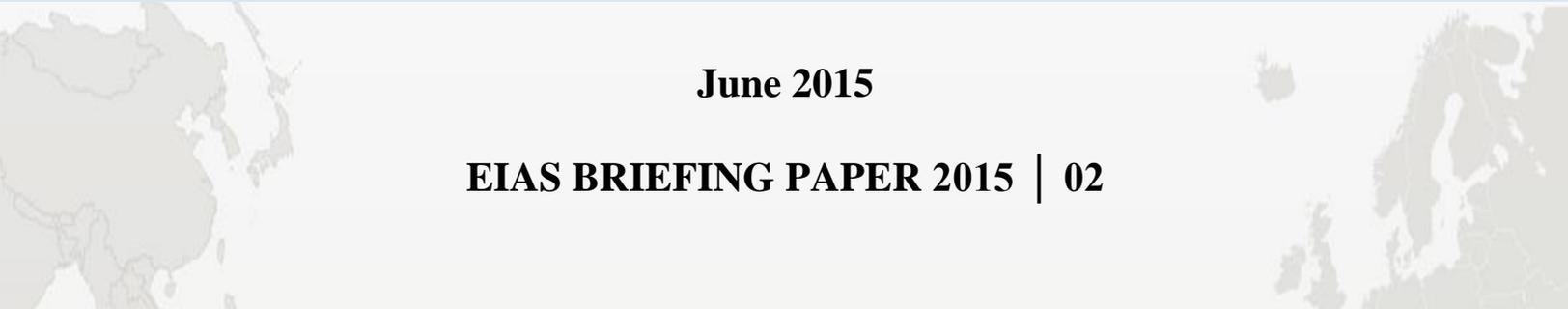


# SMART CITIES COOPERATION BETWEEN THE EU AND CHINA

TOWARDS A SUSTAINABLE FUTURE



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# Smart Cities Cooperation between the EU and China Towards a Sustainable Future

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## Abstract

*Urbanisation is on the rise, and the conditions under which it takes place have profound consequences on the outcomes of millions, if not billions, of people. This report analyses the current smart cities initiatives in Europe and China, and it examines the state of the EU-China Partnership on smart and sustainable urbanisation. The report discusses the current developments in Europe and China and provides an evaluation of the first results of the recent EU-China Dialogue on Smart Cities, as well as other initiatives conducted by the two actors. Of particular importance is the achievements and the challenges in improving the quality of Urban Environment in the context of the EU-China bilateral cooperation, and the report extends this analysis into to the current business engagement in smart city projects carried out by EU and Chinese companies in each other's economies. In order to promote a more resource efficient, greener and more competitive economy, as well as achieve smart integrated solutions, it is clear that the two must work together to promote innovation. For this reason, sustainable growth and innovation-driven economies ought to be simultaneously developed in the EU and China in order to encourage mutual investment in eco-innovation.*

This paper expresses the views of the author and not the views of the European Institute for Asian Studies.

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## **List of Abbreviations**

CIBG	Centrum voor Informatica voor het Brusselse Gewest
CSD	Corporate Sustainable Development
DG CONNECT	Directorate General for Communications Networks, Content and Technology
EC	European Commission
EEAS	European External Action Service
EIP	European Innovation Partnership
EU	European Union
ICT	Information and Communications Technology
IEC	International Electrotechnical Commission
IT	Information Technology
LTE	Long Term Evolution
MIIT	Ministry of Industry and Information Technology
MOHURD	Ministry of Housing and Urban-Rural Development
MOST	Ministry of Science and Technology
NDRC	National Development and Reform Commission
PDSF	Policy Dialogues Support Facility
PoE	Power over Ethernet
PPP	Public-Private Partnership
RMB	Renminbi
US	United States
WWF	World Wide Fund For Nature

## 1. Introduction

Cities are becoming increasingly important as a hub of living, employment and socialization.<sup>2</sup> Indeed, the concentration of consumers, workers and businesses in one place has the potential to produce positive externalities and increasing returns of scale. The concentration of human and economic capital in larger cities also makes these places the main centres of innovation and economic development. This is a universal phenomenon, and it is thus also observable in regions with a diverse urban landscape, such as Europe and China. Europe already has high levels of urbanisation (73 per cent), but it has low levels of urban concentration and it is therefore characterized by a more polycentric urban structure than, for instance, the US, China or Japan: the majority of its population lives in medium-sized cities, and only 7 per cent of the EU population lives in urban areas of over five million inhabitants. China, in contrast, is experiencing unprecedented levels of urbanisation, with 292 million more people expected to be living in urban areas by 2050 – a growth second only to India.<sup>3</sup> China will be even more a country of large- and megacities, a country where many people will be first-generation urban citizens.

Although this growing importance of cities produces a generally positive economic output, many cities, and especially those experiencing rapid growth, also face a series of problems that policy makers are increasingly willing to tackle; these include environmental problems, security-related issues, congestion and scarce connectivity, as well as poor accountability, citizen engagement and alienation. Indeed, these are all problems that have become top priorities both at the urban and at a broader level.<sup>4</sup> <sup>5</sup> New technologies, such as a more extensive and innovative ICT-usage, modern and clean energy-creation and recycling, and a more proactive citizens' engagement, invited to become prosumers (producers and consumers at the same time) and to share their knowledge, experiences and needs through apps and intelligent communication methods, are usually the main means that are sought after by policy makers to make cities more efficient, clean, safe and transparent. The overarching concept that includes all of these policies can be concentrated in the idea of 'smart city', which is currently high on the agenda of both the European Union and its member states, and China. Indeed, smart cities are a crucial component needed for achieving Europe's ambitious Europe 2020 targets, and in China entire smart cities are being built in expectation of future citizens.

This EIAS paper aims at analysing current smart cities initiatives in Europe and China, as well as examining the state of the EU-China Partnership on smart and sustainable urbanisation. After a first analysis of smart cities in general, and of the current developments in Europe and China, the study will zoom into the first results of the recent EU-China Dialogue on Smart Cities, which was launched in 2011, as well as other initiatives conducted by the two actors evaluating the achievements and the challenges in improving the quality of Urban Environment in the context of the EU-China bilateral cooperation. Hereafter, attention will be devoted to current business engagement in smart city projects – such as the involvement of Huawei, the leading Chinese telecom company, in Europe's digital agenda, and that of Siemens, the German multinational conglomerate, into China's sustainable city development.

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<sup>2</sup> European Commission, Directorate for Regional Policy (2011) *Cities of tomorrow: Challenges, visions, ways forward*

<sup>3</sup> United Nations (2014) *World Urbanization Prospects. 2014 Revision*

<sup>4</sup> CIBG.Brussels (2014) *Smart. Brussels. Witboek 2014-2019*

<sup>5</sup> <http://ec.europa.eu/digital-agenda/en/smart-cities>

## 2. Smart cities

Cities are facing tough challenges. High degrees of urbanisation, growing worldwide inequality and the present and prospected climate change all endanger the status quo, and demand for innovative policies and technologies to be implemented. Urbanisation rates are at an all-time high, as the urban population is expected to rise by 72 per cent from 3.6 billion to 6.3 billion between 2011 and 2050; most of this growth is expected to take place in Africa and Asia.<sup>6</sup> In fact, China and India will contribute to at least one third of the global urban population increase before 2050. Europe already is highly urbanized, but many of its cities are also attempting to improve their liveability, efficiency and sustainability just like cities or regions with higher urbanisation rates. In particular, the European Union needs to improve the ecologic footprint of its cities if it wants to reach its self-declared environmental objectives, hence the inclusion and focus on the development on smarter cities in order to achieve its ambitious Europe 2020 targets. Smart city projects are often 'the' answer to deal with all of these challenges at once.

There is no undisputed definition of a smart city. The concept includes all ICT-solutions for better resource use and lower emissions, but it goes far beyond this objective alone. According to the European Commission's own definition, it also refers to smarter urban transport networks, upgraded water supply and waste disposal facilities, and more efficient ways to light and heat buildings.<sup>7</sup> In addition, it also entails a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population. In short, it includes a whole series of initiatives that help making cities more liveable, more sustainable and more efficient; measures that make cities more productive and enjoyable for their citizens; and models that are inclusive, that make citizens become prosumers, producers of waste, energy and information, for instance, and consumers at the same time. The involvement of private partners for implementing innovation, the replicability of the measures and new technologies, but also the specificity of solutions, tailor-made for all cities involved in smart cities projects, are all major features of smart city projects. Furthermore, common standards are also mentioned as being one crucial requisite for smart cities projects to be successful and replicable.<sup>8</sup>

The multi-stakeholder aspect of smart cities is widely stressed upon, and requires that governance at the municipal level must be running smooth in order to ensure that political leaders, service operators, investors, solution providers and 'prosumers' will all have a relevant impact on the implementation of smart city initiatives. Previous research on successful smart city projects also shows that public-private partnerships (PPPs) can be very beneficial, since private partners can bring in developer expertise, finance and technology capabilities; the same goes for the involvement of citizens and other end-users.<sup>9</sup> A long-term city vision is also needed to make these projects more successful; leaders must set clear objectives, goals, targets, and define the measurement systems at the beginning of the project in order to create a proper benchmark. Because most smart city initiatives are quite recent, it unfortunately often is too early to assess their real impact. Nonetheless, preliminary impact assessments and the sharing of good practices in some already successful projects are still relevant in order to understand needs and pitfalls of current smart city projects, and to define how cities in Europe and China might cooperate in their smart and sustainable city development.

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<sup>6</sup> United Nations (2014) *World Urbanization Prospects*. 2014 Revision

<sup>7</sup> <http://ec.europa.eu/digital-agenda/en/smart-cities>

<sup>8</sup> J. Núñez Ferrer et al. (2014) "Orchestrating Infrastructure for Sustainable Smart Cities" IEC White Paper

<sup>9</sup> DG Internal Policies, European Parliament (2014) *Mapping Smart Cities in the EU* – p. 10

### 3. Smart city initiatives in Europe

A growing number of European cities are implementing a smart cities strategy. In fact, almost half of the EU28 cities with at least 200,000 residents have implemented or proposed smart city initiatives, whilst almost 90 per cent of cities over 500,000 inhabitants are self-declared smart cities.<sup>10</sup> Although every EU-member state is running smart cities projects, they are not evenly spread over the EU: the countries with the highest absolute number of smart cities are the UK, Spain and Italy, while the highest proportion of smart cities is found in Italy, Austria, Slovenia and the Nordic countries.<sup>11</sup> Cities such as Copenhagen, Amsterdam, Vienna and Barcelona are commonly mentioned as being among Europe's most successful smart city examples. As these data show, there is no big difference in the frequency and successfulness of smart city projects between Northern and Southern Europe, while there is a deficiency of smart city initiatives in the Central and Eastern EU member states. Among the several aims of smart cities, environmental issues are significantly more often being targeted by European smart city initiatives than (smart) mobility, governance, living, economy and people.<sup>12</sup> Not surprisingly, bigger cities tend to focus on a wider range of policy objectives than smaller cities do. In fact, the most successful smart city projects tend to target different objectives, and to create spill-overs from one domain to another.

Smart city initiatives have a strong overlap in terms of objectives with the Europe 2020 strategy. Europe 2020 is the EU's strategy for delivering growth that is smart, sustainable and inclusive; it is focused on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate/energy.<sup>13</sup> This overlap is crucial as it eases the search for EU funding and business involvement. On the other hand, smart city initiatives can be considered a useful vehicle for cities to achieve their Europe 2020

#### **Amsterdam: Implementing Huawei's technology**

*Location: The Netherlands  
Population: 0.82 million*

*The City of Amsterdam and Huawei are partnering up to develop smart city solutions for the Dutch capital. Amsterdam already scores as one of the most successful smart cities in Europe, but the partnership with Huawei has the potential to lift its performances even further up. Huawei committed itself to further digitalize and to improve the connectivity of Amsterdam by delivering its most LTE and Wi-Fi technology, for instance through the further development of Power over Ethernet (PoE). Furthermore, Huawei set up an Innovation Centre at Amsterdam ArenA stadium, which aims at becoming the technologically most advanced stadium of Europe.*

#### **Barcelona: Successful Smart City Development**

*Location: Spain  
Population: 1.62 million*

*Barcelona ranks as the world's best smart city according to the latest Juniper Research. Barcelona sets in on a comprehensive approach, that aims at merging urban planning, ecology, and information technology to ensure the benefits of technology reach every neighbourhood and improve the lives of citizens. Barcelona's innovations include open data projects, and other initiatives that increase citizens engagement, but also technological innovations such as the installation of recharge islands for electric vehicles and of remote controlled fountains and lights.*

<sup>10</sup> DG Internal Policies, European Parliament (2014) *Mapping Smart Cities in the EU* – p. 9

<sup>11</sup> *Ibid*, p. 32

<sup>12</sup> *Ibid*, p. 36

<sup>13</sup> European Commission (2010) *Europe 2020: A Strategy for smart, sustainable and inclusive growth*.

targets.<sup>14</sup> The European Commission also set up a European Innovation Partnership (EIP) on Smart Cities and Communities, with the aim to bring together European cities, industry leaders, and representatives of civil society to smarten up Europe's urban areas. So far, the initiative has received some 370 commitments to fund and develop smart city solutions in the areas of energy, ICT and transport.<sup>15</sup> Also under the Horizon 2020 programme for research funding, calls for proposals have been made for projects on smart city solutions.<sup>16</sup> With these projects, the European Union tries to stimulate the sharing of best practices between cities involved in smart city initiatives, and it tries to optimize the involvement of academia and of the private sector in smart city development. Particularly the role of the private sector is of crucial importance: industries are often the actors who possess the best funding and know-how to implement successful smart city initiatives, while start-ups and citizen initiatives are often the best actors to understand the needs of society and propose smart innovation.

A European Parliament publication therefore calls the Commission to support a platform that could provide guidance on objectives and facilitate multi-stakeholder engagement, and invites governments and business infrastructure providers to ensure that smart city initiatives have privileged access to existing infrastructure.<sup>17</sup> It is generally important that governments and businesses coordinate their efforts for making smart city initiatives replicable, and to facilitate technology integration for tailor-made solutions through the creation of standards.

Smart city initiatives in Europe are still in an initial phase, as most projects have been launched in the last lustrum. Projects are quite evenly spread between Northern and Southern member states, while proportionally fewer projects are being launched in the Eastern European member states. Most projects are aimed at tackling environmental challenges, but there is also a growing number of initiatives dealing with smart mobility, governance, connectivity and living. The EU is supporting most of the cities, and it actively promotes smart city development; local and national governments often offer coordination and primary infrastructure for the initiatives. However, involvement of the private sector is crucial both for the technological innovation and for the initial funding that are needed for smart city projects. With European companies being generally strong on clean energy development, but lagging more often behind on IT in comparison to their Asian competitors, this has paved the way for Asian, and in particular Chinese investment in Europe, and for European private investment in Asia.

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<sup>14</sup> DG Internal Policies, European Parliament (2014) Mapping Smart Cities in the EU – p. 61

<sup>15</sup> European Commission. European Innovation Partnership: Smart Cities & Communities  
<http://ec.europa.eu/eip/smartcities/files/eip-ifc-infographic.pdf>

<sup>16</sup> <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-scc-2015.html>

<sup>17</sup> DG Internal Policies, European Parliament (2014) Mapping Smart Cities in the EU – p. 101

#### 4. Smart city initiatives in China

In 2011, the urbanisation rate in China surpassed 50 per cent, meaning that in a country accounting for about 20 per cent of world population there are more citizens living in urban clusters than in rural areas.<sup>18</sup> During the past 10 years the urbanisation rate in China has accelerated rapidly, reaching 53.73 per cent in 2013.<sup>19</sup> Massive internal migration is being described as the hallmark of the country's expeditious urbanisation. At present, over 710 million Chinese people live in urban areas and in the next two decades a manifold increase in urban migration has been predicted, whose speed and scale is already unparalleled in human history.<sup>20</sup> According to the 2014 'World Urbanisation Prospects' by the Department of Economic and Social Affairs of the United Nations Secretariat, between 2014 and 2050, about 292 million will swell the ranks of China's urban population.<sup>21</sup> The potential of such massive urban development is immense, but so are the challenges. Several urbanisation-related problems such as pollution, environmental degradation, excessive rise in housing prices, traffic congestion, inefficient wastewater management and poor sanitation, but also widening income gaps, increasingly ageing population and social exclusion are already confronting the country with economic, social and environmental challenges. Cities will thus at the same time become China's biggest problem and China's most-awaited solution. Chinese cities need more than ever to promote and support sustainable growth, as well as to offer the quality of life and opportunities that encourage people to dwell in them and businesses to invest in them.

The Chinese political leadership is aware of the strategic importance of a successful and beneficial approach to urban transformation and has placed sustainable urbanisation on top of its political agenda as an important pillar of China's 12<sup>th</sup> five-year plan. China's political commitment to more liveable, humane and conscious cities has been recognised and reiterated by President Xi Jinping and Premier Li Keqiang in 2013 and is starting to bear fruit

##### **Xinyu: 'One Giant with Three Supplements' model** *'一大三小' 格局*

*Location: Jiangxi Province*  
*Population (2012): 0.75 million*

*Xinyu, also called 'Steel City' and 'Solar City', has been an important industries cluster hosting leading enterprises in iron, steel, silicon and building materials. The city has recently developed a new model known as 'One Giant with Three Supplements'. The design combines the use of photovoltaics (the giant) with energy storage battery, wind power and low-emission equipment manufacturing (the three supplements). This has allowed a shift from an energy-intensive industries city to an ecologically friendly clean-tech hub.*

##### **Baoding: Low Carbon City Initiative**

*Location: Hebei Province*  
*Population (2010): 11.2 million*

*Baoding, together with Shanghai, became pilot city for the Low-Carbon City initiative launched in 2007 by the World Wild Fund for Nature (WWF) China. Since then, Baoding's low-carbon industry has increased over 40 per cent every year, in 2008 it was the first Chinese city to surpass its carbon emissions target and in 2010 the Government selected it as a National Low-Carbon Pilot City. Baoding is now providing global climate solutions and building capacity in renewable energy policy, carbon emission management and green business.*

<sup>18</sup> China Human Development Report (2013) *Sustainable and Liveable Cities: Toward Ecological Civilization*. China Translation and Publishing Corporation.

<sup>19</sup> National Bureau of Statistics of China (2014). *China Statistical Yearbook 2014*.

<sup>20</sup> China Human Development Report, *Sustainable and Liveable Cities: Toward Ecological Civilization*.

<sup>21</sup> Department of Economic and Social Affairs of the United Nations Secretariat (2014). *World Urbanization Prospects*.

in terms of efficiency and quality advancements of green economic development, ecological civilisation, construction and urbanisation.<sup>22</sup> Currently, various government departments<sup>23</sup> and cities in China are launching green city initiatives and conducting research and development activities in the areas of standard formation and pilot demonstration.<sup>24</sup> In August 2013, China's State Council released a report entitled 'Several Opinions on Promoting Consumer Spending on Information Technology and Expanding Domestic Demand', hereby presenting a project aiming at accelerating smart city development.<sup>25</sup> It appointed 100 pilot and demonstrative sustainable cities, and is working towards the implementation of smart grids, smart transport, smart water supplies, smart homes, smart environmental protection, smart medical care and sanitation. Furthermore, the State Council also released the "Broadband China" Strategy, intending to increase Broadband access capacity in both urban and rural areas and to provide universal coverage of Broadband Networks in cities and administrative villages.<sup>26</sup> Several sponsor programmes and industry alliances have been jostled and encouraged by various ministries in China. In 2012, the China Strategic Alliance of Smart City Industrial Technology Innovation was founded by the MOST.<sup>27</sup> In 2013, the Ministry of Industry and Information Technology (MIIT) sponsored the China Smart City Industry Alliance, and in 2014 it also announced the decision to set up a RMB 50 billion (EUR 7.2 billion) fund to invest in smart city research and projects.<sup>28</sup> Last year, the National Development and Reform Commission created the Smart City Development Alliance, and the Ministry of Housing and Urban-Rural Development (MOHURD) selected 193 local governments and economic development zones as pilot smart cities, also making them eligible for receiving investment funds sponsored by China Investment Bank.<sup>29</sup> Furthermore, a Strategic Cooperation Agreement on the 12<sup>th</sup> Five-year Plan for Smart City Development has been signed between the Chinese Society for Urban studies and China Development Bank. According to the Agreement, both would concurrently provide no less than RMB 80 billion (EUR 11.6 billion) in the three years after completion of the 12<sup>th</sup> Five-year Plan to finance and invest on smart city development in China.<sup>30</sup> Overall, investment on smart city projects will be massive.

Nonetheless, this booming technology progress and dynamic marketing of smart city developments from several domestic and external actors have generated a chaotic marketplace in China and have made it challenging to coordinate action across different government departments. The challenge now lies on creating standards and national guidelines to direct this flurry of projects towards a common goal through shared action. Having said that, the overall approach to smart cities development is ambitious. Many Chinese cities have embarked on sustainable city projects, including cities at the sub-provincial level, at the prefectural level and at

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<sup>22</sup> China Human Development Report, *Sustainable and Liveable Cities: Toward Ecological Civilization*.

<sup>23</sup> The Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission (NDRC), the Ministry of Science and Technology (MOST), the Ministry of Housing and Urban-Rural Development (MOHURD) and other related departments.

<sup>24</sup> Kang Y. et al. (2014) *Comparative Study of Smart Cities in Europe – White Paper*. EU-China Policy Dialogues Support Facility II

<sup>25</sup> *Ibid*, p. 9

<sup>26</sup> Yu, X. (2013). *Introduction to "Broadband China" Strategy*. China Academy of Telecommunication Research of MIIT

<sup>27</sup> Johnson, D. (2014). Smart City Development in China. *China Business Review*.

<sup>28</sup> *Ibid*.

<sup>29</sup> *Ibid*.

<sup>30</sup> *Comparative Study of Smart Cities in Europe – White Paper*, p. 11

the county- and township-levels. The country is pursuing Smart City Programmes in a number of areas, including climate protection-related initiatives (such as Shanghai and Baoding's low-carbon city initiative<sup>31</sup> and Genhe's green building<sup>32</sup>), innovative and alternative strategies (Hangzhou's public bicycle networks<sup>33</sup>), social security and social assistance management (Ningbo's virtual community of residents, public commerce and service systems<sup>34</sup>), cultural heritage (Suzhou's World Heritage sites<sup>35</sup>), smart urban planning (Shenzhen's green building), and green businesses (Xinyu's 'One Giant with Three Supplements' model<sup>36</sup>).

Last year in March, China published a new 'people-centred' urbanisation plan for 2014 to 2020.<sup>37</sup> The plan requires optimisation of urban space through high-capacity infrastructure, transport-oriented and low-carbon development, green business projects, energy-saving and emissions-reduction initiatives, among other things. The plan also recognises that equal consideration has to be given to large and medium cities, as well as small towns, as they are all essential components to coordinate the progress of the nation, addressing economic and social issues in a holistic manner and ushering the country in a new stage of urban development.<sup>38</sup> The direction that this plan is going to take in the framework of the 13<sup>th</sup> five-year Plan (2016-2020) and how it is going to be transformed into concrete policies, implementable initiatives and strategic responses, shall determine the success of China's sustainable cities development and of the country's long-term prosperity.

## 5. EU-China Dialogue on Smart Cities

The Urban Partnership between the European Union and China has become a central pillar of their engagement and it seems destined to increase even more in the future. Their partnership on smart and sustainable urbanisation started as a prolongation of the 2010 Shanghai Expo's 'Better City Better Life' theme and came to represent a 'natural framework for concerted actions' in the context of smart city development.<sup>39</sup> Indeed, launching the partnership has immediately spurred a pragmatic and dynamic component into EU-China relations and, as a result of that, many initiatives have been jointly undertaken to encourage mutual support and cooperation on smart city development.

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<sup>31</sup> China Human Development Report, *Sustainable and Liveable Cities: Toward Ecological Civilization*, p. 90.

<sup>32</sup> *Ibid*, p. 161.

<sup>33</sup> *Ibid*, p. 83.

<sup>34</sup> *Ibid*, p. 83.

<sup>35</sup> *Ibid*, p.87.

<sup>36</sup> *Ibid*, p. 167.

<sup>37</sup> Some of the economic and social issues that need to be addressed include the reforms in land ownership, finance and taxation, and the *hukou* system. For more information, please see He, D. (2014). Can China's 13th Five-Year Plan deliver more sustainable cities? *China Dialogue*.

<sup>38</sup> The Economist (2014, March 22). *The government unveils a new "people-centred" plan for urbanisation*. Retrieved from <http://www.economist.com/news/china/21599397-government-unveils-new-people-centred-plan-urbanisation-moving-up>

<sup>39</sup> For more information, please visit

[http://eeas.europa.eu/delegations/china/eu\\_china/sustainable\\_urbanisation/sustainable\\_urbanisation.htm](http://eeas.europa.eu/delegations/china/eu_china/sustainable_urbanisation/sustainable_urbanisation.htm)

At the end of 2011, the EU-China Dialogue on Smart Cities, promoted by the EU-China Policy Dialogues Support Facility (PDSF<sup>40</sup>), was established as a mechanism meant to upgrade the overall EU-China strategic partnership.<sup>41</sup> In April 2013, the Smart Green Cities Project was formally launched after an agreement between DG CONNECT and the Chinese Ministry for Industry and Information Technology (MIIT), with the aim of promoting EU-China Smart City cooperation through a number of joint initiatives, including conducting a selection of pilot cities from the EU and China, and undertaking related research and collaboration.<sup>42</sup> In this context, the 'EU-China Pilot City Exchange' was also established. This project is conceived as a peer-to-peer scheme meant to analyse 30 pilot cities selected both in Europe and China, to assess the level of maturity of those cities, and ensuring that decisions and actions to create a healthy, sustainable and vibrant urban environment are made in a concerted manner, and are visible and available to all.<sup>43</sup>

The EU and China are cooperating in the field of urban development and urbanisation in several important ways, however both actors face major challenges, some of which are diverse in nature, others similar. On the one hand, China and Europe are at different stages of development, especially for what concerns industrialisation, information technology and 'informatisation', all fields in which China is still implementing laws, developing skills and expertise, and strengthening the foundations of the new generation of ICT application. On the other hand, both share the twofold challenge of innovative, inclusive and sustainable development while meeting social and environmental demands. Given the large-scale momentum that smart cities advancement is gaining, and considering the array of multifaceted challenges that the new sustainable 'urban century' is posing, China and Europe share a strong interest in working together to adopt measures aimed at guiding the future of their urban partnership. As a result, both sides acknowledge that the complexities of Europe and China's urban transformations require integrated strategies and policies, in order to simultaneously address emerging challenges and achieve a sustainable quality of life.

### **The 'Smart Silk Road' from Smart China to Smart Europe**

*In the wake of China's 'One Belt One Road' grand strategy and its new Silk Road design, the 'Smart Silk Road' project has been launched by the Smart Polis Advisory Council and Management Committee, together with the Smart City 'X' Consortium, a founding member of the European Innovation Partnership on Smart Cities and Communities. The project entails an interconnected network of smart energy, smart multimodal transportation, smart economy and smart cities corridors. Conceived as the East-West Innovation Corridors of Sustainable Nations and Smart Eco Cities and Communities, the project's main idea is to develop sustainable industrial Inter-Regional Zones and Innovation Corridors extending from China to Europe.*

<sup>40</sup> The EU-China Policy Dialogues Support Facility (PDSF) is a project co-funded by the EU and China to support and help implement Policy Dialogues on a wide range of issues and sectors, as well as to further boost their bilateral relations. For more information, please visit <http://www.eu-chinapdsf.org/EN/viewNews.asp?NewsId=869>

<sup>41</sup> For more information, please visit <http://eu-chinasmartcities.eu/>

<sup>42</sup> *Comparative Study of Smart Cities in Europe – White Paper*. This comparative study was drafted by a technical expert group composed of European and Chinese representatives and was intended to provide a survey of developments, challenges, best practices and lessons in the context of smart city cooperation in China and the EU.

<sup>43</sup> For the full list of 15 European cities and 15 Chinese cities, please see *Comparative Study of Smart Cities in Europe – White Paper*, p. 4

In 2013, the 2020 Strategic Agenda for Cooperation between the EU and China was signed, delineating incremental actions and opportunities for cooperation in a number of sectors, including science, technology and innovation, energy, urbanisation, climate change and environmental protection, social progress and global development.<sup>44</sup> Both sides are joining forces to reinforce cooperation in the above mentioned fields, find potential synergies and maximise their outcome, share their experience, transfer their knowledge and tailor it to local needs and conditions. Among the objectives presented in the EU-China 2020 Strategic Agenda for Cooperation, the EU and China should establish a cluster cooperation initiative to intensify exchanges in the fields of sustainable growth and urbanisation. They ought to conduct joint research to tackle common challenges, especially in the fields of low-carbon energy technology, urban-rural integration, urban development planning and urban infrastructure, and also identify mutual strengths in order to achieve win-win solutions on EU-China cooperation at the urban level.<sup>45</sup>

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<sup>44</sup> EU-China 2020 Strategic Agenda for Cooperation (2013)

<sup>45</sup> For more information about the 'Smart Silk Road' Project, please visit <https://eu-smartcities.eu/blog/smart-silk-road-eu-china-international-project>

### ***Huawei in EU's Digital Agenda***

*Huawei is a leading global information and communications technology (ICT) solutions provider headquartered in Shenzhen, China. This Chinese multinational has been involved in the EU-China urban sustainable cooperation since its very inception, playing a central role in the EU-China Information Society Dialogue. Indeed, Huawei has become an essential component of the European ICT sector and it is committed to championing the EU's plan to invest and achieve a sustainable, inclusive and smart growth. Some of Huawei's concrete initiatives in Europe include exploiting the potential of the Internet of Things, building and managing Next Generation Networks, providing access to high-speed internet for all, making the 5<sup>th</sup> generation of wireless system (5G) a real objective for Europe, and ensuring its commitment to Corporate Sustainable Development (CSD).*

### ***Siemens in China's smart cities development***

*Siemens is a German multinational conglomerate which has its headquarters in Berlin and Munich. It is the largest European engineering company. The company is very active on sustainable urban development, and 'Infrastructure and Cities' was one of the company's three main pillars from 2011 to 2014. In China Siemens is one of the most active European companies in the field of smart city development. Siemens has signed Memoranda of Understanding with major Chinese cities such as Beijing, Qingdao and Wuhan, where greater efficiency and sustainability are being achieved also thanks to Siemens' advanced technologies. In Beijing, Siemens' signalling system is used on the metro line, and Siemens technology is being used at the airport's baggage handling systems.<sup>1</sup> Meanwhile, Siemens is also cooperating with Shanghai's Tongji University on sustainable designs for eco-city models, and it signed a Strategic Cooperation Framework Agreement with Wasion Group to foster the joint development of smart grid project opportunities in China. Siemens is also involved in energy saving systems for public lighting and buildings. Overall, Siemens' smart city solutions are mostly aimed at improving the environmental impact of Chinese cities, as opposed to Huawei's smart city solutions which target connectivity primarily.*

## 6. Conclusions

The concept of *Smart City* is a relatively new one. Indeed, most smart city initiatives in Europe have been launched in the last lustrum and are still in an initial phase. The same applies to China, where citizens have mainly been consumers of services with little or no influence on the system. However, changes towards the creation of a sustainable and smart urban environment are taking place both in Europe and in China, also showing the EU-China commitment in setting their bilateral cooperative agenda and bringing the smart city design into their core politico-economic decision-making process. This analysis put particular emphasis on the significance of the EU-China Urban Partnership, stressing the mutual benefits resulting from further strengthening the cooperative approach between these two global actors in the urban development domain.

More compact and connected cities not only would lower greenhouse gas emissions and environmental degradation, but could also reduce urban infrastructure capital requirements. Investing in smart urban development and building more sustainable cities will drive the economic development. In order to promote a more resource efficient, greener and more competitive economy, as well as achieve smart integrated solutions it is clear that the way ahead has to include *innovation*. For this reason, sustainable growth and innovation-driven economies ought to be simultaneously developed in the EU and China in order to encourage mutual investment in eco-innovation, sustainable urban development and ICT smart solutions, reinforce their synergies, strengthen complementarities and place sustainable and smart growth at the core of their strategic partnership.

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