

Opinion of the European Economic and Social Committee on ‘Smart cities as drivers for development of a new European industrial policy’

(own-initiative opinion)

(2015/C 383/05)

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On 22 January 2015, the European Economic and Social Committee, acting under Rule 29(2) of its Rules of Procedure, decided to draw up an own-initiative opinion on

Smart cities as drivers for development of a new European industrial policy.

The Section for Transport, Energy, Infrastructure and the Information Society, which was responsible for preparing the Committee’s work on the subject, adopted its opinion on 16 June 2015.

At its 509th plenary session, held on 1 and 2 July 2015 (meeting of 1 July), the European Economic and Social Committee adopted the following opinion by 149 votes with two abstentions.

1. Conclusions and recommendations

1.1 In the context of growing urbanisation, the EU and its Member States see cities as ‘laboratories for a more dynamic, digital Europe’ in which to test out measures that can generate growth with employment and social development.

1.2 The sustainability of cities will be the result of a smart mix of more mature and innovative technologies, integrated (European, national and local-level) platforms, modern infrastructure, energy efficiency, more efficient services redesigned to reflect the needs of the public and users, and the integration of smart electricity networks, the internet, and sensor technology.

1.3 Such advanced cities, acting as innovation laboratories and rolled out on a large scale, would contribute to the industrial and socioeconomic ‘renaissance’ of the EU, setting in motion a genuine industrial, financial and social revolution.

1.4 The EESC therefore considers that smart cities can become drivers for development of a new European industrial policy that can influence the development of specific productive sectors, extending the benefits of the digital economy onto a large scale. In his speech to the EESC’s plenary session on 22 April 2015, European Commission Vice-President Maroš ŠEFČOVIČ stated, inter alia, that smart cities were a development priority for the EU and pointed out that city mayors were enthusiastic about investing in the communities of the future.

1.5 To achieve this, it is essential to converge towards a development model that is more advanced and effective than those applied to date, which have been characterised by extremely fragmented action. For this reason, the EESC is proposing that the other European institutions and the national governments couple the concept of ‘smartness’ with a sustainable, integrated development model that can be applied to a city, island, subnational entity or industrial district and that features the coexistence and simultaneous integration of six enabling pillars:

- technologies and tools for energy efficiency and integration of renewable sources,
- dissemination of technology platforms and connectivity to set up the new digital service systems,
- new digital services to improve the quality of life and work of the public and businesses;

- upgrading of infrastructure and urban redesign,
- education and training of individuals, businesses and the public sector in digital skills,
- an economically and financially viable model for investment.

1.6 The coexistence of these six pillars should be considered a standard and indispensable component of a strategic smart city project. Equally important is that this model be applied in a policy context that ensures the highest standards of network security, IT systems, applications and devices, which form the basis of digital service ecosystems.

1.7 In order to translate this proposal into practical measures, while civil society involvement is indispensable, the EESC also considers it essential that the EU and its Member States coordinate their policy measures and furnish them with the appropriate level of public financial resources while opening them up structurally to public-private partnership.

1.8 More specifically, in order to introduce fully sustainable innovations designed to improve people's quality of life and wellbeing, the EESC considers that investment in smart cities should be supported by making more of synergies between existing European, national and regional public funds and by harnessing the opportunities provided by the European Fund for Strategic Investments (EFSI).

1.9 To make this a reality, the EESC advocates that:

- the European Commission set up a single European centre of expertise for smart cities, involving the directorates-general concerned, the Member States, the EESC and the Committee of the Regions,
- every Member State therefore set up one-stop shops to provide smart cities with access to technical and financial expertise, and that would link up directly with the single European centre of expertise on smart city policy and resources. These one-stop shops should be open to local public and private stakeholders so as to nurture advocacy by consultative groups made up of civil society organisations and the social partners at national level and within individual cities,
- the new EFSI European Investment Advisory Hub set up a special section for smart cities,
- the European Innovation Partnership for Smart Cities and Communities be extended to involve civil society and the EESC.

1.10 The EESC believes that it would be worthwhile promoting a European project platform on the basis of these new instruments, with the features required by the EFSI that would be conducive to the emergence and integration of Member State smart city projects, and that would support the financing of projects by building in available public and potential private resources and the forms of guarantee available under the EFSI.

1.11 The EESC deems it essential to promote a smart cities common market, by means not least of a harmonised regulatory framework that includes:

- an EU-level review of public-private partnership tools in order to make them more attractive for businesses and extend their operational remit to the services sector, which is central to the digital economy,
- tools for innovative procurement and pre-commercial procurement,

- uniform mechanisms to enable urban authorities to benefit transparently from the economic resources deriving from the cost savings and new services generated by the smart city platforms and to incentivise their reinvestment in further innovative projects.

1.12 For the EESC, the involvement and participation of civil society organisations and consultation between the social partners are essential, not only when it comes to drawing up the strategic plans and projects connected with the implementation of the sustainable and integrated smart city development model, but also to ensure that such plans translate into economic and social benefits for the public and into better living and working conditions.

2. Background

2.1 The growth of urbanisation globally (under Millennium Development Goal No 11, the UN is implementing the *United smart cities* project aimed at helping all of the world's cities become sustainable, inclusive, safe and resilient to disasters), and at European level ⁽¹⁾ is linked increasingly to the spread of smart cities (European Union — regional policy; *Cities of tomorrow*, October 2011), because this is where most individuals and businesses will choose to focus their economic, personal and social interests (72 % of the EU's population (359 million) now live in cities and by 2020 this proportion will be 80 % (Commission data)). However, in Europe, where there are widespread smaller urban centres and where industry has traditionally favoured business chains and networks, the shift towards this new model will also have to be catered for and facilitated over very wide areas and business districts.

2.2 Increased awareness of these issues on the part of national and local policymakers is demonstrated by the increasing numbers of bilateral partnerships between European Smart cities and municipalities from other continents still to evolve towards sustainability. Such agreements are designed to replicate successful positive experiences or share and capitalise on good practice. The Chinese government, for instance, chose 12 cities to sign cooperation agreements on sustainable urban development (http://ec.europa.eu/energy/sites/ener/files/documents/12_cities.pdf) with what are considered to be some of the EU's smartest cities. There has also been a proliferation of projects and initiatives on smart city development promoted on the initiative of governments and/or the public (such as the Malaga Charter, 7 February 2011 (<http://www.catmed.eu/pag/en/11/la-charte-de-malaga>)), or by associations, organisations or European networks, such as Eurocities (<http://www.eurocities.eu>) and the Covenant of Mayors (<http://www.covenantofmayors.eu>).

2.3 The Europe 2020 strategy promotes smart cities across Europe through investment in ICT infrastructure to boost human capital, and in solutions that exploit the opportunities arising from new technologies and digitisation so as to: improve sustainability and quality of life and work for individuals and businesses; increase the efficiency and accessibility of services; and reduce poverty, unemployment, social exclusion, pollution and environmental damage.

2.4 With the Venice Declaration for a more Digital Union (<http://ec.europa.eu/digital-agenda/en/news/digital-venice-2014>), national governments reiterated their aim to promote the transition of their economies onto a digital footing, in the belief that digital technologies may become the cornerstone of a new industrial policy model, in which information and communication technologies are an essential input for any type of production of goods and services, along with easy access to financial instruments and energy sources.

2.5 In this context, cities are seen by Member States as 'laboratories for a more dynamic, digital Europe' as they are potential drivers for these changes. Smart cities are test beds for the EU for measures that can generate growth with employment, because it is there that digital technologies can be combined with innovative infrastructure and new services.

⁽¹⁾ Commission communication on the *EU urban agenda*, COM(2014) 490 final; Opinion ECO/369; EESC opinion on the *EU urban agenda* (OJ C 291, 4.9.2015, p. 54).

2.6 Making cities 'smart' will impact on technology innovation, intelligent transport and energy efficiency, and on the day-to-day life of individuals, workers and businesses thanks to many changes, related, for instance to teleworking, e-democracy and greater transparency, and will allow more active participation in the decision-making process.

2.7 At the conference held by the EESC on 10 November 2014 on *Smart Cities — towards a European economic revival through civic innovation* (<http://www.eesc.europa.eu/?i=portal.en.events-and-activities-smart-cities-civic-innovation>), policy-makers, city leaders and civil society representatives discussed how smart cities can be used as tools to guide the development of a new industrial policy in Europe and support growth and employment; through which means civil society players can contribute to shaping strategies; and which policy tools to implement to encourage the emergence of investment in smart cities throughout the EU.

2.8 The EESC believes that in order for smart cities to become drivers for development of a new European industrial policy ⁽²⁾, three measures need to be targeted:

2.8.1 defining a more advanced and effective smart city development model that can overcome the current fragmentation and promote a single vision for projects, going well beyond integrating ICTs, mobility and energy efficiency. There is a particular need to target initiatives that may take various forms at local level and that are underpinned by the pursuit of a simultaneous impact on GDP, growth, employment and productivity (quantitative economic indicators), and on people's quality of life and physical and mental well-being (qualitative economic indicators);

2.8.2 encouraging investment in smart cities by pursuing a public-private partnership approach that gives priority to making the most of the many European funds available and generating synergies between them and the workings of the EFSI (Proposal for a regulation amending Regulations (EU) No 1291/2013 and (EU) No 1316/2013, COM(2015) 10 final), with the aim of adopting a development model at European level that is distinguished by the capacity to generate social, environmental, production and employment returns simultaneously (the European Commission predicts growth of 2.8 million jobs by 2018 (*StartUp Europe*, EESC conference, 10 November 2014)), and securing the prospect of private co-investors recovering their capital;

2.8.3 stepping up the inclusion and role of civil society and the social partners in the process of strategically designing smart cities, and in their implementation and subsequent monitoring, which is essential when it comes to improving the quality of life and work of individuals and businesses.

3. A sustainable and integrated model for the development of smart cities in the digital economy

3.1 The European Parliament study ⁽³⁾ shows how current strategies or initiatives aim to make cities smarter in *at least one* of the following areas: governance of public participation, public relations, quality of life, mobility, the economy and the environment. The implication is that it is possible to envisage a smart city project where only one of these features is present. The study goes on to identify three key smart city component types: technological, human and institutional.

3.2 In the Committee's view, it is essential to develop a new sustainable, productive and inclusive smart city model, no longer seen as an 'information technology', 'environmental improvement' or 'energy efficiency' project, but as part of a new European industrial policy in which growth, which generates employment and social development, constitutes the dividend of the digital transformation of our economies.

⁽²⁾ EESC opinions on the following themes: *For a European industrial renaissance* (OJ C 311, 12.9.2014, p. 47), *A stronger European industry for growth and economic recovery*, (OJ C 327, 12.11.2013, p. 82), and *Reshoring of EU industries in the framework of reindustrialisation* (OJ C 311, 12.9.2014, p. 15).

⁽³⁾ Directorate-General for Internal Policies. *Mapping Smart Cities in the EU*, 2014, (<http://www.smartcities.at/assets/Publikationen/Weitere-Publikationen-zum-Thema/mappingsmartcities.pdf>).

3.3 Creating this model entails not only a more integrated approach to smart city projects, but also:

- less fragmented strategies at Member State and Commission levels,
- greater standardisation and integration of operational programmes, constituent elements and European and national financial instruments for developing smart cities,
- the development of financial solutions that can create leverage in respect of private resources, including by using public resources for risk mitigation,
- harnessing strategic public procurement aimed at generating types of product and service that improve the effectiveness observed by the public, public administrations and businesses; and increasing the distinctive competitiveness of an area and/or network and/or business sector.

3.4 Accordingly, the EESC, conscious that it is possible to apply a smart strategy to a city, island, subnational entity or industrial district, is proposing that the European institutions and national governments identify a smart city **development model**, as part of programmes that feature the coexistence and simultaneous integration of six enabling pillars. (In Italy, this model, which grew out of the proposal drawn up by the Amerigo association (for Italian alumni of US international cultural exchange programs) and by Enam (the European network of American alumni associations), is serving as a basis for the definition of a smart city strategy by the Ministry of Economic Development, in the context of the Juncker plan.)

- the presence of **technologies and tools for energy efficiency** and integration of renewable resources, such as **smart electrical infrastructure (smart grids)** supporting and facilitating energy savings plans; integrating ad hoc solutions and devices; facilitating the use of a mix of supply sources, in both public and private sectors; integrating with connectivity infrastructure and encouraging the dissemination of freely accessible IP signals,
- dissemination of **technology and connectivity platforms** that enable the creation of new digital service systems by means of ICT and telecommunications infrastructure that can: provide for widespread connectivity, partly via integration with smart grids; pursue the spread of the internet **of Everything** connected to sensors, devices and services; harness public and private open data and the urban digital agenda; while securing the highest possible standards of security for applications and of privacy for public, business and government information,
- development of **new digital service ecosystems**, to improve the quality of life of individuals and of business production processes, by means of smart integrated services and applications supported by connectivity platforms and smart grids. These digital service ecosystems operating across several sectors (e.g. mobility, e-health, digital tourism, industry 4.0) could spawn or bolster a European industry to serve smart cities, particularly when the major technology players promote the rolling out of solutions developed and produced by smaller companies, such as start-ups,
- projects to improve **infrastructure and promote urban redesign**, such as the rethinking of the vocation of certain areas of cities, renovating and converting public buildings and infrastructure as part of a productive, environmental and social mindset, with a view to increasing not only the financial value of the properties but also their value as perceived by their users, not least by disseminating efficient connected technologies and promoting indirect public procurement mechanisms,
- plans to provide training and enable individuals, businesses and the public sector to upgrade their **digital skills** so that the innovations introduced can be fully used by the widest possible range of end users,

- **economic and financial viability** plans for investments based on clear identification: of the returns deriving from services, from the upgrading of infrastructure and from steps taken to improve efficiency; of the method of dividing the benefits between network operators, investors, developers of smart solutions and devices and users; and of **public and private financing** instruments that can facilitate the implementation of these new models.

3.5 The coexistence of these elements can maximise the impact of projects in terms of economic and employment growth, quality of life, simplified relations between and with administrations, energy saving for the public and private sectors, while generating competitiveness and knowledge spillover effects on the business sector.

3.6 These smart cities will be synonymous with high-quality public services, a better quality of life and work for individuals and businesses, new job opportunities brought about by a more innovative business ecosystem, and greater environmental sustainability. These results can be achieved with a lower level of non-repayable public funding thanks to the involvement of private funding, strategic planning of systems of services that can generate 'new revenue flows' and the creation of networks of large industrial groups and small and medium-sized businesses.

3.7 Against this backdrop of enormous opportunities, the EESC considers it essential to address the issue of the security of networks, IT systems, applications and devices, which form the basis of digital service ecosystems. For cities to shift to a smart model, the information on which services are based, which is by definition very sensitive, must be collected and processed with confidentiality, integrity and real-time availability.

3.8 It is also imperative that Member States open a debate at European level regarding security standards, to cover widespread services and devices within the internet of Everything, to prevent them being interrupted, corrupted or even diverted, causing serious damage to people, public health, and the protection of privacy and business, and ultimately to the public image of all initiatives aimed at achieving smart cities.

4. Smart cities, a tool for a European industrial policy platform

4.1 Integrating the six enabling pillars would make smart cities an ideal tool for fostering a new type of investment that in addition to having a positive social impact in terms of externalities, brings in a profitability mechanism to make investment fully economically and financially sustainable.

4.2 A European smart cities investment plan would multiply the impact of initiatives if the following three factors were in place: a policy promoting the scalability of the solutions, which in turn depends on the degree of standardisation of the components; promotion of a smart cities common market, to counter the fragmentation and diversification of measures from country to country, and pinpoint common tools to respond to any serious issues that may arise; and a unified financial approach.

4.3 The scalability of solutions, i.e. expanding or replicating existing solutions, is currently linked mainly to trial micro-infrastructure and intelligent traffic systems, and depends on the involvement of major technology providers and cooperation between cities. Other trial initiatives, although very important in terms of the quality of the solutions proposed or the capacity for grass-roots involvement of individuals or businesses, are so specific in nature that their potential for replication is limited.

4.4 The EESC believes that scalability of solutions at European level is pivotal when it comes to attracting sufficient private investment to bring into partnership with public investment, thus making this smart cities policy conducive to increasing employment, GDP, productivity and quality of life.

4.5 More specifically, the EESC believes that:

- while acknowledging that cities should have broad discretion to identify the subcomponents of the six enabling pillars geared to local roles and needs, smart city projects should make sure that the solutions chosen are replicable and scalable,
- this replicability and scalability should also be pursued by encouraging the emergence of technical standards for interoperability, exchange and open enabling solutions, so as to combine maximum flexibility at local level with the opportunity to foster the development of solutions that are useful in general and community terms but that can also be adapted to specific needs,
- the level of economic and financial viability of smart investments can be increased, making it easier for large companies, SMEs and start-ups, particularly when part of a network with large companies, to propose cutting-edge solutions for European development programmes,
- the efficiency and effectiveness of the public and private capital used can also be increased, encouraging the allocation of public capital to finance project subcomponents or components that are at greatest risk of failing or failing completely on the market, and the allocation of private capital to those with positive or high return,
- the effectiveness of this process in terms of social and economic impact can be increased through platforms for cooperation between cities aimed at replicability and the promotion of best practice.

4.6 Combining these measures could lead to the creation of a smart cities common market, which would make the EU the first global platform for testing the development model described above, which could have a significant impact on:

- the amount of investment to which large, medium-sized and small businesses could have access in the context of the public-private partnership approach,
- promotion and integration, within the strategic projects, of the start-up system, innovative companies and research, which could generate significant spillover effects in terms of technologies, organisational and social models and employment impact,
- ensuing capacity to mobilise private funding, attracted by a more coherent policy framework at European level and the appropriate use of public resources for leverage and risk containment.

5. Investment and economic and financial sustainability

5.1 There is no specific fund at European or Member State level dedicated to smart cities, but rather a host of ways to access funding under specific programmes. (In addition to the programmes of individual Member States, which are based on the combination of national resources and the Structural Funds (ERDF, ESF, EAFRD), there are European funds that can cover particular aspects of a smart city, such as Horizon 2020, the Connecting Europe Facility (CEF) and the COSME, Urban and LIFE programmes.) Given that under the current regulatory framework the grouping of resources within a single fund cannot be envisaged, the EESC considers it essential that the institutions involved step up their coordination, that they do more to harness the potential synergies between their policies, and that institutions, cities and public and private stakeholders use unambiguous and uniform means of communication.

5.2 As regards the need to establish a meaningful development model of integrated measures, the EESC considers that this objective risks not being fully pursued due to the fragmented nature of the expertise and resources of both the European Commission (with smart cities policy spanning six directorates-general), and the Member States, where the division of powers and responsibilities between central, regional and local administrations is not always clear.

5.3 The EESC therefore recommends that the Commission set up a single European centre of expertise on smart city policy and resources, involving the directorates-general concerned, the Member States, the Committee of the Regions and the EESC, whose tasks would be to:

- centralise steering policies, not least to reduce fragmentation and bureaucracy,
- secure political and administrative coordination between the EU, the Member States and the municipalities so as to implement the model and the relevant policies,
- provide administrations that are aiming to plan smart measures with harmonised information, by improving the transparency of available financial resources and making a clear link between these and the budget lines,
- facilitating the launch of European partnerships between public and private undertakings,
- promote the involvement of the social partners and civil society,
- improve the exchange of information on best practice,
- encourage the dissemination of the integrated and sustainable smart city development model at national level.

5.4 The single European centre of expertise for smart cities should work in tandem with the EFSI. On this note, the EESC would once again ⁽⁴⁾ stress that the EFSI should provide backing for strategic infrastructural projects that offer economic and social value added, so that they can contribute to those of the EU's political objectives ⁽⁵⁾ that are designed to complete the single market in the transport, telecommunications, digital infrastructure, energy, urban and rural development, social development, environment and natural resource sectors.

5.5 Projects such as these, which are essential for making cities smart, can strengthen Europe's scientific and technological foundations and facilitate the benefits for society, by making better use of the economic and industrial potential of strategies relating to innovation, research and technological development.

5.6 Leaning on integration between the single European centre of expertise for smart cities and the EFSI, and on the opportunity that the latter provides to establish platforms for projects and financing at European, national or sectoral level, the EESC recommends forming a European project platform for smart cities, in order to promote a uniform approach to their financing, through the integration of available public and potential private resources and the activation of the appropriate public forms of risk mitigation. This platform should promote the identification, pooling and financing of projects that involve several Member States that conform to the smart city model that the EESC proposes the Commission adopt.

5.7 To encourage the emergence of these types of projects, the EESC would recommend that one-stop shops be set up in all Member States, giving smart cities access to finance and technical support, with the aim of:

- maintaining a maximum level of coordination with the single European Centre of expertise for smart cities, thus ensuring that policy guidelines are disseminated at national level,
- translating local demands into requirements and projects that fall within the remit of the enabling pillars,
- improving the use of non-repayable public funding and/or loans on favourable terms to finance the initiatives covered by the various enabling pillars,

⁽⁴⁾ EESC opinion on *An Investment Plan for Europe* (OJ C 268, 14.8.2015, p. 27).

⁽⁵⁾ Commission communications on the *Telecommunications single market* COM(2013) 634 final; *European energy union* COM(2014) 520 final, COM(2015) 80 final and COM(2015) 82 final; *Single market in transport* COM(2014) 22 final.

- providing support for the framing of more appropriate public-private partnership and procurement tools, with the aim of promoting fast, efficient and effective interaction with the business sector,
- choosing a financial framework that is better suited to blending public sector resources with those that might be made available by private investors, possibly with additional guarantees to be provided by the EFSI.

5.8 A new European Investment Advisory Hub (EIAH) is to be set up alongside the EFSI to accompany Member States in adopting the most appropriate measures to facilitate the establishment of a project pipeline and implement all the tools necessary to provide for the financing of projects. The EESC would like to see it set up a special 'smart cities' section, equipped with the skills and competences best suited to ensuring that all project-related aspects are taken into account.

6. Civic participation measures, the role of civil society and review of the regulatory framework to improve policymaking

6.1 The EESC points out that the preconditions for adopting and implementing the integrated smart city development model are the affirmation at institutional level of a long-term vision, the full involvement of the interest groups concerned by the changes under way (the public, civil society organisations and both sides of industry), and efficient and innovative governance of the processes involved in developing smart cities.

6.2 The European, national and local institutions involved in the strategic planning of measures to promote smart cities will be called upon to adopt a long-term strategic vision for these programmes. The integrated development model could serve as a means of blending the needs of all the interest groups involved, guaranteeing maximum inclusiveness while also ensuring that initiatives are economically and financially sustainable.

6.3 Cities will act as smart strategic planners and supervisors and should base the task of carrying out the planned measures on a fruitful, structured and ongoing dialogue between the various business, financial, industrial, social and voluntary-sector players, with set timescales and the possibility of adapting to changes and developments.

6.4 Cities will only progress towards a smart mindset if the process is based on an ongoing dialogue with civil society, which can result in the full involvement of groups that represent collective, private or general interests in the needs assessment phase, in the translation of those needs into specific requirements, and in the monitoring of the effectiveness of measures taken to meet them. This kind of civic participation should be fostered at European, national and local levels.

6.5 To this end, the EESC proposes that:

- the European Innovation Partnership for Smart Cities and Communities (submitted by the High Level Group of the European Innovation Partnership for Smart Cities and Communities, 14 October 2013 (<http://ec.europa.eu/eip/smartcities/>)) be extended to involve civil society players, including the EESC, and all stakeholders active in the areas covered by the six enabling pillars of the proposed smart city model, in addition to operators active in seeking solutions in the areas of mobility, ICTs and the environment, which are already represented,
- every Member State nurture advocacy involving civil society representatives at the needs assessment, requirement shaping and strategy design stages, by setting up consultative groups within both the one-stop shops providing access to financial and technical support for smart cities and within the individual cities concerned,
- action be taken to simplify and integrate the regulatory framework, through common European legislation, preferably in the form of a directive, with a view to:
 - reviewing public-private partnership tools in order to make them more attractive for businesses and extending their operational remit to the services sector, which is central to the digital economy,

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- improving tools for innovative procurement and pre-commercial procurement,
 - introducing uniform mechanisms in respect of urban authorities to enable them to benefit transparently from a share of the cash flows deriving from new services based on the smart city platforms, such as those arising from the commercial use of public and private open data and open services; and to lead them to reinvest a share of the savings generated and the revenue arising from the upgrading of infrastructure and the provision of services in the strengthening and expansion of smart city projects.

Brussels, 1 July 2015.

The President
of the European Economic and Social Committee
Henri MALOSSE
