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SMART GROWTH – IS IT A FAIRY TALE OR THE BEST INITIATIVE FOR POLISH CITIES AND THEIR FUNCTIONAL REGIONS?

Abstract:

Smart growth can be perceived as natural step in sustainable development understanding, combining sustainability with optimalization of urban processes within cities and their functional regions. On one hand, the integrated planning in Smart growth can be identified in smart grids, smart buildings and smarter cities concept finally, proving that smart growth is a kind of evolutionary process. On the other, both processes of European cohesion and smart growth itself will determine European Union future expressed in Horizon 2020. It is interesting whether they will overlap to create NEW quality of accepted smart strategy for European future.

Key words:

smart growth, Polish cities, functional region

Introduction

Whether smart growth concept is a quick respond to changes, which have permanently penetrated the policy and development planning or is it just a buzzword for several political seasons in the European Union? Here is an interesting dilemma. Having in memory the moment of sustainable development concept introduction to the vicious circle of intellectual, political, town and regional planners, the situation today seemed to be very similar. Then, several years ago, it was very difficult in the beginning to make sustainable development term to have an effect on environment. The essence of the difference lies in the fact that the sustainable development occurred from the knowledge about threats to the environment, highlighted by NGOs mainly, and then followed by scientists and finally politicians. Smart growth was primarily focussed on sustainable development [Stewart 2005, pp. 21-30]. After introducing integrated planning to smart growth the concept started progressing technology-oriented optimalisation of processes, which already have been occurring in environment. Integrated planning in Smart growth can be identified in technology of smart digital systems, followed by smart grids, smart buildings and smarter cities concept finally, proving by the consequent combination that smart growth is a kind of evolutionary process. It is also interesting how two processes: the process of European cohesion and smart growth, which determine European Union future expressed in Horizon 2020, overlap to create a new, hopefully long-lasting quality of accepted SMART strategy for European future.

New strategic position of cities

Cities as human activity clusters have always been a major poles of civilization, which were playing the vital role of states (metropolis - *meter policy*) with universities as magnets attracting great scholars. Although it is worth mentioning that situation in cities has always been invariable and it used to happen in some extremely situation that former seat of pestilence can turn into high quality place to live (for example rising and falling Rome).

For several years we have observed the renaissance of cities concept as thriving centres supposed to play main roles in economy and cultural life. The idea was further expressed in "Leipzig Charter for Sustainable European Cities" [*Leipzig ...* 2007]. The Charter is said to be the milestone of European Union programming documents, as priority of

sustainable urban development emerged together with the new dimension of territorial cohesion... Previously, the objective of territorial cohesion has been added as third dimension, alongside with economic and social cohesion in the new Constitutional Treaty of the European Union Lisbon Treaty (Article 3 of the EU Treaty). The Treaty recognised the territorial dimension of EU policies since it has become politically acceptable to the EU and has been formally followed by subsequent cohesion reports and the Community Strategic Guidelines.

According to these guidelines, the territorial cohesion concept relates to the ability of cohesion policy adaptation in different geographical regions of Europe in relation to their specific needs, challenges and opportunities. This means that a different meaning should be given to territorial cohesion, linked to the history, culture and institutional situation of the Member State.

At the Informal Ministerial Meeting on Territorial Cohesion, which was held in November 2004 in Rotterdam, it was agreed that territorial dimension together with provision of a better use of territorial diversity and potential of Europe will be introduced to the Lisbon process. The Ministers also agreed that their policy will include the preparation of the synthesis: *Territorial State and perspectives of the European Union*.

At the informal meeting of Ministers in Luxembourg, in May 2005, the Ministers endorsed the themes and priorities set out in the document defining the scope for the evaluation contained in the synthesis of "territorial State and perspectives of the European Union". This assessment was subsequently developed in EU Territorial Commissions from both the 2007 and 2011.

Thus, territorial cohesion, territorial dimension, including the role of urban policy, is no longer just an idea of experts and scientists in urban planning. Member States signed the Treaty Obligation regarding the network of interactions between metropolises and secondary growth poles (cities with superregional functions) as important part of "economy of places" with recognized role of cooperation. So if you hear that the Union is heading for disaster, there is a big chance that cities (network of cities) will survive as the only ones in the economy of places environment.

Whether "economy of places" would be a successful European story depends on several factors. Highly efficient infrastructure should enable access to global markets and foster liveable spaces, adaptability to climate change *etc.*, although the accessibility in cities network has been still regarded as crucial aspect, especially from new Member States perspective. The accessibility understood not only as contractibility, but contactibility as well [Bach Głowińska, pp.14-48]. Otherwise:

> *"In the area of most of the EU-15 Member States international socio-economic interactions have decentralized character. Economic cooperation takes place directly between cities and regions located in different courtiers. A different situation prevails in the new Member States where still a large part of foreign relations s "hijacked" by the capital cities, which become "intermediary" in international links of other, often even large centres. These links thus take place in a hierarchical system, not in network. The aim of the spatial policies is to support network matrix systems involving all cities in the continental scale"* [Bohme *at al.* 2011, p. 79].

Leipzig Charter to the Territorial Agenda of the European Union 2020

Both programming documents have been created between 2007 and 2011 in the period of four years only. It is obvious how strong the anxiety was at that moment taking into consideration financial order of world economy collapsing at the same time. The question posed is, what distinguishes and what unites Leipzig Charter (2007) together with the Territorial Agenda 2020 (of 2011.)? The Leipzig Charter (2007) narrowly focused on sustainable urban development is followed by a document formed earlier and in parallel the Territorial Agenda of the EU "towards more sustainable Europe's diverse regions".

Territorial Agenda (2011)

The document is based on six pillars:

1. Promotion of spatial development based on polycentric and balanced territorial development in Europe:

   o strengthening of metropolitan regions and their international position in competitiveness;

o the strengthening of role and position of medium sized cities at macro regional, cross border and on national and regional level of city's network;

o promoting spatial development model based on integrated polycentrism in every Member State;

o encouraging integrated development in cities rural and specific regions.

2. Strengthening urban-rural partnerships (city-region) by provision high quality services of general economic interest[1] (as social care, healthcare, education, social housing, social care, childcare, public transport, media: water, gas, electricity, telecommunication *etc.*) in order to minimize barriers for sustainable development:

o strengthening urban-rural partnerships (city-region) by transport development promoting effective intermodal transport solution;

o promotion of renewable energy sources in rural and peripheral regions;

o polycentric development by improving linkages between primary and secondary network system;

o the positive impact of metropolitan regions and urban areas in the development of their rural hinterlands;

o improving fair and affordable access to services of general economic interest in rural areas.

3. Ensuring global competitiveness of the regions based on strong local economies by promoting national and supranational clusters of competitiveness and innovation:

o strengthening the international identity and specialization of cities and regions;

o promotion of innovation systems and the knowledge and technology transfer between large and small cities, as well as rural areas;

o education and training;

o various actors and institutions cooperation for the clusters development.

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[1] Defined as "*market and non market services which public authorities class as being of economic interest and subject to specific public service obligations*" in [*European Commission* 1996].

4. Improving territorial cohesion implementation mechanisms by ensuring connectivity for individuals, communities and enterprises:

o enhancing transport, infrastructure and energy networks for connectivity of national and urban poles;

o strengthening the development of transport European networks (core European network) and their binding national networks (comprehensive network);

o strengthening of major European telecommunications networks and their links to national and regional networks;

o strengthening the most important energy grids, promoting renewable sources.

5. Improving territorial integration in cross border and transnational functional regions by promoting integrated management of natural hazards at supranational level:

o limiting the area exposed to risk;

o introducing policies preventing from disasters and securing actions in case of a variety of risks;

o implementation of Integrated Coastal Zone Management;

o Strategy of Integrated River and Mountain Management.

6. Managing and connecting ecological, landscape and cultural values of regions by strengthening the supranational ecological structures and cultural heritage resources:

o strengthening the effectiveness of cohesion policy in rural areas NATURA;

o contributing to cohesion policy in rural areas NATURA;

o cultural heritage practice for socio-economic development;

o intangible culture Preservation.

Spatial interpretation of these pillars is as follows:

Metropolitan areas and other large cities, especially the role of this outside strong economic centre of Europe (such as Iberian Peninsula, in Central and Eastern Europe, Eastern Region of Baltic Sea and in Eastern Mediterranean region) must be strengthened. It should be accompanied by the complementary network of small and medium-sized cities. This will lead

to a more sustainable European transport networks complemented by national networks and resulted with promotion of better accessibility and polycentric territorial development in EU. Authorities of metropolitan areas (and small, medium-sized cities) are pressed to focus on the specialisation − on developing their individual city profile and the roles of their city at European arena. Only when they are able to make better use of local potentials, they can attract public and private investment. They would contribute to territorial cohesion at cross border, transnational and interregional level only by strengthening global competitiveness of their cities. Trans-European cooperation between metropolitan areas and other urban areas is to be encouraged in order to find an effective balance between complementarities and competitiveness within urban areas of different sizes, as well as between them. Cooperation should be extended to urban areas lying outside the EU.

The Leipzig Charter (2007)

The Leipzig Charter was established at the same time with the Territorial Agenda of the European Union "Towards a More Competitive and Sustainable Europe of diverse regions." In this document one chapter concerns the strengthening polycentric cities.

The maturation of Leipzig Charter concept was the result of long-lasting discussion with several informal Ministerial meetings:

o Informal Ministerial Meeting in Lille (France) in November 2000, "Lille Action Programme".

o Informal Ministerial Meeting in Rotterdam (Netherlands) in November 2004. "Urban acquits".

o Informal Ministerial Meeting in Bristol (United Kingdom) in December 2005. "*Bristol accord on sustainable communities*".

As a result of this process the 2007 Leipzig Charter included recommendations concerning:

1. Advanced use of urban development in integrated approach through:

o the advisability of integrated urban/city planning development strategy;

o to increase the competitiveness of cities through: creating and ensuring high quality public spaces;

o   modernization of infrastructure networks and improving energy efficiency;

o   proactive innovation policy and educational.

2.   Attention paid to deprived neighbourhoods in the context of whole city.

3.   Strategies and actions for deprived areas in cities:

o   improving the quality of the environment;

o   to strengthen the local economy and local labour market;

o   proactive education and training of children and young people;

o   promotion of socially acceptable urban transport modes.

The most interesting is the conclusion: "*In the future we look with confidence. Europe needs a strong city*". The second sentence is still true. The first one however has undergone serious verification by world financial crisis and its turbulence, which fell in the world economies including European. Has the financial crisis caused that the recommendations prescribed in the Leipzig Charter outdated? Certainly it hasn't. The recommendations are still valid and vibrant: cities need to open variety of activities in order to implement local actions; urban development policies should be established at all levels; solid and predictable financing for cities, including the European Structural Funds as an integral part; providing more instruments for a more efficient use of funds and at national level the sectorial policies should take into account the importance of cities and their better integration.

Territorial Agenda of the European Union 2020[2]

It should be noted that this document binding Member States on territorial policies (including transport) was established in the Treaty of Lisbon in the framework of the Treaty of Lisbon as regards the new objective (in addition to economic and social cohesion)- territorial cohesion (article 3 and articles 174 and 175 of the TEU). However it must be remembered that TA 2020 remains intergovernmental and informal in nature document. It cannot provide any sufficient detailed guidance.

"Territorial Agenda 2020 must continue to serve as a valuable informal interface between territorial development policies carried out at the national and regional levels. As far as the EU policies with a territorial dimension are

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[2] [*Territorial Agenda … 2011*].

concerned, a specific formal EU guidance reference is required.... Territorial Agenda 2020 aims the need for a more place based approach in respect of polycentric development, on the integrated development of cities and rural areas"[Bohme *et al.* 2011].

There was a substantial change in external conditions within these four years between Leipzig Charter and the Territorial Agenda 2020. But since 2009 Europe has been experiencing struggling not only with the financial crisis, but with the crisis effect on the national level of economies in more and more countries (Ireland, Greece, Portugal, and Spain). The ambitious goals of the Lisbon Strategy in 2000 have been transformed in the strategy "Europe 2020: Strategy for smart, sustainable and inclusive growth". European Commission President J. M. Barroso used the significant words in the introduction to this strategy from 2010:

"2010 must be the year of a new beginning ...", "Europe's future depends on what we will do now ..." The crisis was a wake up call, so that we realized that if we do not change anything, we will soon be blaming ourselves of a gradual loss of meaning and of having fallen to the second division of the new world order ".

It looks like rainmaking, but one of the three priorities seems particularly vital and attractive. It's about:

Priority 1: smart growth - developing an economy based on knowledge and innovation. It appears to be more innovative than the other two priorities.

Priority 2: Sustainable growth - promoting the effective management of resources, more environmentally friendly and more competitive-is actually an extension of the priorities of the Lisbon strategy, but as a result of the financial crisis has deeply eroded.

Priority 3: Inclusive growth - fostering a high-employment economy delivering economic cohesion - is nightmares of European policy as ticking time bomb of unemployment (over 10% in 2009), ageing and depopulation of Europe and low productivity (46% of employees in the range of 55 - 64 years compared with 62% in the U.S. and Japan).

The goal of quantified energy - ecological (so called eco-friendly energy) to be achieved in 2020 is a key issue of smart growth priority in territorialisation context: "carbon

dioxide emissions should be reduced by at least 20% in comparison with the level of 1990 or, if conditions allow, up to 30%; increase the share of renewable energy sources in the total consumption of up to 20%, and increase energy efficiency by 20%" [*Europe 2010* 2010, p.12].

The last goal seems to be the most durable from all priorities. The question remains open: is it achievable? It depends on the actors involved: the Member States, regions, cities, but also the sectors of transport and energy.

Considering the implementation phase, territorialisation is not the key issue in 'Europe 2020. The lack of coordination between various initiatives in cohesion and regional policies was noticed. The sectorial approach dominates with attempt to achieve a higher level of co-ordination by suggesting guidelines and policy recommendations, which are referring to both energy challenges, threaten the competitiveness of the regions and reduction of biodiversity, sensitive natural heritage, landscape and cultural heritage landscape.

The complexity of the territorial approach of Territorial Agenda of the European Union in 2020 is based on trials to fill territorialisation deficit "Europe 2020" by preserving connectivity with Europe 2020 Strategy. This is reflected already in the title of Agenda: "Towards a favourable social inclusion, Smart and Sustainable Europe of Diverse Regions". It is to use the same keywords "social inclusion", "sustainable", "smart Europe". As the main challenges and opportunities for regional development agenda recognizes:

- o accelerating exposure to globalisation: structural changes in the effect of the global economic crisis;

- o the challenges of integration in the EU and the increasing interdependence of the regions;

- o growing vulnerability of regions to external shocks;

- o long-term effects of crisis considering the timing of recovery, which differ across regions;

- o demographic and social challenges vary territorially in terms of territorial group segregation in particularly difficult circumstances;

- o climate change and geographically diverse ecological threat.

In publication *"How to strengthen the territorial dimension of „Europe 2020" and EU Cohesion Policy"* the authors stressed following issues as important in TA 2020 priorities:

o Accessibility (pointing out hierarchical system of cities instead of cities network in New Member States resulting from lack of accessibility).

o Services of general economic interest (that in terms of Territorial capacities/endowment services are to be based on immovable resources in sustaining the economic base of any given territory).

o City networks (pointing out that the correlation between energy consumption and polycentrism has been identified. It appeared that polycentric countries use less energy in combination with introducing proactive policies supporting e.g. bicycle transport, spatial development along public transport routes).

o Functional regions (noticing fact that functional regions are covering both urban and rural space what results in integrating the rural economy within enlarged labour market. Well functioning compact or sustainable region or larger cities are of particular importance here since they contribute to the reduction of agglomeration diseconomies. The authors stressed the importance of pressure for natural environment, congestion and high levels of crime).

They concluded that the type of growth ultimately generated turns out to be "smarter" than sustainable and inclusive:

"Territorial dimension of smart growth is aimed at the creation of a more carbon free and energy efficient economy built on three pillars from Europe 2020:

Smart growth - *developing economy based on knowledge and innovation.*

Sustainable growth - *understood as promoting a more resource efficient greener and more competitive economy.*

Inclusive growth - *delivering social and territorial cohesion by fostering a high employment economy"* [Bohme *et al.* 2011].

Is Smart growth political slogan or hope for city?

The dissemination of term "smart" in documents and political declarations did not emerge "out of the blue". It is becoming more and more common, and slowly, unquestionably complements the term of sustainable development. Both these words are hardly to be translated into Polish language. Sustainable development is known in Poland as balanced, solid, responsible development, in constant state of equilibrium. Smart growth is interpreted in Polish as: intelligent, clever, and swiftly responsive to changes and new challenges. Hence, it seems that smart corresponds most to the contemporary times. There is hope. Jan Olbrycht, Chairman of the Committee on Regional Development of the European Parliament 2004 – 2009 MEP writes [Olbrycht 2011, p. 39]:

"*I think that in the context of the European debate in the field of development policy, Poland can put a new priority: smart growth. Such term means a new approach to urban planning – cities as growth centres. Development decisions must be taken in order to achieve the sustainability of growth, cooperation, the effective use of resources in longer term. Translating this into the language of development policy: Poland should obtain the optimal development through money invested, which will go through not only wisely planned investment in schedule, supportive to modern business and build laboratories, but also to make it through the regional, then European network which will contribute to the development of Europe*".

From his point of view as European politician, smart growth seems to be evident determinant of EU development policy. However, how to operationalize smart growth issues at the regional, urban or urban rural level – for example in metropolises? It is interesting the way smart systems are defined at different levels starting from the local microstructure and culminating at the regional one.

Smart buildings

Smart buildings, which are based on smart technologies (digital, building materials), become increasingly common form in architectural and functional world. They are built on

the IT solutions providing control of external conditions (*e.g.* light, temperature) and internal (heating, lighting) as result of intelligent process reacting to any environmental change.

The purpose of these activities is, above all, energy saving, energy efficiency, safety and impartiality (building passive) through their own supply of renewable sources solution (solar, thermal, wind). The basis is the intelligent automatic control: heating, ventilation and air conditioning, lighting installation, light a fire and smoke removal, intrusion signalling a robbery, access control, CCTV, networking, emergency power supply.

Smart grids

"*Smart grid is an electricity network that can intelligently integrate the actions of all users connected to it – generators, consumers and those that do both – in order to efficiently deliver sustainable, economic and secure electricity supplies*" (European Technology Platform Smart Grids)

Smart grids consist of:

o the integration of all participants activities in the processes of generation, transmission, distribution and use of energy;

o improving the quality of the supply of electricity (voltage stabilisation, intelligent response to customer-producer);

o The end users capacity to produce electricity for their own use.

The essence of smart network is linking producers and consumers (who may also be producers) in one system of quantitative and qualitative reliability. This is smart response to disaster situations (as black out) cities, which can happen for trivial reasons *i.e.* because of the weakest linkage, but with the enormous effects on city functioning. There was a black out in 2011, which has gripped part of Warsaw, including Central Station. The disruption in sensitive sectors (*e.g.*, laboratories, hospitals, computer science) can generate huge losses, so it is important to secure unchanged flow of energy supply. Smart grids are extremely popular in the United States, where: "*smart grid is self-healing, […] operates resiliently against attack and natural disasters, accommodate all generation and storage options.*" (US Department of Energy)

The effect of smart networks is also energy efficiency and concern to climate change by integrating alternative energy sources and distributed cogeneration. Although by now there have been only a few examples of smart grids in Poland, but the pilot project - "Smart Island" on Hel Peninsula is known for successfully combining users and manufacturers of energy in one system of renewable energy. Smart system is based there on practice oriented research on the consumer, how need for largest supply of energy can be integrated with greatest demand at the same moment. The recipient is informed on regular basis, how much energy is currently consumed and at what costs, which depend on day time. The system seemed to bind the objectives of the manufacturer, network provider and recipient in a perfect way. Five coastal municipalities of Hel have joined already described above exclusive club of "Smart Island".

Smart systems

Smart system relies on smart response to the changing conditions and on informing stakeholders about the change. The transportation is the example of system that operates in the state of permanent change. This is particularly important in cities where public and individual transport systems can co-exist generally on the same network. Smart systems operate on managing of technical – organizational issues:

- o urban traffic (surveillance points, arrays of variable content), registration and smart traffic flow, traffic lights,

- o management and control of urban transport,

- o parking management,

- o Information for drivers and users.

    The effects of the system are:

- o Energy-saving, environmentally friendly and time saving,

- o Mobility management

Smarter cities

Presented above the climate package "3x20" as one of the priorities of the EU strategy (Europe 2020) perfectly combines with the idea of an smarter city in the framework of a broader approach to smart growth defined by Olbrycht. The aim of this action is to transform European cities into the efficient and sustainable network in the fields of energy, transport,

information technology and responsive structure in reducing pollution, mainly carbon dioxide. The city will be more competitive by pursuing such path for the city development.

The smarter city concept is based on the combination of the following six areas: smart economy (competitiveness); mobility (transport and ICT); environment (natural resources, waste management); people (social and human capital, knowledge); living (quality of life) and governance (participation).

The "smart" concept optimizes energy consumption, uses mainly renewable energy sources, reduces emissions and pollution, and creates a friendly life environment (green, blue and open spaces, public space, traffic infrastructure, communication infrastructure, heating, electric, gas system network, IT, organisation of cultural life, and others). City can have a chance to become to some extent self-sufficient (food production, energy, wastes, *etc.*) The next step of such development would be to change the mentality of city residents: to establish adequate procedures for city management, cooperation of residents, local organizations, businesses, industry and administration, and creativity in using new technologies.

Some European cities are already taking this strategy. An example is the "Am*Smarter*dam city" implemented in Amsterdam, based on combined innovative technology and consumer's behaviour adapted to reduce **Carbon Dioxide** emissions. Pillars of the Amsterdam are: economy, housing, sustainable transport and public spaces. Smart growth implementation in Polish cities seems to be desirable and inevitable step forward to sustainable and smart future as described in Europe 2020.

Outline

Polish cities have been implementing, mainly thanks to the support of the EU, a huge modernization program, especially in the field of transport, energy, water, waste management. This program is based primarily on the efficiency of funds absorption (according to rule: to win maximum number of bids to be granted with maximum funds). In new financial perspective 2014– 2020 the goal of absorption efficiency should be transformed substantially to achieve the goals and quantified results based on the EU development strategy. One of the major goals the EU's priorities are broadly speaking energy security issue and climate change. This is a response to the real threats, which have not decreased, but rather increased. This is a long process.

The realization of smart growth might be a radical response, which has its base in EU programming documents [*Strategy* 2020; *Territorial Agenda***…2011**]. Smart growth provides an opportunity to force and control further development by integrated planning applied to optimalisation of processes occurring in cities and their functional regions (e.g. energy, transport, and environment, waste). Smart growth can be perceived as further step in sustainable development understanding, combining sustainable development with optimalisation of processes happening in natural environment, especially economy and space.

High dissemination of „green" (technologies, new branches of economy in energy, transport, ICT) is the measurable economical benefit of implementation integrated planning in smart growth and makes the essence of difference even today: taking active role in everyday life instead of producing declarative programs. Indeed "green economy" combined with "economy of places" (understood as cities and their functional regions) can create a new competitive position enabling European economy to take full advantage of resilient and sustainable cities.

References

Bach Głowińska J., *Inteligentna przestrzeń: trzeci wymiar innowacyjności. Mat niepubl.*

Bohme K., Doucet P., Komornicki T., Zaucha J., Świątek D., 2011, *How to Strengthen the Territorial Dimension of „Europe 2020" and EU Cohesion Policy*. Warsaw.

Europe 2020, A Strategy for Smart, Sustainable and Inclusive Gowth, Communication from the Commission, Brussels, 2010.

European Commission. Services of general interst Europe, OPEEC, Brussels 1996, p. 6; as well as COM (96), 443 final Brussels11.09.1996.

Leipzig Charter on Sustainable European Cities. Informal Ministerial Meeting on Territorial Cohesion in Leipzig, 25 May, 2007.

Olbrycht J., 2011, *Europe Waiting for Smart Grow*th, [in:] *Strategically Development. Development Policy in Integrated Approach*. Ministry of Regional Development, Warsaw.

Stewart D., 2005, *Smart Growth from Rethoric to Reality Progress,* [in:] *Irish Urban Studies.* Vol. I, issue 2, Dublin.

Territorial Agenda of the European Union: "Towards a More Competitive and Sustainable Europe of diverse regions". Informal Meeting of Ministers considering Territorial Cohesion topics. 25th May 2007, Leipzig, Germany.

Territorial Agenda of the European Union: "Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions", agreed at the Informal Ministerial Meeting of Ministers responsible for Spatial Planning and Territorial Development on 19th May, 2011, Gödöllő, Hungary.

http://amsterdamsmart.com/#/en.

http://europa.eu/energy/technology/initiatives/smart_sities_en.htm.

http://www.smart_cities.eu./.

http:// smartgrid.ieee.org

www.**smartgrids**.eu/

www.***smartgrid***.*gov/sites/default/files/oe_mypp.pdf*