



## Challenges and opportunities on IoT

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### EXCITING Online workshop – Summary Notes

The EU-China Study on IoT and 5G

May 03, 2018



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EXCITING (项目编号 723227) 由欧盟和中国政府联合资助。

## The EU-China Study on IOT and 5G

*EXCITING, the EU-China Study on IoT and 5G, analyses the research and innovation ecosystem for IoT and 5G in China and compares it with the European model. The main purpose of the EU-China Study on IoT and 5G (EXCITING) is to support the creation of favourable conditions for cooperation between the European and Chinese research and innovation ecosystems, mainly related to the key strategic domains of Internet of Things (IoT) and 5G.*

*Collaboration in ICT research and innovation between the EU and China is not new and partners of the EXCITING project have good experience of past EU-China joint-research projects. However, the breadth and depth of the collaboration can be improved considerably, and ICT could find a stronger and more visible place among the key areas for EU-China collaboration. This will be facilitated through a better understanding of the European and Chinese research and innovation ecosystems.*

*EXCITING-中欧物联网与 5G 研究项目，旨在分析对比中欧物联网和 5G 领域的研究和创新生态系统。本项目的主要目的在于支持创建促进中欧在物联网和 5G 重要战略领域的研究创新生态系统。*

*ICT 相关的研究创新合作并不是中欧合作的新领域，而且 EXCITING 项目合作伙伴拥有中欧联合研究项目的丰富经验。但合作的深度和广度可以进一步提升，而且 ICT 可以成为中欧合作众多关键领域中更加突出重要的一个。本项目将通过更深入的理解中欧科研创新生态系统来促进这一目标的达成。*

## About the EXCITING online workshop

The objective of the online workshop is to discuss the current EU-China White Paper on IoT and to discuss the key topics that should be included in upcoming versions. It also aims to discuss the status of IoT standardisation in Europe and the importance of EU-China in this process.

## Programme

10:30	<b>Welcome</b> (Kai Zhang, Martel)
10:40	<b>Presentation of the EU-China IoT White Paper 2016</b> Philippe Cousin (Easy Global Market) – EXCITING Advisory Board Member
11:00	<b>IoT standardisation in the European Union: Progressing EU-China common views</b> Georgios Karagiannis, Huawei (EXCITING partner)
11:15	<b>Discussion and Q&amp;A</b>
12:00	<b>Closing</b>

*[All times CEST]*

## Webinar resources

Additional information on the webinar can be found on the EXCITING website:

<https://euchina-iot5g.eu/resources/webinars/>

**Presentations** can be accessed here:

- [Welcome](#) (Kai Zhang, Martel)
- [Presentation of the EU-China IoT White Paper 2016](#) (Philippe Cousin (Easy Global Market) – EXCITING Advisory Board Member)
- [IoT standardisation in the European Union: Progressing EU-China common views](#) (Georgios Karagiannis, Huawei (EXCITING partner))

**Video recording** can be accessed [here](#).

## Webinar – Summary Notes

### Presentation 01 | Welcome and introduction to EXCITING

**Presenter: Kai Zhang – Martel, EXCITING Coordinator**

The mission of the EXCITING project was presented to the audience, which is to support co-operation opportunities between Europe and China, in particular for IoT and 5G, by studying and comparing the corresponding research and innovation ecosystems, identifying the opportunities and making recommendations for creating the appropriate conditions.

The three funding authorities were identified. These are: the EU (Horizon 2020 Programme), The Chinese Ministry of Science and Technology (MoST), and Switzerland.

The five project objectives were presented and described. These are:

- To investigate and document the research and innovation policies and ecosystems in China and compare these with the European ones. Including the legal aspects of participation in reciprocal programmes.
- To investigate which international standardisation bodies are responsible and appropriate for the key strategic domains of IoT and 5G, given that these are areas where global approaches are needed.
- To investigate how global interoperability testing (with the focus on EU and China) is being used to validate research and innovation in the key strategic domains of IoT and 5G, to ensure prototypes can be turned into mature results/standards and successful deployments.
- To investigate practical opportunities for future co-operation on Large Scale Pilots for IoT and 5G on a reciprocal basis.
- To produce a roadmap showing how research and innovation ecosystems, policy, standardisation, interoperability testing and practical Large Scale Pilots should be addressed during the H2020 timeframe, and making recommendations for optimising collaboration between Europe and China for IoT and 5G.

The EXCITING project work plan (divided into work packages) and target groups were presented, as well as key expected outcomes, related to communication and dissemination, Chinese and European framework conditions, standardisation and interoperability, large scale pilots and roadmapping activities.

Lastly, the ways in which EXCITING can support EU-China collaboration were discussed:

- Facilitating access to the IoT Large Scale Pilots and the 5G PPP as well as the 5G IC at the University of Surrey.

- Supporting and channelling ideas for collaboration between EU and China in the fields of IoT and 5G into the future EC Work programmes that define the scope of upcoming R&DI projects that will be funded. A panorama tool is being developed and will be available soon.
- Having an impact through early recommendations, especially with the AIOTI-AII MoU signing, as well as identifying different LSP cooperation potentials.

## Presentation 02 | Presentation of the EU-China IoT White Paper 2016

### Presenter: Philippe Cousin (Easy Global Market) – EXCITING Advisory Board Member

Introduced the EU-China IoT White Paper and other documents that were developed and the result of a long cooperation. As of 2011, there has been an EU-China IoT expert group. They have organised 10 meetings, 5 in Europe and 5 in China.

The group has provided three position papers: one on high-level architectures, one on identifiers and another on semantic interoperability. These topics are still very relevant. The group believes that these documents can still be updated, possibly by the end of 2018.

The EU-China White Paper on IoT was published in early 2016. It was a summary of four years of discussions, meetings and events. There were activities done locally in China and Europe to monitor the progress of IoT. The white paper presents developments in China and Europe at the end of 2015 and focuses on some of the common challenges that are of common interest and for possible collaboration.

Regarding IoT in China, it is very important in the country. Focus has been given to industrial internet, industry 4.0 and the convergence of informatisation and industrialisation in China. From the Chinese perspective, they present IoT through two main angles: (1) as a provider of data and mappings of the virtual and physical world; they have highlighted the importance of energy, smart grids, farming and industrial IoT; and (2) from the applications perspective, including smart cities, transportation, security and health.

Regarding IoT in Europe, at the time of drafting the paper, there were a lot of discussions on policy to support innovation. What is important for the EU is to support and promote IoT, support innovation and to link innovation in manufacturing technologies, as new businesses can emerge taking advantage of IoT.

The white paper highlighted a number of areas, namely technologies (i.e. platforms, big data, semantic technologies, 5G and cloud computing); standards and demand driven IoT deployment. At the time of the paper, the EC was also promoting large scale pilots, to show that IoT is the result of an existing demand and not from an artificial demand.

Common challenges between the EU and China in regard to IoT are possible business models and new ways of cooperation (being discussed by AIOTI working group 2); interoperability is a worldwide challenge (nowadays more from the semantic point of view, rather than technical); technical environments (e.g. what are the platforms, protocols and how can the technical environment be provided to support IoT); trust, security and privacy; and the societal environment.

With regard to IoT developments in the future, 10 topics were identified, many still relevant today. These are, for example, aligned with some of the large-scale pilots that were recently deployed. The topics include: (1) towards a hyper connected society; (2) massive and secure IoT deployments enabled by 5G; (3) benefiting from other technology fields; (4) fusion of IoT, big data, cloud computing and generic connectivity; (5) automated vehicles; (6) e-health and smart living; (7) smart farming and food safety; (8) industrial IoT; (9) focused zones in smart cities; and (10) retail.

At the time, specific EU-China cooperation proposals focused on: Policy level cooperation (e.g. cooperation in terms of R&D); technical cooperation (e.g. through twinning activities); standardisation; and market cooperation (such as the AIOTI and Chinese IoT alliances). It is considered that today, these topics are still valid.

The current idea is update the white paper, taking into consideration new common challenges, topics of common interest and considering other contributions and suggestions. A short action plan and the involvement of other parties is also relevant. It is also relevant to update the three position papers.

### **Presentation 03 | IoT standardisation in the European Union: Progressing EU-China common views**

**Presenter: Georgios Karagiannis, Huawei (EXCITING partner)**

Europe and China are at the forefront of technological advances in areas related to the Future Internet. The two regions share common technological objectives, but there is still room to improve bilateral cooperation. To increase cooperation in the area of IoT, both parties established, in 2011, the EU-China IoT Advisory Group. This group published a number of papers: Joint White Paper on IoT, Position Paper on IoT Architecture, White Paper on IoT Identification and White Paper on IoT Semantic Interoperability.

Regarding IoT standardisation activities, there are initiatives at the international level and in Europe. At the international level, there is oneM2M (aiming to ensure efficient deployment of Machine-to-Machine communication systems and IoT); 3GPP, BBF, ETSI, IEEE, among others. Examples of international consortia include IIC, IoT Forum, the OSGi Alliance and OCF. At the EU level, the main initiatives are the ETSI's Technical Committee SmartM2M, Platform Industrie 4.0, CEN/CENELEC and the AIOTI, which was initiated by the European Commission in 2015 and addresses the challenges of IoT technologies and applications deployment.

The AIOTI has 13 working groups, 9 focusing on vertical domains: WG05 – living; WG06 – farming; WP07 – wearables; WG08 – cities; WG10 – environment; WG11 – manufacturing; WG12 – energy; and WG13 – buildings). There are four horizontal working groups: WG01 – IoT Research; WG02 – Innovation Ecosystems; WG03 – IoT Standardisation; and WG04 – Policy Issues. The AIOTI has 21 founding members, and now has more than 190 members (as of April 2018).

The main goal of WG03 – IoT standardisation is to engage with other stakeholders to identify gaps in IoT standardisation and in cooperation with stakeholders to provide recommendations to other SDOs. Within WG03 there are five sub-groups: IoT Landscape, High-Level Architecture, IoT Semantic Operability, IoT Privacy and IoT Security.

With regard to WG03 activities, several gaps have already been identified, which can be used as a means to push further collaboration. Gaps are related to IoT architecture, connectivity, integration and interoperability, applications management, security and privacy, among others.

Some examples of the work being done within the High-Level Architecture and Semantic Operability sub-groups were provided. Activities related to IoT identifiers were also addressed.

It was mentioned that Europe and China play very important roles in the global standardisation process, and therefore there remains work to be done within IoT, namely in the areas of security and privacy, semantic operability, Identifiers for IoT, IoT Reference Architectures and radio spectrum allocations.

To increase the level of harmonisation of standards between Europe and China, it is important to engage in an open and transparent exchange of information and knowledge. Furthermore, EU-China cooperation can take into consideration some of the key IoT gaps and challenges identified by AIOTI and ETSI.

## Discussion and Q&A

*Question: When will the two EXCITING white papers be released?*

White papers will be released by the end of May.

*Question: We all understand that IoT is a powerful technology. One of the central points is the users as well. What kind of discussions are being and what impact do the new European regulations related to data protection affect the work being developed in IoT?*

The AIOTI WG03 is looking at the rules that must be taken into account for the companies that are dealing with personal data. If any company is working in any area using personal data, it must take care and respect this regulation. AIOTI is doing several webinars on this topic, and we have experts in the security/privacy area doing these webinars (which are public).

*Question: The EU is putting a strong emphasis on this data protection. Assuming that things are a bit different between Europe in China, will this be a barrier for advancing IoT if China doesn't have such strict regulations?*

This needs to be studied. China also has several data protection rules, although different from the GDPR. Any company that wants to sell products/services in Europe need to conform to GDPR. In China, there are also regulations, but a bit different. This could also be an important point for analysis: differences between data protection in Europe and China.

*Question: There are a lot of cooperation opportunities between the EU and China in IoT. What would be the main obstacle to stop from moving forward?*

There are a few obstacles. If there is no synchronisation in terms of standards or others, there will be fragmentation. It is important to use similar standards. The EU also needs to promote a worldwide solution. Trust and security is another item. Many reports indicate that IoT is not fully deployed due to lack of a sense of security and privacy. The EC is pushing on this – there is now a cybersecurity act with measures that will be taken. Possibly IoT will be subject to a label or some certification.

*Question: There are some online sources that say China is taking the lead in 5G developments and deployments. Is China in a similar position in IoT – are they taking the lead in this area or is there a balance with Europe. If it is the case that one is in front of the other, how does that influence cooperation?*

China and Europe are both working very hard in innovation from the point of view of different technologies (i.e. 5G, big data, digitisation). It is not easy to say that one is ahead of the other. As there is innovation in different areas, it is important to try to bring these together through cooperation.

*Question: Are industrial stakeholders really willing to collaborate on standardisation?*

From the point of view of Huawei, which is an international company, and in China in general, having global standards is an important topic. This would facilitate cooperation with other partners across the world, having interoperable solutions, creating win-win solutions. Without global standards and interoperable solutions, one might face a closed door which is not at all beneficial.

*Question: Considering the size of the Chinese market compared to Europe, if China did not want to make things more interoperable, would they be at a risk?*

From the point of view of standardisation, interoperability is important for development. It is clear that China and the EU want to cooperate together on this.

# Consortium

