument, especially through the Motorways of the Sea (MoS) programme, which aims at promoting green, viable, attractive and efficient sea-based transport links integrated in the entire transport chain.

Besides the MoS programme there are other instruments, in the framework of the Connecting Europe Facility, that are especially relevant for the maritime economy. This is the case of the “CEF supported Green Shipping Platform” put in place by the European Investment Bank and the European Commission.

With an overall envelope of EUR 750 million, the new mechanism is intended to finance new shipbuilding projects but also the conversion and modernisation of existing ships, while respecting the principles of sustainable transport and environmental protection. More specifically, it will support investment in the development of technologies to improve energy efficiency and cut harmful emissions in the European maritime transport sector.

<sup>84</sup> See [http://ec.europa.eu/regional\\_policy/en/funding/financial-instruments/](http://ec.europa.eu/regional_policy/en/funding/financial-instruments/)



### “Green Shipping Guarantee” (GSG) Programme<sup>85 86</sup>

The shipping industry is currently facing a number of challenges to finance the investments required to meet the new sulphur emission standards applicable in controlled areas (SECA) and future ballast water treatment equipment. EIB was invited to reflect on how financial instruments supported by European programmes such as the Connecting Europe Facility (CEF) or the European Fund for Strategic Investments (EFSI) could be used to help the industry face this challenge.

Available guarantee amount: EUR 750 million guarantee programme:

- EUR 250 million supported by the CEF (expected) and EUR 500 million by the EFSI.
- Expected to support around EUR 3 billion of investments.

Eligibility criteria:

- Investments eligible under CEF horizontal priorities and EIB transport lending policy with significant European interest (flag, ownership, incorporation, routes).
- Particular focus on green investments and sustainable shipping (LNG, hull treatment, ballast water treatment systems, ...).

Guaranteed rates:

- Up to 50% of debt financing on new vessels.
- Up to 100% of green components of retrofitting operations

*First project in France<sup>87</sup>:*

The European Investment Bank (EIB) signed on 8 November 2016 an agreement with Société Générale in France combining the Connecting Europe Facility (CEF) Debt Instrument and EFSI resources to provide EUR 150 million guarantee for the construction of sustainable, environmentally-friendly ships.

Under the agreement promoters of “green” projects in the maritime transport sector will be able to benefit from favourable financial as a result of the EIB’s AAA rating. The signature of this agreement makes France the first country to benefit from this EU mechanism.

<sup>85</sup> See <http://www.eib.org/projects/pipeline/2015/20150334?lang=de>

<sup>86</sup> See also the presentation “Green instrument for shipping” by Francois Gaudet, Loan Officer, European Investment Bank [http://ec.europa.eu/inea/sites/inea/files/green\\_shipping\\_presentation\\_mos\\_inea.pdf](http://ec.europa.eu/inea/sites/inea/files/green_shipping_presentation_mos_inea.pdf)

<sup>87</sup> See <http://www.eib.org/infocentre/press/releases/all/2016/2016-271-la-france-pionniere-pour-le-verdissement-du-secteur-maritime.htm>

## 6. Conclusion

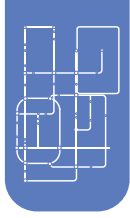
There are a number of challenges and opportunities when it comes to take full advantage of the potentialities of coastal regions, especially as regards growth that is driven by the so called “blue economy”. These challenges and opportunities are common to coastal regions, also in the Atlantic area. They have been identified in the EU’s Atlantic Strategy, and the ensuing Action Plan has proposed a set of priorities and responses that stakeholders can consider to deliver sustainable growth and jobs.

Supporting entrepreneurship and innovation is on top of the Action Plan’s priorities’ list. Coastal regions can provide such support by investing in research, a key enabler to for the development competence centres in key blue economy sectors (e.g. marine biotechnology), or in wider areas of the region’s economic fabric. These regions have also a strong potential to benefit from the international cooperation in research among countries around the Atlantic. This cooperation has already materialised with the U.S. and Canada and is to be expanded to other coastal states, such as Brazil or South Africa.

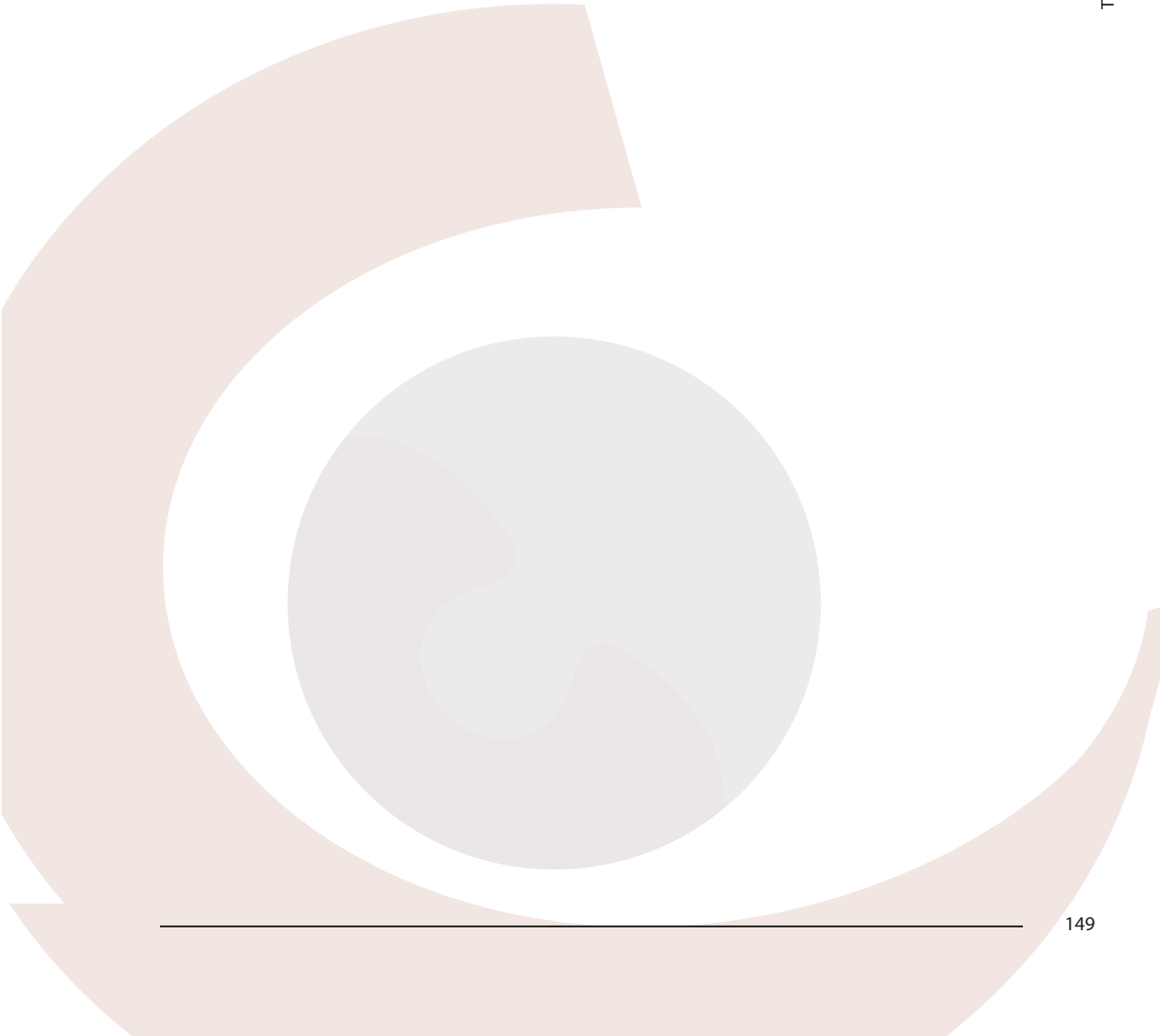
Another challenge, common to all coastal regions, is to ensure that growth is sustainable and that the environment is preserved and viewed as an asset. The Action Plan proposes a number of responses to protect, secure and develop the potential of the Atlantic marine and coastal environment. Coastal regions have unique marine and coastal natural sites, including several wetlands. These wetlands deliver numerous benefits (economic, social and environmental) to the region, and to the wider Atlantic area. Besides having adopted legislation to protect wetlands, the EU provides support, by means of an array of financial mechanisms, to competent authorities and to interested stakeholders who aim at such protection.

A key characteristic of the coastal regions is their enduring answer to the calling of the oceans, especially as regards seaborne activities (e.g. fisheries, shipping and maritime transport). Accessibility and connectivity of ports and their hinterlands are thus vital issues for the region, for which the Action Plan proposes a number of actions. Increased cooperation among seaports could strengthen the position of Atlantic coastal regions in the transport and logistics completion arenas. Such cooperation will become a key success factor in coping with new developments in world maritime transport, especially after the recent opening of the Panama Canal expansion.

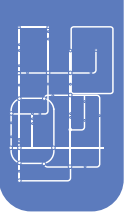
So far it is clear that the many coastal regions have a sound basis for further development of the blue economy and to achieve blue growth. But this growth will not be sustainable if it fails to be socially inclusive, or to benefit communities located in the hinterland of coastal areas. The aforementioned efforts to improve connectivity and accessibility could bring about an increased participation, by hinterlands’ communities, in value chains generated by, or linked to, the blue economy. Multimodal transport hubs and logistics platforms, connected with the region’s ports, and with the wider hinterland in the Iberian Peninsula, would play a crucial role in this endeavour. Likewise, connecting coastal and maritime tourism with inland tourism is a way to ensure that communities in the hinterland have their share in this fast growing sector of economic activity.



Finally, putting into effect the Atlantic Strategy and the Action Plan will only be possible if sufficient funds are provided to support research and innovation, develop and improve infrastructure, or boost private and public investment in the region's economy. The EU has put in place funding mechanisms and channels that can be used to underpin development and growth, in areas and sectors of importance for the region. Mechanisms, such as the European Fund for Strategic Investments or the Connecting Europe Facility, could play an important role in financing projects that need investments running over long periods of time, or with a "higher than normal" risk profile, and thus act as a trigger for the realisation of projects for which investment is currently lacking.



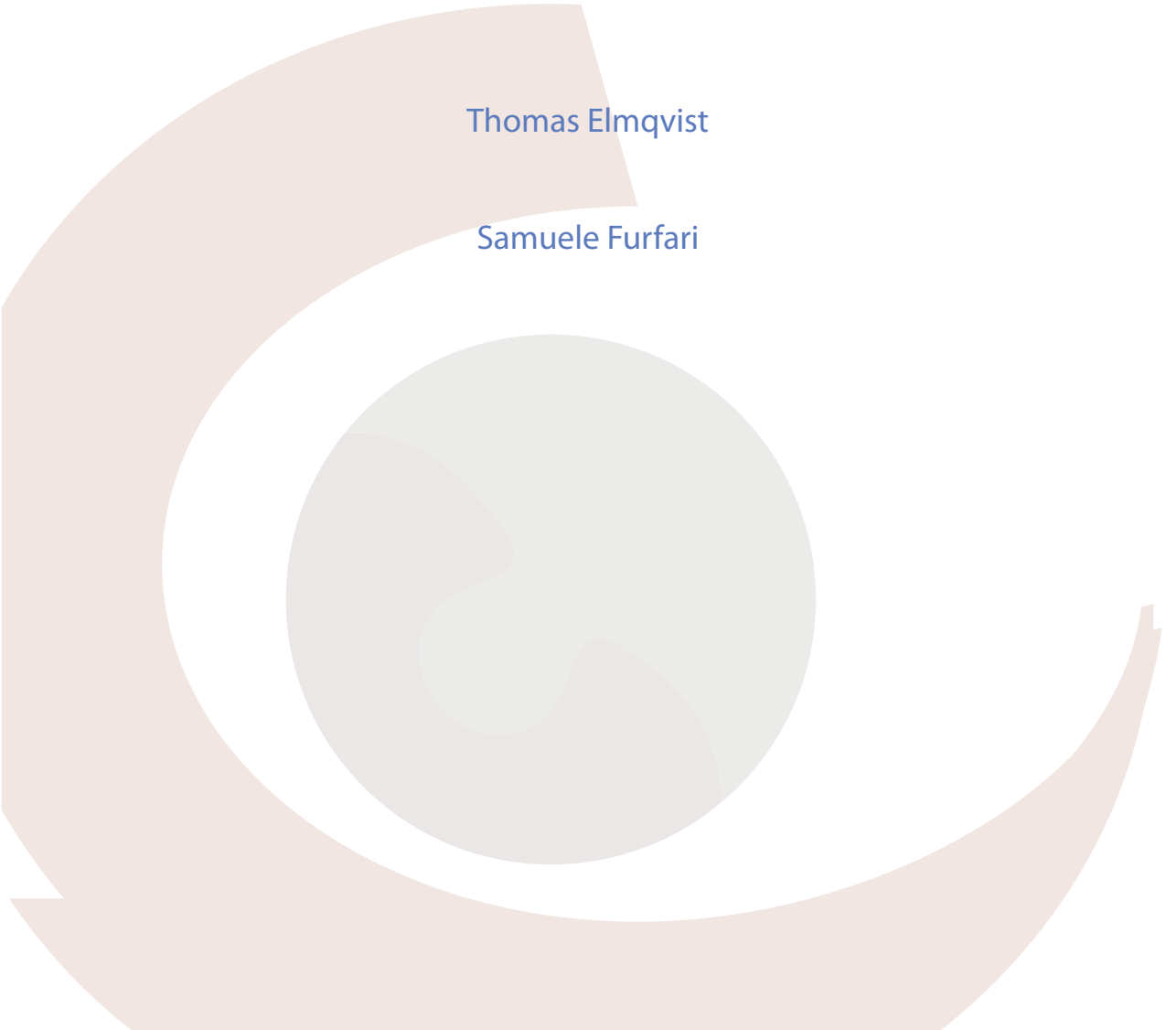




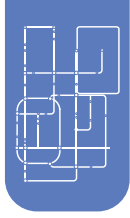
# THE ECOLOGICAL CITY: THE SUSTAINABILITY CHALLENGE

Thomas Elmqvist

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## THE URBAN PLANET – CHALLENGES AND OPPORTUNITIES

Thomas Elmqvist

### SHORT CV

Thomas Elmqvist, PhD, is a professor in Natural Resource Management at Stockholm Resilience Centre, Stockholm University. His research is focused on urbanization, urban ecosystem services, land use change, natural disturbances and components of resilience including the role of social institutions. He serves as associated editor for the journals *Ecology and Society*, *Ecosystem services*, *Sustainability Science*, *Current Opinion in Environmental Sustainability* and *Global Sustainability*. He has led the “Cities and Biodiversity project” ([www.cbobook.org](http://www.cbobook.org)) and currently leading a Future Earth project “What is Urban”.

### ABSTRACT

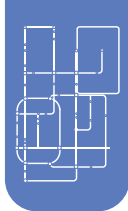
We are entering a new urban era in which the ecology of the planet as a whole is increasingly influenced by human activities. Cities have become a central nexus of the relationship between people and nature, both as crucial centres of demand of ecosystem services, and as sources of environmental impacts. Approximately 60% of the urban land present in 2030 is

forecast to be built in the period 2000–2030. If current trends continue, by 2050 the global urban population is estimated to be 6.3 billion, up from the 3.5 billion urban dwellers worldwide in 2010.

Urbanization therefore presents challenges but also opportunities. In the next two to three decades, we have unprecedented chances to vastly improve global sustainability through designing systems for increased resource efficiency, as well as through exploring how cities can be responsible stewards of biodiversity and ecosystem services, both within and beyond city boundaries.

Although local governments often aim to optimize resource use in cities, increase efficiency, and minimize waste, cities can never become fully self-sufficient. Therefore, individual cities cannot be considered “sustainable” without acknowledging and accounting for their dependence on ecosystems, resources and populations from other regions around the world. Consequently, there is a need to revisit the concept of sustainability, as its narrow definition and application may not only be insufficient but can also result in unintended consequences, such as the “lock-in” of undesirable urban development trajectories. I suggest that an appropriate conceptualization of urban sustainability is one that incorporates a complex social-ecological–technological systems perspective of urban areas and their global hinterlands, and one that recognizes that urban areas are embedded in, and are significant parts of, the operation of the biosphere. The focus is not just on sustainability goals or aspirations, but also on resilience and transformations as components of the urbanization process.

As centres of human innovation, and perhaps the most active frontier of our impact on the planet in shaping its landscapes and seascapes, cities offer arenas for enormous opportunities to reimagine and invent a different kind of future with room for humans and other species to thrive. Cities may well be the ground where we secure a globally sustainable future—one that builds on nature-based solutions and ecosystem-based adaptation, and establishes responsible environmental stewardship at the heart of public interest.



## THE URBAN PLANET – CHALLENGES AND OPPORTUNITIES

### 1. Introduction

We are entering a new urban era in which the ecology of the planet as a whole is increasingly influenced by human activities (Ellis 2011; Steffen et al. 2011; Folke et al. 2011). Cities have become a central nexus of the relationship between people and nature, both as crucial centres of demand of ecosystem services, and as sources of environmental impacts. Approximately 60% of the urban land present in 2030 is forecast to be built in the period 2000-2030 (Elmqvist et al. 2013). If current trends continue, by 2050 the global urban population is estimated to be 6.3 billion, up from the 3.5 billion urban dwellers worldwide in 2010. This is likely to have major impacts on biodiversity and ecosystem services. Elmqvist et al. (2013) identified five trends in the global urbanization process

1. Urban areas are expanding faster than urban populations. If current trends continue, between 2000 and 2030 urban land cover is expected to triple, while urban populations are expected to nearly double. Most of the growth is expected to happen in small and medium-sized cities, not in megacities.
2. Urban areas modify their local and regional climate through the urban heat island effect and by altering precipitation patterns, which together will have significant impacts on local and regional net primary production, biodiversity and ecosystem functions.
3. Urban expansion will heavily draw on natural resources, including water, on a global scale, and will often consume prime agricultural land, with knock-on effects on biodiversity and ecosystem services elsewhere.
4. Urban land expansion is occurring rapidly in areas adjacent to biodiversity hotspots, and faster in low-elevation, biodiversity-rich coastal zones than in other areas).
5. Future urban expansion will mainly occur in regions of limited economic and institutional capacity, which will constrain management of biodiversity and ecosystem services. Half the increase in urban land across the world over the next 20 years will occur in Asia, with the most extensive patterns of change expected to take place in India and China.

Urbanization therefore presents challenges but also opportunities. In the next two to three decades, we have unprecedented chances to vastly improve global sustainability through designing systems for increased resource efficiency, as well as through exploring how cities can be responsible stewards of biodiversity and ecosystem services, both within and beyond city boundaries.

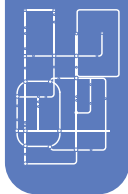
A social-technological approach has, up until now, been a traditional way of analyzing urban complexity (e.g., Geels 2011; Hodson and Marvin 2010), and in this context many have struggled to define exactly what is meant by a city. Here I expand on an emerging framework of cities as complex social-ecological-technological systems, since cities include much more than a particular density of people or area covered by human-made structures.

Although a social-technological approach will continue to be important in the urban sustainability discourse (incl. on transport, housing, energy etc.) I will here focus more on the urban socialecological dimensions since this will be increasingly necessary to incorporate in order to succeed in enhancing human well-being in urban areas in the face of new and complex challenges such as climate change (Ernstson et al. 2010a; Chelleri and Olazabal 2012), migration (Seto 2005), and shifting and globalized economic investment (Childers et al., 2013). Furthermore, the research and application of urban sustainability principles have until now rarely been applied beyond city boundaries and are often constrained to either single or narrowly defined issues (e.g., population, climate, energy, water) (Marcotullio and McGranahan 2007; Seitzinger et al. 2012). Although local governments often aim to optimize resource use in cities, increase efficiency, and minimize waste, cities can never become fully self-sufficient. Therefore, individual cities cannot be considered “sustainable” without acknowledging and accounting for their dependence on ecosystems, resources and populations from other regions around the world (Folke et al. 1997; McGranahan and Satterthwaite 2003; Seitzinger et al. 2012). Consequently, there is a need to revisit the concept of sustainability, as its narrow definition and application may not only be insufficient but can also result in unintended consequences, such as the “lock-in” of undesirable urban development trajectories (Ernstson et al. 2010a). I suggest that an appropriate conceptualization of urban sustainability is one that incorporates a complex social-ecological –technological systems perspective of urban areas and their global hinterlands, and one that recognizes that urban areas are embedded in, and are significant parts of, the operation of the biosphere. The focus is not just on sustainability goals or aspirations, but also on resilience and transformations as components of the urbanization process.

As human dominance of ecosystems spread across the globe, humankind must become more proactive not only in trying to preserve components of earlier ecosystems and services that they displace, but also in imagining and building whole new kinds of ecosystems and nature based solutions that allow for a reconciliation between human development, functioning ecosystems and biodiversity. Populations and assemblages of species that evolve under urban conditions may well represent what holds for much of Earth’s terrestrial biodiversity in the future.

## 2. Global urbanization and impacts on biodiversity and ecosystem services

Urban areas affect biodiversity and many ecosystem services on scales ranging from local to global. One of the most critical services on a regional to global scale is the provision of freshwater (Elmqvist et al. 2013). Urban areas depend on freshwater availability for residential, industrial, and commercial purposes; yet, they also affect the quality and amount of freshwater available to them. Water availability is likely to be a serious problem in most cities in semiarid and arid climates. More than a fifth of urban dwellers, some 523 million, live in climates that would at least be classified as semiarid. Moreover, currently 150 million people live in cities with perennial water shortage, defined as having less than 100 liters/person/day of sustainable surface



and groundwater flow within their urban extent. By 2050, population growth will increase this number to almost a billion people. Furthermore, climate change is projected to cause water shortage for an additional 100 million urbanites. Globally, urban areas and the resources consumed by urban inhabitants, are responsible for somewhere between 40% and 71% of all anthropogenic greenhouse gas (GHG) emissions. The majority of global urban GHG emissions are from cities in the developed world. Within cities, energy service production accounts for the largest share of GHG emissions. A large percentage of GHG emissions are those from the largest cities (mega-cities). While there are smaller urban areas that have high per-capita emissions, these centers account for a much lower share of total emissions.

General trends in the provisioning of more local urban ecosystem services are difficult to assess, but with current types of urban development they are likely to decrease on most continents. The picture is, however, complex; while in many places in Europe a tendency to move to more compact city development may reduce the area of green space, in other places shrinking cities free up space for establishment of new green areas. Also, ecological restoration of old industrial areas and brown fields, and investment in green infrastructure is on the rise in both Europe and North America.

While global-scale analyses and projections of the effects of urbanization on biodiversity and ecosystem services are valuable for exposing broad trends, studies at the regional and country scales may allow for additional depth and insight about more local processes. However, such regional and country-level studies are sparse. In a study of 25 EU countries, average biodiversity appears to decline in almost all countries and all future development scenarios, with exceptions for Germany, Latvia, Estonia, and Malta. Most of the decline is due to urbanization, increase in nitrogen deposition, and disturbance in densely populated areas. Projected urbanization in Britain from 2006-2016 and effects on ecosystem services such as freshwater flood mitigation services, carbon storage, and agricultural production suggest that the way ecosystem services will be impacted depends largely upon the patterns of urbanization. There are complex trade-offs between densification and sprawl scenarios. Under the densification scenario, much less land becomes urban which limits the impacts on carbon storage and agricultural production. However, at the same time, more people would be affected by fluvial flooding. Collectively, the findings of these studies suggest the need for policies that consider urban growth at local as well as regional and global scales.

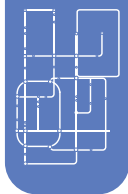
With respect to urban ecosystem services, Elmqvist et al. 2013 identified several specific knowledge gaps: *Supply-demand gap*: An increasing body of knowledge exists on the provisioning of ecosystem services at many different scales, but there is little information on needs and demands of ecosystem services in cities. In particular, we know little about the negotiated interactions that lead to trade-offs and synergies in the demand for particular bundles of ecosystem services accessed by different socio-economic or livelihood groups in urban environments (but see Andersson et al. 2007). This will play a major role in impacting outcomes of equity, particularly for the urban poor as well as for traditional livelihood users, such as fishers and livestock grazers in peri-urban areas (D'Souza and Nagendra 2011). When focusing on demands placed upon ecosystem services, we are in need of interdisciplinary approaches (see James et al. 2009; Niemelä et al. 2011; Kabisch and Haase 2012).

*Geographical gap:* There is a geographical gap in knowledge – most scientific studies of ecosystem services in cities are carried out and published in Europe, North America and China (Haase et al. 2014) Thus, judging from what is available in the peer reviewed literature, we have a poor understanding of the supply, needs and management of urban ecosystem services in large regions in South Asia, Africa and Latin America, which critically are those areas that are developing most rapidly and face some of the greatest threats to protected areas and biodiversity hotspots in their boundaries. For example, the novel structures and human fluxes associated with urbanization in Africa are especially understudied (McHale et al. 2013). However, this does not necessarily mean that local knowledge is non-existent. Most likely there is much ecological knowledge at the local level being used everyday in more informal management of urban ecosystems. Indeed, this is known to be the case in many places in Asia and Africa. For instance, comparisons of residential gardens in different continents indicate that most plant species in home gardens in Europe and North America are chosen for their ornamental value, while in contrast a large proportion of species in gardens in India and South Africa are chosen for their medicinal, food or cultural properties (Jaganmohan et al. 2012) Local knowledge and practices could be mobilized in multiple ways through, for example, citizen science initiatives and thus could support more formal governance and management of urban ecosystem services.

*Valuation gap:* Many tools for monetary valuation of ecosystem services are already available, but these need to be complemented with non-monetary valuation methods and with planning tools based on multiple criteria (Gómez-Baggethun and Barton 2013). The total value of multiple services generated by ecosystems can be divided into different parts, depending on whether or not there is a market for the service and whether the value can be expressed in monetary or only in non-monetary terms. Ecosystem service science still lacks a robust theoretical framework that allows for consideration of social and cultural values of urban ecosystems on an equal basis with monetary values in decision-making processes. Developing such a framework involves synthesizing the large but scattered body of literature that has dealt with non-monetary values of the environment, and articulating this research into ecosystem service concepts, methods, and classifications. (Chan et al. 2012; Luck et al. 2012)

*Insurance value gap:* We are in particular need of new valuation techniques that utilize a resilience and inclusive wealth perspective to better capture the value of biodiversity and ecosystems in reducing urban vulnerability to shocks and disturbances The insurance value of an ecosystem is closely related to its resilience and self-organizing capacity, and to what extent it may continue to provide flows of ecosystem service benefits with stability over a range of variable environmental conditions. The economic approaches to insurance values are still poorly developed (Pascual et al. 2010, Green et al. 2016).

*Cultural value gap:* While much attention has been focused on provisioning and regulating ecosystem services provided by urban ecosystems, cultural services have been poorly researched (e.g., Daniel et al. 2012).



While such services may not be apparent in a global synthesis, they can play an extremely important role in place-based conceptualizations of urban ecosystem services, for instance, on continents like Asia and Africa, where many sacred conceptualizations of nature persist in cities (Elmqvist et al. 2013). There are numerous equity and environmental justice issues related to cultural ecosystem services, but these are often poorly documented (Alfsen et al. 2010; D'Souza and Nagendra 2011). Also lacking is careful articulation and analysis of urban land ethics (Boone et al. 2013) that might link with evolving conservation and cultural landscape ethics (Rozzi 2012).

### 3. Nature based solutions

The urban ecosystem service and urban social-ecological approach has recently developed into several programs exploring the scope and potential of “Nature-based solutions”. (Kabisch et al 2016). Nature-based solutions are actions which are inspired by, supported by or copied from nature and often with the potential to address a variety of societal challenges in sustainable ways, with and contribute to green growth (EU DG Research and Innovation 2015). Nature based solutions for sustainable urbanisation rely in large part on natural areas and features in and around cities to perform essential ecosystem services. They provide multiple strategic opportunity areas, which can be categorised under three main interconnected challenges and trends.

Firstly, nature-based solutions support economic development in urban areas, which is highly dependent on the amount and quality of natural resources available, such as water for sanitation, drinking and manufacturing. The sustainability concerns in cities could drive the emergence of new business models, which decouple economic growth from resource depletion and the uneven distribution of resources. This would build on the circular economy and increased reliance on local resources, leading to greater efficiency in the use of energy and materials. In addition, the regeneration of neglected urban spaces can improve business and residential areas, as multifunctional design with nature can create new dynamic spaces that increase land and neighbouring property values, thus attracting investors, whilst improving citizens’ well-being (EU DG Research and Innovation 2015).

Secondly, sustainable urban planning with nature-based solutions has a positive environmental impact. It provides opportunities for adaptation to climate change, thus increasing urban resilience to risks, such as droughts, floods and heat waves, as well as opportunities for small-scale climate mitigation through increased carbon storage. It can also reduce pressure on peripheral natural areas, for example, waste water can be treated closer to residential sources and provide satisfactory near-home recreation opportunities that diminish the need to travel for contact with nature (EU DG Research and Innovation 2015).

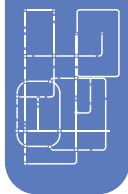
Thirdly, nature-based solutions contribute to the social dimension of sustainable urbanisation. For example, green space availability can be related to people's perceived happiness and general health, while having green space nearby appears to reduce the incidence of costly forms of illness, such as heart disease, obesity and depression. In England, the benefits of urban greenspaces for physical and mental health have been estimated to reduce treatment costs by £2.1 billion<sup>4</sup>. Such benefits appear to be stronger for vulnerable groups: children, elderly, and people of low socioeconomic status. Parks, urban farms and community gardens provide places for people to be physically active and to meet others. Moving nature-based solutions higher up the urban design and planning agenda is a major opportunity to prepare our cities for the future, providing an innovative ecosystems approach that can contribute to the resilience and economic growth of a city and to human well-being (EU DG Research and Innovation 2015).

#### 4. A global framework for urbanization, sustainability, resilience and transformation

In spite of the remarkable progress made in urban ecosystem studies and implementing Nature based Solutions over the last few decades, dynamic interactions and resilience of ecosystem functions in these social-ecological systems are still poorly understood (Andersson 2006; Alberti 2010, Kabisch et al. 2016). Sustainability and resilience in urban systems require a new framework that explicitly addresses the question of scale and the multiple-scale interactions, feedbacks, tradeoffs, and synergies between specific and general resilience (Cumming et al. 2012). The challenge to advancing our understanding of coupled urban dynamics is to integrate diverse scientific approaches and knowledge domains grounded in multiple epistemologies, but engaged with the sustainability challenge. Sustainability science serves as an inspiring arena for such integration.

Sustainability science is a field defined by the problems it addresses rather than by the disciplines it employs; it focuses on improving society's capacity to use the earth in ways that simultaneously meet the needs of a much larger (but stabilizing) human population, sustain the life support systems of the planet, and substantially reduce hunger and poverty (PNAS 2007). Resilience thinking is part of sustainability science, and has two central foci: one is strengthening the current social-ecological system to live with change by enhancing the ability to adapt to potential external pressures in order to retain its essential functions and identity; the other is the ability to shift development pathways from those that are less desirable and/or unsustainable, to ones that are more desirable and/or sustainable—also referred to as transformability (Walker et al. 2004; Folke et al. 2010).

The complexity of urban coupled human-natural systems or social-ecological systems poses enormous challenges in identifying causal mechanisms because of the many confounding variables that exist. At the same time, scientific findings from empirical studies are difficult to generalize due to variation in socio-economic and biophysical contexts, and the great heterogeneity that characterizes urban regions (Grimm et al. 2008). Key challenges are scale mismatches, cross-scale interactions, and limited transferability across scales (Cumming et al. 2012). Furthermore, limited predictability of system behavior over the long term requires a new consideration of uncertainty (Polasky et al. 2011).



Special attention will also need to be given to the translation of the emerging knowledge in urban practice and governance through sustainability and resilience planning. While planning theory thus far has paid surprisingly little attention to human-nature relations (Wilkinson 2012a), planning practitioners see insights from resilience thinking as providing a new language and metaphors for the dynamics of change, and new tools and methods for analysis and synthesis. Furthermore, a resilience approach confronts modes of governance based on assumptions of predictability and controllability (Wilkinson 2012b) with a mode based on dynamics and non-linearity. This is an emerging field in which new, innovative means of planning that deal with urban complexity and sustaining urban ecosystem services are needed. However, resilience thinking and social-ecological theory provide planning with little guidance in prioritizing or addressing tradeoffs between different strategies; this highlights the inherently political character of urban governance (Wilkinson 2012a,b).

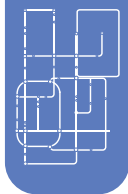
What actually constitutes urban sustainability—particularly in relation to various spatial scales—needs rethinking, but so do the concepts of resilience and transformations (Folke et al. 2002; Childers et al. 2013; Pickett et al. 2013a). In general, both the sustainability and the resilience concepts (particularly general resilience, see below and Table 1) are not easily applicable to the city scale. Cities are centers of production and consumption, and urban inhabitants are reliant on resources and ecosystem services—including everything from food, water and construction materials to waste assimilation—secured from locations around the world. Although cities can optimize their resource use, increase their efficiency, and minimize waste, they can never become fully self-sufficient (Grove 2009). Therefore, individual cities cannot be considered “sustainable” without acknowledging and accounting for their teleconnections (Seto et al. 2012a)—in other words, the long-distance dependence and impact on ecosystems, resources and populations in other regions around the world (Folke et al. 1997). Sustainability is commonly misunderstood as being equal to self-sufficiency, but in a globalized world, virtually nothing at a local scale is self-sufficient. To become meaningful, urban sustainability therefore has to address appropriate scales, which always will be larger than an individual city. The same logic is also true for the concept of general resilience; a narrow focus on a single city is often counterproductive (and may even be destructive) since building resilience in one city often may erode resilience somewhere else, thus producing multiple negative effects across the globe. Also, while from historical accounts we learn that there are some cities that have gone into precipitous decline or actually failed and disappeared, such as Mayan cities (Tainter 2003), our modern era experience is that contemporary cities are much less likely to collapse and disappear. Instead, they may enter a spiral of decline, becoming less competitive and losing their position in regional, national and even global systems of cities. However, through extensive financial and trading networks, cities have a high capacity to avoid abrupt change and collapse. Applying the resilience concept at the local city scale in a global context is thus not particularly useful. Rather, the utility of the resilience concept may lie in thinking about diverse development pathways or basins of attraction in cities, such as smart growth versus a less dense cityscape with green areas and ecosystem services.

When most people think of urban resilience, it is generally in the context of response to sudden impacts, such as a hazard or disaster recovery (see Alberti et al. 2003; Alberti and Marzluff 2004; Pickett et al. 2004; Vale and Campanella 2005; Cutter et al. 2008; Wallace and Wallace 2008). However, the resilience concept goes far beyond recovery from single disturbances. Resilience is a multidisciplinary concept that explores persistence, recovery, adaptive and transformative capacities of interlinked social and ecological systems and subsystems (Holling 2001; Walker et al. 2004; Brand and Jax 2007; Biggs et al. 2012). A distinction is often made between general resilience and specified resilience (Table 19.1) (Carpenter et al. 2012). General resilience refers to the resilience of a system to all kinds of shocks, including novel ones, whereas specified resilience refers to the resilience “of what, to what”—in other words, resilience of some particular part of a system (related to a particular control variable) to one or more identified kinds of shocks (Walker and Salt 2006; Folke et al. 2010). While sustainable development is inherently normative and positive, this is not necessarily true for the resilience concept (Pickett et al. 2013a). For example, development may lead to traps that are very resilient and difficult to break out of (e.g., Walker et al. 2009). The desirability of specified resilience in particular, depends on careful analysis of resilience “of what, to what” (Carpenter et al. 2001) since many examples can be found of highly resilient systems (e.g., oppressive political systems) locked into an undesirable system configuration or state. It also may refer “to whom” as a recognition of environmental inequity (Boone 2002; Pickett et al. 2011).

<b>Sustainability</b>	Manage resources in a way that guarantees welfare and promotes equity of current and future generations
<b>Resilience</b>	The capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks, and therefore identity, i.e., capacity to change in order to maintain the same identity
<b>General resilience</b>	The resilience of a system to all kinds of shocks, including novel ones
<b>Specified resilience</b>	The resilience “of what, to what”; resilience of some particular part of a system, related to a particular control variable, to one or more identified kinds of shocks
<b>Coping strategy</b>	The ability to deal effectively with, e.g., a single disturbance, with the understanding that a crisis is rare and temporary and that the situation will quickly normalize when the disturbance recedes
<b>Adaptive strategy</b>	Adjustment in natural and human systems in response to actual or expected disturbances when frequencies of disturbances tend to increase
<b>Transformative strategy</b>	The capacity to transform the stability landscape itself in order to become a different kind of system, to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable

Table 1: Definition of concepts (Modified from information included in Folke et al. 2010 and Tuvendal and Elmqvist 2012)

One of the basic principles in resilience thinking is that a slow variable may invisibly push a larger system closer and closer to a threshold (beyond which there would be radical change towards a new equilibrium) and that disturbances that previously could have been absorbed now result in abrupt change (e.g., Gunderson and Holling 2002). Urbanization may be viewed as a slow variable, which through, for example, changing land cover, pollution and nutrient depositions, may increase vulnerabilities to disturbances.



At the same time, urbanization itself may lead to higher intensity/frequency of disturbances through impacts on both global and regional climate change. Urbanization therefore represents a complex interaction between slow and fast variables, which need to be addressed in order to understand how different urban responses link to resilience. Conventional urban responses to disturbances (such as coping and adaptive strategies) may not only, over time, be insufficient at the city-scale, they may also be counterproductive when it comes to maintaining resilience at the global scale.

The concept of coping with disturbance is here used to describe the ability to deal effectively with, for example, a single disturbance, with the understanding that a crisis is rare and temporary and that the situation will quickly normalize when the disturbance recedes (see also Fabricius et al. 2007) (Table 1). Adapting to change is defined here as an adjustment in natural and human systems in response to actual or expected disturbances when frequencies of disturbances tend to increase (e.g., Parry et al. 2007) (Table 1). In contrast, a transformation is defined as a response to disturbance that differs from both coping and adaptation strategies in that the decisions made and actions taken change the identity of the system itself (Table 1). Folke et al. (2010) defined transformability as the capacity to become a different kind of system, to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable. It is important to consider disturbance as a part of a social-ecological system, having temporal and spatial dimensions (Peters et al. 2011), and note that changing social, climatic, and connective relationships may shift disturbance regimes.

It is important to note that transformations of urban contexts or urban sustainability transitions are not only triggered by disturbances, but may also be stimulated by innovative responses to challenges that progressively build up systems' transformative capacity towards a new configuration of drastically altered structures (i.e., infrastructures), cultures (i.e., institutions) and practices (i.e., routines) (Frantzeskaki et al. 2012; Nevens et al. 2013). Although at a first glance transformations often seem counterintuitive for building resilience, multiple transformations on lower scales may be necessary to maintain resilience on a larger scale (Allen and Hoekstra 1992; Wu and Loucks 1995). Implementation of transformation strategies for cities is therefore needed due to a number of reasons: a) it is recognized that existing coping and adaptation strategies do not suffice and the suggested changes are perceived as highly undesirable (Tuvendal and Elmqvist 2012); b) mitigation and adaptation strategies remain disconnected from each other and do not exploit synergies that may in return foster resilience (Jaeger et al. 2012); and c) current adaptation strategies do not consider emerging innovations and self-organized networks and initiatives experimenting with urban sustainability that can be the multipliers for transformative and innovative capacity of the cities (Van Eindhoven et al. 2013; Maassen 2012). These sustainability experimentation spaces can be the examples to draw from and to scale up for achieving urban environmental stewardship via, for example, total re-design of resource production, supply and consumption chains through to stewardship (cf. Chapin et al. 2009) of ecosystem services within and outside city boundaries (Elmqvist et al. 2013).

## 5. Sources of urban resilience

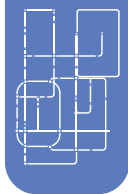
In light of the aforementioned increased frequency and intensity of hazards and disasters as a result of climate change, and of the proposition of stewardship of ecosystem services in such contexts, it is notable that research focused particularly on hazards has generally settled on four themes in resilience: (1) resilience as a biophysical attribute, (2) resilience as a social attribute, (3) resilience as a social-ecological system attribute, and (4) resilience as an attribute of specific areas or places. Thus, scholars have begun to consider groupings such as these resilience themes, and to search for common linkages and mechanisms that may serve as sources of resilience in specific hazards contexts (Adger et al. 2005; Tidball 2012, Pickett et al. 2013b).

Examples of common linkages and mechanisms that may serve as sources of resilience, and that hit upon unique and novel combinations of biophysical, social, social-ecological, and area or place resilience include community-based natural resource management (greening) in urban landscapes that emerge in hazard and vulnerability contexts. Such “greening in the red zone” (Tidball and Krasny 2013) is defined as an active and integrated approach to the appreciation, stewardship and management of living elements of social-ecological systems. Greening can take place in cities, towns, townships and informal settlements in urban and peri-urban areas. Greening sites vary from small woodlands, public and private urban parks and gardens, urban natural areas, street tree and city square plantings, botanical gardens and cemeteries, to watersheds, whole forests and national or international parks. The contribution of neglected sites to greening should not be dismissed (Pickett 2010). Greening involves active participation of human or civil society in activities in ecosystems (Tidball and Krasny 2007), and can thus be distinguished from notions of “nature contact” (Ulrich 1993) that imply spending time in or viewing nature, but not necessarily active stewardship. Explorations of how greening embodies active community member participation in stewardship of ecosystems and the services provided by them (and which, in turn, may result in measurable benefits for individuals, their community, and the environment) (Svendsen 2013), may represent a kind of management “sweet spot” wherein multiple outcomes and benefits are derived.

A key assumption when considering urban social-ecological systems and hazards (and the potential of ecosystem stewardship within these contexts) is that while hazards are “natural”, disasters are not (Bankoff 2010). There is a need to more fully understand the ways in which human systems, especially urban systems and a growing global system of cities, place people at risk in relation to each other and to their environment. There is also a need to continue to explore the interactions between humans and the rest of nature in the context of hazards, particularly how these interactions relate to multiple themes or kinds of resilience and urban sustainability.

## 6. Conclusions

Based on this overview, I argue that urban sustainability and resilience thinking, and policies derived from this thinking, must, to a much greater extent, address scales and consider urban teleconnections (Seto et al. 2012a), i.e., urban dependence and impacts on distant populations and ecosystems.



There is an apparent danger of applying too narrow an urban scale for these types of policies, since, for example, building (desired) resilience in one city may likely lead to erosion of resilience or create undesired resilience elsewhere. To build resilience, urban regions must take increased responsibility for motivating and implementing solutions that take into account their profound connections with, and impacts on, the rest of the planet. Collaboration across a global system of cities could and should provide a new component of a framework to manage resource chains for sustainability through resilience.

If we view sustainable development in a more dynamic way, we can define it as a form of development that fosters adaptive and transformative capabilities, and creates opportunities to maintain equitable, long-term prosperity and well-being in complex and interlinked social, economic, and ecological systems. However, with this definition it could be argued that there is a substantial overlap with the definition of resilience. One suggestion given to resolve this issue is that resilience can be seen as a necessary approach (non-normative process) to meet the challenges of sustainable development (normative goal) (Chelleri and Olazabal 2012; Pelling and Manuel-Navarrete 2011; Biggs et al. 2010; Childers et al. 2013).

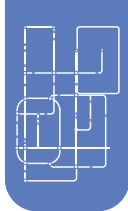
Without such considerations, urban resilience may fail to find meaning in rapidly urbanizing areas, or worse: it may create oversimplified goals for building resilience in a too narrow sense and risking being counterproductive. Key contributions from urban research will include a greater understanding of what constitutes generic adaptive and transformative capacity, and finally, how governance might trigger and direct urban transformations. These are far from easy tasks that lie ahead, but as the scale of the global challenge associated with rapid urbanization and climate change grows, traditional conceptualizations of sustainability need to be extended through engagement with resilience.

As centers of human innovation, and perhaps the most active frontier of our impact on the planet in shaping its landscapes and seascapes, cities offer arenas for enormous opportunities to reimagine and invent a different kind of future with room for humans and other species to thrive. Cities may well be the ground where we secure a globally sustainable future—one that builds on nature-based solutions and ecosystem-based adaptation, and establishes responsible environmental stewardship at the heart of public interest.

## 7. References

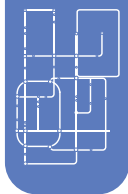
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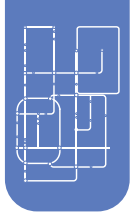
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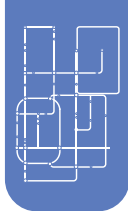
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## LOCAL AUTHORITIES; ACTORS OF ENERGY POLICY

Samuele Furfari

### SHORT CV

Adviser to the General Director of DG Energy at the European Commission and professor at the Free University of Brussels

After studying chemical engineering at the Free University of Brussels Samuel Furfari worked in this University as Assistant professor and researcher where he gets its PhD in 1982 with a thesis on transformation of coal into hydrocarbons.

He joined the European Commission in 1982 where he has spent its entire carrier on energy matters. He was active and leading various innovation energy policy: clean coal R&D, conception and management of energy technology demonstration programmes, fuel cells, environment and climate change related to energy policy (including Kyoto negotiation), energy scenarios. Back in 1994 he initiated and pushed the concept of local and regional energy agencies inviting local authorities to become actors of sustainable development that emerged now in the Covenant of Mayors.

At the creation of DG energy and transport he was requested to work on information and communication, not only for energy but also for transport issues. He returned back to the sustainable energy field were he developed energy efficiency and renewable energy policies (particularly heating and cooling and wastes), including cogeneration and district heating policy. He has therefore been involved in a early stage in the energy-climate package (20-20-20). In 2008, before and during the financial crisis he worked in a Task Force on the needs and means to finance energy efficiency, renewable energy and carbon capture and sequestration financing. As advisor, he is presently contributing to the coordination of various energy policies.

Samuele Furfari is teaching “geopolitics’ of energy” at the Free University of Brussels. He is collaborating with the European Energy Forum created my Members of the European Parliament. He is regularly invited to speak in conferences and in the medias. He is the author of 10 books on energy and sustainable development including *L'énergie, de la guerre vers la paix et la prospérité* (Académie Royale de Belgique, 2014), *Politique et géopolitique de l'énergie* (Technip, 2012).

## ABSTRACT

### Not a new story...

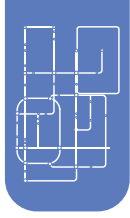
*'It's not walls or warships, or shipyards that cities need if they are to prosper, nor is it numbers or size, without virtue'* Socrates said to Alcibiades. These words are still just as relevant today. We all know megacities, large in population or size with modern-day equivalents of walls and warships, but which do not attract us as a place to live, lacking as they are in the virtue desired by Socrates. People of the 21st century, as in the 5th century BC, prefer to live in 'virtuous' cities, where quality of life is what matters above all else. Today, infinitely more than in Socrates' time, transport and in particular the possibility to relocate 'elsewhere', is what drives competition between cities. This new, high level of mobility, which is the prerogative of connected people, is set to grow in such a way that virtuous cities will become poles of attraction for a population which is no longer attached to a particular place. Competition between cities will revolve entirely around this essential question: is a city virtuous?

Cities continue to attract people. Man will never move back to the idyllic countryside, to live 'like in the olden days', with little energy and only that of the renewable kind. This sociological observation has led us to conclude that modern society can no longer get by without abundant, cheap and clean energy. Easy to say, yet oh-so-difficult to put into practice if we want to give equal importance to all three of these elements. And if we cannot satisfy all three at once, which then will we be quickest to sacrifice?

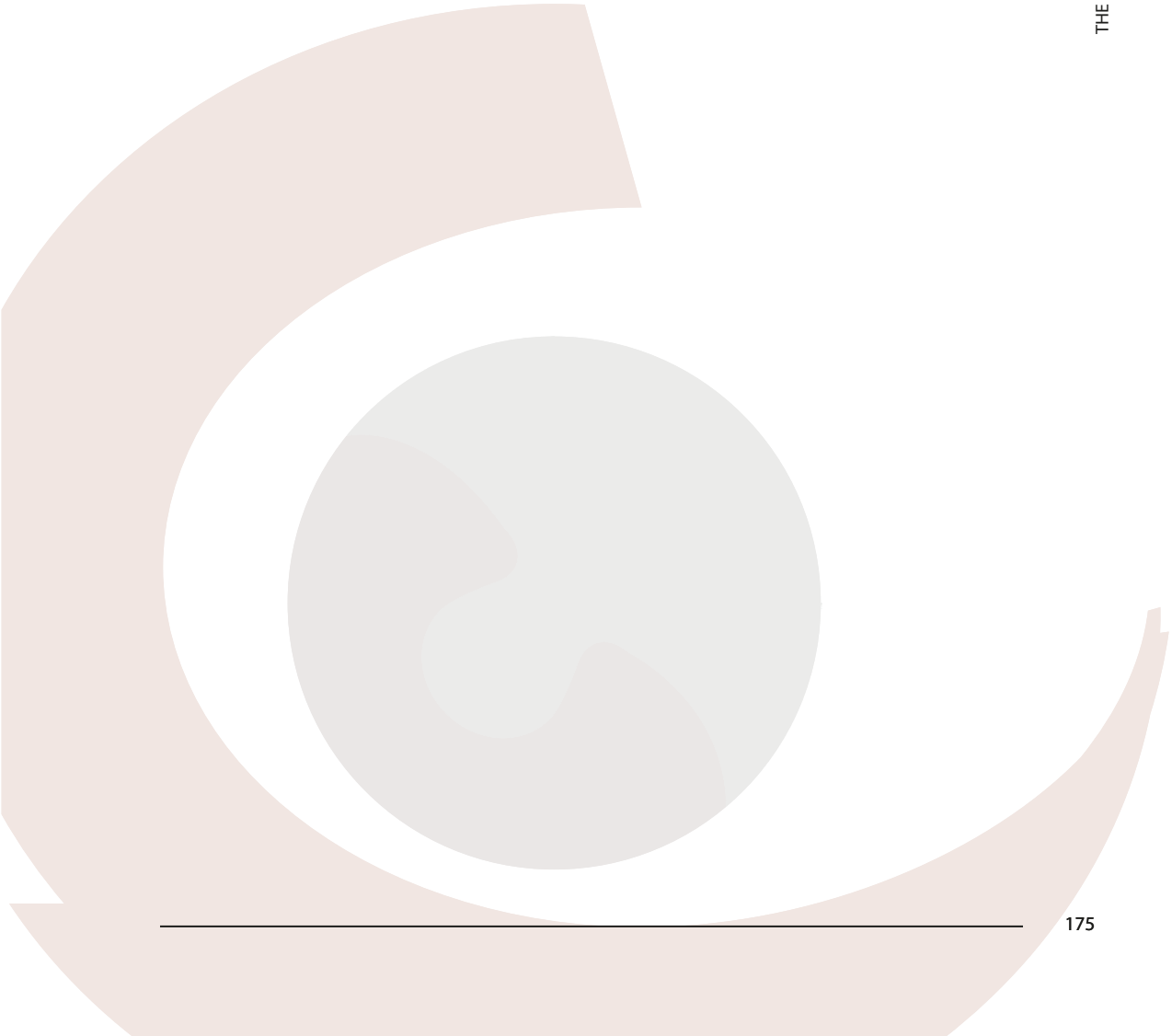
Although on a global level, around half of the world's population lives in cities, in the EU, 75 % of people live in urban areas, which account for 85 % of European GDP. Although cities are not always the home to high-energy industry, as in the days of the industrial revolution, 70 % – as opposed to 75 % – of total primary energy demand in the EU comes from urban areas. With the urbanisation phenomenon not expected to end any time soon, as the International Energy Agency points out, urban energy consumption is set to increase twice as quickly as the rate of EU-wide consumption, particularly in the urban transport sector where it is expected to double by 2050 despite progress in energy-efficient vehicles.

French Philosopher Jacques Ellul coined the concept 'think globally, act locally'. This has progressively penetrated the ideas of sustainable development to the point that the UN Framework Convention on climate change invited the parties to address the energy questions at local level: *"In carrying out their commitments under Article 4, paragraph 1(i), the Parties shall:(a) Promote and facilitate at the national and, as appropriate, subregional and regional levels, and in accordance with national laws and regulations, and within their respective capacities.<sup>1</sup>"*

<sup>1</sup> United Nations, United Nations Framework Convention on Climate Change, 1992, [https://unfccc.int/files/essential\\_background/background\\_publications\\_htmlpdf/application/pdf/conveng.pdf](https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf)



We were in 1992. A handful of local and regional energy agencies were existing in the EU since a few years. When in 1994 I started to implement this request of Article 6 and this has opened a new activities in favour of the creation of local and regional energy agencies within the SAVE Programme. Actions by Member States, particularly at the local and regional levels, are needed to exploit the energy efficiency potential. Particularly at that time, local and regional authorities were much more prone to invest in infrastructures (ports, airports, bridges,...) and therefore it was opportune to raise the awareness of local and regional policymakers to sustainable development potential under their remit. It is worth noting that the title of this famous Article 6 is “Education, Training and Public Awareness”, this means that at that time it was mainly a question of raising awareness but not only of the public but also of policymakers at all level as says the text of the article. With a symbolic financial support from 1994 the European Commission financed the creation of energy management agencies, composed of small teams at the appropriate level according to the existing legislation in each Member State.



## LOCAL AUTHORITIES; ACTORS OF ENERGY POLICY...

This promotion of the creation of regional, urban and island energy management agencies triggered the awareness of local policymakers. Local and regional energy agencies contribute to the implementation of sustainable energy policies by working closely with public authorities and with local small and medium-sized enterprises, chamber of commerce, all actors of the economic development and also citizens. The agencies were more a tool to stimulate the local governments that to implement real projects. By providing financing under its regional and local energy management initiative, the European Commission contributed to the recognising that energy was a cross-cutting issue. It affects a number of policies and measures falling within the competence of regional and local political leaders. They began contributing to energy efficiency in the spheres of influence for which they had responsibility, both by implementing their own political decisions (e.g. in land use planning and management, transport policy, etc.) and by mobilising local citizens and entrepreneurs on the basis that they are best placed to motivate the higher decision-making bodies.

Public procurement across all the local and regional authorities of the Union has huge potential for energy efficiency and the tendering procedures on these markets have already begun to recognise the impact they can have in this area. Local authorities are indeed able to play a leading role in adopting low-energy products. One example is the fleet of cars and commercial vehicles used by these authorities. What is there preventing them all from using natural gas-powered vehicles? It is an abundant and cheap source of energy which pollutes far less than petrol or diesel. This is also the reality of the last two years in the USA where, thanks to the extraordinary and rapid development of shale gas, which also saw it become more economical, commercial vehicles and even trains are now being powered by liquefied natural gas. We will return to that at the end of this contribution.

Waste management is another concern on the minds of elected district councillors; we will develop that hereunder. Another area in which cities can impose energy efficiency is in district heating. By combining centralised heat production with cogeneration (simultaneous generation of electricity and heat), a district heating supply can help to improve air quality, as it is easier to manage combustion and consequently emissions from a centralised plant rather than from many boilers. Of course, investing in a heating network will only pay off in the long-term, which explains why there are so few being set up. The answer is not to tear up city streets in order to put these kinds of networks into place, but to plan the heating network in advance at the same time as planning the sewage or water supply network if a new district of a city has to be built. Costs would be far lower and the economic return greatly improved.

It should be noted that urban energy choices have an indirect impact on global energy choices. To some degree, in terms of energy management, the *'think globally, act locally'* idea should also be elaborated to include the idea of *'think locally, act globally'*.

It was pioneering in 1994. It is now common rule. Cities are actors of the energy demand management. Accordingly there are now about 400 agencies in the EU (Figure 1)<sup>2</sup>.

<sup>2</sup> European Commission, Executive Agency for SMEs, Managenergy, [http://www.managenergy.net/energy\\_agencies#.VrXEsUZtxRc](http://www.managenergy.net/energy_agencies#.VrXEsUZtxRc)



Figure 1: Map of the local and regional energy agencies in the EU

Their life has never been easy because dealing with energy demand is extremely complex, very popular but very badly and slowly implemented. If political support is key to the establishment of new energy agencies, it is even more crucial for the sustainability of their activities in the medium-term. Many of them were created by enthusiastic energy manager and/or local policymakers, but at a next election new peoples were sometime dismantling the small

structure for political reasons. Probably that the main difficulty of the local energy agencies has been the political influence, while this tool of energy saving is a-politic. For an energy agency, being dependent on only one local authority is a risk because any political changes (elections) or even a local political quarrel can lead to a loss of support. According to an evaluation report of the European Commission, such problems have already led to the disappearance of a number of local or regional energy agencies, notably in Italy, Spain, UK and Greece, for example from 2012 to 2013, 42 energy agencies (possibly more) closed down or became inactive<sup>3</sup>.

The local and regional energy agencies present strengths that allow them to play a relevant role in energy demand sector; but they present also weaknesses that should not be under evaluated (Table 1). They should act but should accept they cannot do everything. Through the instrument named ManagEnergy<sup>4</sup> networking meetings are targeted. They organise thematic events that aim to promote good practices and facilitate learning, exchange and networking for local and regional actors working in the sustainable energy field. The structure and content of all meetings are specifically designed to accommodate the needs and expertise of participants. The target groups for the meetings include local and regional authorities, energy agencies, networks, vocational trainers, and educators.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Is closer to the consumer</li> <li>• know their territorial specificities;</li> <li>• raise local authorities (policymakers and administration) awareness;</li> <li>• raise consumer awareness;</li> <li>• it is the main – when not the sole – body reflecting in term of “energy demand” (although to often falling in the “supply side);</li> <li>• perform innovative and exemplary projects.</li> <li>• advise to governments on technical matters and recruitment;</li> <li>• defend a neutral position;</li> <li>• act as an aggregator of all local actors;</li> <li>• contribute to improve the local competitiveness</li> <li>• convey Europe policy closest to local authorities and citizens;</li> <li>• bring experience from others agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Various legal forms do not facilitate the cooperation;</li> <li>• they have different skills, different interest, different realities to address;</li> <li>• low partnership with private entities and particularly scarce public-private partnerships;</li> <li>• to often still oriented in the planning mode concept (energy planning) and therefore oriented to address supply questions;</li> <li>• presence of the university and academic support usually weak despite some very good exceptions;</li> <li>• lower realization of quantitative targets and long-term planning;</li> <li>• low influence on the adoption of economic, environmental and spatial planning policies;</li> <li>• tendency to mix the objective of the energy policy and environmental policy;</li> <li>• their future is subject to political will.</li> </ul>

Table 1: Energy characteristics of local and regional agencies

<sup>3</sup> European Commission, Executive Agency for SMEs, Energy Agencies in Europe, Results and perspectives, September 2015, <https://drive.google.com/file/d/0Bz9cmQbr5P75ZEEdOX0J0T3ppNGs/view>

<sup>4</sup> European Commission, Executive Agency for SMEs, Managenergy, <http://www.managenergy.net>

The meetings are held on a regular basis across Europe for a select number of participants. The team are small but thanks to the networking there is a leverage effect that delivers more results.

The role of regional and local Energy Agencies should be better valued. They offers a real opportunity to promote the use of indigenous energy resources, energy saving and energy efficiency not only as aims for the energy policy but also as a means of continuous improvement of economic competitiveness and improving the quality of life in the territory. As the energy market policy and the Energy Union looks to empower the consumer. Agencies should be encouraged not only to continue to network as they are doing with the Managenergy<sup>5</sup> platform of exchange of information but also to develop common tools to be more efficient and to take advantage of the cooperation because as we have seen these energy agencies have usually only one to two handful peoples. An interesting project has been proposed by Juan Carlos Aguilera Folgueiras that proposed in a PhD thesis at the Oviedo University to develop a common methodology and energy model that will include regional specificities and integrate ICT techniques<sup>6</sup>.

Although in terms of fossil fuels, what is valid for one country is also valid elsewhere, this is not the case for renewable energy or energy management. There are no universal solutions for managing energy in cities. Each one must identify the synergies which exist locally in order to take the right decisions. Each city and each district has its own idiosyncrasies, its own culture and its own particularities which distinguish it from another. In fact, this is one of Europe's assets. However, it is a drawback in terms of energy efficiency. Nevertheless, certain cities share certain common characteristics which, if identified, can be circulated. Exchanging information between cities is therefore essential. Admittedly, this is less effective than an advertising campaign or a tempting call for tender, but what are the alternatives for markets addressing specific characteristics? Subsequently, exchanging information and seeking out partnerships in order to disseminate good energy practice and real results are promoted and coordinated at European – and sometimes at global – level. Consequently, urban or regional networks such as Energie Cité, ICLEI, Federene, Islenet, etc. have evolved, in terms of their technologies or systems, innovative funding mechanisms, communication campaigns, sharing experience on good governance or public-private partnerships, useful exchanges for uncovering niches, etc.

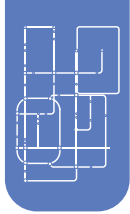
It is a lot easier to buy solar panels which give cities good visibility and an environmentally- friendly image, than to address energy efficiency. *Energy efficiency is difficult*. It is indeed onerous as niches have to be uncovered, which, by definition, will be small and impossible to project elsewhere. This is also the reason why advocates of energy citizenship generally develop legislative policies and measures rather than voluntary or market measures.

The most emblematic of the European Commission's initiatives, after the creation of the energy management agencies, is the Covenant of Mayors<sup>7</sup>. The Covenant of Mayors is a platform for inter-institutional cooperation, based on the principles of participatory democracy and subsidiarity, with common objectives and support

<sup>5</sup> Managenergy, <http://www.managenergy.net/>

<sup>6</sup> Aguilera Folgueiras Juan Carlos, Demanda inteligente de energía y servicios energéticos: objetivos de una metodología de mejora continua para agencias de energía. aplicación al Principado de Asturias, PhD thesis, Oviedo University, 5 February 2016

<sup>7</sup> [www.covenantofmayors.eu](http://www.covenantofmayors.eu)



established at European level and action taken at local level. The approach is a bottom-up approach in which Mayors (i.e. municipalities) are operating from inside the city to intervene in favour of citizens (Figure 2). The aim of the initiative is to involve local and regional authorities in the fight against climate change through energy management policies and measures. Cities which sign up to the Covenant make a voluntary commitment to meet and exceed the EU objective of reducing CO<sub>2</sub> emissions by 20 % in their region by improving energy efficiency and developing renewable energy sources. The Covenant also recognises the importance of local policies and measures as a way of helping to fulfil the ‘Europe 2020’ strategy, the aim of which is to reduce greenhouse gas emissions by 20 %, produce 20 % of energy from renewable sources and reduce energy consumption by 20 %, all by 2020. Launched in 2008, the Covenant was signed in mid- September 2004 by 5 987 mayors, with more than 200 urban support structures set up as part of these pacts. The Covenant of Mayors impacts the daily lives of almost 191 million people in Europe and beyond, spanning 48 countries.

Above and beyond energy savings, the action taken by signatories can have multiple results if specific measures are put in place: creating skilled and stable jobs not at risk of outsourcing, improving the environment and quality of life, increasing economic competitiveness and indirectly impacting energy independence. These actions serve as an example to other cities or districts, in particular through the ‘Benchmarks of Excellence’, a database of best practice implemented by the signatories to the Covenant.

Because of its popularity, the initiative has been extended at international level. In September 2011, the Commission launched a new project called the ‘Covenant of Mayors – East’, supporting signatories to the Covenant of Mayors from cities in Eastern Europe, the Caucasus and central Asia. More than 50 mayors from the Eastern partnership region, representing more than 10 million citizens, decided to follow the example of their EU counterparts. With the CESMED project (‘Cleaner Energy Saving Mediterranean Cities’), launched in 2013, the Covenant of Mayors has been extended to include neighbouring southern countries. Although the initiative has achieved unprecedented success, as shown by the large number of signatories to have joined and the support of the European Parliament and EU Committee of the Regions, efforts are now focused on ensuring that the commitments by the individual signatories are fulfilled timely and that they achieve their promised results.

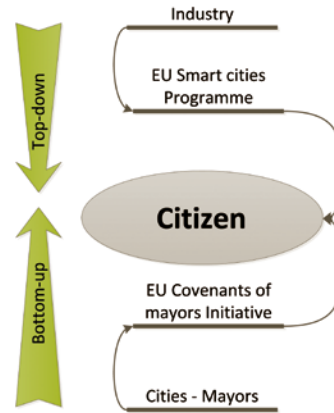


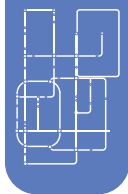
Figure 2: EU Smart cities and Covenants of Mayors initiatives in favour of citizens.

## 1. Wastes, an energy opportunity

Valuable resources are leaking from modern economies. In a world where demand and competition for finite and sometimes scarce resources will continue to increase, and pressure on resources is antagonist to the sustainable development, we all can benefit economically and environmentally from making better use of those resources. Since a few decades the economies have developed a linear model based on the assumption that resources are available, easy to source and cheap to dispose of. Moving towards a more circular economy is better to deliver the resource efficiency agenda established under the Europe 2020 Strategy for smart, sustainable and inclusive growth. Higher and sustained improvements of resource efficiency performance are within reach and can bring major economic benefits. Circular economy systems keep the added value in products for as long as possible and eliminate waste. They keep resources within the economy when a product has reached the end of its life, so that they can be productively used again and again and hence create further value. Transition to a more circular economy requires changes throughout value chains, from product design to new business and market models, from new ways of turning waste into a resource to new modes of consumer behaviour. This implies full systemic change, and innovation not only in technologies, but also in organisation, society, finance methods and policies. Even in a highly circular economy there will remain some element of linearity as virgin resources are required and residual waste is disposed of.

One existing forms of circular economy it the use of urban waste as a form on energy and even renewable energy. Why is this question interesting in the framework of local authorities? Because a sorted waste is a source of energy! About 50% of the waste is a source of renewable energy, as indisputably defined in the EU directives on renewable energy, The directives of 2001 and 2009 states: “renewable energy sources” shall mean renewable non-fossil energy sources: wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases” and “biomass” shall mean the biodegradable fraction of products, waste and residues from agriculture (including vegetal and animal substances), forestry and related industries, as well as the biodegradable fraction of industrial and municipal waste”. A lot of what we throw out in the bin is produced by nature (dirty papers, cotton stick, corks, tea bags, etc.) and is not only renewable energy but it has already offered a service to the society before it is finally burnt. Cities can therefore generate renewable energy, providing it is accepted that the waste can be incinerated in order to recover the energy, rather than going into landfill and becoming a potential source of methane pollution.

The EU policies on waste prioritise what should be done with waste in order to minimise the use of natural resources and minimise the environmental impact. The Waste Framework Directive sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. It introduces and defines basic concepts and lays down waste management principles such as the waste hierarchy where waste prevention is the preferred option and the last thing to do is to landfill wastes. From an environmental perspective, dumping or ‘landfilling’ is the worst waste management option. It uses up space and could create a future



environmental liability. It represents a waste of resources. EU legislation has introduced high standards for landfills to prevent soil and groundwater pollution, and to reduce emissions to air — for example of methane, a powerful greenhouse gas. However, in some cases the legislation is poorly implemented — there are still thousands of mismanaged and unauthorised landfills across the Member States.

Every EU citizen produces an average of 444 kg of household waste per year, a figure that is expected to increase. However, this average hides significant differences between Member States. This represents about 10% of the total waste generated in the EU. It is not only an environmental issue but also a societal one as this is linked to the modern way of life of Europeans. It is therefore normal that the EU developed a strategy to address properly and comprehensively the issue. In 2013, a large share (37%) of municipal solid waste was still landfilled. Today the trend is to recycle/compost (40%), or incinerate with energy recovery (23%), for different waste streams instead of landfilling.

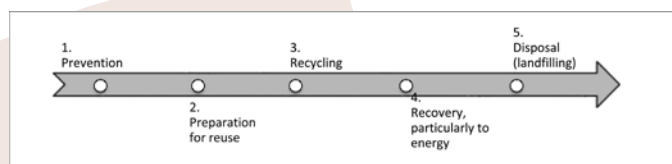


Figure 3: Hierarchy of waste management

Recycling provides benefits for the environment by diverting waste away from landfill, thereby allowing a second usage of materials, curtailing the need for extraction, and in some case also reduction of polluting emissions:

- Recycling glass bottles or aluminium cans is wise because the material can be recycled infinitely, landfilling it is not creating pollution but is an economical non-sense;
- Recycling paper is an economic action but it cannot be done infinitely and landfilling it will create pollution by the rotting of cellulose.

In the EU waste incineration is not only legitimated by legislations but also encouraged because it is now regulated by stringent EU standards that have significantly reduced emissions. For example emissions to air of dioxins, a highly toxic group of substances, from the incineration of municipal waste has dropped to about 0.5% of total dioxin emissions in the EU 25. Incineration can also be useful in recovering energy contained in waste.

The treatment methods differ substantially between Member States. In 2012, recycling and composting of municipal waste together accounted for more than 50% of waste treated in Germany, Austria (62%) and Belgium (57%). Recycling in Germany (47% of waste treated), was most common just like composting in Austria (34%). The highest shares of municipal waste landfilled were recorded in Romania (99% of waste treated),

Malta (87%), Croatia (85%), Latvia (84%) and Greece (82%), and of incinerated municipal waste in Denmark and Sweden (both 52%), the Netherlands (49%), Belgium (42%), Luxembourg (36%), Germany and Austria (both 35%), Finland (34%) and France (33%).

More than 80 Mt of municipal waste are still landfilled in EU-28, despite its huge negative impact on the environment. In Europe, recovered energy from waste for District Heating systems represents 50 TWh per year, i.e. around 10% of the total heat delivered through District Heating systems.

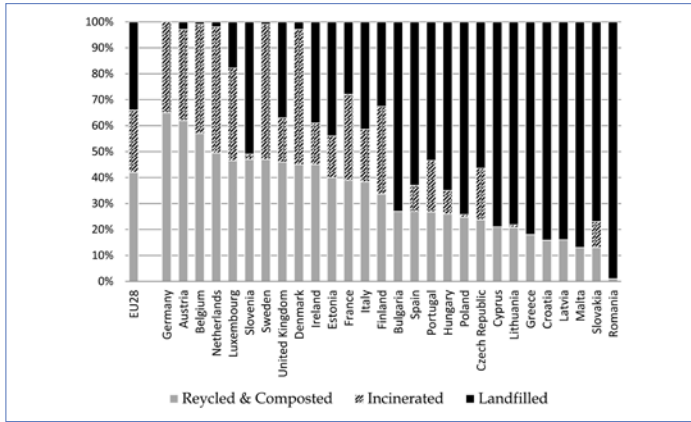


Figure 4: Fate of urban waste (data Eurostat data for 2012)

Figure 4 illustrates that the most virtuous countries in recycling are also those that avoid landfilling because the remaining fraction after recycling is indeed a fuel. Once metals and glass has been removed from urban waste, the remaining can be burnt. This means that that when you recycle, the remaining fraction is a fuel that can be burnt; reversely, if there is no or little recycling the remaining fraction cannot be burnt because of its high level of inert matter. The conclusion is the reverse of what environmentalists have claimed for years: the higher the recycling rate, the higher the incineration rate. In most countries, these rates have changed, but not in Italy, as we will see.

## 2. Smart Heating, the key to energy efficiency in cities

Historically, energy needs were restricted to heating, either to protect oneself from the weather or for cooking. In this chapter we deal mainly with heating but as more and more cooling systems are being used, we will rather use the term “heating and cooling”. Heating and cooling is the largest single source of energy demand in the EU, to which the major part of its gas imports is devoted.

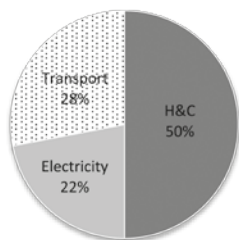


Figure 5: Share of final energy demand in the EU (H&C= heating and cooling, European Commission data)

At least half of the final energy used in the EU is used for heating and cooling. It is regularly said that 40% of the energy is used in buildings (in the broad sense, not just residential houses), but it should be pointed out that about 80% of this energy is used to produce heat (for heating, hot water and cooking).

Strangely enough, despite this majority share, heating and cooling has been the missing piece in European energy policy jigsaw puzzle. There are a few reasons for this:

- Heating and cooling has always been widely viewed as private without any market dimension. The distribution market for heating and cooling is very marginal compared to those of electricity and gas. There is no such thing as a heating national market, let alone a European. Apart from district heating – which is a de facto natural monopoly – there are no companies that sell heating. We come across companies selling heating services but none dealing solely with heating – if they do exist they would be limited to the size of a block of houses.

- There are not even a handful of trans-border heating markets and thus no need to implement a “single market for heating and cooling”.
- Heating price was considered “affordable”
- Heating demand is inelastic; whatever the situation, heating is a basic need either in dwelling or in the industry. The thermostat game has a limited effect.
- Conditions largely differ between countries. In way of example, Finland needs heating during a large part of the year while reversely in some regions of Spain needs to cool down dwellings.
- Financing is less accessible for the implementation of major projects such as district heating.

Accordingly, policy development for heating and cooling policy has lagged behind electricity and transport energy policy while thermal energy can be found everywhere. We use heat to warm homes, schools, hospitals, shops offices, etc. In the EU, heating and cooling make up at least half of our energy use, equivalent to the sum of transport and electricity consumption. This figure masks considerable differences as the energy performance in buildings varies greatly, subject to the age, type, climate, construction quality and use of the buildings. According to the Buildings Performance Institute Europe (BPIE) current levels of energy consumption for a single family building range from 585 kWh/m<sup>2</sup> (UK, pre-1920, detached house) to 34 kWh/m<sup>2</sup> (Slovenia, post-2005)<sup>8</sup>. The average annual energy consumption of residential buildings today is 168 kWh/m<sup>2</sup>, and on average 70% or 118 kWh/m<sup>2</sup> are used for heating. In the residential sector, space heating constitutes the biggest share of energy consumption amounting to 80% of total final energy use (Figure 6).

<sup>8</sup> Buildings Performance Institute Europe, Europe’s Buildings under the Microscope, 2011, [http://www.bpie.eu/eu\\_buildings\\_under\\_microscope.html](http://www.bpie.eu/eu_buildings_under_microscope.html)

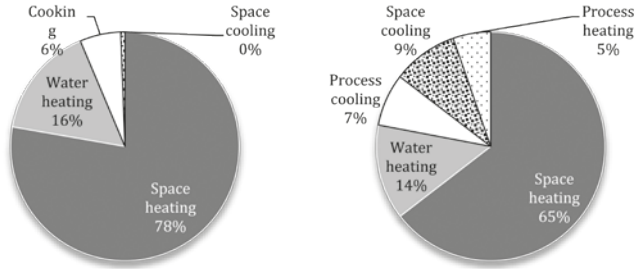


Figure 6 Heat consumption per use in the residential sector (left) and tertiary sector (right) (2012, European Commission data)

The tertiary sector is quite different from the residential sector, with marked different structures in energy consumption according to the subsector. Compared to households, space heating has a smaller share, while space cooling and lighting are important drivers of energy consumption in buildings. It is estimated that the average annual energy consumption in the non-residential (tertiary and industry) sector is 280 kWh/m<sup>2</sup> (covering all end-users), and around 52% or 145 kWh/m<sup>2</sup> of this is used for heating<sup>9</sup>. This is at least 40% more than the equivalent value for residential buildings. The share of water heating in buildings represents 16% of the total heating and cooling demand in the residential sector and 14% in the tertiary sector. With regard to the fuel mix used in heating and cooling, natural gas is the dominant fuel used for heating in the building sector.

Its overall share is 43% (Figure 7). Gas (13%) is followed by oil products. Electricity (resistance heating and heat pumps) supplies 11% of space heating and hot water, while biomass boilers constitute 17%. Other renewable sources are still marginal. District heating represents 9% of the energy used for heating and cooling. Coal is nowadays hardly used for heating and accordingly its share is only 4%. The overall averages cover large differences in regional and national fuel mixes. Renewable energy sources (solar heat, biomass, geothermal, wastes) have a share respectively of 21%, 12% and 9% in the final consumption of Central and Eastern, South, and North and West regions.

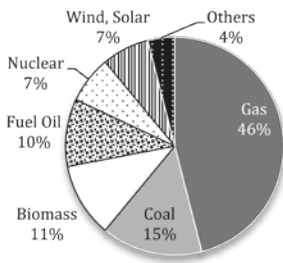
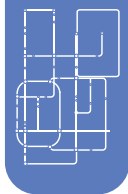


Figure 8: Primary energy for heating and cooling (all sectors) (European Commission data)

In the residential sector, gas is the most common fuel in all regions, standing at 41%, 39% and 26% in North and West, South, and Central and East regions, respectively. The highest use of coal in the residential sector is found in Central and Eastern Europe, with Poland supplying 41% of heating from coal. Oil use is highest in North and West Europe where Germany and France are the biggest consumers, e.g. 20% of France's heat is supplied from oil. District heating is most common in Northern,

and Southern regions. In the tertiary sector, gas is also the most common fuel, but its share is lower, around 30%. Electricity is used for space heating and hot water in the tertiary sector, but its share is lower than in the residential sector. Biomass is used for space heating and hot water in the tertiary sector, but its share is lower than in the residential sector. District heating is used for space heating and hot water in the tertiary sector, but its share is lower than in the residential sector. Coal is used for space heating and hot water in the tertiary sector, but its share is lower than in the residential sector. Wind, solar, nuclear, and other renewable sources are used for space heating and hot water in the tertiary sector, but their shares are very low.

<sup>9</sup> Hospitals and hotels are, on average, the most energy intensive buildings with continuous occupancy, but since their share is only 7% and 11% respectively of non-residential buildings, their total consumption is small.



Central and Eastern Europe and least in Southern countries. Electricity provides a large share of heating in all regions, 16%, 26% and 29% in Central-East, North-West and South Europe, respectively.

This lack of interest for half of the final energy demand has been such that there were no statistics for this sector. In 2006 when the author started to get this strategy working, he was disappointed to hear that Eurostat could not provide him with the necessary data – because they did not exist at the time. Since then much progress has been made and the EU Statistical Office now holds the appropriate data and makes continuous efforts to update them.

Up till now Europe has lacked a clear and coherent strategy for heating and cooling. In 2015, with the launch of the so-called “Energy Union” the European Commission decided to change that and started putting that piece into place to create the “EU Strategy for Heating and Cooling”, designed to be comprehensive and to disentangle the complexities involved<sup>10</sup>. This strategy provides a framework for integrating efficient heating and cooling into EU energy policies by focusing action on stopping energy leakage from buildings, maximising the efficiency and sustainability of heating and cooling systems, supporting efficiency in industry and reaping the benefits of integrated heating and cooling into the electricity system. A smarter and more sustainable use of heating and cooling is within reach as the technology is available.

Actions can be deployed rapidly, without prior investment in new infrastructure and with substantial benefits for both the economy and individual consumers.

45% of the energy for heating and cooling in the EU is used in the residential sector, 37% in industry and 18% in services.

Household and service energy consumption heavily depends on the weather that ultimately affects the need for heating. As about 1/3 of natural gas is used for heating purposes it is easy to understand that gas consumption is strongly correlated to the meteorological conditions.

Definitively, heating and cooling are present in all activities and therefore deserve a special treatment. Let us therefore give some data to put that into perspective. A mere 15% of heating and cooling comes from renewable energy while two-thirds of the gas used is for heating purposes, which means that any gas crisis we may face in Europe is in reality a heating crisis.

To reduce the impact of energy in heating and cooling, the building sector should be addressed as a matter of priority. About forty percent of the 180 million of the EU’s building stock was constructed before 1960, when there was no need for energy efficiency, and over the years only a small proportion of these have undergone major energy retrofits. About 40% of the final energy is used in the building sector and 80% of these 40%

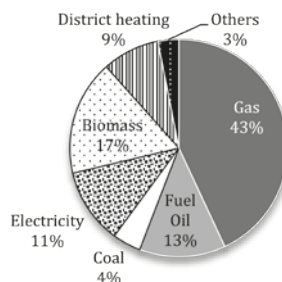


Figure 7: Fuel mix for heating and cooling in the residential sector (European Commission data)

<sup>10</sup> European Commission, An EU Strategy on heating and cooling, COM(2016) 51 final, 10 February 2016

is for heating and cooling. In many EU Member States, a large number of buildings date before 1920. They generally consume ten times more energy than buildings made after 2010. This means that we are throwing away billions of Euros every year to keep them warm. Nearly  $\frac{3}{4}$  of the buildings that will be standing in 2050 have already been built. The current rate of building renovation is no more than 1% per year: at this rate, half of these buildings will not be renovated between now and that time. Unless renovation rate gets speeded up, the EU has little chance of achieving its energy efficiency and climate objectives, not for a lack of policy but only because it is impossible to destroy houses and build new ones just for the sake of “saving the planet”. The structure, age and dispersed ownership of the EU building stock creates specific barriers, such as conflicting interest between tenants and owners, and between co-owners of buildings. These so-called “split incentives” make it harder to finance the refurbishments needed to make them energy efficient. There have been good examples of creative attempts to overcome these barriers. Innovation is necessary to convince citizens of the need to renovate their dwellings; this will not only impact their energy bill but also will improve their homes and their wellbeing in.

Despite these challenges, thanks to a vigorous EU policy in the field of energy efficiency, for both buildings and industry, some progress has been achieved. For example, new buildings consume half the energy they did in the 1980s and EU firms are improving their energy intensity twice as fast as their American competitors. This nevertheless is not enough if the commitments made by the EU are to be respected. Without a strong involvement of technology providers energy efficiency in heating and cooling sector will not materialise as quickly as desirable.

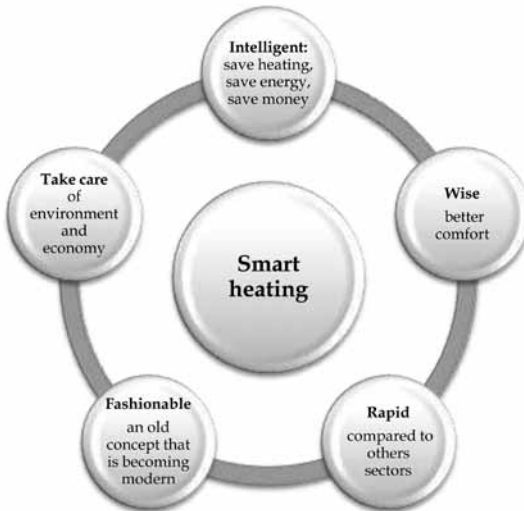
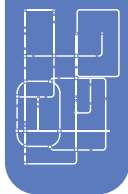


Figure 9 Smart heating characteristics

Smart cities and smart grid/smart metering are popular slogans. The meaning of the word “smart” gives us a hint on the advantages of “Smart Heating” (Figure 9). Smart means intelligent, wise, rapid and fashionable; these are all characteristics that are illustrated in the figure. By way of example, contrary to smart grid, it requires no technological revolution.



### 3. Gas in transport, a local authorities task

In the fight against urban pollution, there is widespread awareness of the importance of limiting the impact of the atmospheric pollution from vehicles. Some use this as justification to blame cars, when in fact it is not actually the car itself that causes the pollution but the fuel it uses. The solution therefore has to come first and foremost from the energy sector.

As the transport issue is above all an energy issue, it is no surprise that in its new 'Energy Union' strategy, the European Commission places renewed emphasis on this aspect. It points out that transport represents 28 % of final energy consumption in Europe. Realising its energy efficiency potential requires a continued focus on tightening CO<sub>2</sub> emission standards for passenger cars and vans post-2020, and on measures to increase fuel efficiency and reduce CO<sub>2</sub> emissions for heavy-duty vehicles and buses. The Commission states that it will also take further actions to decarbonise the transport sector, which is still essentially running on oil products, as we will see. This will require a gradual transformation of the entire transport system as well as an increased development and deployment of alternative fuels. In 2014 the EU implemented measures in a number of areas to facilitate the use of alternative fuels, including liquefied natural gas (LNG), in transport. In particular, a 2014 Directive<sup>11</sup> on the deployment of alternative fuels infrastructure – sometimes known as DAFI – is a milestone in the deployment of alternative solutions to the hegemony of oil products in the transport sector.

Moreover, the Commission has taken action, and has announced that it will take further action, to promote the swift development of the necessary infrastructure, i.e. refuelling and recharging stations, as the market take-up of vehicles using these alternative fuels depends on infrastructure, vehicles and fuels being rolled out together, especially throughout the trans-European transport network (TEN-T).

The Commission believes that electrification of transport is important to break oil dependency and to decarbonise transport, especially for road and rail transport. That is why electric vehicles are put forward as a key factor in improving air quality in urban areas. The limitations of that sector are evident. The car sector is only viable with enormous sales of the same type of vehicle because of both tough, global competition and reduced profit per unit sold. For electric vehicles to gain a foothold, clear progress must be made, notably in terms of battery life and price, the charging infrastructure network and the significant impact this will have on the smart power grid. The EU's research programmes therefore provide funding for R&D in this area. In any event, from a global environmental point of view, the electric vehicle solution will offer advantages in the future only if the electric fleet is fuelled primarily by nuclear power or renewable energies. That is undoubtedly one of the reasons why France is one of the most advanced country in the EU in the electric vehicle sector.

<sup>11</sup> Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure, Official Journal of the European Union L 307/1, 28.10.2014.

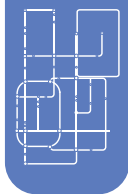
Country	Share of vehicles using gas
Pakistan	80 %
Bangladesh	62 %
Armenia	55 %
Bolivia	28 %
Iran	27 %
Uzbekistan	26 %
Argentina	18 %
Colombia	15 %
Peru	10 %

Table 2: Share of vehicles using natural gas in the total fleet (countries with over 10 %, NGVA Europe dataxi)

Vehicle type	G.m <sup>3</sup>	Mtoe	%
Cars	35.2	29.1	45.8
Buses	28.1	23.2	36.6
Trucks	13.2	10.9	17.2
Others	0.3	0.2	0.4
<b>Total</b>	<b>76.9</b>	<b>63.5</b>	<b>100.0</b>

Table 3: Natural gas consumption in transport (NGVA Europe estimatexi)

The main characteristic of the energy-transport link is the fact that 94 % of transport relies on oil products, and thus crude oil, of which 90 % is imported. This figure does not include international navigation, which is practically 100 % reliant on oil products. Figure 1 illustrates that in the electricity sector the EU's energy mix is well balanced (even if it is quite unbalanced in certain Member States such as France and Poland). The heating sector is dominated by natural gas while the rest is relatively well balanced. However, the transport sector is almost completely dependent on oil products. This is not due to a lack of desire to break this quasi- monopoly: since the oil crises of the 1970s the national and EU authorities have been particularly active in this area. However, we must acknowledge that it is the benefits of oil products for the transport sector (which we will not go into here) that give them a quasi- hegemony that is difficult to break. Indeed, this over-reliance on oil products in the transport sector has a large bearing on energy geopolitics. If there were not such an (excessively) high dependence in a crucial sector for the economy and human activity, OPEC simply would not exist and the entire energy policy would be turned upside down. Putting an end to the stranglehold of oil products in the transport sector is therefore not only an environmental issue but – above all – an issue of energy geopolitics and their corollary, the security of energy supply. The move from oil products to natural gas in the transport sector is already a reality around the world and, to a lesser extent, in the EU. This will bring about a very significant reduction in pollution, including noise pollution. Moreover, the fact that the market is spontaneously interested in this sector is a tangible sign that the economic benefits are also being recognised. We can therefore conclude that the use of natural gas in transport now responds to the objectives of sustainable development.



However, the other benefits in terms of geopolitics and, thus, security of energy supply are just as important. The more cars, urban buses, municipal trucks, ships and even trains running on LNG, the more pressure there will be on the oil market in addition to the geopolitical pressure that already exists and that has upset the old paradigm. If we add to that a reduction in the demand for oil products thanks to greater energy efficiency in the transport sector as a result of technological progress and the developments of Smart Cities, it would appear that we are going to see a major change in the oil industry and, therefore, in the geopolitical situation. There is scarcely any need for the share of gas in transport to reach several dozen per cent for these changes to have a huge impact on the global oil market and cause another upheaval in the energy sector.

The abundance of natural gas in certain countries and the fact that it costs less than oil products have helped to promote its use in the transport sector, especially because petrol car engines (Otto cycle) only need a minor adaptation to enable them to burn methane, the main component of natural gas. According to NGVA Europe<sup>12</sup>, the organisation that promotes the use of gas as a fuel for the transport sector, there were already 17.7 million vehicles using natural gas in the world in 2013, the vast majority of which (16.3 million) were light commercial vehicles running mostly on compressed natural gas (CNG). Iran, for example, which does not have the refining capacity to produce motor fuel and cannot export its gas, has decided to use natural gas in the transport sector: it has 3.3 million vehicles running on natural gas, or 27 % of its total fleet. In addition to Iran, six other countries have more than 1 million gas-powered vehicles: Pakistan (2.8 million), Argentina (2.2 million), Brazil (1.7 million), China (1.6 million) and India (1.5 million).

One cannot fail to be very impressed by the fact that in Pakistan the number of vehicles using natural gas (CNG) represents almost 80 % of the fleet (Table 2). Global consumption of gas in the transport sector is equivalent to 63.5 Mtoe, almost the same as Belgium's gross energy demand (Table 3).

However, China is the country that is making the most rapid progress. In 2013 it already had 1.6 million vehicles, 3 350 CNG refuelling stations and 1 300 LNG stations. China began using LNG in 2006 and has now become a global leader in the sector. The gas network is underdeveloped, unlike in the US and the EU, so natural gas is not accessible everywhere.

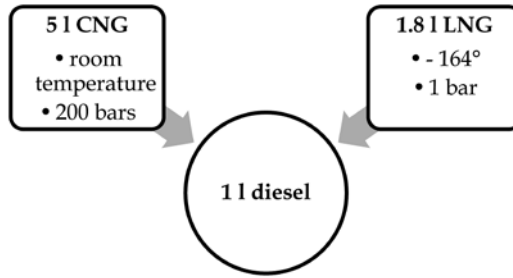
That is why it has invested in LNG, which is easy to transport everywhere by road, and this in turn has encouraged the use of gas in the transport sector<sup>13</sup>.

These global developments are sufficiently significant to demonstrate that there is nothing to demonstrate. The proof is obvious: the use of methane in CNG vehicles in the transport sector has already been extensively trialled. A litre of diesel contains the same amount of energy as five litres of CNG or 1.8 litres of LNG (Figure 10), but this lower energy density is not a drawback to using gas in urban transport. The use of CNG would thus be primarily reserved for transport in urban and suburban areas, such as electric cars. However, in order to encourage the use of natural gas vehicles, temporary preferential tax treatment is needed to launch the sector.

<sup>12</sup> <http://www.ngvaeurope.eu/worldwide-ngv-statistics>.

<sup>13</sup> Wensheng Lin, LNG experiences from China to the Mediterranean, Methanising the Mediterranean Area, 3rd LNG Conference, Rome, 11 June 2015.

Manufacturers have done their part as they are offering CNG vehicles in their brochures. It is therefore no longer a technical problem but a political one.



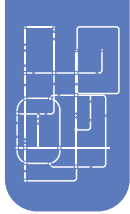
▪ **Natural gas in transport in the US**

Figure 10: Energy equivalence of fuels

#### 4. Natural gas in transport in the US

The US did not used to be interested in using natural gas in transport even though in many other countries it was a strong reality in absolute value and/or relative value. Things changed with shale gas. Although the United States has been fortunate to enjoy an economic stimulus from its production of shale fuels, where shale gas could actually have the greatest impact is in its car fuel tanks through the use of natural gas in the transport sector. The shale gas drilling companies have paved the way for this. Since hydraulic fracturing requires water to be transported by road tankers, the gas drilling companies and those in the oil sector (e.g. Halliburton) who work for them realised the economic benefit of fuelling their trucks with the product they were extracting rather than buying diesel. They were the first to convert their fleets of trucks to natural gas and they thus opened the door to a new adventure. The use of natural gas in car transport has also become a reality in the United States, and although still marginal it is expanding rapidly.

NGV in freight transport in U.S.A is a game-changer. It is becoming mainstream faster than expected thanks to the abundance of cheap gas to the point that refuelling gas stations are much more abundant now and that manufacturers are now producing vehicles originally equipped with LNG engines rather than adapting diesel one. Many US cities quickly decide to switch their school bus, trash trucks and other municipal vehicles to run on natural gas. Natural gas from the Barnett Shale is fuelling more vehicles in Texas than ever before. Dallas/Fort Worth International Airport is equipped with 500 commercial vehicles running on gas.



In the EU, Italy is ahead of the other countries, with 850 000 vehicles running on methane, accounting for 2.1 % of the total fleet. Spain had almost 4 000 natural gas vehicles in October 2014, of which 40 % were buses and 30 % were urban service lorries (Figure 11).

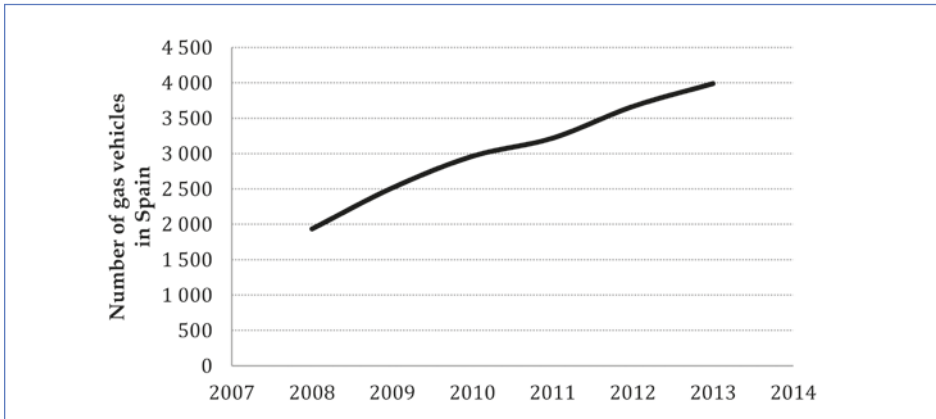


Figure 11: Number of natural gas vehicles in Spain (GASNAM data, February 2014<sup>14</sup>)

CNG vehicles are increasing mainly in the urban services sector. In particular, urban buses in many cities use gas, as do urban refuse collection trucks (Table 4). Urbaser, a Spanish urban services company, has 444 CNG lorries, including 241 in Madrid, 74 in Barcelona and 42 in Paris<sup>15</sup>, which shows clearly the maturity of this sector, but also its potential if this solution were to be used across the EU's cities and town, in particular through the policies and measures under the Smart Cities initiative that the European Commission is promoting<sup>16</sup>.

Member State	CNG buses	refuse collection trucks	
		CNG	LNG
Germany	1 600	170	-
France	2 400	890	10
Spain	1 700	1 080	320
Italy	2 300	440	60
Sweden	2 300	730	70

Table 4 Main Member States with buses and trucks running on natural gas<sup>17</sup>

<sup>14</sup> <http://gasnam.es/estadisticas-y-publicaciones/avances-estadisticos/>

<sup>15</sup> Santiago Solada, Urbaser, personal communication.

<sup>16</sup> See, for example, its Covenant of Mayors initiative.

<sup>17</sup> [http://www.covenantofmayors.eu/index\\_en.html](http://www.covenantofmayors.eu/index_en.html).



Figure 12: Location of LNG pumps in the EU (interactive map, European Commission, July 2016)

The US idea to use natural gas in liquid form is gaining ground in the EU. There are currently several hundred LNG lorries in the EU and almost 100 refuelling stations; that is obviously a very small number in comparison to the 250 000 lorries in China and its 2 500 LNG stations, and cannot compare to the more than 20 000 trucks in the United States. The main progress in the EU can be seen in the United Kingdom, the Netherlands, Spain and Sweden (Figure 12<sup>18</sup>).

Thanks to the dynamism of road transport entrepreneurs, Spain is one Member State that since 2008 has made rapid progress in the area of LNG. In fact, the process was not launched by the central or regional administrations, although they support it, nor by professional organisations, but spontaneously by private

freight transport entrepreneurs. Long-distance buses also use LNG, without any public support. The 30-40 % price differential has been enough to arouse market interest, but some issues need to be resolved before the sector is completely and irreversibly developed.

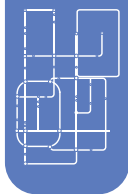
In order to support these developments, the EU has launched an ambitious strategy to promote the use of clean fuels. As part of DAFIX, referred to above, this strategy has established a series of objectives to be met by specific deadlines for all alternative fuels. Table 5 indicates the objectives and deadlines for natural gas. The Member States must ensure, by means of their national policy frameworks, that they have put in place an appropriate number of refuelling points for the supply of CNG for road transport and LNG for road and maritime transport in maritime ports to enable LNG inland waterway vessels or seagoing ships to circulate throughout the TEN-T Core Network by 31 December 2025.

In order to facilitate the use of LNG in transport, as provided for in the 2014 Directive<sup>19</sup>, the EU has taken a series of concrete measures, including:

- The creation of the Sustainable Transport Forum (STF), which brings together a maximum of 60 experts to assist the Commission in implementing the Union's activities and programmes aimed at fostering the deployment of alternative fuels infrastructure<sup>19</sup>. In particular, the STF provides advice and technical expertise to the Commission on the development and implementation of legislation, policies, projects and programmes in the field of alternative transport fuels, and facilitates exchanges of information on initiatives, projects

<sup>18</sup> <http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html>.

<sup>19</sup> European Commission, Commission Decision of 23.4.2015 on setting up an expert group on alternative transport fuels (the 'Sustainable Transport Forum'), C(2015) 2583 final.



and partnerships dealing with alternative transport fuels. The STF can also deliver opinions, submit reports, or develop and propose innovative solutions to the Commission, either at the latter's request or on its own initiative, on any matter of relevance to the promotion of alternative transport fuels in the Union.

- The creation of the European Sustainable Shipping Forum (ESSF)<sup>20</sup>, which is a group of experts<sup>21</sup> that assists the Commission in implementing the Union's activities and programmes aimed at fostering sustainable maritime transport. It provides a platform for structural dialogue, exchange of technical knowledge, cooperation and coordination between Member States and relevant maritime transport stakeholders. It also facilitates the development of standards or rules for the use of LNG as a maritime fuel, focusing on the technical, operational, safety, training and environmental aspects. This is particularly relevant for port cities.
- Support for projects under the Horizon 2020 programme, and projects on alternative fuels financed under the Connecting Europe Facility (CEF)<sup>22</sup>, which aims to accelerate investment in the field of trans-European networks and to leverage funding from both the public and the private sectors.

Under this last point, in 2013 the European Commission launched the LNG Blue Corridors project, which will run until 2017 and which aims to demonstrate the feasibility of the entire LNG sector in freight transportation at EU level, and to begin to roll out the network needed for long-distance transport in the EU. The programme provides for the construction of a fleet of around 100 LNG heavy-duty vehicles meeting EURO IV standards along with 14 new stations along four corridors of this project covering the Atlantic region, the Mediterranean, the South to the North and the West to the East (Figure 13).

Alternative fuel	Deployment in the Member States	Deadline (by end of)
<b>CNG in urban and suburban areas and other densely populated areas</b>	Appropriate number of points	2020
<b>CNG throughout the TEN-T Core Network</b>	Appropriate number of points	2025
<b>LNG in sea ports</b>	All TEN-T Core Network ports	2025
<b>LNG in inland ports</b>	All TEN-T Core Network ports	2030
<b>LNG for heavy-duty vehicles</b>	Appropriate number of points throughout the TEN-T Core Network	2025

Table 5: Objectives and deadlines for the implementation of a natural gas strategy for transport

<sup>20</sup> Commission Decision of 24.9.2013 on setting up the group of experts on maritime transport sustainability – The European Sustainable Shipping Forum (ESSF).

<sup>21</sup> Its composition can be found at [http://ec.europa.eu/transport/themes/sustainable/news/2013-11-19-essfcomposition\\_en.htm](http://ec.europa.eu/transport/themes/sustainable/news/2013-11-19-essfcomposition_en.htm).

<sup>22</sup> Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, OJ L 348, 20.12.2013, pp. 129-171.



Figure 13 The Blue Corridors network (source: Blue Corridors project<sup>23</sup>)

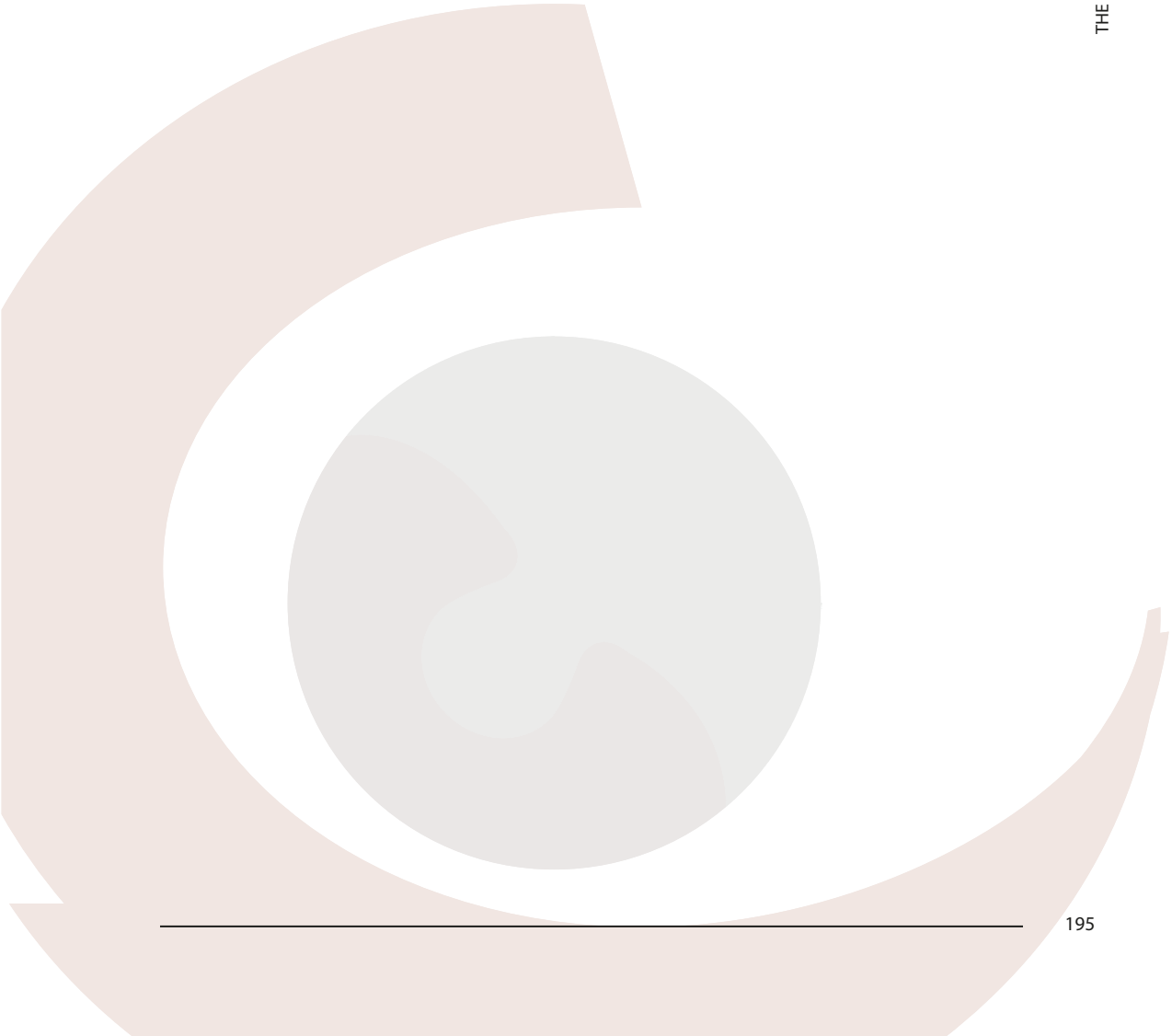
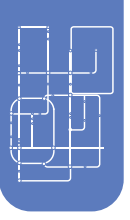
A consortium of 27 gas companies and lorry manufacturers was created and 12 haulage companies were subsequently added; 11 Member States are represented in the project. The aim is to provide road hauliers with an LNG refuelling station every 400 km on average. Some LNG stations are permanent and others are mobile to make it easier to determine the ideal place for their final location along the Blue Corridors.

Based on the ongoing experiences of LNG use in road transport, we can already draw a number of conclusions, which Figure 12 lists as main advantages and areas requiring attention.

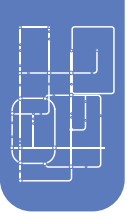
## 5. Conclusion

The word is constantly evolving. It is persistently progressing toward sustainable development. Cities and local authorities are key actors in this on-going improvement of our surrounding. Thanks to the widespread of the communication tools, they are also submitted to the competition. Some Citizen from City A will not remain for ever in their city if they know that the quality of life in City B is more agreeable, friendly and clean. Therefore, they have to anticipate the changes and not to endure them. Energy is so significant for cities and others local authorities that energy policy should be a key element for them. They should not try to play at the production level because in an open market economy there is hardly a place for them. But they have a crucial role in the demand side. We have seen some examples in which they should act and develop new projects. Local authorities have the duty to create the virtue that Socrates encourages us to develop.

<sup>23</sup> <http://lngbc.eu/>.

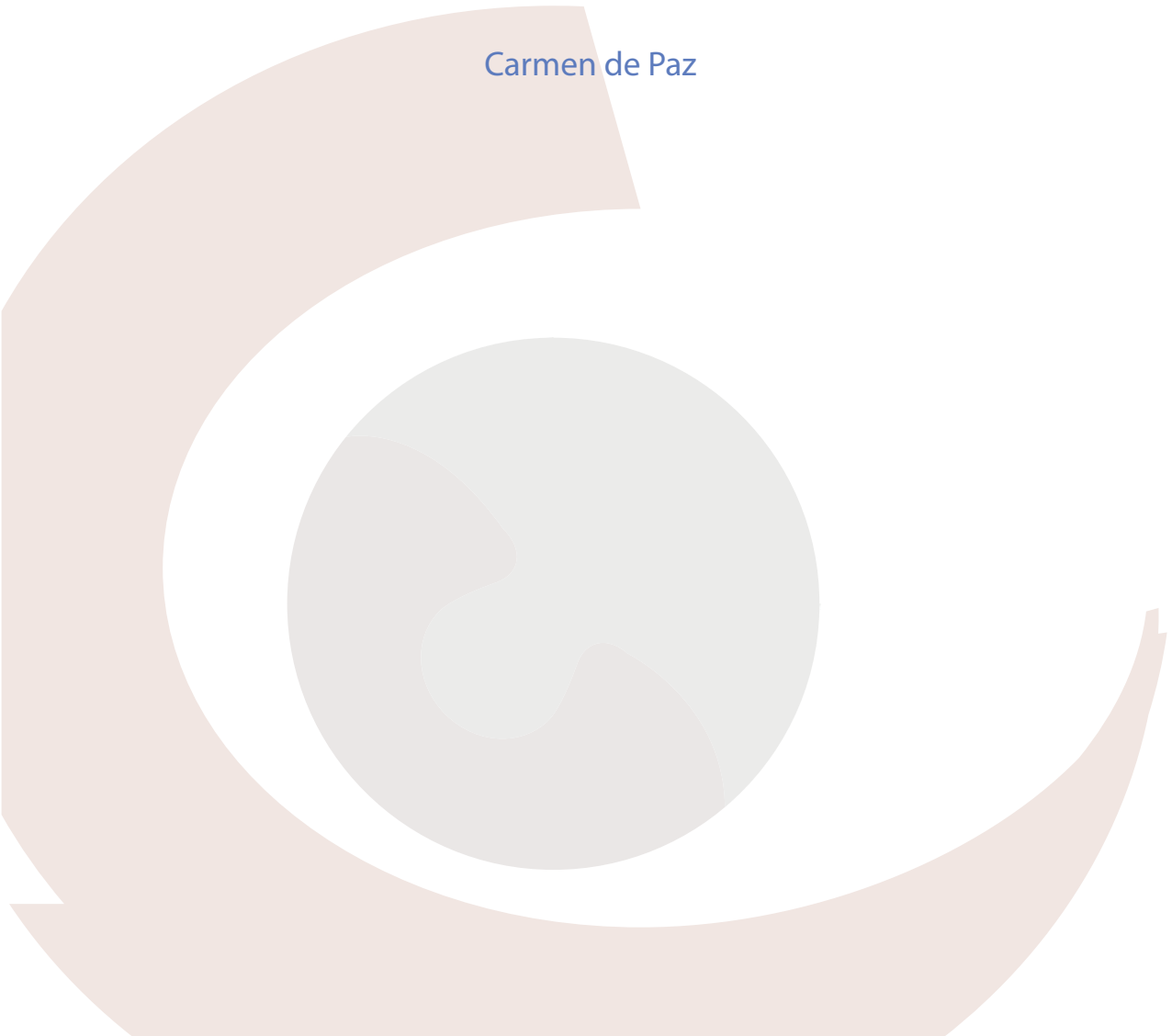




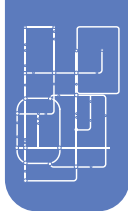


# THE INTEGRATING AND PARTICITIVE CITY: THE NEW SOCIETY

Carmen de Paz







## THE URBAN PLANET – CHALLENGES AND OPPORTUNITIES

Carmen de Paz

### SHORT CV

Over ten years experience in social policy across different countries and with several organizations.

Demonstrated strong analytical, writing and organizational skills.

Proven ability to work and engage with a variety of stakeholders in diverse settings.

Consultant – Human and Social Development Units/ External Affairs/Poverty Reduction and Economic Management

#### **Professional Experience**

**The World Bank, IBRD – Washington DC** (November 2004-Today)

Consultant – Human and Social Development Units/ External Affairs/Poverty Reduction and Economic Management

**Anchor (Worldwide)** – Based in Washington DC, USA and in Madrid, Spain

- Analyst and author of policy notes on best practices for the promotion of women’s labor market participation and female entrepreneurship.
- Analyst and author of policy notes on the impact of the 2008 crisis on labor markets and on migration.
- Contributions to Global Monitoring Report 2015-16 Development Goals in an Era of
- Demographic Change.
- Preparation of materials on the refugee crisis in Europe and of grant proposal on Human Rights, Human Development and Refugees.

**South East Asia and the Pacific** - Based in Bangkok, Thailand and Paris, France

- Analyst and author of publications on gender and vulnerability in East Asia, gender equality in East Asia, pension systems for the informal sector in Asia, active labor market policies in China, social protection system in Vietnam, ethnic minorities in Lao PDR, labor migration in the Greater Mekong Sub-region (GMS) and youth in Thailand.
- Internal evaluation of East Asian countries progress in gender equality and dissemination of gender work within the Bank and among development partners.

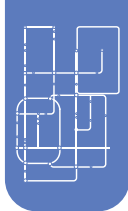
- Evaluation of the Social Insurance Reform project in Vietnam (ICR).
- Assistance to East Asia Social Protection management in the definition of the social protection strategy and program and in building the East Asian team and network.
- Organization of regional workshops and seminars on gender and economic policy, social accountability, and labor migration in the GMS.
- Elaboration and implementation of funding proposals - "Small Grants program" in Lao PDR and
- Ethnic Minorities Resources.
- Project and program preparation and support - "Labor Migration in the GMS", "Justice for the Poor" in Cambodia and "Tsunami Relief" in Thailand.
- Representation of World Bank in international fora and coordination with regional donors.

#### **Eastern Europe and Central Asia (ECA)** – Based in Madrid, Spain

- Preparation, coordination and supervision of "Social Modernization" program in Kazakhstan.
- Analyst and co-author of publications on social insurance policies in Eastern Europe, social assistance in Russia, aging and pension systems in Eastern Europe, health policies and aging in Poland, long term care policies in Poland, active labor market policies for young people in Uzbekistan, skills for activation and labor markets in Bulgaria, Roma inclusion in Eastern Europe, gender challenges and policies in Turkey and Belarus.
- Innovation fund award for the proposal "Mobile Lab for Roma Inclusion"; organization of workshop on Roma inclusion with Eastern Europe country delegations.
- Preparation of project on "Jobs for Development" in Uzbekistan and of JERP on "a Strategy to
- Support Functioning of Labor Market Institutions" in Kazakhstan.

#### **Latin America and the Caribbean** – Based in Madrid, Spain

- Support provided in dissemination of education and social assistance projects in Dominican Republic.
- Review of worldwide best practices on Indigenous Peoples policies and Impact Evaluation with
- Indigenous Peoples in Panama.
- Preparation of book proposal on development challenges in Honduras, Guatemala, Salvador, Costa Rica and Panama.
- Literature review of participatory methodologies involving indigenous peoples in impact evaluation.
- Call for research proposals on migration issues in Central America.



**Africa** – Based in Madrid, Spain

- Literature review of research on the role of structural transformation and employment in poverty reduction in Africa as an input to the regional study “Making Transformation Work for Africa.”
- Western Europe, UK– Based in London, UK
- Preparation of policy briefs for World Bank senior management as part of the World Bank- DFID
- inquiry organized by the UK Parliament’s International Development Committee.

**The World Health Organization, Geneva, Switzerland** (July 2008 – Today)

- Consultant, European Office for Investment for Health and Development and Social Determinants of Health Unit

**Worldwide** – Based in Venice, Italy, and Madrid, Spain

- Analyst and co-author of a handbook on the economics of the social determinants of health (SDHs) and of study on health impacts on educational outcomes in high-income countries.
- Contribution to the development of indicators/tool to measure the effect of the SDHs on universal health coverage (UHC).

**UNICEF** (January 2014-March 2014)

- Development Pathways Consultant, UNICEF Nepal Office
- South Asia - Kathmandu, Nepal
- Development of a UNICEF tool to assess the child sensitivity of social protection policies.

**UNDP** (July 2014)

- Development Pathways Consultant, UNDP Vietnam Office
- South East Asia – Hanoi, Vietnam
- Exploratory mission for the preparation and definition of UNDP project on the reform of the social security system in Vietnam, in collaboration with MOLISSA and other development partners.

**Government of Uganda** (March 2014-June 2014)

- Development Pathways Consultant, ESP (Expanding Social Protection), Ministry of Labor

**East Africa** – Kampala, Uganda

- Preparation of international literature review on interventions to expand social security to the informal sector.
- Consultations with main stakeholders in the field.
- Coordination and final report preparation on the reform of social security and health insurance in Uganda.

**HelpAge International** (July 2014-November 2014) Development Pathways Consultant

- Asia – Based in Madrid, Spain
- Literature review on social protection and work in old age in Thailand, Philipines, Bangladesh, Nepal and Vietnam.

**UK Government** (January 2009 – June 2009)

- Consultant, East Anglia University, UK
- Europe, UK – Based in London, UK and Madrid, Spain
- Analyst and co-author of report on the impact of the New Deal for Lone Parents (NDLP) on socioeconomic and health inequalities in the UK.

**Save the Children Spain** (January 2016 – September 2016)

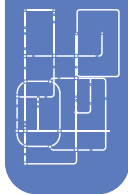
- Consultant, Save the Children Spain
- Western Europe, Spain - Based in Madrid, Spain
- Analyst and co-author of report on child inequality in Spain.

**Ideas Thinktank** (June 2009-February 2013)

- Head of International Network and Policy Advisor
- Worldwide – Based in Madrid, Spain
- International Network unit set-up and coordination; establishment and follow up of alliances and funding agreements with international partners.
- Generation and coordination of public policy debate spaces; seminars and workshops on financial markets reform, pension's system reform and active labor market policies.
- Coordination, research and co-authoring of publications on: Spanish active labor market policies; youth active labor market policies in Europe; pension system in Spain; the impact of fiscal adjustments; the role of investments in education; European investments framework.
- Establishment and coordination of Scientific Committee (Joseph Stiglitz, Jeffrey Sachs and others) and Global Progress Council (Bill Clinton, L.I. Lula da Silva, and others).

**Spanish Embassy** (January 2003-October 2004)

- Economist (Special Junior Professionals Program), Economic Office
- Bucharest, Romania; Lima, Peru
- Organization of economic and commercial missions and investment forum of Spanish companies and public institutions in both countries.
- Identification of over 100 business and investment opportunities and analysis of investment climate.



- Representation of Spanish Embassy in international fora.
- Built and strengthened relationships with different local and international counterparts.

### **Education**

Psicopraxis, Madrid, Spain; MSc Psycho-emotional and social early child development. Ongoing

London School of Economics, UK; MSc Public Policy and Administration. September 2007 - June 2008.

Distinction

Carlos III University, Madrid, Spain; LLB Bachelor of Laws. October 1997 - June 2001. Merit

Carlos III University, Madrid, Spain; BSc Business Administration and Economics; six-month stay at Maastricht University, the Netherlands. October 1997 - June 2001. Merit

### **Other relevant information**

Languages: Spanish (native); English (proficient); French (conversant); Portuguese (basic)

Publications: 2005; Brown, Al-Hamad and de Paz; "Gender Equality in East Asia: Progress and the Challenges of Economic Growth and Political Change; East Asia Annual Update; World Bank; 2006; Revenga, Yves-Fallavier, Larrison and de Paz; "Labor Migration in the Greater Mekong Subregion"; summary report; the World Bank, Thailand, Bangkok; 2006; Waseem and de Paz; "Social Protection in Vietnam"; Background Note; the World Bank; 2007; Barrera, de Paz and Revenga; "Poverty and vulnerability in East Asia"; Anuario Asia Pacifico 2006, CIDOB, Barcelona, España; 2007; de Paz; "Thailand Social Monitor on Youth"; the World Bank, Bangkok, Thailand; 2007; de Paz; "China Active Labor Market Policies"; the World Bank, Beijing, China; 2008; de Paz; "Gender and Vulnerability in East Asia"; the World Bank, Washington DC; 2008; de Paz and Suhrcke, M.; "The Impact of Health on Educational Outcomes in Developed countries"; WHO, Venice, Italy; 2010; de Paz, C., Otano, Coutts, A and Suhrcke, M; "Lone parents in the UK: the impact of the New Deal for Lone Parents (NDLP) on socioeconomic and health inequalities" (Background Report to the Marmot Review); University of East Anglia; 2012; de Paz, Ben-Galim, D., Cadela, A. "Youth Activation Labor Market Policies in Europe"; IPPR, London, UK; 2013; de Paz, C., Suhrcke, M., Cookson, R. and Rocco, L.; "The Economics of the Social Determinants of Health"; World Health Organization, Geneva, Switzerland; 2013; de Paz, C et al. "Social Spending in Eastern Europe"; World Bank, Washington DC, USA; 2014; de Paz, C.; "Measuring SDH barriers to access to health services; World Health Organization, Geneva, Switzerland; 2014; de Paz, C.; "Population aging in ECA: implications for social protection systems"; World Bank, Washington DC, USA; 2015; "Bulgaria Skills for the Labor Market"; World Bank, Washington DC, USA; 2016; "Equality of Opportunity: A Fair Chance for Marginalized Roma" "; World Bank, Washington DC, USA.

Forthcoming; Turkey Gender Assessment 2016; World Bank, Washington DC, USA.

Forthcoming; Belarus Gender Assessment 2016; World Bank, Washington DC, USA.

Forthcoming; Child Inequality in Spain; Save the Children, Spain.

### **Other activities, awards and scholarships**

2008 - London School of Economics (LSE) STATA course.

2007-2008 Member of Editorial Board of the LSE Public Policy Journal.

2007-2008 London School of Economics Graduate Merit Award.

2005-2006 World Bank Spot awards.

2001-2002 Training Lawyer, International Private Law, Otero-Viada Law Firm, Madrid, Spain.

2001 Spanish Ombudsman, Madrid, Spain; Intern in Education and International Affairs Area.

2000-2001 I.B.M Scholarship, Government department.

1999-2000 Carlos III University scholarship, Cultural Activities Department.

1998-1999 Erasmus Scholarship, Maastricht University, the Netherlands.

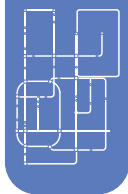
### **ABSTRACT**

The different aspects that this article examines set up an analysis framework that can be useful in various ways: in the discussions about the basic elements for the development of an inclusive city; in the diagnosis of the aspects that hinder it in specific cases; or in the prioritization of interventions in order to make progress on this objective. The following diagram presents in a graphic way the aspects that will be detailed in the article sections. First, it must be highlighted that needs (and therefore the priorities) in this area are specific for each context. Because of that, the efforts directed towards the development of the inclusive city require a clear diagnosis of the main existing barriers, for instance through data crossing about the housing stock, services and infrastructures, security problems, or socio-economic and demographic profiles. The result of such analysis will indicate the guidelines to follow in each specific case<sup>1</sup>.

Secondly, as we have seen in previous sections, we cannot ignore the multidimensional nature of the the inclusive city, and the greater effectiveness of integral, or integrated-natured interventions. Integrated approaches entail the consolidation of multiple actions that, together, try to mitigate the obstacles to the achievement of an inclusive city in a sustainable way.

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<sup>1</sup> Spanish Government, 2015



COORDINATION AND PARTNERSHIPS WITH THE MAIN SOCIAL AND PRIVATE ACTORS							
Vulnerable groups		SOCIAL	ECONOMIC	SPATIAL	CULTURAL	POLITICAL	SAFETY
	Elderly people	Education for the elderly, access to specialized health services, dependence, social protection	Active ageing, volunteering, mentoring	Adapted housing, urban spaces and mobility	Appropriate leisure, relational and cultural activities.	Participation in decision-taking and planning	Safe urbanism, environmental safety, road safety
	Immigrants and refugees	Educational and health adapted services, cross-cultural education	Adapted programmes of work inclusion and entrepreneurship, mentoring	Access to adequate housing, infrastructures and transport, desegregation	Celebration and acknowledgment of diversity, spaces	Right to vote, representation in local organizations	Cross-cultural education campaigns and programmes against racism and in favour of diversity.
	Homeless people or at risk of poverty	Access to quality basic services and social protection	Programmes of work inclusion and entrepreneurship, access to financing.	Access to adequate housing, transport and infrastructure, prevention of eviction	Access to leisure and cultural activities	Participation in decision-taking and planning	Safe urbanism, surveillance in the street
	Youth and childhood	Access to quality basic services, attention	Training, programmes of work inclusion and entrepreneurship	Housing, transport, infrastructures and urban spaces	Appropriate leisure and cultural activities, innovation, sport	Participation in decision-taking and planning (e.g. children's councils)	Safe urbanism, environmental safety, road safety
	Women	Resources and services for victims, prevention of gender violence, maternal and infant health	Programmes of work inclusion and entrepreneurship, mentoring, networks	Adapted and safe transport and urban spaces that prevent aggressions	Promotion of gender equality through culture	Participation in decision-taking and planning	Safe urbanism, surveillance in the streets, promotion of (gender) equality
	People with disabilities	Access to health and social services and social care.	Adapted programmes of inclusion	Housing, urban spaces and mobility	Access to leisure and cultural activities	Participation in decision-taking and planning	Safe urbanism, road safety, surveillance in the streets

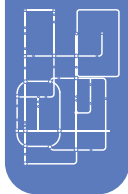
Consultation and participation of citizens and communities; social initiative, innovation and creativity.

In this way, we must prioritize those interventions that: (1) achieve results in various dimensions and/or collectively; (2) include measures of different kinds (e.g. building a community centre and providing training for its social workers); (3) combine interventions on the side of the supply (e.g. ensuring the availability of social housing for vulnerable groups) and on the side of the demand (e.g. improving information and consultancy about the access to this kind of programmes); and (4) promote the shared use of the same resources with several related aims. Programmes of integral revitalization are especially interesting, covering different sector programmes of intervention, for instance in areas like urbanism, housing, safety, social welfare, economic revitalization, mobility, accessibility, equipment and infrastructures.

Thirdly, the effective compromise and willingness of national, regional and (especially) local governments must ultimately be supported by the involvement of social organizations, as well as the beneficiaries of the interventions in the planning, design and implementation phases. The success of an initiative of this kind will largely rest on its acceptance by the community, both from the collectives that benefit from it and the ones that do not, as well as on the alliances with social organizations and, where appropriate, the private sector.

New ways of citizen participation and collaborative government formulas, as well as the development of strong and wide alliances, are therefore key elements in this area. Moreover, social and community leadership and innovation offer a large potential for social inclusion.

Lastly, it must be highlighted the importance of joining this kind of programmes since their design and planning with adequate mechanisms of monitoring and result evaluation. These will let us learn from the experience, allowing improvements or adjustments in accordance with these results, as well as advising on the design of new policies and programmes, and offering examples of better international practices in order to move towards the inclusive city of the future.



## THE CITY OF THE FUTURE, THE CITY FOR EVERYONE

### 1. Introduction: inclusion, social policies and urban agenda

Increasingly, more and more studies are pointing out the importance of developing policies that allow all members of societies to benefit equally from the increase of wealth, not only due to a moral imperative, but also an economic one. There is a consensus within global literature about the negative consequences that the increasing inequality of opportunities or inequity in advanced countries has for the people who suffer it, especially at young ages. Moreover, the negative social impact of the lack of inclusion is also increasingly being proved, for instance in the shape of public expenditure in compensatory programmes in school and unemployment, the fight against crime or the reduction of health problems in adulthood; and, especially, in the shape of the huge human potential that is being consequently wasted<sup>2</sup>.

The State and the regional or local administration play a key role in this area: through social policies, their intervention is crucial to make sure that all people have access to the same opportunities to develop their individual potential all throughout their lives, independently of their origin, gender, religion, age or race, where they live, or if they have any disability. At the same time, the emphasis in the inclusion agenda is being placed more and more on the local area, since people's welfare is strongly linked to the quality of the immediate surroundings where they live, interact and share experiences<sup>3</sup>, and within the frame of a progressive decentralization of competences for local governments in countries all over the world.

Furthermore, in answer to the changing context and the new demographic, security and environmental challenges, there has been a change in paradigm in the area of urban development in the last years, towards the new city of the 21<sup>st</sup> century, an intelligent, sustainable and inclusive city. This transformation has been reflected in the growing number of local, national and international initiatives of this kind.

The projects of the intelligent city, for instance, receive more and more attention in the academic and the industrial world, as well as from the governments at a global scale<sup>4</sup>. As part of this process, in 2004-2005 the right to the city was established, based on the Human Rights Law, as the right of all inhabitants of urban centres to enjoy the freedom and the benefits of life in the cities<sup>5</sup>.

There are many examples in local governments that have got on the inclusive city bandwagon in the last years. In our country, where the Government has recently published a White Book about the Inclusive City<sup>6</sup>, there are plenty of urban areas like Barcelona<sup>7</sup> or Terrassa<sup>8</sup>, cities that have focused their recent plans and efforts on the inclusion objective. There are also numerous examples of growing international initiatives, starting with the New Urban Agenda of UN Habitat, focused on “the city for everyone”, which implies a “use and enjoyment with equal rights and opportunities”, and which “fosters the prosperity and quality of life for everyone”<sup>9</sup>.

<sup>2</sup> World Bank 2006

<sup>3</sup> Freiler 2008

<sup>4</sup> De Oliveira Neto and Kofuji 2016

<sup>5</sup> Whitzman et al 2013

<sup>6</sup> Spanish Government 2016

<sup>7</sup> <http://www.bcn.cat/plainclusiosocial/es/ciudad-inclusiva.shtml>

<sup>8</sup> <http://www.terrassa.cat/es/ciutat-inclusiva>

<sup>9</sup> UN Habitat 2016

Other recent projects in this area are the Inclusive Growth of the OECD, which includes a Mayors reference Network<sup>10</sup>, or the global platform Inclusive Cities, among others<sup>11</sup>.

## 2. The contemporary city, opportunities and challenges

Cities concentrate at the same time important social opportunities and challenges<sup>12</sup>. In terms of Ariel Espino (2015), “the city offers or denies possibilities to its inhabitants to benefit from everything that a urban context offers, such as the possibility of interacting with very diverse social groups and talents, or taking part in different kinds of opportunities, industries and services, as well as generating positive synergies”. On the one hand, there is a “urban advantage”: the city offers opportunities, especially economic ones, which cannot be found in rural areas<sup>13</sup>. On the other hand, we know that urbanization has the potential of creating gathering spaces that integrate a diverse population avoiding any kind of discrimination<sup>14</sup>.

At the same time, given that most of the population is concentrated in urban centres, the majority of problems of social exclusion and conflict are also found there. According to UN Habitat (2015), even if the economic dynamism of the cities involves benefits, it can also exacerbate inequalities in the cases where these benefits are concentrated on the hands of collectives with more political and social power. In general, the processes of socio-economic polarization and social exclusion are the defining elements of contemporary cities<sup>15</sup>.

In a context of an increasing widespread economic inequality in the countries of our surroundings, as well as in ours, cities are being especially affected. For instance, according to the 2016 Brookings report about US cities<sup>16</sup>, only 8 of the 100 biggest cities of the country have registered increases in the average wage (median) and the employment rate, together with reductions of the poverty rate between 2009 and 2014. Even in those urban centres where the results for workers with the lowest wages have been better, the disparities between groups of different races have increased.

This growing economic inequality is joined by other important demographic trends with implications in the urban area. The increase of the international pressure and migratory flows in advanced countries is one of them. In Spain, even if the foreign population has decreased in the years that followed the crisis, the number of immigrants has significantly increased in the last decades; nowadays there are close to 4,5 millions of foreigners, especially coming from Romania, Morocco, Latin-American countries (Ecuador, Colombia, Bolivia and Argentina) and EU countries like the United Kingdom, Italy or Germany<sup>17</sup>.

<sup>10</sup> <http://www.oecd.org/inclusive-growth/champion-mayors/about/>

<sup>11</sup> <http://www.inclusivecities.org/es/acerca/>

<sup>12</sup> EUKN 2014

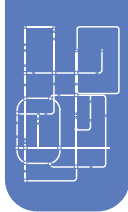
<sup>13</sup> UN Habitat 2015

<sup>14</sup> UN Habitat 2015

<sup>15</sup> Gerometta et al. 2005

<sup>16</sup> Brookings 2016

<sup>17</sup> <http://www.ine.es/prensa/np980.pdf>



Even if we know that the increase of immigration helps maintain the economic dynamism of cities and makes them more cosmopolitan, the presence of foreign communities can also arouse fear among local residents, especially in context where there are scarcely multicultural traditions; this phenomenon, therefore, requires local policies of management of diversity and promotion of integration<sup>18</sup>. There are different approaches in what concerns how to treat the integration matter of immigrant population, although in the last years there has been a certain convergence towards interculturality (see the debate below).

### Debate: international immigration, multiculturalism, interculturality and intercultural education

With globalisation, international migratory flows have substantially increased, which has given rise to a growing cultural and ethnic diversity in European and North American cities. As recent facts from both parts of the world prove, this phenomenon has started to be a motive of social concern, due not just to the amount of immigration received, but rather to the natural growing of the population from ethnic minorities and their spatial concentration in certain areas of the cities<sup>19</sup>.

Until the 60s, the immigration inclusion policies in advanced countries had been homogenising; either through assimilation, which implies the imposition of the dominant or majority model upon minorities; or through the cultural melting pot, which keeps and reproduces diversity, “compartmentalized” within social life. This started to change in the 60s, when the requirements of ethnic minorities started to be heard and to have an institutional reflection<sup>20</sup>.

The predominant approach after that was the acceptance of cultural diversity as something positive, first from multiculturalism or multiculturalism, which refers to the coexistence of diverse cultures in the same physical space and claims equality among them; this first version of cultural pluralism meant the social and institutional acknowledgement of the value of diversity, as well as the development of policies more in line with this diversity in developed societies. However, it had important limitations concerning the “articulation of convergences, social cohesion and citizen coexistence”<sup>21</sup>.

More recently, in light of the lacks of the multicultural model, plurality has been treated from the new interculturality paradigm, which makes reference to coexistence or interaction between diverse cultures that coexist in the same space, and therefore places the focus in “understanding, preserving, promoting and adequately regulating the positive socio-cultural interaction and all that this implies (...) which fits better the complex and dynamic conception of culture and cultures”<sup>22</sup>. The Council of Europe adopted for the first time this approach in the 80s, when they tried to delve into the effects of the migratory phenomenon on schools.

<sup>18</sup> UN Habitat 2005

<sup>19</sup> Borja and Castells 2001

<sup>20</sup> Giménez Romero 2008

<sup>21</sup> Giménez Romero 2008

<sup>22</sup> Giménez Romero 2008

In the face of the growing diversity in our societies, intercultural education has become a requirement within them. Intercultural education is defined as a “dynamic process that intends to raise awareness among citizens to accept cultural diversity and the interdependence that it implies as something of their own, acknowledging the need to orientate thought and politics towards the systematization of such process, with the aim of enabling the evolution towards a new and more enriching concept of society and citizenship”<sup>23</sup>.

Besides the immigration phenomenon, developed countries are experiencing other important changes in the demographic profile of their populations, especially marked by the accelerated increase of the dependency conditions, and the reduction of fertility towards rates lower than the replacement one. This strong ageing of the population also implies a change in the health and social necessities, as well as those related to housing, transport and other crucial aspects of urban life and policies. In Spain, for instance, it is estimated that by 2052 the 64+ age group will increase in 7,2 million people (around 89%) and it will constitute 37% of the whole population<sup>24</sup>.

### 3. The inclusive city and its multidimensional character

UN Habitat defines the inclusive city as that which promotes growth with equity. It is a place where, regardless of the economic resources, sex, race, or religion, everyone is able to take part in the social, economic and political opportunities that this space offers<sup>25</sup>. The World Bank, on the other hand, presents a definition focused on economic inequality. According to the organization, an inclusive city is one where citizens with lower incomes are allowed to benefit from, and to take part in the prosperity growth throughout their lives<sup>26</sup>. In the words of the Asian Development Bank, it is ultimately about “making cities more liveable”<sup>27</sup>.

Inclusion in the local area is generally treated in literature as a multidimensional matter. For the World Bank, it includes the spatial, social and economic aspects, which are strongly related. UN Habitat, for its part, as well as the White Book of the Spanish government, makes a difference between the economic, social, political and cultural dimensions. The economic dimension makes reference especially to the citizens’ economic opportunities, for instance regarding the access to training and development of capacities, funding availability, or employment<sup>28</sup>. The social, political and cultural dimensions, on the other hand, are more related to fundamental rights, dignity, equity, celebration of diversity and cultural rights, participation in decision-making and citizen safety<sup>29</sup>.

<sup>23</sup> Council of Europe 1993

<sup>24</sup> Spanish Government, 2015

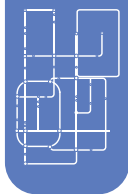
<sup>25</sup> UN Habitat 2001

<sup>26</sup> World Bank 2015

<sup>27</sup> ADB 2011

<sup>28</sup> World Bank 2015

<sup>29</sup> World Bank 2015, Spanish government 2015



There are plenty of organizations and initiatives that emphasize the economic content of inclusion. In this way, the ADB, the OECD or the Metro Monitoring initiative from the Brookings Institute in the US, are focused on the promotion of an economic growth and a prosperity that are inclusive in the cities<sup>30</sup>. On the other hand, within the academic world some authors tend to prioritize the spatial aspect, and conceive inclusion as a mere opposite of segregation, making reference to the need to plan and design cities in a way that prevents that the most vulnerable groups are expelled, isolated, or deprived from important services, commercial flows and employment<sup>31</sup>. Undoubtedly, the spatial dimension is the cornerstone of urban inclusion. These approaches are focused on matters such as housing, infrastructures and access to public services, within what is known as “improvement in the quality of life of the environment”<sup>32</sup>.

#### 4. Housing and urban segregation

Housing is a key element of the social inclusion in cities. There is more and more consensus in the literature about the implications that the physical environment have for the development of people, especially in their childhood<sup>33</sup>. The evidence about the impact that housing has in all areas of human development has increased in the last years. For instance, the house where they live can have important effects in the health status of children, or in their educational outcomes<sup>34</sup>, and it contributes to better health conditions for all the household members<sup>35</sup>. Quality housing can enable better psychological and social results<sup>36</sup>, as well as integration in the neighbourhoods and the development of social capital. In general, the access to an affordable, safe and adequate home can contribute to improve social cohesion<sup>37, 38</sup>.

Specifically, massification is linked to psychological problems, as well as the worsening of academic results, independently of the socio-economic conditions of the family<sup>39</sup>, with effects that can be perpetuated through time, affecting the opportunities and well-being in adult life<sup>40</sup>. Poisoning through toxic elements present in paint, pipes, or the carbon dioxide are the most common causes of environmental illness with irreversible effects in children, especially among those who come from less advantaged environments, live in inadequate houses, or in neighbourhoods with higher poverty rates<sup>41</sup>.

<sup>30</sup> OECD 2016

<sup>31</sup> Ariel Espino 2015

<sup>32</sup> World Bank 2015

<sup>33</sup> Bronfenbrenner and Morris 1998; Thompson 2008; Lavin et al., 2006; Capon 2007; NSW Department of Health, 2009; Boardman, 2004; Gephart 1997

<sup>34</sup> Phibbs and Young 2005; Dockery et al. 2010

<sup>35</sup> Waters 2001; Phibbs & Thompson 2011

<sup>36</sup> Saunders and Williams 1988; Dupuis and Thorns 1998; Hulse et al. 2010

<sup>37</sup> Hulse and Stone 2006, 2007

<sup>38</sup> Stone and Reynolds 2012

<sup>39</sup> Evans et al. 2001; Solari and Mare, 2012

<sup>40</sup> Solari and Mare, 2012; Breyse et al. 2004

<sup>41</sup> Needleman and Gatsonis 1990; Needleman et al. 1990; White et al. 1993; Bellinger et al. 1994; Needleman et al. 1996; Kim et al. 2002; Sargent et al. 1995

Housing costs are unavoidable and imply an important overload for homes with fewer resources. Therefore, in the EU countries the house price represents a larger percentage of the available income for families in the lowest income quintile, in relation to the top quintiles<sup>42</sup>. Inclusive housing policies, which originated in the US, have been spread through several countries in Europe during the 1980-1990 years and the beginning of the 2000 decade, and their aim at using the process of urban planning to develop affordable or social housing through different mechanisms<sup>43</sup>. Interventions in the housing area can be directed at alleviating extreme forms of exclusion, for instance in regards to homeless people, as in the United Kingdom or Australia, at reducing the geographic concentration of exclusion, or at improving the access to affordable housing in general<sup>44</sup>.

Although this kind of policies are initially focused on the building of public housing by national and local authorities, the negative results of the trend in the creation of ghettos, often generated by the concentration of social housing in certain areas, has led to a change in these approaches in recent years towards a greater collaboration with the private sector (for instance through the incentives supply for constructors for the development of this kind of housing). In this way, in Paris, local legislation requires that all constructors save 25% of the new built units in most of the neighbourhoods for social rent housing, and since 2006 all townships can impose inclusion requisites to private constructors. However, there is no clear evidence yet of how this kind of measures affect the social inclusion of beneficiaries<sup>45</sup>.

Socio-economic segregation has notably increased between 2001 and 2011 in some European cities, like Madrid<sup>46</sup>. The residence in neighbourhoods where poverty is concentrated, or which are physically deteriorating, shows negative effects in the individual well-being of people, measured through mortality rates, conditions of physical and mental health, or risk behaviour, especially through the reduction of physical activity and the increase of social disorder and anxiety problems<sup>47</sup>. People who live in the most depressed areas of the United Kingdom and the US show higher illness rates and have more probabilities of suffering from depression or coronary problems<sup>48</sup>. Children who live in this kind of neighbourhoods are more exposed to the risk of developing mental and behavioural problems like hyperactivity, social withdrawal of aggressiveness, and teenagers have more probabilities of using drugs, engaging in criminal activities or having early pregnancies<sup>49</sup>. Preparation for school, secondary school graduation rates, and even future salaries, tend to be higher in the most socio-economically privileged neighbourhoods<sup>50</sup>.

<sup>42</sup> Özdemir and Ward 2009

<sup>43</sup> Mallach 2010

<sup>44</sup> AHURI 2012

<sup>45</sup> Mallach 2010

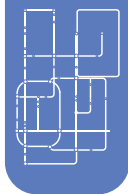
<sup>46</sup> Van Ham and Tammaru, 2016

<sup>47</sup> Macintyre & Ellaway, 2000; Ellen, Mijanovich & Dillman, 2001; Pickett & Pearl, 2001; Macintyre, Ellaway et al. 2002; Ellen & Turner, 2003; Kawachi & Berkman, 2003; Macintyre & Ellaway, 2003; Semenza 2003; Weich et al 2002; Ellaway et al. 2005

<sup>48</sup> Berry 2007; Roux et al. 2001; Boyle et al. 2004

<sup>49</sup> Brooks-Gunn and Aber 1997a; Brooks-Gunn and Aber 1997b; Leventhal and Brooks-Gunn 2000; Leventhal and Brooks-Gunn 2003; Jencks and Meyer 1990; Flournoy and Yen, 2004

<sup>50</sup> Brooks-Gunn et al. 1993; Clark 1992; Connell and Halpern-Felsher 1997; Crane 1991; Ensminger et al. 1996; Galster et al. 2005



Besides this, urban segregation, especially when it is involuntary, can have very negative consequences for all inhabitants of the city and society as a whole<sup>51</sup>, since it reduces social capital and cohesion, increases the climate of insecurity and imposes limits to the growth of shared prosperity. The protests in the suburbs of Paris in 2005, in London in 2011 and in Stockholm in 2013, for instance, cannot be understood out of a context of poverty concentration, often combined with a deep racial segregation. Furthermore, it has been proved that there is a negative link between racial segregation and economic growth in North American cities<sup>52</sup>.

There are different answers to the problem of segregation in the urban area, directed at enabling a greater social mixing. In fact, in the years before the crisis, an interest about the concept of social mixing had revived in the academic and political worlds, and it had become the objective of urbanism policies in the United Kingdom, the Netherlands, the Scandinavian countries, Australia, Canada and the US. In the United Kingdom, for instance, the government has followed a policy of promotion of social mixing, enabling the coexistence of communities with different income levels in order to increase the social capital of disadvantaged neighbourhoods<sup>53</sup>. In the US, on the other hand, the trend has been to replace the projects of high density housing with new communities of lower density and different income levels, for instance through programmes like HOPE VI. However, several authors<sup>54</sup> have criticised this vision as a veiled gentrification strategy<sup>55</sup>. Anyhow, the evidence of the positive results of this kind of policies is still limited, since many times residence changes do not alter the socio-economic conditions of families<sup>56</sup>, and can even have negative effects, for instance by weakening their social networks (see the debate below).

#### **Debate: The dubious results of the urban de-segregation programmes in the US**

One of the most famous federal programmes of urban de-segregation in the US is Moving to Opportunity, developed between 1994 and 1998 in five cities throughout the country. The programme provided 4,600 low-income families with vouchers for renting and access to assistance services for house search in neighbourhoods with less concentration of poverty. The different evaluations concluded that the intervention had significant positive aspects on health, especially on mental health, problems with alcohol and other substances, and exposure to violence<sup>57</sup>. However, at the same time, the programme had no effect on labour inclusion or in the participation in social programmes on the part of participants.

<sup>51</sup> Van Ham and Tammaru 2016

<sup>52</sup> <http://chicagopolicyreview.org/2014/01/29/separate-and-suffering-the-damaging-effects-of-residential-segregation-on-metropolitan-economies/>

<sup>53</sup> Van Ham and Tammaru 2016

<sup>54</sup> Cameron 2003; Uitermark et al. 2007; Blomley 2004; Cunningham 2001

<sup>55</sup> Lees 2008

<sup>56</sup> Van Ham and Tammaru 2016

<sup>57</sup> Acevedo-García et al. 2004; Anderson et al., 2003

Another reference example is the HOPE VI programme, which started its development in 1992 with the aim of transforming public housing through revitalisation activities and services of support and development of communities. Local authorities had room for decision-taking in what concerned the use of funds, and therefore quite a lot of diversity could be observed in the implementation of the programme in different states. However, different evaluations had found negative results: around half of the participants ended up moving to low-income neighbourhoods, and many of them came back to their original places over the years. Furthermore, and given that the residence change was involuntary both on the part of the beneficiaries and the receiver communities, a certain reduction of social capital was observed, which partly explained the lack of improvement in the economic opportunities of participants. The residence change had psychological and emotional costs for families, but also costs in the shape of increases in the price of public services, transport or nurseries<sup>58</sup>.

### 5. Urban security

Security and the city are extrinsically connected since the origins of urban history; according to Zygmunt Bauman, “paradoxically, cities, initially built to provide safety to all of its inhabitants, are currently more linked to danger than to security”. In occidental Europe, for instance, and although the incidence of serious crimes has been relatively controlled, misdemeanour crimes and anti-social conducts have increased in the last decades<sup>59</sup>. Moreover, the new threats of international terrorism and cybernetic crime have posed important challenges and have contributed to increase the insecurity perception in the cities<sup>60</sup>. The index of safe cities of The Economist, which establishes a ranking of the most important cities of the world each year, considers in its evaluation the central aspects of health, digital, infrastructure and personal safety. Furthermore, it highlights the difference between the real and the perceived security for citizens, which usually do not match.

Health safety, which includes elements such as the risk of natural disasters, traffic or environmental accidents, and access to health services, is a key aspect of urban security. A standard measure to improve health and the environment and to reduce the number of collisions with pedestrians is to promote the use of bikes through the provision of safe lines for cyclists. Moreover, common measures in the local area include those aimed at improving the quality of air, for instance through restrictions in the use of motor vehicles, the promotion of recycling and the use of renewable energies; or at providing green spaces and enabling outdoor activities for citizens<sup>61</sup>. Freiburg, in Germany, is an international reference as a sustainable and green city, as a consequence of the Council’s compromise and investment in renewable energies, alternative transport, and green buildings and areas<sup>62</sup>.

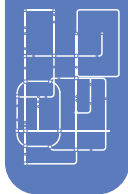
<sup>58</sup> Diamond, 2012

<sup>59</sup> Cubet 2008

<sup>60</sup> The Economist 2015

<sup>61</sup> The Economist 2015

<sup>62</sup> Engelke 2013



Cybernetic security gains more and more importance in the world, although there is still scarce social consciousness about its incidence and implications. The larger use of new technologies, for instance through sensors in aspects like urban traffic regulation, offers more opportunities for this kind of crime. Singapore, one of the safest cities of the world in this regard, has established a special control centre for monitoring and operations, which will allow the local government to be equipped with the necessary instruments to fight this kind of actions<sup>63</sup>.

Infrastructures, in the shape of roads, sidewalks, transport systems, pedestrian areas, bike lanes, drinking water and sanitation systems, communications, or energy, constitute a key part of urban safety. New technologies offer a special potential in this area. For instance, in Singapore, the government designed the installation of 1000 sensors in the city during 2015 to measure air quality, traffic jams or water levels.

Developing the strength of the cities and the feedback mechanisms in emergency situations has turned into a priority in this aspect. In San Francisco, for instance, they have recently put into operation a department focused on the prevention and management of this kind of happenings<sup>64</sup>. The objective is the reduction of the exposure of population to unexpected events, especially climatological ones related to climate change. This has special relevance for coastal cities, where the increase of sea level and the frequency of storms entails growing risks for the population and the existing structures<sup>65</sup>.

Energy safety is also crucial in this area. In this regard, community initiatives of renewable energy generation (solar or wind energies) must be highlighted in some cities in the North and Centre of Europe. Moreover, the so-called “green” buildings seem to offer a special potential for energetic saving, taking into account the minimization of energy and water use, as well as the optimization of the users’ health, in their design, construction and use. The morphology of cities, and of course the transport means that they require, is also very important when determining the energy needs of their inhabitants<sup>66</sup>.

Personal or human safety<sup>67</sup>, on the other hand, refers to the more traditional aspects related to crime and violence in general, although a wider concept would include also other welfare aspects. The increase of police presence in the streets, for instance, seems to have contributed to the reduction of crime in Barcelona, as well as the improvement of the perception of citizens with regards to security. Glasgow is developing a public illumination system which is sensitive to environmental factors related to criminal activities. The urban design itself and the edifications can promote neighbours’ safety, for instance avoiding isolated or poorly visible areas in the access to their homes, or strengthening common elements like bus stops or parking meters to be used as protective barriers in the event of a terrorist attack<sup>68</sup>.

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<sup>63</sup> The Economist 2015

<sup>64</sup> The Economist 2015

<sup>65</sup> The Economist 2015

<sup>66</sup> The Economist 2015

<sup>67</sup> The Economist 2015

<sup>68</sup> The Economist 2015

### **Debate: Safety and crime in the urban environment**

It has been proved that crime in the cities is often the result of a multiplicity of elements, among them the lack of effective social inclusion of some collectives<sup>69</sup>. This is the vision promoted by the Programme of Safer Cities by UN Habitat. In this way, it seems that it is the lack of economic opportunities what explained to a larger extent the popular revolts that took place in the suburbs of Paris in 2005 by French citizens, descending from immigrants settled in the city. The importance of these preventive actions aimed at improving the coexistence climate in the cities and at ensuring the equality of opportunities cannot therefore be underestimated in this aspect, and specifically through fieldwork and proximity work, the stimulation of intercultural dialogues between different age groups and urban actors, and the pedagogical action that replaces the discourse on fear of diversity by a valorisation of it<sup>70</sup>.

The intervention and involvement of the community in this area has a great importance, especially concerning prevention<sup>71</sup>, and it is a growing trend in European and North American cities. In this sense, an initiative that has been fruitful in the US is to organise periodic meetings between police and residents in order to involve citizens in the resolution of problems in poor neighbourhoods<sup>72</sup>. In some cities, they have also promoted a larger local involvement through proximity justice, which carries out a restorative and mediator task between victims and perpetrators. An example is the Halt programme in the Netherlands, which enables the encounters in police offices and offers youngsters the possibility of apologizing carrying out repairing tasks, or others in a similar fashion. There are similar programmes in Finland, where the mediators are voluntary members of the community, or in Northamptonshire (United Kingdom), in the poorest neighbourhoods.

There is evidence that urban planning has an impact on crime and fear of it, since the physical environment can increase or reduce the opportunities of committing criminal acts. Purely urban matters, like street lighting, surveillance or visibility, determine to a certain extent the behaviour of potential victims and perpetrators<sup>73</sup>. Several countries, like the UK, have initiated certification systems of safe constructions when edifications meet some requirements, established by security forces (Police)<sup>74</sup>.

There are different tools aimed at the achievement of a safest urbanism, such as the CPTED (Crime Prevention Through Environmental Design), criminality maps and victimization surveys. CPTED evaluates areas in a qualitative aspect, describing problems associated to urban design, and it allows identifying environmental aspects that promote the development of criminal activities.

<sup>69</sup> UNHabitat 2009

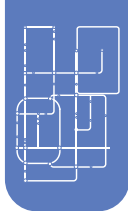
<sup>70</sup> Curbet 2008, Sampson 2008, Cano Paños 2006, Body Gendrot 2008, UNHabitat 2009

<sup>71</sup> UNHabitat 2009

<sup>72</sup> Sampson 2008

<sup>73</sup> Van Soomeren 2008, Felson y Clarke 2008

<sup>74</sup> Van Soomeren 2008



This methodology is based on natural control of accesses, natural surveillance, spatial maintenance, territorial reinforcement and community participation. A recent study, which intended to verify this method in a neighbourhood in Madrid, confirms the accuracy of the results, comparing them with the maps of crime incidence<sup>75</sup>.

## 6. Main actors and the role of communities

The main actors involved in the interventions aimed at achieving inclusive cities are the national, regional and local governments, as well as civil and community organizations, key partners in the development of inclusion projects, and the private sector, often as provider of housing and services<sup>76</sup>. Many times, the different actors involved in the management and regulation of the city are not correctly coordinated, which makes measures, taken in an isolated way, ineffective. In order to ensure the effectiveness in this area, it is important to develop and to adopt cross-sectional and multilevel approaches and tools<sup>77</sup>.

Civil society organizations are especially important to advance towards more inclusive cities and governance mechanisms that promote inclusion<sup>78</sup>, especially in a context of general crisis about the role of traditional institutions and the remarkable increase of citizen pressure and new ways of community organization and social innovation<sup>79</sup>. The participation of the communities is recognised as a key component, not only in planning and design, but also in the implementation of inclusion interventions. In inclusive cities, the citizen must be the main character; or, as the White Book of the Spanish Government states, “in inclusive cities, it is postulated that the city must adapt to the premises, needs and aspirations of the citizens, and not the other way round”.<sup>80</sup>

The intervention of the community, from the first to the last moment, is decisive to keep and maintain the benefits of these projects, and it is considered a decisive success factor<sup>81</sup>. This participation generates a feeling of belonging, identity and place among residents, and ensures the participation in the benefits of urban development<sup>82</sup>. The new forms of government, more open and participative, which offer the possibility of a more direct implication of the citizens, are more and more common in our cities, and are giving rise to positive experiences of participative development of the urban environment (see international practices of reference). The city of Amersfoort (the Netherlands) offers an example in this sense<sup>83</sup>.

<sup>75</sup> Palimariuc 2015

<sup>76</sup> Banco Mundial 2015, Herrle et al. 2016

<sup>77</sup> Gobierno de España 2015

<sup>78</sup> Gerometta et al 2005

<sup>79</sup> Gerometta 2005

<sup>80</sup> Gobierno de España 2015

<sup>81</sup> Banco Mundial 2015

<sup>82</sup> Gobierno de España 2015

<sup>83</sup> URBACT 2015

### **International practices of reference: The importance of citizen participation**

In the last years, there has been an increase in different European and North American cities that have developed proposals of citizen platforms, where it is the citizens themselves who report problems and to make proposals to authorities. This kind of initiatives generates citizen support, improves the councils' management and help to establish and strengthen the dialogue between inhabitants and governing parties. Some examples are Fix My Street, Fix My Transport and ePetition in the UK, or See Click Fix and Neighborland in the US<sup>84</sup>. In Spain, this kind of initiatives is increasingly more common. For instance, the Madrid City Council has recently launched Decide Madrid for the collection of citizen proposals, which can be voted by all residents in the city, as well as to allow Madrid citizens to decide about matters like the possible restriction of traffic in the Gran Vía, or the remodelling project of Plaza de España.

Leadership and social innovation in the communities for the identification and resolution of problems offer a great potential to advance towards the objectives of the inclusive city. Increasingly, projects of social inclusion depart from the initiative of the civil society or neighbour groups themselves, and they achieve institutional support and involvement afterwards, giving rise to new forms of collaborative governance. Two projects in peripheral districts of Barcelona, initiated by citizens and later supported by the local administration, offer examples of collective creativity linked to culture and urban regeneration, which promotes social cohesion and sustainability<sup>85</sup> (see international practices of reference below).

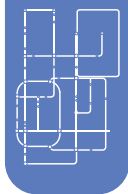
### **International practices of reference: Social leadership in the urban regeneration of the centre of Barcelona**

The districts of Sant Andreu and Nou Barris have traditionally been areas inhabited by the working class, which in recent years have turned into areas of cultural and social diversity with a high potential for social and cultural innovation; however, its lack of centrality has provoked that they do not appear in cultural programmes of the city as spaces of culture consumption or touristic attractive.

The City Council bought the Fabra I Coats fabric in Sant Andreu in 2005, when it closed after 175 years of activity; the premises were rehabilitated and the buildings were occupied by the cultural centre Fàbrica de Creatividad and other civic associations and public services after a participative process where it was resolved to turn it into a space of reference and offer it for socio-cultural activities. On the other hand, in 1977, around 200 venues occupied an abandoned asphalt plant in Nou Barris; the Ateneu Popular 9 Barris created in the former industrial facilities a cultural centre of reference

<sup>84</sup> Gobierno de España 2015

<sup>85</sup> García et al. 2015



for the promotion of art, specifically through a circus. This space has turned into an important centre of the socio-cultural life in the neighbourhood. Nowadays, the City Council recognises the Ateneu as a socio-cultural factory that represents Catalonia in the circus international scene.

Both initiatives have developed innovative and participative models of governance; the Ateneu Popular 9 Barris is managed by a legal entity that consists on representatives of neighbourhood associations, with a permanent committee elected every two years in a public assembly. The budget is 60% funded by public funds. On its part, the cultural centre Fabra I Coats is lead by a mixture of local administration staff, in what concerns exhibitions and artistic production with international projection, and civil organizations, sporadically collaborating with institutions in the most limited contexts of the neighbourhood or the city, depending on the needs of each project.

Source: García et al. (2015)

## 7. Vulnerable collectives

Sex, race, religion, physical abilities, youth or advanced age, immigration or work status are important factors that determine the capacity of individuals and groups to have access, or not, to the benefits of urbanisation<sup>86</sup>. In this way, the New Urban Agenda acknowledges the necessity to pay special attention to the multiple discrimination that women and girls suffer, as well as children and the youth, people with functional diversity, the elderly, homeless people, and refugees or displaced people and immigrants, among others.

**Women** – the agenda of the inclusive city and the woman has been specially focused on the global debate and practices in matters related to safety and gender violence, as well as the need of urban spaces that acknowledge and give answer to the role of women in the caring tasks in the family and the home. The lack of safety for women in urban contexts prevents them from taking full part in the varied opportunities that the city offers<sup>87</sup>. In the cities of the countries that surround us, besides explicit forms of gender violence, more common in the private sphere, there are also “micro- aggressions” integrated in the public daily life, for instance through the scarce lighting in public spaces that facilitate forms of sexual harassment. These are socially accepted and lead women and girls to change their behaviours and limit their mobility and freedom to take decisions<sup>88</sup>. On the other hand, decades of fragmented urban planning have lead to the geographic separation of residential, work, shopping and leisure spaces. The Mother Centres International Network for Empowerment initiative, originated in Germany and present in more than 15 countries, is a paradigmatic example of social innovation for the improvement of life conditions and the inclusion of women and girls in the cities (see international practices of reference).<sup>89</sup>

<sup>86</sup> UN Habitat 2015

<sup>87</sup> Whitzman et al 2013

<sup>88</sup> Kent 2016

<sup>89</sup> Jaeckel and van Geldermalsen 2006

### **International practices of reference – Development of community structures that promote gender inclusion: the Mother Centres Network**

The Mother Centres International Network appeared as a community movement of self-help in Germany, and has been spread to more than 15 countries in the last decades, with more than 750 centres. There, women join forces to improve the lives of their families and communities, connect with families from different social and cultural circumstances, claim public spaces for their communities, achieve the recognition of their life experiences and their knowledge, and take active part in the civil and community governance. Centres work as a focus of development of services close to the home, like child and elders care, feeding centres, child playcentres, etc.

Source: Jaeckel and van Geldermalsen 2006

**Children** – Childhood represents a high percentage of the urban population, with specific characteristics, needs and vulnerabilities. The acknowledgement of its key role has led to the normative development of childhood rights in the city in international instruments, and to the launching of the Child Friendly Cities programme by UNICEF in 2004; these cities are defined as those where there is a compromise for the respect of the childhood rights, and where their voices, needs and priorities are an integral part of the public policies, programmes and decisions. An example of a Child Friendly City is Ghent, in Belgium, which spotlights the importance of ensuring the participation of children, specifically in the local decisions that affect them. Other areas of intervention that favour participation include improvements of the public spaces and infrastructures aimed at a better socialization and mobility in the community, or the promotion of innovative services and play and socialization activities.<sup>90</sup>

**The elderly** – In the countries of our surroundings there has been a tendency to the abandonment of urban centres by people of advanced ages, mainly due to the architectural and transport difficulties that they have to face in the urban environment. For instance: slopes in the pavement, very pronounced steps, streets with a lot of traffic and with few pedestrian crossings, lack of public toilets or places to sit, or isolated and poorly lit public transport stops<sup>91</sup>. However, at the same time, urban centres offer several opportunities for active ageing, and would benefit from a population of diverse ages<sup>92</sup>. One of the topics that are gaining more importance in this regard is the housing adapted to the needs of this age group (see international practices of reference below).

### **International practices of reference: housing of the future for the elderly**

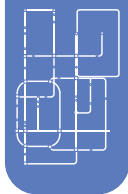
Plenty of multi-disciplinary equipments of researchers and companies are developing important efforts to design housing solutions that cover the needs of the elderly, using home automation and other new technologies, such as the intelligent network sensors<sup>93</sup>.

<sup>90</sup> <https://stad.gent/sites/default/files/page/documents/Ghent%20summary%20action%20plan%20child%20and%20youth%20friendly%20cities.pdf>; UNICEF 2005; Chawla y Salvadori 2003.

<sup>91</sup> Hanson (2002)

<sup>92</sup> Hanson (2002)

<sup>93</sup> <https://envejecimientoenred.wordpress.com/2015/11/05/las-viviendas-inteligentes-para-mayores- aun-estan-en-el-laboratorio/>



HOUSGAI, in Sestao (Basque Country) is a trial of new methods of socio-sanitary attention that allow the elderly to age in their own homes, integrating aspects of socio-sanitary assistance, rehabilitation and adequacy to the environment and the integration of already-existing and new services. The project was developed in 2012-2013, with funding from the Basque government, as a result of the collaboration with a business consortium, universities and technology and research centres, led by Matia Fundazioa<sup>94</sup>. The project entailed a general reform of a municipal house and the exterior access of the building, erasing all architectural barriers, in order to be put at the disposal of a dependent, older than 75 person, as well as adapting and integrating technological and non-technological assistance services<sup>95</sup>.

The apartment was specifically equipped with different services with a technological basis, like the service for the monitoring of physiological parameters (weight, pressure, glucose), the programming service of healthy diets, the service of habit monitoring, and the surveillance system in the home to prevent accidents. In the area of non-technological services, it should be highlighted an integral valorisation from which, departing from the tastes and preferences of an old person, they agree with this person the services that he or she is going to receive. Among these services there are some new ones like the healthy habits tracker, the training in the use of new technologies, technical support, 24 hours assistance service, etc, besides the integration of other already-existing services, like home help<sup>96</sup>.

SAAPHO – Secure Active Aging Participation and Health of Old People, is a project co-funded by the Spanish government with European funds, and developed by a consortium of companies and research centres from different countries, with the leadership of the Digital Technology Centre of Barcelona. The project, developed between 2012 and 2014, intended to develop a technologic platform for the elderly that improved their autonomy and independence by providing health, participation and safety services through intuitive interfaces adapted to the preferences, possibilities and limitations of each person. Users would interact with the platform through multimodal systems like tactile screens in personal computers, tablets and smart-phones.

Sanitary services focus on the prevention of health problems, the promotion of healthy habits and the monitoring of critical indicators in the case of people with illnesses or chronic conditions, the monitoring of physical activity, glucose levels and arterial pressure, as well as personalized advice to live in a healthy way, and other services. Safety services include the control of atmospheric parameters, the control of the presence of potential strangers, or detecting falls and providing the user with assistance in case of emergency. Lastly, the participation aspect refers to the personalized access to mechanisms of communication with relatives, friends and caregivers. The platform was designed with the objective of being adaptable to the needs of each person, using advanced techniques of artificial intelligence<sup>97</sup>.

<sup>94</sup> <http://www.matiafundazioa.net/es/noticias/el-proyecto-housgai-para-el-ensayo-de-nuevos-modelos-que-permitan-las-personas-envejecer-en>

<sup>95</sup> Memoria de Sestaoberri (2013)

<sup>96</sup> <http://www.matiafundazioa.net/es/noticias/el-proyecto-housgai-para-el-ensayo-de-nuevos-modelos-que-permitan-las-personas-envejecer-en>

<sup>97</sup> [https://joinup.ec.europa.eu/sites/default/files/files\\_epractice/sites/SAAPHO\\_Press\\_release\\_FINAL\\_2012-02-02.pdf](https://joinup.ec.europa.eu/sites/default/files/files_epractice/sites/SAAPHO_Press_release_FINAL_2012-02-02.pdf)

**Immigrants and ethnic minorities** – As stated before, one of the most important challenges for cities nowadays is the increase of racism and discrimination. Immigrants and ethnic minorities have turned in our societies into scapegoats for economic crises and social uncertainties in the public discourse of certain political forces<sup>98</sup>. The rights of these citizens are increasingly threatened in the context of an increase of xenophobic behaviours and discourses. The role of cities in the fight against racism is key in this regard, for instance through initiatives like the Coalition of Cities Against Racism<sup>99</sup>, and undoubtedly through local initiatives aimed at favouring a better climate of coexistence and integration (see international practices of reference below).

#### **International practices of reference: Immigration cities**

There are plenty of initiatives highlighted in this area as good international practices in cities from different countries in the world. The kind of interventions that are most observed revolve around the following objectives:

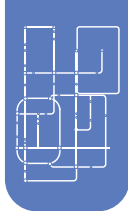
**Adapted public services.** For instance, with the use of interpretation services in primary health care services in Oakland (New Zealand), or adapting maternity services to the needs of the immigrant population in Birmingham (United Kingdom). In Boston (US), the Mayor office created an agency specifically dedicated to help the newcomers to connect with local services, whereas in New York (US) the project We are New York provided access to public services for all residents through an innovative TV programme and neighbour discussion circles.

**Programmes of work inclusion.** Examples of this kind of initiatives are the work forums in Calgary (Canada), where the people in charge of recruitment find themselves face to face with immigrants who are looking for a job, the internship programme that helps newcomers to get into the labour market through the training in employment and support in Montreal (Canada), the volunteering Council employees network who mentor the new residents about the labour market and the professional culture in Toronto (Canada), or the Participation Network in Wuppertal (Germany), which helps refugees to accede the labour market through activities of preparation for employment in different sectors.

**Programmes for entrepreneurship between immigrant communities.** This kind of initiatives are focused on providing assistance and support for the development of entrepreneurship projects, such as the Back Streets programme in Boston (US), which provides support to small and medium companies, the consultancy service Barcelona Activa (Spain), Mingo in Vienna (Austria), and Enterprise Helsinki (Finland), the Thrive programme in New York (US), a contest of business plans to help immigrant entrepreneurs with small companies, of the local network of immigrants for the development of international economic activities in Aachen (Germany).

<sup>98</sup> Borja y Castells

<sup>99</sup> UN Habitat 2015



**Communication and awareness campaigns in favour of diversity.** In Blackburn with Darwen (United Kingdom), the Meet your neighbours initiative promotes interaction and understanding through the dialogue between religions. In Edmonton (Canada), the campaign I'm committed to a racism free Edmonton, encouraged the inhabitants of the city to carry out specific actions against racism in the city. In Ghent (Belgium) the Young Ambassadors programme shared real stories of young immigrants, whereas in Milan (Italy), they used the bus transport networks to carry the stories of immigrant citizens through the city.

**Intercultural programmes.** This kind of initiatives include the Valladolid Intercultural Week (Spain), a festival that raises awareness and strengthens the intercultural coexistence, promoting the involvement of citizens through a process of collaborative planning; the parade and Sikh celebrations in Badalona (Spain), which creates a common space for citizens, of the Dialogues project in Vancouver (Canada), which aims at improving the intercultural understanding and connection between aborigines and immigrant communities.

**Education and competences for diversity.** The Dilemma Workshop in Botkyrka (Sweden) challenges discrimination and implicit biases among the staff in local administration. In Wellington (New Zealand), a handbook about religious diversity helps the police to improve their relationships with minority groups. In Munich (Germany), the leadership of the city has turned the training in diversity into part of its institutional culture. In Amsterdam (the Netherlands), the Diversity in Police Leadership programme also promotes the development in intercultural competences among the highest-rank members of the police forces.

**Measurements for the promotion of political participation.** In Antwerp (Belgium), the Council invited federations of minority groups to improve relations among the community, whereas in Richmond Hill (Canada), the municipality took measures to increase the representation of minorities in the citizen boards, and in Paris (France), a council of non-citizens was established to ensure that the voice of all residents was present in the political debate. On the other hand, in Berlin (Germany), they evaluate the diversity of local governments, and in Bremen (Germany), they have established diversity criteria in the recruitment processes of public workers. The councils in Dortmund (Germany) or Chicago (US), which has opened an office of New Americans, recognise immigrants as important components of the local electorate.

Source: <http://citiesofmigration.ca/good-ideas-in-integration/municipal/>

**People with disabilities or different capabilities** – Cities are still one of the biggest obstacles for people with different capabilities: those who cannot hear well must count above all on vision to compensate for the lack of sounds; those who have walking limitations must move through level changes or holes in the pavement; and people with limited vision must often adapt to the lack of appropriate signals regarding places or objects<sup>100</sup>.

<sup>100</sup> De Oliveira Neto and Kofuji 2016

Moreover, in general, unemployment rates are higher in these populations. The European regulation and strategy in this regard requires Governments to adopt the necessary measures to ensure the equality of opportunities for people with disabilities or different capacities, also in the urban area. New technologies seem to be especially promising for the empowerment of these collectives. Examples of these initiatives can be found in new apps and disability maps, which facilitate people with mobility problems the movement and life in the city, such as Cap4Access, Wheelmap, Blindsquare or Wayfindr<sup>101</sup>.

**Homeless people** – Homeless people represent an extreme example of social exclusion in our cities. This collective sees its rights systematically violated, starting with the right to decent housing conditions. The greatest success examples in the reduction of this phenomenon, such as the city of Odense in Denmark, or several Finnish cities, indicate the importance of focusing local efforts in the priority provision of unities of housing, support and monitoring of these people, many of whom suffer physical and/or mental illnesses, and the activities of home-loss prevention, for instance through consultancy services, the reinforcement of collaboration in eviction situations, and a special focus on the collective of homeless youngsters, especially immigrants, which is increasingly numerous<sup>102</sup>.

## 8. Conclusions: towards the inclusive city

The different aspects revised in this article configure an analysis framework which can be useful in the discussion about basic elements for the development of the inclusive city and in the diagnosis of aspects which make it difficult in specific cases, or in the prioritizing of interventions to advance towards this objective. The following diagram presents in a graphic way the detailed aspects in the previous sections. Firstly, we must point out that the needs, and therefore the priorities, in this area are specific in each context. Because of this, the efforts directed towards the development of an inclusive city require a clear diagnosis of the main existing barriers, for instance through data- crossing about housing stock, services and infrastructures, security problems, or socio- economic and demographic profiles. The result of such analysis will point out the guidelines for each specific case<sup>103</sup>.

Secondly, and it was already pointed out in the previous sections, we cannot ignore the multidimensional character of the inclusive city, and the greatest effectiveness of the integral interventions. Integrated approaches imply the consolidation of multiple actions which jointly try to alleviate the impediments to the achievement of an inclusive city in a sustainable way.

<sup>101</sup> [http://www.debatingeurope.eu/2016/04/05/how-can-cities-be-made-more-accessible-for-disabled-people/#.WLVgS3\\_9zEk](http://www.debatingeurope.eu/2016/04/05/how-can-cities-be-made-more-accessible-for-disabled-people/#.WLVgS3_9zEk)

<sup>102</sup> Katisko 2015, Busch-Geertsema 2015

<sup>103</sup> Gobierno de España 2015

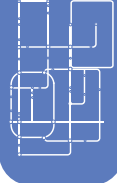
# COORDINATION AND PARTNERSHIP WITH THE MAIN SOCIAL AND PRIVATE ACTORS

## DIMENSIONS

	Social	Economic	Spatial	Cultural	Political	Safety
Elderly people	Education for the elderly, access to specialized health services, dependence, social protection	Active ageing, volunteering, mentoring	Adapted housing, urban spaces and mobility	Appropriate leisure, relational and cultural activities	Participation in decision-taking and planning	Safe urbanism, environmental safety, road safety
Immigrants and refugees	Educational and health adapted services, cross-cultural education	Adapted programmes of work inclusion and entrepreneurship, mentoring	Access to adequate housing, infrastructures and transport, desegregation	Celebration and acknowledgment of diversity, spaces	Right to vote, representation in local organizations	Cross-cultural education campaigns and programmes against racism and in favour of diversity
Homeless people or at risk of poverty	Access to quality basic services and social protection	Programmes of work inclusion and entrepreneurship, access to financing	Access to adequate housing, transport and infrastructure, prevention of eviction	Access to leisure and cultural activities	Participation in decision-taking and planning	Safe urbanism, surveillance in the street
Youth and childhood	Access to quality basic services, attention	Training, programmes of work inclusion and entrepreneurship	Housing, transport, infrastructures and urban spaces	Appropriate leisure and cultural activities, innovation sport	Participation in decision-taking and planning (e.g. children's councils)	Safe urbanism, environmental safety, road safety
Women	Resources and services for victims, prevention of gender violence, maternal and infant health	Programmes of work inclusion and entrepreneurship, mentoring, networks	Adapted and safe transport and urban spaces that prevent aggressions	Promotion of gender equality through culture	Participation in decision-taking and planning	Safe urbanism, surveillance in the streets, promotion of (gender) equality
People with disabilities	Access to health and social services and social care	Adapted programmes of inclusion	Housing, urban spaces and mobility	Access to leisure and cultural activities	Participation in decision-taking and planning	Safe urbanism, road safety, surveillance in the streets

Vulnerable groups

Consultation and participation of citizens and communities; social initiative, innovation and creativity



In this way, the following interventions must be prioritized: those which (1) achieve results in various dimensions and/or collective ones; (2) include different kinds of measures (e.g. the construction of a community centre together with the provision of training of its social workers); (3) combine interventions on the side of the offer (e.g. ensuring the availability of social housing for vulnerable collectives), and on the side of the demand (e.g. improving the information and consultancy about the access to this kind of programmes); and (4) promote the shared use of the same resources with various related aims. The integral revitalization programmes are especially interesting in this area, which cover different sectoral intervention programmes, for instance in areas like urbanism, housing, security, social welfare, economic revitalization, mobility, accessibility, equipment and infrastructures.

Thirdly, the effective commitment and willingness of national, regional, and especially local governments, must find its ultimate support in the involvement of civil organizations and the beneficiaries of the interventions in the planning, design and implementation phases. The success of an initiative of this kind will mostly depend on its acceptance by the community, both by the collectives that benefit from it and those that do not, as well as the alliances with civil organizations and, when applicable, the private sector. The new forms of citizen participation and collaborative government formulas, as well as the construction of strong and wide alliances, are thus key elements in this area. Likewise, social and community leadership and innovation offer a great potential for social inclusion.

Lastly, we must highlight the importance to accompany this kind of programmes since its design and planning with adequate mechanisms of monitoring and evaluation of results, which would allow to learn from the experience, enabling improvements of adjustments according to them, as well as informing the design of new policies and programmes, and offering examples of better international practices in order to advance towards the inclusive city of the future.

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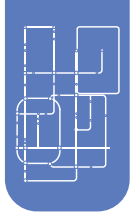
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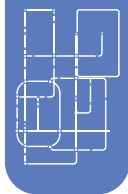
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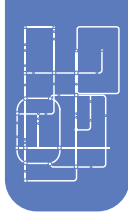
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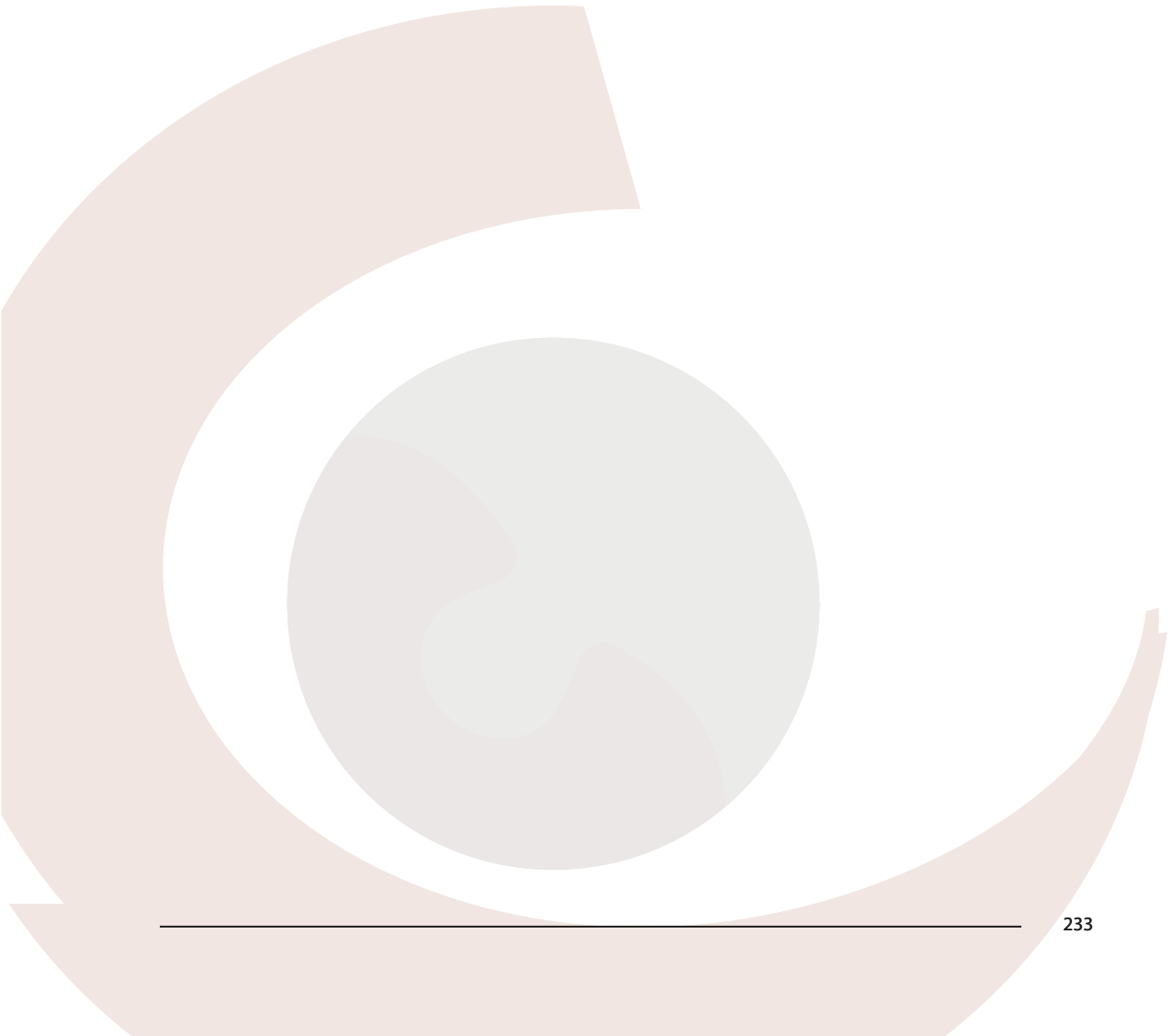
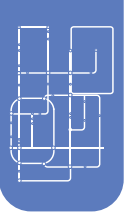
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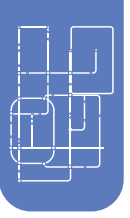


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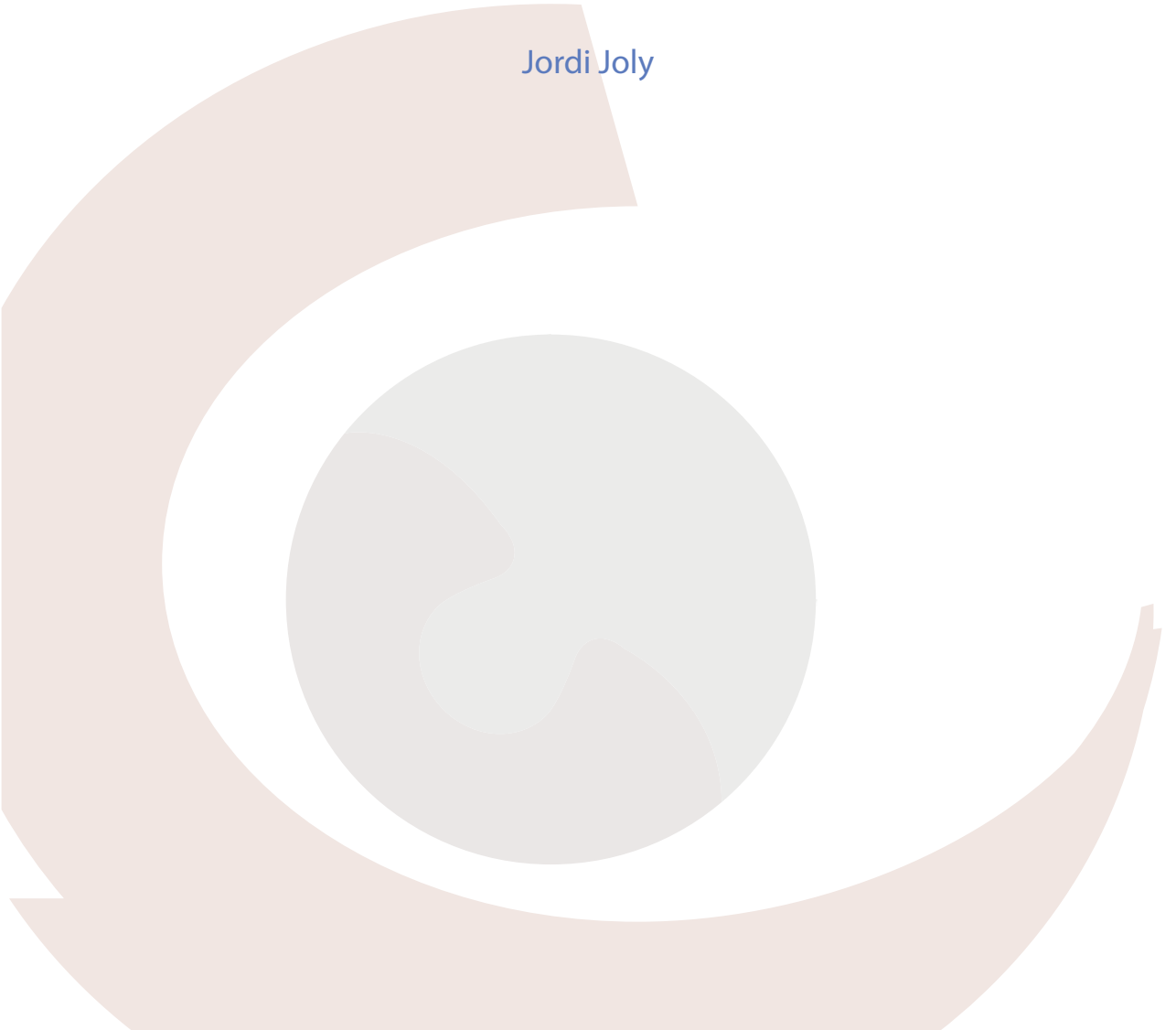




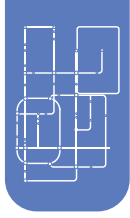


# EFFICIENT MUNICIPALITIES: THE NEW ADMINISTRATION

Jordi Joly







## THE GEARUPUBLIC!© IMPACT AND ADVANCED CITY GOVERNMENT

Jordi Joly

### SHORT CV

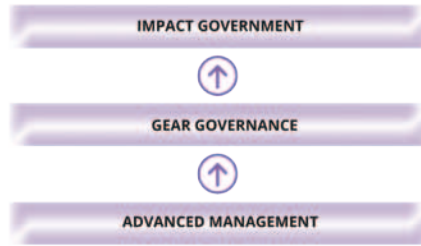
As External Senior Expert of the European Institute of Public Administration, and from my personal office (jolyadvising.eu), I assist public sector and private companies committed with: Institutional Quality, Execution Premium and Social Impact. Through the following services: Advisory Project Management Assessments Knowledge Transfer Workshops Leading Implementation Project Boards

Spezialised in: Strategy Design and Strategy Management. Public Sector Economic and Financial Governance Public-Private Economy Development Initiatives Beginning as an entrepreneur of the engineering and tech sector of the automobile industry at the age of 18, my professional career path comprises more than 30 years bringing together different experiences and responsibilities throughout the private and the public sector. The combination of learning and professional activity in both sectors has given to me a strong established global vision and understanding of key issues related with institutional quality, execution/management premium and social impact. I created the Politics and Management Deal (PMD) approach, awarded as the best public management case (2009) for Change Management in Europe according the EPSAs, the European Public Sector Awards. Based on criteria of alignment and atrategy maps (R. Kaplan and D. Norton) and those arising from underlying emotional intelligence and human psychology (R. Boyatzis), the PMD approach develops a complete and comprehensive organization's governance towards strategic definition, execution, budgeting, finance policy and accounting standards. I guide all efforts to teamwork whith ethics and values as keystone, always walking the talk.

### ABSTRACT

Main threads of any cross-border region are to be faced through horizontal governance improvement and a new approach for local governments and cities. Some of the leading cross-border cases are the French cross-border areas, the German-Austrian border area, Eurométropole (Lille-Kortrijk and Tournai), the Trinational Eurodistrict Basel (TEB), the Saarmoselle Eurodistrict and the region of Öresund.

They are unique and leading cases of cross-border institutional partnership and broad regional strategy framework and also an engine that fosters habitat improvement, sustainability and progress. It is a path forward for a democracy of quality, a new kind of city policy building, government, governance and public management.



Although we all assume the importance of city management, we do not find in place any executive co-operation, strategy maps or managing by objectives system/model, developing links between the policy at the regional level and the strategy (execution) at the local level. That is to say; one thing is to decide the regional cross-border strategy jointly and co-operate to determine infrastructures of common interest, and the other one, is to link the public policy priorities of the region with each of the local governments and cities of the territory. Cross-border territorial strategy alignment and cross-border multi-level budgetary alignment is something that appears to be of great importance and something to be done for the future.

As the European Commission points out, the quality of public administration has a direct impact on the economic environment and is thus crucial to stimulate productivity, competitiveness and growth.

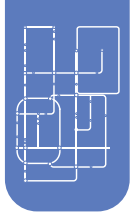
Thus, excellent cooperation between politicians and managers to ensure mission and vision must be implemented in everyday working habits.

Cities should work a step forward from the “Smart City” label; smart means not only be friendly to the use of digital tools and technology but to have a recognised and advanced capacity management for the policies that are under the city responsibility.

Hence, it is necessary to face the local government challenges and move on to the execution issues through a proposed 4 x 4 management pillars and actions to take. They are: i) Governance, Compliance and Public-Private Impact Development, ii) Operations and Organisational Structures, iii) Accounting and Finance, and iv) Innovation, Technology and Digital Transformation.

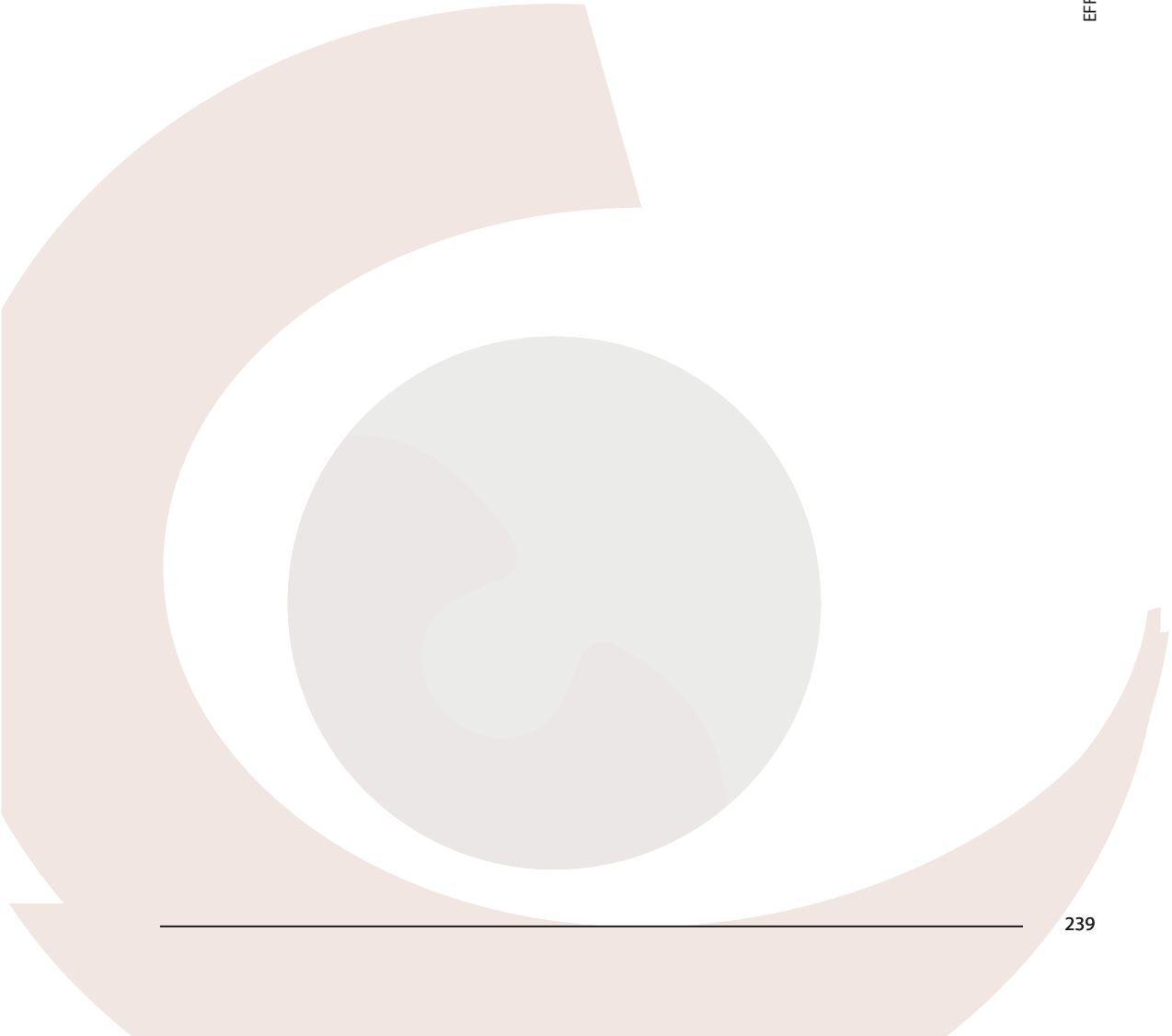
Internal local governance plays an essential role, especially the alignment and the dialogue between politics and management. Therefore the proposed model is based on the Politics and Management Deal (PMD), a comprehensive, integrated and structured system that embraces a broad range of tools and theories.

On the other hand, Impact economy as a future conception means to work and develop a space of society commitment, fostering an area where the public and private spheres overlap one to each other creating synergies of mutual interest. Business sustainable growth and social engagement is a key to regional success. Accordingly, between other issues highlights the proposition to create a Business Support Office with its euro-regional Brand Management Unit.



Links between strategy and organisational structure, and between budget and European public sector financial accrual accounting standards are a must have. additionally, creating adequate innovation systems help to develop a region that people want to be in and grow in and start a business in, being at the same time attractive to companies that today moves anywhere. Then, to foster it through public procurement of innovation and open calls for solutions to city challenges is also highly recommended.

Finally, and about financing, although efficient administrations and quality management criteria in public organisations should not be dependent on grants, there are explored some direct and indirect financial benefits together with EU programmes related to the management capacity building.



## THE GEARUPUBLIC!© · IMPACT AND ADVANCED CITY GOVERNMENT

### 1. FROM CROSS-BORDER COOPERATION IN THE EU TO COMPREHENSIVE PUBLIC MANAGEMENT IMPROVEMENT

#### 1.1. Introduction. Building the future.

##### **From the experience**

Improve quality and governance models in any situation of partnering with public and private players is something essential. However, it is a cornerstone if we are speaking of a cross-border arena where usually diversity highlights significant issues.

One of the main threads of any cross-border programmes is related to regional economy development. So, is necessary to overcome cross-border barriers (differences) through fostering the creation of institutions and networks stimulating common facilities and services.

Main detected differences at the heart of barriers in multiple sense are:

- Different dynamism and positions
- Different Language
- Social and economic gap
- Legal, political and administrative differences
- Cultural diversity
- Accessibility issues

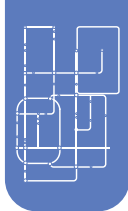
Looking at all cross-border cases and especially to a diagnosis based on all French borders,<sup>1</sup>we can find a broad list of different governance structures and various strategies.

Co-operation is the key concept. Avoiding, overall, a formal structure related to any similitude to what could be a so-called “cross-border government”. So, if we need strategy development in cascade through local governments that at the end are the executive arm on the territory, it will be required to align informal governance structures of public-private cooperation with formal political structures of each side of the border.

Examples: Öresund. An area with a population of about 3.5 million and 21.000 Km.2. It involves co-operation between some of the most advanced parts of Denmark and Sweden.

The German-Austrian border area, comprising regions as Westösterreich, Oberösterreich, Salzburg, Tirol, Vorarlberg, Oberbayern, Niederbayern and Schaben. All these parts are involved and focused on improving shared regional development, capacity improvement in research and innovation. Additionally facing challenges related to flood risk management and general climate change.

<sup>1</sup> Methodological guidebook : articulate cohesion policy, governance structures and cross-border territorial approaches. MOT, DATAR. Trans-frontier Operational Mission.



Horizontal governance becomes essential to achieve the goals, for example through the creation of business clusters and networks, joint capital expenditure agreements for strategic facilities, infrastructures and overall, a management system and improve dedicated governance structures.

Multi structures, departments, different units, and divisions of all kind are usually involved in the issues to manage and the problems to tackle creating a non-operative situation if vertical and horizontal governance is not properly built. Transversality is a challenge but even more when it has to be reached in a cross-border arena. According to the *Transfrontier Operational Mission* study throughout all French cross-border realities related to the following PO Interregs:

France (channel) - UK

Two Seas (FR-BE-UK-NL)

France-Wallonia-Vlaanderen (FR-BE)

Greater Region (FR-BE-LU-DE) Upper Rhine (FR-BE-LU-DE) France - Switzerland

Alcotra (FR-IT)

Italy - France Maritime Poctefa (FR-ES) Amazonia (FR-BR-SU)

Its general diagnosis emphasise:

- The involvement of stakeholders is characterised by the dynamism of local authorities. Local governments play a key role. However, cross-border issues are not integrated at the interministerial level.
- A vast diversity of structures with pre-eminence of horizontal governance within administration's handling issues of the same competences. The governance mess leads to an overall illegibility, so there is a trend towards the establishment of entities having a legal personality.
- There is an evident lack of contacts, communication and information between local governments and governance structures.
- As a consequence, strategic reflection with the participation of all involved stakeholders in cross-border regions is a great exercise but rather weak in development and implementation.

It's hard to link strategies at different scales as there are different institutions with different competences. A multilevel strategy requires a complex governance and coherence between scales of strategies. Thus, a clear defined multilevel strategy is a must that does not currently exist.

Diagnoses are usually focused on the territories composing the cross-border instead of being concentrated on the needs for cooperation.

In conclusion, efforts should be led towards working on new models, not yet existing ones, building effective governance, linking strategy in cascade with a clear management system. In fact, we are speaking about being efficient and effective using a sophisticated network management system, not at all an easy challenge.

Eurometropool (Lille-Kortrijk, Tournai), a polycentric, bi-national and tri-cultural metropolis with 3.550 Km<sup>2</sup> cross-border area comprising 147 French and Belgian municipalities with more than two million inhabitants. It is a co-operation group consisting of 14 institutions working together from Lille metropolitan region, South-west Flanders and Walloon Picardy towards one ambition, to eliminate borders and make life easier to their citizen. It is a European Territorial Cooperation Group (ETCG), in fact, it was the first to be created. An ETCG is a legal cooperative group joining different institutions from various levels of government from at least two EU states members. So, an ETCG has legal status instituted by the European Parliament and the Council of Europe. Currently, there are 37 ETCGs in Europe, some of them with their institutional governance approach as it is the case of Lille-Kortrijk-Tournai Metropolis.

In France, we find the Eurométropole Lille-Kortrijk-Tournai with its governance formed by:

#### **THE POLITICAL STRUCTURE:**

The Presidency

The Assembly

The Board

The Cross-Border Agency

#### **NETWORK AND PARTICIPATORY STRUCTURE:**

The Thematic Working Groups

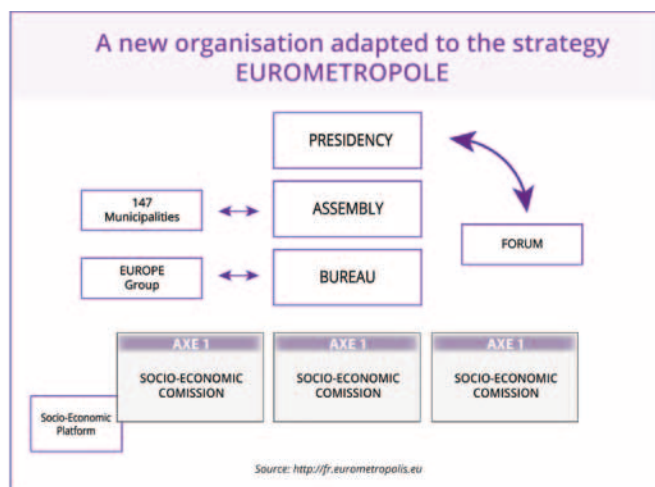
The Conference of Mayors

The Civil Society Forum

Its 14 founding members clearly represent the vertical and bi-state structures. Thus, from France and Belgium, they have representation from the State level (2), the affected regions (1-F) (3-BE), the departmental level (1-F 2-BE) and the Intercommunale level (1-F) (4-BE). It shows a structure that needs governance and management processes from a network of networks culture.

As the current paper is focused on the executive issue, on the local government role and its operative relations inside a regional cross-border structure, it has to be highlighted the existence of an Agency connection between a general/broad strategy (well-defined) and other level strategies, executive actions and its funding. The statutes define the team of the operational services (Article 14) as the responsible of the preparation and the implementation of the desitions taken by the Assembly and the Board.

Thus, although for sure is a long way to walk towards excellence execution capacity, the focus and orientation of the Eurométropole structure and governance aimed to be as an “executive” agency with its own Director General and organisation.



So, in-between the Cross-Border Agency we can see an upper (political/corporate) structure composed of the Presidency, the Assembly and the Board and at the bottom a network and participatory structure coordinated by the Agency to promote dynamisation and assure implication of all stakeholders.

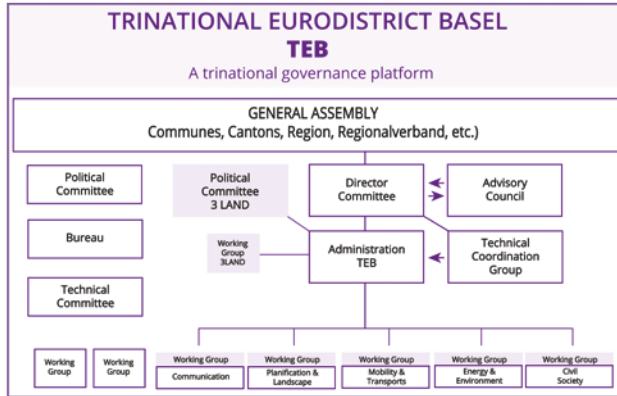
The Agency is in charge of fostering the work of the 14 members of the Eurométropole and to bring them active and involved. Although the Agency also is the team responsible for the project implementation, it is not clear the operative/executive links in-between the Agency and the cities and other administrative bodies, nor the are clearly focused to an executive point of view.

The Trinational Eurodistrict Basel (TEB) is another key reference for cross- national experience being a cross-border co-operation platform in-between the states of France, Germany and Switzerland. Political institutions and their administrations meet to face cross-border critical questions related to territory management, mobility and all kind of projects affecting citizenship within the shared and common area.

Its governance structure is as follows (see figure below) and it is clearly defined in its reason to be and in its statutory framework that they are focused on the planning and project promotion affecting two or three of the concerned states and all initiatives of shared interest. It is not focused on execution. On the contrary, it is precisely defined as a promotional body and meeting point for strategic discussions.

The TEB is an association of local right, and its object is the elaboration of primary directions and ideas for a shared strategy for the development and in- depth cooperation between cities and its upper-local aggregations located in the area. Competences of each member are respected. Members are from local level showing a clear intention of co-operation at this level. Other members could be added as associated and it can be limited on time.

Following its clear mission statement, there is not an executive structure or implementation agency.

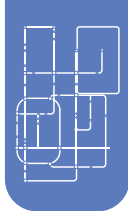


Some studies having done extensive work and analysis on the field of cross-border regions always suggest the importance of local leadership, horizontal co-operation and central government intervention. The way towards improving regional development through the local administration partnerships and involvement of civic and private stakeholders appears to be crucial for future economy development. Another region with similar starting experiences is, for example, the joint effort in between the Newry and Mourne District and the County Louth Authorities in the Belfast- Dublin corridor.

In the french-german border, we find the “Saarmoselle Eurodistrict” aimed to be a transformation catalyst of a territory involved in a profound reconversion and face the every-day citizen problems, especially those related to the presence of the border. It also has as a clear statement the mission to accelerate ways of co-operation and shared vision for the region and a coherent cross-border development policy, more convergent and integrative. It is formed by ten direct members of the GECT and two associated.

The “Saarmoselle Eurodistrict” working governance is based on an assembly representing a parity between Germany and France. It decides the working programme and its evolution and the assigned budget. A representation of 14 delegates from this assembly forms the Director Committee entitled to prepare the decisions of the Assembly and its implementation. Because of the fact, and on the technical/executive plan, it exists the Co-operation Office (Bureau de coopération). Finally, the work-operational structure closes the structure with a permanent commission as a consultation body and the Thematic Groups created according to the projects currently developed by the Eurodistrict.

In the region of Öresund, participated by the States of Denmark and Sweden, the organisational structure introduces itself with a clear separation between politics and executive issues. Twelve member organisations compose the politics sphere, known as the Öresund Committee, a voluntary political association to promote and preserve the interests of the region, which meets municipalities and regional governing bodies.



On the other hand, the Secretariat is in charge of the implementation of the political decisions and managing the day-to-day issues. An interesting statement is that the initiative should be only focused on themes not affordable by individual members by themselves showing an apparent character of a metropolitan area. It also shows a focus on the international dimension having in its structure an International, Networks and Partners unit. The Secretariat is composed of specialised external public and private organisations, with a staff team of around ten persons, co-ordinate the implementation of actions and initiatives coming from the decided strategy. It is also in charge of managing the Interreg programme.

In-between other external organisations linked to the Secretariat highlights the following ones:

- The Öresund Institute, in charge of studies, analyses and provide information of the region helping political decision making processes and private companies on issues of their interest.
- The Öresund Direkt: Helping the labour market integration between each side of the border, providing employment information, laws understanding and all particular items related to the job and work in the cross-border region.

Last paragraphs have been dedicated to some of the most relevant experiences on cross-border co-operation involving local governments, cities and regions. From this point, it is worth noting, that only one kind of co-operation is on the ground: The one based on co-operating to decide the broad regional strategy definition, with its key actions or specific investments. Investments and initiatives that are of the direct or indirect interest of all its individual members. However, that none of them can afford individually.

Although we all assume the importance of city management, we do not find any executive co-operation and integrated model developing links between the strategy at the regional level and the strategy at the local level. That is to say; one thing is to decide the regional cross-border strategy jointly and co-operate to determine infrastructures of common interest, and the other one, is to link the public policy priorities of the region with each of the local governments and cities of the territory. Cross-border territorial strategy alignment and cross-border multi-level budgetary alignment is something that appears to be of great importance for the future.

**How to build the future through rethought and improved public management in cross-border regions. A new approach for local governments and cities.**

Following current United Nations Habitat III Agenda, European trends and global needs, cross-border regions in the EU are clear and tangible cases of institutional partnership and broad regional strategy frameworks.

That is to say, their governance structures and local governments (executive units) are in need to cooperate and align cross-border differences toward common goals. Their strategy should be focussed explicitly on impacts, helping improve its habitat, sustainability in all its senses (environment, social and economy) and progress through a new way of understanding city policy building, its government, governance and public management under its regional (and shared) particularities.

Due to the world economic crisis and the role that cities are developing in the world as economic, cultural and social engines, public management based on excellence, professional, innovative and results- oriented mentality are today a sine-qua-non condition for economic growth, job creation and the improvement of social policies in its territories. This paper will try, from current cross-border realities, to help develop new public management frameworks for city governments. Cities being part of an apparent regional shared reality as it is indeed a cross-border one.

Cities and their managers must develop the capacity not only to analyse but to have the ability to execute solutions to the needs of its citizens in a holistic way, designing policies and strategies (general and competitive strategy<sup>2</sup>) that match with them and ensure a sustainable social, cultural, economic and ecological environment.

This new socio-economic and financial governance is not only the lesson learned from the global crisis but is also the reinforcement of the idea that public administrations should focus its efforts on being efficient, competitive and innovative. Strategic, transparent and effective management of human and financial resources of the cities with sustainability criteria is an essential element in ensuring the wellbeing of citizens. For governments lacking a responsible resource management and long-term strategic vision, their policies become unsustainable.

Significant changes and quickly adaptation to an entirely new social and global trend are an undeniable reality. The latest digital and technological revolution has led to impacts on the social and political behaviour of all types, impacts affecting the territory, its organisation and its people, some effects that require a readjustment of the institutional structures of state coming from other contextual moments. It is not by chance the growing power of cities.

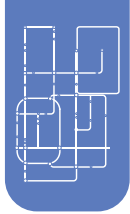
Metropolises and regional areas are becoming increasingly important players, and this is the result of a natural convergence, adaptation to a different speed. The role of time in the social and economic relations has changed, physical mobility and digital technologies have led to the need of territories and ecosystems capable of competing in a global environment where nothing seems to await.

New ecosystems are being built around obvious urban synergies as happens in cross-border regions throughout a continuum territory. Thus, it is a social, political and institutional proximity to reality where local governments become first level managers in the service of building the best environments and public service solutions for its particularities.

Consequently, the real political capacity of execution is one that is credible in a world where the speed of response and access to information is essential. Citizenship will achieve public confidence in their institutions only if they face the changes necessary to adapt their structures to this need.

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<sup>2</sup> General Strategy is understood as the top level political approved priorities and goals while Competitive Strategy is the managerial ones that are devoted to reaching the first. Thus, we have a politics and management strategy alignment.



Moreover, a new step for democracy in the twenty-first century is that which corresponds to the approachment between the two poles that have not been ever before converging in political philosophy. That is to say, action (executive capacity) and political orientation, the poles of politics and the administration, the classic dichotomy often misunderstood, between politics and technocracy. The administration has always been seen as something bureaucratic and only administrative, oblivious to the political-strategical sphere, these two poles in the XXI century can no longer be separated, the policy is not credible without solid executive capacity and management becomes not only an asset but a must have.

Politics, territories and societies who can not correlate with efficacy and efficiency its “political ideology” with the ability to convert ideas into tangible realities may not achieve the confidence required by the XXI century society, digital society, society democratisation of information, ultimately the society of transparency and immediate response.

If the areas and territories most likely to compete and provide a framework of quality social opportunities are those with an optimal correlation between strategy definition (that is to say, the political layer), and its executive capacity, it is clear that the territorial dimension and the relation between political and management spheres plays a key role. Thus, we must align and drive the institutional and executive supply chain up to the citizen.

Cities are indeed creators (or a constraint, if bad managed) of favourable environments to economic growth and sustainability. The quality of life<sup>3</sup>, economic activity and knowledge are some of the essential elements to form the pillars able to hold the welfare state. Cities are enablers of the proper environment for business development and sustainable growth. Being prepared to meet the needs of those who want to invest in the region is essential. Infrastructure, availability of spaces, availability of human capital, tax incentives and fiscal frameworks all are issues that determine the ability of a city that wants to be considered as a facilitator for economic growth and consequently presenting job opportunities and personal development as it is one of the primary goals related to cross-border territories.

Furthermore, cross-border regional local governments should have to create a political culture of quality. They are those institutions closest to citizen needs and management capacity to provide answers. Therefore, should we want to change or improve the culture and become more competitive reaching a high degree of social, economic and political cohesion, it is a critical point.

<sup>3</sup> According to OECD, quality of life and Well-being is multidimensional, covering aspects as Housing, Incomes, Jobs, Community, Education, Environment, Civil Engagement, Health, Life Satisfaction, Safety and Work-Life Balance.

As it is clearly pointed out in the *Seven Steps Leading to Excellence*<sup>4</sup>, key factors involving the public management are:

- Strong strategies and long-term vision
- Excellent and innovative leadership systems
- Solid, but flexible and agile administrative architecture
- Creative, transparent and involving communication
- Intelligent ICT-supported solutions
- Sound performance control
- Integrated financial management systems

In all cases, exemplary cooperation between politicians and managers to ensure that political visions should be implemented in everyday working habits.

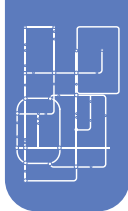
## 1.2. GEARUPublic!© Impact and Advanced Governance; A new public (and governance) commitment

Should we agree about the growing vital role of cities, we should also agree on the key play that Municipalities and Local Governments hold. The City is a conglomerate of very different stakeholders, particular interests, distinct values and social realities. The city appears indeed as a big opportunity mainly because of global trends and the impact of technology and digital data information access. Therefore, we have seen the success of the “smart” city label. All cities in the world want to be classified as much “smart” as possible.



However, we should not forget that the concept “Smart City”, although very rational, has its birth from a “business management” conception, where it is supposed that technology and digital disruptions are tools to reinvent, change or improve business models. Business models where “management” culture it is expected to exist already otherwise thinks will not work, or the activity will lose in the marketplace.

<sup>4</sup> In Search of Local Public Management Excellence, J.Bosse, A.Heichlinger, E.Padovani, Jan Ole Vanebo.European Institute of Public Administration, 2013.



Where is the “management”<sup>5</sup> of the City located? The City Councils have a big part of it. Consequently, do city governments understand that we are speaking about to rethink processes, management and the way of executing city services introducing technology, information and the enormous existing possibilities that new developments already offer?

It means that without clear management basis and being prepared to face current and future trends and challenges from an executive point of view, the smart city will not be more than a promotional campaign.

On the contrary, local governments that work the basis for change in an appropriate way and demonstrate they are reinventing, rethinking and adapting their business and social responsibility through current trends and technology, have a great opportunity to succeed and get society confidence.

As a result, smart means not only be friendly to the use of digital tools and technology but to have a recognised and advanced capacity management for the policies that are under the city responsibility. Public sector administrates a big share of total the GDP<sup>6</sup>. So, does it not deserve to follow this approach to assure sustainable growth and brand territorial success?

The transfrontier co-operation that builds an urban continuum is a clear initiative linking resources to develop the area under joint synergies, and an identification brand through social and historical facts, very close to where things happen and where problems have to be tackled.

Thus, it becomes a clear initiative linking resources towards development and sustainable growth, joining synergies, and positioning well-known territorial brand based on quality, sound management and transparency, very close to where things happen, where problems have to be tackled and creating the proper environment to promote trust and investment.

However, it is an upper local initiative that needs vertical governance development and as it has been already mentioned, better if cities do it through simple and flexible governance structures. Being focused on being useful for all members and not creating stable institutional and formal structures that usually represents an undesired brake to the agility.

Some Euro Regions have already made an enormous effort during last years; we have some today’s tangible results, the first stage job is already done creating the basis of a powerful and dynamic cross- border areas.

However, one of the next bigger challenges could be to become a catalyst. Like an engine that fosters a new public paradigm, government, governance and public management, creating new trends and trust for the democracy of the future managing diversity and complex issues arising from cross-border realities but transferrable to any other practice of non-cross-border local governments partnerships towards regional development and promotion.

<sup>5</sup> Internal city council management, vertical and horizontal governance management.

<sup>6</sup> Total Public Expenditure EU-28 accounts for 47,6% of GDP. Data extracted on 21.04.2016. Source: Eurostat (online data code: gov\_10a\_main)

Having said that, defining some clear and straightforward criteria that could help understand the execution process of a cross-border local government cooperation system is crucial. It will also contribute to building the vertical link in-between the partnership (upper-local governance), its cities and executive units at local government level.

This paper proposes to understand it through three fundamental pillars that we can read bottom-up either top-down. Reading them top-down, are:

### **The first. IMPACT GOVERNMENT**

The cross-border regional partnerships want to create realities to citizenship and all stakeholders of the territory. Consequently, its proposals and work should be focused on IMPACTS. That is to say, final desired facts. Usually, the public sector has lost its main reason to be. In other words, no to be and grow for itself but to be useful to society working to reach the wished and proposed social and city impacts. Meanwhile, it has an apparent synergy with dedicated management and priorities (strategy) definition; it is also easier to understand.

### **The Second. GEAR GOVERNANCE**

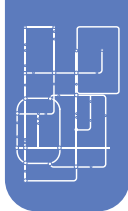
One of the aims should be the promotion of the governance culture, involving all the cities of the territory and creating an adequate node to connect with other stakeholders, associations, private and public institutions, businesses and all kind of different sector activity.

Thus, the question is, public sector, city governments, in that case, are certainly like a backbone of the regional network but just it. The impacts defined before (Impact Government) will not be reached unless a strong vertical and horizontal governance system exist. Therefore, impact governance links not directly with public sector activity and dynamics but always through a well established GEAR GOVERNANCE.

Gear Governance is like the way of creating a new kind of understanding in-between public and social spheres. Impact government as a future conception means to work and develop a space of society commitment, fostering a wider economy social impact. It is the area where the public and private spheres overlap one to each other and due to global trends, threads and challenges become bigger. Democracy improves, transparency and responsibility for public and social issues become something not only a matter of responsibility of the public sector.

We are all in the same world, and the dividing walls will be no longer stronger as in the past. From the economy and business activity point of view, that should be beyond corporate social responsibility; it has to find its development through the work of this commonplace.

For example, today's shared goals are related to competitive territory, growth and employment with linked target issues as Intelligent specialisation, innovation, tourism, culture and creative areas, work and universities as intelligent specialisation pole. Cities want to be competitive and act as a sustainable growth agent fostering



investment, quality and job opportunities (the impact). This example fits with the so-called gear governance towards the impact. An impact that has to be reached and developed with all its stakeholders and is by far not sustainable the idea that only the public sector alone could be the one of taking care of it. Impact orientation needs to be handled and managed by governments, stakeholders and society as a whole, that is the Gear Governance.

### **The third. ADVANCED MANAGEMENT**

To become an effective and efficient system able to work and align resources to get the defined IMPACTS certainly. Moreover, to do that through a sound governance, committed, involved and participatory network. Hence, it needs to have a strong leading technical and executive capacity in the local level public structure; that is about management, here identified as ADVANCED PUBLIC MANAGEMENT. An advanced public management as an operative tool of an advanced democracy, a new way of doing politics in the XXIst century where politics and executive capacity meets to face global and local challenges and fighting to preserve one of the most important (if not the most) social treasures, the citizen confidence.

On this perspective, “Advanced Management”, we are then positively located at one of the economy development policy central points and conditions (a necessary although, not sufficient condition) to be an Efficient Local government and represent New Kind of Public Administration.

Management, efficiency, effectiveness, all is related with execution capabilities. Hence, is needed to list practical and concrete axis that convert this “advanced local public management” into a reality, able to act as a leader of the GEAR Governance and focused on reaching the defined IMPACT goals.

Those structural axes are:

- Politics and management board structure.
- Process for setting priorities and execution goals as a budgetary source.
- Innovation capacity, service orientation and organisation linked to priorities and implementation process.
- Accrual based and ESA comprehensive financial impact monitoring through an uncomplicated and understandable C&N (Capacity and Need) account. The basis for current and future sustainability.
- Develop an advanced dialogue and transparency system. From a generic and commoditized sense of participation to an advanced dialogue and transparency model.

## 2. LOCAL GOVERNMENT CHALLENGES ON PUBLIC MANAGEMENT

### Governance and management for the XXI century through an impact and advanced government.

#### 4 X 4 management pillars and actions to take.

Therefore, we have to enter into the execution field. Knowing that city council is the institution and organisation who is in charge of it, what it can do?. Their everyday routines are clear defined and usually limited. Moreover, the concept “public reform” from a local perspective sounds like “play it again, Sam”, it is based on solutions referred to problems when the system at a whole is already late. When law tries to obtain quick results from things that would have to be done from scratch in a very different way, results are terribly weak. Usually, this kind of solutions takes the absolute opposite direction than they should.

For instance, should we want to have a flexible, efficient, fully capable and competent administration, the law instead to try to return to an old concept of the civil service, would foster capacities and autonomy whereas management capacity does exist. On the contrary, vertical governance sometimes seems to let understand that doing things right in public administration is not at all awarded if not worst. It happens when the system is already late, when it is under severe fiscal constraints, at the place where you NEVER should arrive. Thus, do not believe to obtain correct results if things are in a rush because you did not do your homework on time and state statistics today do not want to wait.

Then, what to do to start creating this new and competitive local public administration?

Next lines will follow four central management pillars for a modern, competitive and efficient local government. Those are,

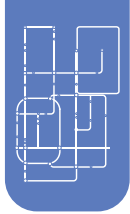
- Governance, Compliance and Public-Private Impact Development.
- Operations and Organisational Structures.
- Accounting and Finance.
- Innovation, Technology and Digital Transformation.

Each axis will be supported by 4 concrete management steps to take.

### 2.1. Pillar 1. Governance, Compliance and Public-Private Impact Development

First, about internal governance, it is highly recommended to take care of the alignment and the dialogue between government (politics) and management staff, as a cornerstone for achieving the city established objectives (Strategic Framework).

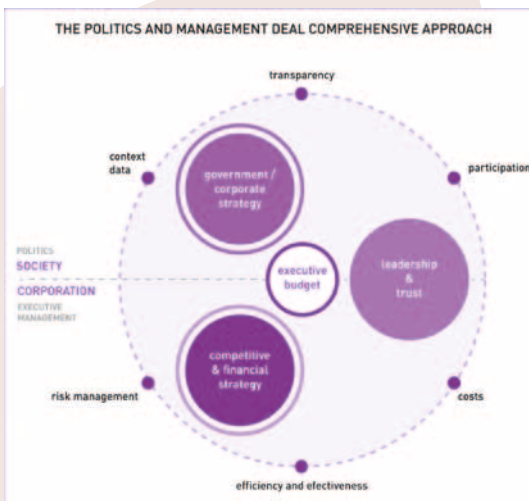
Is also needed to implement “executive” budget systems as a tool for the strategic and managerial allocation of budgetary resources and its follow-up. People will understand easily what will be done and how than only



looking at the formal statement of the traditional budget. When you are only focused on budget lines amounts, the debate will mainly turn around incremental discussions (or expenditure cuts, unfortunately never seen as efficient reductions). It is relevant to differentiate in-between money allocation concept (traditional allocation budget) and management objectives definition also linked with economic resources and financial (accounting) policy goals.

These two elements will allow the public administration to ensure alignment, mission and the economic sustainability of the city, which will guarantee the design and implementation of better services and the sustainability of social policies.

A “Politics and Management Deal” (PMD) model incorporates citizens opinion and participation and begins with the identification and definition of the citizen’s needs and hence, those of the city. The citizens’ participation is essential for the construction of the PMD model, from beginning to end.



It Promotes partnerships and the involvement of other public entities and the private sector (horizontal governance). Thanks to the participation of the private sector and public institutions, the necessary actions to focus resources and generate new employment and business opportunities to the citizens have to be taken into account.

A PMD approach improves efficiency and enhances competitiveness. Efficiency and innovation are some of its essential elements. Due to the work that has to be carried out in the redefinition of processes, setting objectives and allocating resources to priorities, high-performing programs will be deployed.

Focusing on results will allow the organisation to optimise the administrative procedures to facilitate the economic and social development of the city and be effectively aligned with the broad territorial strategy. It will help to provide high-quality public services.

One of the significant challenges defined on it is to turn the city towards new technologies at the citizen’s service in addition to their well-being, it Creates a more human and sustainable urban habitat for the living.

At the same time, it improves access and promotes equity as it is straight focused on people and global territorial needs.

Finally, it transforms the administration. Focusing on the challenge to link and align the politics and management spheres has proven whereas has been possible to be the necessary cultural change within the public administration, to solve in an innovative, transparent and efficient way the challenges that the city faces. Because of its implementation process, the organisation faces a continuous learning process that adapts the model to the town needs. The adaptation capability is the main reason the model is always up to date and can be transferred throughout all cities.

This conception has its core roots in practices and developments from business organisation management but thoroughly conceived and created for the public administration (no just being adapted). Leading schools concepts are based on:

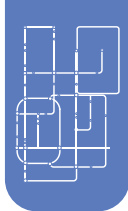
- Richard Boyatzis, from the Weatherhead School of Management, the Emotional Intelligence School in matters related to related to motivation, communication and organisational psychology.
- Robert Kaplan and David Norton (Harvard University) in issues related to costs, risk management, alignment and strategy maps.

It adds value to the formal process structure of legal and budgetary processes of the public administration and its governance; it means a direct link between administrative must and the most advanced organisational management practices.

Consequently, it is needed a comprehensive, integrated and structured system that embraces a broad range of tools and theories. Including the whole of government and its administration, from management to finance, from definition to execution strategy, from alignment to innovative and creative orientation, from results oriented trends and practices to resonant and emotional leadership, towards society trust and service, towards quality, growth and sustainability by all ways and means.

City Councils that has performed its application with particular features are Sant Cugat del Vallès and Barcelona City with clear and recognised results as sound and solid management structures.

Other excellent cases that follow a very similar pathway are those included in the “In Search of Local Public Management Excellence, Seven Journeys to Success” edited by the European Institute of Public Administration. The excellent studied management cases come from the cities of Bilbao (a stunningly effective and efficient case). Birmingham, a major city and metropolitan borough in the West Midlands of England. Mannheim, the third largest city of Baden-Württemberg, Germany. Milano, the capital of the Lombardy region and the second most populous comune in Italy. Tallin, the capital and largest city of Estonia. Tampere, the most crowded inland town in any of the Nordic countries, Finland. And finally, Trondheim, one of the largest urban areas of Norway. Today the capital of a new and bigger dimensioned county. Nord-Trøndelag and Sør-Trøndelag are to merge to create a new county named Trøndelag, following a meeting of county officials in Stiklestad last month. The change, which is subject to Parliamentary approval, is planned for January 2018.



#### **4 x concrete management actions to attend:**

1. Related to internal structures: *Internal Governance Structure Design*
2. Related to public-private impact development and participation processes, create: *Impact Groups and City Commitment Processes*
3. Related to legal and compliance issues linked with political and management ethics and transparency policies, develop a: *Compliance and Transparency System*
4. Related to brand, territory positioning, and investment promotion, create and develop a: *Business Support Office and Territory Brand Management Unit*

It can be developed from a regional structure linking the broad territory with particular local service units, like:

- Company Incorporation
- Legal Advice. Information on legal, Immigration and Municipal Procedures.
- Business Location
- Recruitment searches
- City Stakeholders liaison

## **2.2.Pillar 2. Operations and Organisational Structures**

About the management pillar number two, the paper will mainly stress issues to introduce some key concepts about how we should infer the relation between the strategy definition and its execution through the organisation structure of a Local Government, public owned company or body.

Following some management experts<sup>7</sup> and school streams, has been understood that the structure of an organisation should be defined after the definition of the complete strategy definition and maps (with its concrete goals at different levels). Nevertheless, the relation is clearly bidirectional. Thus, with a first strategy definition at the top level, although not developed through a systemic plan in cascade and aligned throughout all members, is a perfect moment to start working on it through this bidirectional channel in-between strategy and organisational structure. The exercise to link both issues is an essential tool to reach sense for the involved staff at city level, team working, motivation and performance.

Hence, as the flow is bidirectional, we have to take into account how important is the detection of management, organisational culture, values and procedures lacks that likely will affect the strategy negatively.

That is to say; a cross-border region can realise a fundamental mission fostering excellence in the execution of its mandate and improving a sound management throughout its members. However, is a must to understand that it is only a first step of a long-run path forward.

<sup>7</sup> Douglas M. Cowherd and Robert H Luchs, Jorge Mora- les Pedraza, et.al.

Procedures, strategy definition, strategy maps, internal and external communication, staff values, corporate culture, management skills, capabilities, brand strategy, marketing, .. all of that is also related and will affect to the bidirectional influence of the strategy- structure axis of the organisation. According to our approach to organisational structure design to let shape strategy structure, our first question has to be: What strategic goals must the structure help to achieve? It is not uncommon some management teams when defining and formulating a new strategy; they forget to make the effort to adapt the structure.

Unfortunately, the structure has usually been viewed separated from strategy. Restructuring and revising structures are the way to improve efficiency, promote teamwork and create synergies. However, we should not forget that Local Governments structure and strategy are high dependents, one to each other. We could create the most efficient, team- oriented, synergistic structure possible and still end up in the same place we are today, or worse if a proper strategy is not adopted.

One of the steps to be done in a local government organisation is to assess the operational environment and determine the conditions in which it operates. That will involve checking out full staff functions and feelings, management culture, values and other intangible factors. Consequently, to find out the strengths and weaknesses of its current situation.

The exercise of trying to propose new relationships between organisational structures and strategy can become clearer because first level strategy (top and general priorities) is in place according to the work has already been done by some cross-border studied realities.

Although a long way is still pending to communicate, structure and implement a consolidated strategy model with a systematic approach, a clear first set of goals is actually in place helping to establish a strong relationship and commitment with cities.

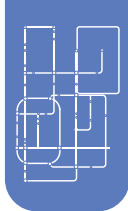
Even so, the structure is not simply an organisation chart/organigram. Structure are also procedures, learning, culture, technology and related elements that comprise the institution as a whole. This structure at city level should be aligned with the common or upper level strategy to achieve its mission and goals.

The view containing the current paper about it is clear: Structure supports strategy.

That is to say, If the local government changes its strategy and priorities it must review its structure to support the new one. When it does not, it pulls the organisation back to its old policy.

In fact, strategy follows the structure. That is a common fact in public administration not easy at all to face. Undoubtedly, we have to take into account that strategy tends to follow structure.

It is important to avoid being only focussed on wished results without understanding and paying attention to the current way the organisation works. It is only through integrated daily action with the strategy that a local government team's direction will be sustainable over time.



Consequently, It is not enough to define a new strategy and expect everyone following it. We understand it as a reliable path to follow to implement a strategic shift that requires a complete change within the involved organisations. It is an effort to do; change means it.

Cross-border regional future strategy goals and priorities should be understood as its plan for the whole region setting out how the involved cities will align to it.

On the other hand, a local government structure should be the way its pieces fit together internally. To deliver the plans, the strategy and the structure must be linked together. That is to say; the organisational structure is the way the institution organise itself, assigns tasks to personnel and ensures its workforce. It is how it works collaboratively to achieve a common goal, a concept of alignment (R.Kaplan and D.Norton concepts) and always taking into the account the importance of internal communication, motivation and teamwork (R.Boyatzis concepts). The goal has to be to avoid task overlap and workforce confusion, especially when it comes to laying a strong organisation for long-term productivity. A situation where staff do not know which are the goals and what they are working for, creates confusion, inefficiencies and lack of accountability.

Other *Process and Organisational structure* actions to be taken including this one, are:

#### **4 x concrete management actions to attend:**

1. About the organisational structure and its link with strategy, mission and goals: *Organisational Structure Design*
2. About establishing a system to easy the desition-making process, to align the structure, to follow defined goals at different levels and associate them with the budget and accounting: *Government Priorities and Execution Objectives System*
3. About creating a culture used to detect and monitor the consequences from adverse risk events and not thinking analytically: *Integrating Risk Management with Strategy Execution*
4. About defining the core and added value activities of the local government and to deal and monitor with established or future public concessions: *Public Concessions Management*

### **2.3. Pillar 3. Accounting and Finance**

The role of the cities is becoming more and more significant as they have turned to be the key players and the drivers for a new way of doing politics in the XXI century. Local Governments are those that are closest to citizen needs.

Thus, they become key players to properly manage public money, to achieve goals and guaranty stability. A strong Europe will be build from the commitment of its cities and regions.

It also has to be with trust and economic growth. Where regional cooperation and trust tends to be high, business runs better, corruption has not a chance and grow the confidence with public sector officials, capital markets will perform better, borrowing and lending will be easier and less costly so that the environment will be appropriate for innovation, business activity and quality employment.

So, and again, we are involved in a comprehensive project of enormous and collective impact.

We will build a much stronger Europe from large urban realities and regions, big cities and metropolis commitment; there is not doubt about it. If we know what we previously need, and what is wanted to be achieved, we will understand how important is the financial sustainability of our cities and thus, the harmonisation of accounting standards.

According to the European Commission's criteria, the last sovereign debt crisis has underlined the need for governments to clearly demonstrate their financial stability and for more rigorous and more transparent reporting of fiscal data. EU directives require the Member States to have in place public accounting systems comprehensively, consistently and containing the information needed to generate accrual data based on the European System of Accounts standard.

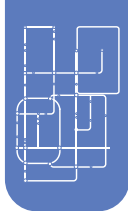
It thereby acknowledges the essential incoherence between public sector accounts and the fact that EU budgetary surveillance relies on ESA (European System of Accounts) accruals data.

We face a severe lack of coherence between primary public-sector accounts and ESA accruals data. EUROS-TAT, therefore, promotes a system of harmonised accruals-based accounting standards, consistent with the European System of Accounts, for all entities of the government sector.

The goal of the European Commission and thus its Eurostat Agency is to implement a harmonised accruals-based government accounting standard in the EU Member States. Should this goal being worked from the bottom, from local governments understanding how important is to assure not only the best public services to our citizen but the most sustainable ones, the success of the policy will be much more feasible. The existence and quality of the comparable and coherent picture of the financial, economic position and performance of a government become essential.

The job and responsibility done by local governments on this issue is a precondition for the high quality of aggregated debt and deficit data at upper levels.

Another important management issue related to finance and accounting but at the end, a direct tool for decision-making processes at the political and managerial level is the one related to costs knowledge. Today, should be not enough to know how much is spent in a particular budget line, it does only give to you the possibility to compare it with the previous budgeted year but not any idea about its efficiency, it is an appropriate amount? How do you know, it?



All performances and municipal services have a cost often unknown by citizens, officials and the City Council. An advance ABC calculation model which includes not only direct costs as usual but also indirect can meet these and many other data more accurately. This system is fully comprehensive because it incorporates both kinds of costs corresponding to all activities. Therefore, it affects all the cost structure of the City, with a capital weight in the final cost.

The ABC system has been used in the private sector for years. The US multinational HP implanted it in 1993, and several insurance companies followed suit later. In Spain, and in the public sector, Sant Cugat del Vallès was the first city council to develop and apply it and after on it has been implemented on a significant scale in Barcelona city. It allows comparison by districts and municipal investment in the maintenance of public roads, lighting or civic centres. It is a transparency tool that opens the door to greater control of the administration and improves budget transparency<sup>8</sup> The spanish transparency law requires complying with it by 2018 at the latest with details of the costs of all activities provided by public administrations, which have no choice but to take action in this direction over the next two years. Successful existing firm commitments in this area are a great transferability opportunity that should be followed by other municipalities.

#### **4 x concrete management actions to attend:**

Finally, the four suggested *Finance and Accounting* actions to be taken, are:

1. About creating and executing the budget aligned with the accounting impact: *Financial Policy Linked to Budget*
2. About operating check-list to control and detect necessary adjustments to preserve real finance statements and liquidity in the short and long run: *ESA-Adjustments Check-List and Audits*
3. About implement a financial accounting system with its software information systems according to the European Public Sector Standards (EPSAS) and being fully involved with its progress and steps: *Financial Accrual Accounting and Epsas Follow-up*
4. About implementing the Activity Based Costing as foreseen in this chapter: *Activity Based Costing as a Decision-making Tool*

<sup>8</sup> Press Report. La Vanguardia, 03/09/2016, Vivir Sec- tion. An innovative calculus method allows knowing real costs of municipal services.

**2.4. Pillar 4. Innovation, Technology and Digital Transformation.**

Effective and efficient public management organisations has a clear goal and no better statements as the following one by Janette Sadik-Khan from the New York City Transportation Department can justify it:

“Successful cities have a vision, and there has to be political leadership that allows the table setting to be done a little differently. We are also starting to see that cities are in a global competition with one another. So making your city attractive is actually economic development strategy. In this day and age, companies can move anywhere. Creating a city that people want to be in and grow in and start business in, that is what you need to be a success in the 21st century”

Impact and Advanced City Government	PILLAR 1 Governance, Compliance and Public- Private Impact Development	PILLAR 2 Operations and Organisational Structures	PILLAR 3 Accounting and Finance	PILLAR 4 Innovation, Technology and Digital Transformation
1.1 Internal Governance Structure Design	X			
1.2 Impact Groups and City Commitment Processes	X			
1.3 Compliance and Transparency System	X			
1.4 Business Support Office/Territory Brand Management	X			
2.1 Organisational Structure Design		X		
2.2 Gov. Priorities and Execution Objectives System		X		
2.3 Integrating Risk Management with Execution		X		
2.4 Public Concessions Management		X		
3.1 Financial Policy linked to Budget			X	
3.2 ESA Adjustments Check-list and Audits			X	
3.3 Financial Accrual Accounting and Epsas Follow-up			X	
3.4 Activity Based Costing as a Decision-making Tool			X	
4.1 Innovation & Technology on Capex				X
4.2 Knowledge and Innovation Promotion Internal Policy				X
4.3 Innovation Calls by Challenge and I-Procurement				X
4.4 Digital & Data Ressource Centre and Open Gov.				X

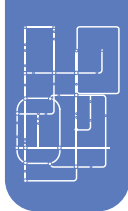
Again, it is key to point out the importance of the axis corresponding to the public sector as taking care of its role and responsibility if things have to be fostered and done. However, it is also key to understanding how important is to build a regional pole able to create a system for the 21st century.

As Charles Leadbeater says;

“Systems innovation will become the most important focus for companies and governments, cities and entire societies. In the last decade there has been a growing focus on innovation in products and services as a source of competitive advantage. In the next decades the focus will shift towards the innovation of new kind of systems”

“Systems are a vital underpinning for modern life, especially in cities. Many of the Systems we rely on in the developed world seem in need of far reaching overhaul. The developing world will need new systems on a vast scale over the next few decades. How should innovators go about trying to use these new technologies to reform, adapt and create better systems?”<sup>9</sup>

<sup>9</sup>The Systems Innovator, in the Systems Innovation. A discussion Paper by Nesta, Jan 2013



Public procurement of innovation from local governments becomes a cornerstone if we want to act as a real regional engine for economy development, innovation and growth. Cross-border realities can work on it on a clear regional basis helping local governments on the issue and creating partnerships between them.

Cities can act as an innovation engine calling for solutions to concrete challenges. Challenges that are not still attended from the marketplace. At the same time, applying cutting-edge technology and innovation to public current and capital expenditure can lead to increasing productivity, efficiency and quality services. The impact on the European economy should not be underestimated knowing that total amount of public procurement spending is about €2 trillion per year, it means about 19% of the GDP.

Public sector challenge calls can help suppliers and SME's to anticipate future demands of the market. Hence, acting as a catalyst and triggering the offered solutions at a larger scale. It is an activity with high transferability potential with a clear win for both sectors, the public and the private.

According to the Manchester Institute of Innovation Research, when companies win public sector contracts that require them to innovate, almost 80% win other public sector contracts, 55% increase their sales to the private sector, and about 30% start or increase overseas sales.<sup>10</sup>

Last guidance for public authorities on public procurement of innovation published by the Procurement of Innovation Platform stands the following benefits of the PPI for the public body and its suppliers.

**For the public administration:**

- Solutions to the identified needs or challenges
- Introduction to new suppliers and service providers
- Cost savings in the short, medium or long-term
- Higher levels of staff and user satisfaction
- Development of knowledge, skills and techniques which can be applied in other projects
- Opportunities to access local, national or EU funds linked to innovation
- Contribution to environmental and social policy targets
- Positive publicity and reputational gains
- Commercial benefits from licensing or joint ventures

**For suppliers:**

- Access to valuable public sector clients
- The opportunity to apply research and commercialise ideas
- Understanding of public sector challenges and priorities
- Exposure to pre-procurement and procurement procedures

<sup>10</sup> (2) Edler, J., Georghiou, L., Uyarra, E., Yeow, J. (2011). Procurement and Innovation: Underpinning the debate.

- Development of expertise and practical skills
- Opportunities to access local, national or EU funds linked to innovation
- Positive publicity and reputational gains
- Increased chance of winning future contracts
- Commercial benefits from licensing or joint ventures

In spite of all these clear advantages and potential success, procurement of innovation suffers to be applied at a large scale. So, here exist an opportunity to focus on it, helping public and private sectors to join the initiative under the new EU procurement directives<sup>11</sup>.

#### **4 x concrete management actions to attend:**

Lastly, and closing the chapter, the four suggested Innovation, technology and digital transformation actions to be taken, are:

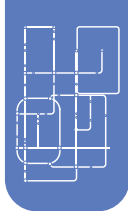
5. About having exclusive and separated management and attention to the use of innovation and technology (smart city) involved with the daily-based capital expenditure budget. Improving public services through real cases of capital expenditure: *Innovation and technology on capital expenditure separated budget*
6. About promoting internal innovation participation processes and groups: *Knowledge and innovation promotion internal policy*
7. About implementing Public procurement of innovation (PPI) according new directives in a formal and continuous way: *Innovation calls by challenge and I-Procurement*
8. About creating a public-private data resource centre and access to all kind of public data in a structured and accessible path: *Digital and data resource centre and open government*

## **2.5. Financing Efficient Local Governments and its Management Capacity Building**

### ***2.5.1. Efficient administrations and quality management criteria in public organisations should not be dependent on grants.***

Generally speaking, issues related to quality management in the public administration are only a topic of interest under a fiscal constraint situation. Usually, as has been said before, when you are already late. Public sector quality management is the main engine for economy development, democracy improvement, transparency, accountability and last but not least, a way helping to preserve, improve, increase and pay social services and attend those who need the most the help of the public activity.

<sup>11</sup> New public directives of 2014. Also, covers the award of concessions.



A premium social policy is the one that works hard every day to build a competitive, efficient, effective and professional public sector. That is about quality, and quality is on the roots for proper growth and positive perceptions. Cross-border urban continuums and related associations have to create, promote and position its brand, a brand related to its territory, culture, business and knowledge.

Moreover, a brand related with an advanced and committed public sector, that takes care professionally of the public resources, going hand in hand with citizen and stakeholders to build a better future. Accordingly, quality management criteria should take part of the own DNA local government's culture. And that should be promoted and explained.

At the same time, it has to look for financial resources where possible, but not being dependent, as a great qualitative difference. Quality and efficient compromise must not rely only on grants by conception. It makes you stronger in your beliefs; it is part of your way of understanding the public service and responsibility. Consequently, efficient criteria and quality management should be taking part of all municipal operations and city budgets starting from its existing resources.

#### *2.5.2. Excellence deserves advantages and appropriate legal treatment*

That's one of the best "grants" to achieve. Lobbying for legal recognition under the stability laws from both countries.

For instance, local governments in Spain are suffering from an enormous unfair practice possibly caused again by the State subjection to the rush as a consequence of a harsh public fiscal constraint environment. Unfortunately, There is no time to look for who is doing things properly and who is working on the correct basis of a better future.

The Government of Portugal is very committed to complying with the excessive deficit procedure in 2016. During last years (2011-2014), following the adjustments plans linked to it, has made significant efforts reducing its deficit from 8,6% of GDP in 2010 to 3% approx in 2015. A lot of reforms have been implemented. Local Finance Law and municipal finances in Portugal have been changed many times during last years becoming every day more sophisticated.

Good news from Portugal is a trend towards quality management and financial soundness. However, the key is to preserve the balance because quality management needs autonomy and acknowledgement. On the contrary, and being the same case as Spain, centralisation is the norm, and a very short margin of finance management autonomy remain in the hands of local governments.

As globally, the role of municipalities is seen every day as more and more important. However, the paradox is that cities suffer from a dramatic reduction in intergovernmental transfers. Hence, a cross-border region between Spain and Portugal, needs fully state level support to reach effective results.

Usually, current state policy understands local governments as all the same in all kind of criteria, independently of its size, regional impact, figures and performance. The current stability law treats local governments like toddlers when the paradox is, cities, clusters and regions are broadly recognised as primary stakeholders of our future, the closest to problems and particularities, highly dependent on management and efficient criteria.

As a matter of example, a way to award and finance local government's performance, could be through the IVA (TVA) expenditure treatment on municipal capital expenditure. Summarising, it is related to autonomy on desitions that affects to territory growth and progress. Taxes, competencies, local regulation, etc.

Where long run stability is preserved, where quality financial management is clearly demonstrated must be at all not argued the autonomy on own desitions, kind of structures and whatever the territory and its public-private local partners would understand as necessary to reach the strategy. The problem is when those that are not applying quality management criteria and fostering uncontrolled deficits are treated equally than others.

An overview of the finance sources of some of the mentioned ETGCs shows following issues:

Finance sources for the ETCG Métropole are 70% coming from its member's fees and the rest through national and European grants. Total expenditure 2015 was 1.256.242 €, 65% for Human resources, 10% for translating, 15% for general functioning, 6% communication and events and 2% studies.

The "Saarmoselle Eurodistrict": Member's contribution of 0,80 € per inhabitant. The income is dedicated to financing projects of common interest and the personnel assigned to the association. European Funds coming from INTERREG and grants from the French State and the Lorraine region.

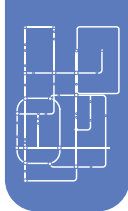
In the Öresundkomiteen from the öresund Region, the contribution from members is calculated according 0,38 € per resident and other finance sources are those related to the granted contribution of the Nordic Council of Ministers and other regional institutions. The Nordic Council dedicates 50% of its budget (approximately 30M. € per year) to support cross-border regions (total 12 regions involved) helping to maintain its existence and development. Additional financing comes from the EU funding through the INTERREG programmes.

### *2.5.3. Financial benefits as a result of your own local quality management*

We should not underestimate the "financial" impact of a sound public quality management policy at income and expenditure sides. Some of its principal streams already commented in the paper could be:

- Shared services between members (shared services)
- Public concessions management (efficient expenditure and income)
- ABC costs systems helping to take best desitions for expenses and revenues (taxes and public prices)
- Processes to encourage all stakeholders to unite under a shared vision. Multi-level governance helping to build creative and social capital within the community. RIS3<sup>12</sup>

<sup>12</sup> RIS3, Regional Innovation Strategies for Smart Specialisation. 2014-2020, formally endorsed by the Council of the European Union in December 2013.



#### 2.5.4. EU, State, Regional and Upper local administrations grants related with management capacity building

The “Smart specialisation strategy” means the regional innovation strategy which set priorities to build competitive advantage by developing and matching research and innovation own strengths to “business needs to address emerging opportunities and market developments in a coherent manner while avoiding duplication and fragmentation of efforts”.

Complementing the programme Interreg V-A-Spain-Portugal (POCTEP) financed through the ERDF addressing the most important cross-border challenges linked to the implementation of the Europe

2020 strategy in the Spanish-Portuguese border region has a budget 2014-2020 of 382 M. €, there are 39 M.€ related to Efficient Public Administration. Financing comes 75% from EU and 25% at national level.<sup>13</sup>

There are many grant lines in Europe related with the institutional capacity building and efficient public administration coming from thematic objective (TO) 11 of the European Structural and Investment Funds. The literal description of TO11 is:

*“EFFICIENT PUBLIC ADMINISTRATION:*

*To create institutions which are stable and predictable, but also flexible enough to react to the many social challenges, open for dialogue with the public, able to introduce new policy solutions and deliver better services. The investment in the structures, human capital and systems and tools of the public sector is oriented towards more efficient organisational processes, modern management, motivated and skilled civil servants.”*

Regulatory scope of support:

*“The quality of public administration has a direct impact on the economic environment and is thus crucial to stimulate productivity, competitiveness and growth ..... Economic Adjustment Programmes highlighted that link and clearly recognised the need for Member States to increase the efficiency and effectiveness in the delivery of public services as well as the transparency and quality of public administration ....”*

Total EU budget 2014-2020, TO-11 (Efficient Public Administration, enhancing institutional capacity of public authorities and stakeholders and efficient public administration) throughout the different funds, the European Social Fund, the European Regional Development Fund, the Cohesion Fund and Technical Assistance. Total amount is 6,4 billion €. <sup>14</sup>

<sup>13</sup> Source: European Regional Development Fund

<sup>14</sup> Source: European Structural and Investment Funds

Funds are related to:

- Effective management of public policies
- Enhancing the efficiency of administrative services
- Transparency and accountability
- Human resources strategies and policies
- Reforms at a regional level
- Provision of equipment and infrastructure to support the modernisation of public services in areas such as employment, education, health, social policies and customs.
- Administrative capacity related to
- European Territorial Cooperation

**Other relevant provisions in the legislation for TO11 are:**

Regulation nr. 1303/2013. Common Provisions Regulation.

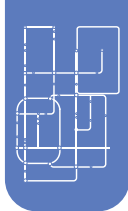
Article 9 (11) - “enhancing institutional capacity of public authorities and stakeholders and efficient public administration”. Annex XI - (11) “Enhancing institutional capacity of public authorities and stakeholders and efficient public administration”.

Regulation nr. 1304/2013. European Social Fund.

Article 3, scope of support (d) (i) - “Investment in institutional capacity and in the efficiency of public administrations and public services at the national, regional and local levels with a view to reforms, better regulation and good governance”.

Regulation nr. 1299/2013. European Territorial Cooperation Regulation.

Article 7 - “Investment priorities (a) under cross-border cooperation (iv) enhancing institutional capacity of public authorities and stakeholders and an efficient public administration by promoting legal and administrative cooperation and cooperation between citizens and institutions.



### 2.5.5. Spain and Portugal under the Thematic Objective 11 “Efficient Public Administration”

There is not access to any resource for the Spanish state under the “Efficient Public Administration” TO-11. According to the formal document of agreement with the European Commission, “Acuerdo de asociación de España 2014-2020”<sup>15</sup>, declares about it: “By institutional, regulatory or organisational nature of these measures, financing is not contemplated by the thematic objective 11 and therefore will be conducted at the national level. However, other measures related to the improvement of services offered to citizens (in areas such as education, health, justice and e-government), referred to in thematic objective 2 enhancing access to and use and quality of information and communication technologies.

Therefore, access to Spanish managed EU grants involving “Efficiency in Public Administration” has to be related to the digital transformation through information and communication technologies in the defined areas, e-government, justice, health and education and under the funds located at the thematic objective 2.

Additionally, to ask for Spanish national direct support, according to what is stated in the same Spanish agreement 2014- 2020. “Financing is not contemplated by the thematic objective 11 and therefore will be conducted at the national level”.

On the other hand, according to the “Acordo de Parceria para Portugal”<sup>16</sup>, the Partnership Agreement, 2014-2020 it covers the following five sources:

- The European Regional Development Fund (ERDF).
- The Cohesion Fund (CF)
- The European Social Fund (ESF).
- The European Agricultural Fund for Rural Development (EAFRD)
- The European Maritime and Fisheries Fund (EMFF).

Its interventions are focused on different priorities being one of them the contribution to the modernisation of the public administration through capacity building and investments in human resources development and e-governance. Broadly, key thematic issues are those related to competitiveness and internationalisation, social inclusion and employment, human capital, sustainability and efficiency.

It is important to emphasise that the agreement also mentions two transversal objectives related to the reform of public administration and an integrated intervention approach at the territorial level.

Thus, in this case, Portugal will invest under all eleven thematic objectives defined in the EU regulations. In particular, thematic objective 11, enhancing institutional capacity of public authorities and stakeholders and efficient public administration has an allocated amount for 249,6 M. €, in the ESF fund. The North Region of Portugal is identified as one of its beneficiaries (Thematic Objective 11, TO11) under the Operational Programme (OP Regional Norte).

<sup>15</sup> “Acuerdo de asociación de España 2014-2020” cited text on page 210. Agreement by the Ministerio de Hacienda y Administraciones Públicas. SG de Presupuestos y Gastos, DG de Fondos Comunitarios.

<sup>16</sup> Partnership agreement for Portugal, 2014-20120. Brussels, 30 July 2014.

From total EU members budget (without states co-financing), 5 billion € in total are addressed to the mentioned thematic objective TO11, the state of Portugal receives the 5%, that is to say, 249,6 M.€, or the 0,97% of the total EU fund for the State.

Portugal will receive from the European Structural and Investment Funds (ESI), a total amount of 25,79 billion over the period 2014-2020.

Top priorities are entrepreneurship and business innovation, economic competitiveness, research and development, education and training, resource-efficient economy, maritime economy and modernisation of public administration through capacity building and e-governance.

Portuguese state committed to achieving expected results through many preconditions, ex-ante conditionalities and in-between some of them are:

- Support to SMEs, self-employment and micro-enterprises.
- Urban regeneration
- Energy efficiency and renewable energies
- Porto (and Lisbon) will be funded on urban development.

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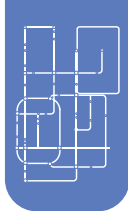
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