



EU-China cooperation opportunities: technical and policy perspectives

EXCITING webinar – Summary Notes

The EU-China Study on IoT and 5G

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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 webinar

The objective of the webinar is to present and discuss key findings related to standardisation practices for 5G and IoT and present recommendations for EU-China cooperation.

Programme

15:30	Welcome and EXCITING overview (Samuel Almeida, SPI and Kai Zhang, Martel)
15:40	EU-China cooperation opportunities and findings <ul style="list-style-type: none">• Review of standardisation perspectives (Latif Ladid, U. Luxembourg)• EU-China policy cooperation perspectives (Fabrice Clari, InnoTSD & Géraldine Quetin, InterInnov)
16:10	Discussion and Q&A
16:30	Closing

[All times CET]

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:

- [EXCITING project overview](#) (Kai Zhang, Martel)
- [Setting the Standards for the Hyper-Connected World: Harmonisation of 5G and IoT standards in the Eu and China](#) (Latif Ladid, University of Luxembourg)
- [EU-China cooperation opportunities: technical and policy perspectives](#) (Fabrice Clari, InnoTSD and Géraldine Quetin, InterInnov)

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

Webinar – Summary Notes

Presentation 01 | EXCITING project overview

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 (LSP) 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 road mapping 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 | Setting the Standards for the Hyper-Connected World: Harmonisation of 5G and IoT standards in the Eu and China

Presenter: Latif Ladid, University of Luxembourg

Mentioned that the EXCITING project was the third project involving the EU and China. The first one started back in 2010, where there was EU-China cooperation on all types of technologies. This was followed by a project on a new internet protocol called IPv6, and now we are addressing 5G and IoT and the technologies around them.

There are areas where standardisation is fundamental. This is where the EU has been promoting cooperation, especially in harmonising and aligning various actors and stakeholders; this was then discussed in the presentation.

When looking at the hierarchy of different technologies, radio access is becoming an important aspect in access to knowledge, specifically now that 5G is emerging. Work has also been done on IPv6; IoT, Cloud and SDN/NFV will move to use *openstack*, which is fundamental to get some data sovereignty.

Regarding IoT, there is a big potential economic impact, which can reach 11.1 trillion USD (worldwide). The focus will be on future factories, then on smart cities; 10% of the world's wealth will be spent on the internet. When looking at the big players that will look at the layers of standardisation, there is IEEE, which looks primarily at signalling; then the ITF has been pushing IPv6 in the last 20 years.

We should look at the work that oneM2M has been doing, which has used the same platform as 3GPP, looking at how to harmonise at an application layer first and how IoT should be deployed. Europe and China and the various partners within ETSI are actively promoting how to harmonise IoT. The Chinese, with CCSA, are playing an important role. However, IoT will not only be standardised through this platform as there are many actors that will play an important role.

The various IoT generations (IoT 1, IoT 2, and IoT 3) were then presented.

Each IoT sector has its own standardisation and everyone is trying to be in that area. It is important to identify where your skills are and what kind of sector is important to each organisation, as the stakeholders involved there are also different.

Regarding international and EU IoT standardisation activities, there is, as mentioned, oneM2M, a global initiative; but there is also the 3GPP, ETSI, IEEE and the OPC Foundation. There are some industry

fora, such as IIC, IoT Forum, OSGi Alliance and OCF. There are also some other activities behind the scenes, such as CEN and CENELEC that play a role in what the EC does. Within China, there are a number of standardisation bodies that are pushing the envelope in IoT, including CCSA (member of the oneM2M group); there is also the All (with whom EXCITING has facilitated a MoU).

Regarding current EU-China collaboration on IoT standardisation, we can highlight the MoU signed between the All and AIOTI, the IoT Connectivity Alliance and various EU Member States programmes.

There are some opportunities for further harmonisation. There is a new EU project on V2X, which will also focus on spectrum allocation. One of the main drivers of the EU is to look at end user data protection, but most people don't identify this aspect as relevant to reduce the cost for the end user.

The various wireless generations (0G, 1G, 2G, 3G, 4G and 5G) were then presented.

5G gives the impression that IoT will be a *killer* app, but others consider that it will be the verticals. It is important to be at the right time with the right people. Regarding the need for 5G, a study has shown that by 2025 each user will need about 30 GB, and thus we will need 5G even if just for the bandwidth. Current 4G will not cope with this demand, especially in big cities. In Europe, the mobile operators are taking a slower approach, but should nonetheless cooperate with other countries. This is why the cooperation with China is important: to show the real case to deploy 5G as soon as possible. When looking at where the money will come, it will be from enhanced mobile broadband (eMBB).

Looking at standardisation, again, it is important to focus on 3GPP as a base between the EU and China since China has a strong presence through the CCSA that work with European vendors. EU researchers should be part of 3GPP, especially at the board level.

Regarding EU and international 5G standardisation activities, we can highlight the 3GPP, but also the work done within IEEE and ITU-T, and other industry consortia such as the automobile association 5GAA and GSMA. In China, standardisation is large if not the largest in the world. As a country, they have their own working groups. They have the CCSA, with almost 400 members and various technical committees.

Regarding current EU-China collaboration on 5G standardisation, there is the MoU between the 5G-PPP and IMT-2020, there is Chinese membership in the 5GIA and the European participation in IMT-2020, as well as the mutual participation in regional standardisation activities.

In conclusion, it is important to achieve an alignment in standardisation at the international level using two big powers, to ensure the standards remain open, which is also to the benefit of end users. It is important to ensure more interoperability, as done in 3G and 4G. Events should be organised to in fact test communications between products. Privacy and security also remain a key aspect to consider.

Presentation 03 | EU-China cooperation opportunities: technical and policy perspectives

Presenter: Fabrice Clári, InnoTSD and Géraldine Quetin, InterInnov

Presented a background on the EXCITING project, which focuses on EU-China cooperation on 5G and IoT. We know that 5G and IoT are key enablers for Future Internet and are both priorities for the European Commission and the Chinese Government. At the EU level, when talking Future Internet, it is now under the 'Next Generation Internet' concept, which brings together IoT, 5G, Artificial Intelligence, Blockchain and others.

Regarding the needs in Future Internet, we know that there is a strong policy context with a lot of work already done. However, from both the European and Chinese side, we need common values such as privacy, trust, cybersecurity. If we want to develop common Future Internet services, we need to address these components. We know that on individual sides there is already some activity (e.g. GDPR within Europe).

Focusing on 5G and IoT, we know that both parties have very strong ecosystems. Both have well implemented research programmes, dedicated 5G and IoT research initiatives, promotion groups and established technology roadmaps/deployment plans.

In China, it was found that the country is no longer a 'copy-cat' country; a lot of innovation is done in China boosted by a strong entrepreneurial dynamism that is supported by the Chinese Government. Furthermore, China has shown a strong position in many IoT related sectors, including transport, healthcare, retail. This can be explained by a strong economic growth, which has driven the demand for various IoT applications.

Specific to IoT in China, it can be said that there is a vibrant start-up ecosystem, with strong support from the Chinese Government (through tax breaks, special funds for public entities), and an effective value-chain. For 5G, there is also a strong Governmental support based on key national policies (e.g. Made in China 2025, Five Year Plan) and specific 5G policies.

With regard to the importance of verticals, the project aimed to analyse in what vertical areas EU organisations would have better opportunities in going to China. The most promising vertical seems to be smart factories (as addressed in a previous presentation).

Regarding possible recommendations, these cover research, entrepreneurship and market, targeted both at the entrepreneur and the European Commission. Key recommendations are:

- **Research, development and innovation:**
 1. Foster common calls on verticals and application domains for building upon comparative advantages.
 2. Make internships in China more accessible to European students.

3. Make sure the European Union and European stakeholders keep the manufacturing know-how.
- **Incubation, acceleration and entrepreneurship:**
 1. Take time to understand and ‘feel’ the Chinese market
 2. Provide support to European businesses willing to enter the Chinese market.
 - **Market:**
 1. Facilitate European companies to enter Chinese markets.
 2. Foster sectorial synergies through projects.
 3. Foster Europeans’ understanding of Chinese communication and culture.
 4. Encourage European investments into Chinese companies.
 5. Focus on collaboration with SME and start-ups more than big entities.
 6. Encourage joint-ventures with Chinese businesses.

In conclusion, China is leading the IoT market and is first in terms of 5G readiness. There is also room to improve EU-China cooperation on 5G and IoT, but it is also important to go beyond research. There is a need for effective reciprocity in market access.

Discussion and Q&A

Question: What are the specific actions proposed regarding new spectrum for IoT? Will China propose new agenda items

Currently, the proposal must come from 3GPP, which is then sent to the ITU; the next meeting will be during the World radiocommunication conferences (WRC) at the end of 2019. Many people are talking about this topic, but the actual proposal must come from 3GPP. They have time until the event to define a common proposal on how to reduce the spectrum. The spectrum today is not the same in Europe and in China, so in order to reduce the costs to the manufacturers and end-users, we have to reduce the alternatives as much as possible. Even China has given ISP different spectrum; it is difficult for each country to give the same spectrum. The decision on spectrum will also have an impact on the modems. There is a strong indication that we will have to reduce the number of modems to two or three.

Question: Did the EXCITING project also look into the space-based IoT collaboration opportunities (e.g. providing communication to very small IoT nodes)?

The scope of the project wasn’t exactly with the space sector.

Question: If I have an IoT technology that I believe could have a good synergy with China, what could the EXCITING project?

One option is to go to the EXCITING website and analyse the project deliverables to see how your situation best fits with China. EXCITING is not necessarily a business-enabler. A second option is the EU project ENRICH in China, which facilitates the entry of new projects, companies and ideas into the Chinese market.

Question: What do you think are the core standards that Europe and China should focus on in the immediate future?

There is a full range of protocols for IoT. I would go with oneM2M first. These protocols will definitely be implemented in China. If you look at the various standards bodies in the verticals, they are very different from each other and may not even work in China. In the end, the Chinese government and regulator will have to certify your product, so if you are using the same standard accepted by CCSA, then you have good opportunity to reduce the time to get your product certified. In terms of 5G, I would expect that 5G would have an impact on IoT down the road. We are secured by having 3GPP as the focal point, where the Chinese also contribute significantly. Again, the spectrum may be different from one city to another, even in China. Certification will be very important.

Question: What are the core policy areas that the EU and China should focus on?

Privacy, trust and cybersecurity are the main areas that should be focused on, independently of the technological area within the Future Internet.

Question: Currently, any new 5G IoT/M2M will only happen in 3GPP Release 17, so we are talking 2022 and further. In the meantime, one will just use LTE-M and NB-IoT for those services. Any view on that?

There is a report from the OCG, which combines the reports from industry specification groups. They are working together on deliverables to contribute to 3GPP. It is not clear if it will be in release 17 or not, but this will depend on the various stakeholders.

Consortium

