

Looking Beyond the Horizon

Future EU-Japan Collaboration on Research and Innovation



Monday, 13 November 2017
Brussels

Seminar report

With contributions from [Marco Canton](#), [Kitayoshi Tsumita](#), [Anne Haglund-Morrisey](#), [Jean-Yves Roger](#), [Stijn Lambrecht](#),
[Lars Brückner](#), [Eddy Roelants](#) and [Aiko Higuchi](#)

All presentations and more information can be found online at
<http://www.eu-japan.eu/events/looking-beyond-horizon>

Introduction

Marco Canton – FUJITSU

This event will ensure that all Japanese companies – in Europe and Japan – have the same understanding about Horizon 2020, with detailed information from the Commission and the experiences of two firms.

Opening Remarks

Kitayoshi Tsumita – JBCE

The JBCE facilitates the European agenda including sustainable development and the transformation of the digital society through G-to-G and B-to-B activities. By pooling our knowledge and expertise, the EU and Japan will create opportunities to resolve our common challenges. The [EPA](#) will enhance cooperation, not just on trade and investment, in fields such as R&D. Innovation and new business may need some standards and regulation. The EU and Japan can be high quality standard-setters for the world.

Horizon 2020 Work Programme for Research & Innovation 2018-2020

Anne Haglund-Morrisey – Senior Policy Officer – Japan Desk, DG RTD, European Commission

Brief overview of EU-Japan research and innovation cooperation: under the 2011 S&T agreement – the next biannual meeting of the EU-Japan S&T committee will take place in Japan next week¹. We will assess cooperation areas and identify new areas to strengthen cooperation in. Currently, cooperation is targeted in a few areas (ICT, aeronautics and other transport areas, materials research) and the EU and Japan decided to look into cooperation possibilities in other thematic areas (renewable energy, environment research, health, security and research infrastructures, etc.) – all of these will be discussed next week.

To date: there have been 82 Japanese entities in 66 Horizon 2020 projects – mainly [Marie Skłodowska-Curie actions](#) (MSCA) on research mobility in the areas of advanced materials, nanotechnologies, environment, Euroatom and in ICT. Japanese participants' success rate² of 20% is very high compared to the average (c. 14.7%). 18 Japanese firms have been involved in Horizon 2020 so far. European affiliates of Japanese companies are very active – more than 100 participations by 50 European affiliates – particularly in ICT, energy and transport research.

[Horizon 2020's](#) 3rd work programme, covering 2018-2020, is worth €30 billion and has 4 focus areas. International cooperation is important – there will be 30 international flagship initiatives with a budget of €1 billion and specific support activities for innovators. The international flagship initiatives for Japan cover 14 existing and suggested initiatives in 9 thematic areas and will be addressed in 22 calls for participation open to both public and private entities. There is a [specific Japan page](#) on the [participants' portal](#), giving links to all the call topics and to ministries and agencies offering co-funding possibilities.

14 Horizon 2020 international flagships targeting Japan in 9 thematic areas


- ICT:** Bilateral Flagship through "Coordinated Call on 5G communication networks, security, cloud, IoT, Big Data". Targeted in flagship on "Unconventional Nanoelectronics".
- Transport:** Targeted in Flagships on "Greener and safer aviation", "Automated road transport", "Integrated multimodal freight transport systems and logistics", and "Reduction of transport impact on air quality".
- Energy:** Bilateral Flagship on "Advanced biofuels". Targeted in Flagship on "Mission Innovation" on clean energy in general.
- Health:** Cooperation through several multilateral initiatives. Targeted in Flagship on "Technologies for global health care".
- Disaster Risk Reduction:** Targeted in Flagship on "Operational forecasting of earthquakes and early warning capacity for more resilient cities".
- Security:** Targeted in Flagship on "Technologies for first responders".
- Nanotechnologies:** Targeted in Flagship on "Nanosafety".
- Climate Action:** Targeted in Flagship on "Changing cryosphere/Arctic research".
- Research Infrastructures:** Targeted in Flagship "Integrating and Opening activities".



Two slides on Japan and the third Horizon 2020 work programme from [Anne Haglund-Morrisey's presentation](#)

Horizon 2020 – Work Programme 2018-2020
22 Call topics encouraging cooperation with Japan

Year	Call identifier	Call topics
2018	DT-ART-01-2018	Testing, validation and certification procedures for highly automated driving functions under various traffic scenarios based on pilot test data
	DT-ART-02-2018	Support for networking activities and impact assessment for road automation
	EUJ-01-2018	Advanced technologies (Security/Cloud/IoT/BigData) for a hyper-connected society in the context of Smart City
	EUJ-02-2018	5G and beyond
	INFRAIA-01-2018-2019	Integrating Activities for Advanced Communities
	MG-2-5-2018	Innovative technologies for improving aviation safety and certification in icing conditions
	NMBP-13-2018	Risk Governance of nanotechnology (RIA)
	NMBP-14-2018	Nanoinformatics: from materials models to predictive toxicology and ecotoxicology (RIA)
	SCI-HCC-03-2018	Support to further development of international cooperation in digital transformation of health and care
	SCS-17-2018	Towards operational forecasting of earthquakes and early warning capacity for more resilient societies
	SU-DRS01-2018-2019-2020	Human factors, and social, societal, and organisational aspects for disaster-resilient societies
	SU-DRS02-2018-2019-2020	Technologies for first responders
	DT-ART-03-2019	Human centred design for the new driver role in highly automated vehicles
	2019	DT-ART-04-2019
ICT-06-2019		Unconventional Nanoelectronics
LC-CLA-07-2019		The changing cryosphere: uncertainties, risks and opportunities
LC-NIG-1-7-2019		Future propulsion and integration: towards a hybrid/electric aircraft
RF6-2-9-2019		Integrated multimodal, low-emission freight transport systems and logistics (Inco Flagship)
NMBP-15-2019		Safe by design, from science to regulation: metrics and main sectors (RIA)
2020	SU-SPACE-22-SEC-2019	Space Weather
	NMBP-16-2020	Safe by design, from science to regulation: behaviour of multi-component nanomaterials (RIA)
	NMBP-17-2020	Regulatory science for medical technology products (RIA)



¹ The biannual science and technology committee meeting is held under the agreement on EU-Japan cooperation on science and technology – http://ec.europa.eu/research/iscp/pdf/policy/agreement_japan.pdf

² Defined as what proportion of Horizon 2020 applications get funding

The [May 2017 interim evaluation of Horizon 2020](#) will be crucial for the development of the successor programme (FP9). It clearly recommended increasing international cooperation in FP9. The [LAB – FAB – APP](#) report³ made a clear recommendation as to how to increase and strengthen international cooperation in FP9 – making it the main trademark for the EU in the area of research and innovation. The Lamy Report made some concrete recommendations – open up FP9 to association by the best, and participation by all, where reciprocal co-funding is available from partner countries; focussing on excellence not geographical criterion; focus on the [sustainable development goals](#) (SDGs) to form large-scale research innovation missions in international cooperation; international cooperation should be centralised through one fund. The interim evaluation also identified clear room for improvement.

Commissioner Moedas is convinced that excellence, openness and impact should be retained as the core values of FP9. Missions should breakdown silos and focus on reaching specific targets – cooperation with Japan will become very important with this mission-oriented approach focussing on common challenges through missions of common interest linked to the SDGs. In May 2018 the Commission will present a draft Multi-Annual Financial Framework and in June 2018, the Commission will propose the successor Framework Programme⁴. In 2019, there will be the European Parliament elections and the appointment of a new European Commission – this will influence the next FP. FP9 will become operational in 2021.

Q&A included:

- *Is there some language that Japanese applicants can bring to a consortium to make the consortium's application more interesting for the experts? What has resulted in 22 core topics for which Japanese participation has been encouraged / mandated is the EU-Japan policy dialogue, including at the recent [8th EU-Japan Science Policy Forum](#) and at next week's committee meeting.*
- *Who will take part in next week's committee meeting? MOFA is coordinating the Japanese participation. MEXT, METI, MIC and MOE will be present as will be JST, JSPS, NEDO and AIST. DG RTD is coordinating the EU-side participation.*
- *Are all 9 thematic areas translated into specific call topics? Yes. But only a few of them are bilateral – many are open to other 'third countries'. FUJITSU and other Japanese companies contributed to the interim evaluation. Will there be a new consultation before FP9? Stakeholder input is very welcome.*

Cooperation with Japan on 5G, Security Cloud, IoT, Big Data and AI

Jean-Yves Roger – International Relations Officer, DG CONNECT, European Commission

There has been a significant increase in EU-Japan cooperation on digital issues – not just on research. We also have common position / alignment on policy issues (freedom of speech on the internet, privacy, etc.) and on initiatives. October's [EU-Japan Digital Week](#) saw a series of workshops and dialogues with government and industry with exchanges of views on blockchain, platforms, data flow and other issues.

There have been coordinated (joint) calls since the first Horizon 2020 work programme in 2013. Coordinated calls are the results of a long process including several workshops with Japanese counterparts to define the priorities – aligning common interests on policy and research, then identifying – in conjunction with industry and academia – specific topics for the collaboration, and finally reaching strategic agreement between the Commission and the funding agency in Japan. Agreement is also needed on the call text and budget allocation with equal funding from the EU and Japan.

For the fourth joint call closing on 31 January 2018, the following two areas are open (total EU budget: €6m).

The [EUJ-01-2018](#) covering "Advanced technologies combining Security, IoT, Cloud and Big data for a hyper-connected society" and "Interoperable technologies of IoT devices / platforms in the context of Smart Cities". The end result should aim at co-developing technologies whilst addressing interoperability and standardisation issues. The goal is to integrate IoT with Big Data and Cloud, with an emphasis on security

³ Published in July 2017 and prepared by a [high-level group](#) led by Pascal Lamy

⁴ Horizon 2020 is the 8th Framework Programme. The European Parliament has published a [review of all 8 FPs](#)

and privacy. There will be an impact on the underlying technology, services and platform – particularly when cross-border demonstrations are required. Interoperability, particularly in the context of ‘smart cities’, is also important. The ITAC-AIOTI MoU will play a key role in defining priority areas for EU-Japan cooperation on IoT. Expected impacts: credible cross-border demonstrations; implement interoperable solutions; develop cloud-enabled secure and trustworthy applications; promote the use of data for smart cities and joint contributions to standardisation. Submissions should not address the development of applications using existing technologies.

The EUJ-02-2018 covering 5G and beyond: the 2015 [EU-Japan joint declaration on 5G](#) defined what should be the priority for EU-Japan cooperation including standardisation and spectrum. Previous calls have been organised in this area. The current call ([EUJ-02-2018](#)) covers the demonstration of technologies and system interoperability for 5G applications of interest and address long-term challenges beyond 5G.

For both EUJ-01-2018 and EUJ-02-2018, in addition to the normal Horizon 2020 criteria, there are additional conditions: EU-side participants must reach a coordination agreement with their Japanese counterparts; projects cannot last more than 36 months; avoid having third-country (non-EU, non-Associated States, non-Japan) participants.

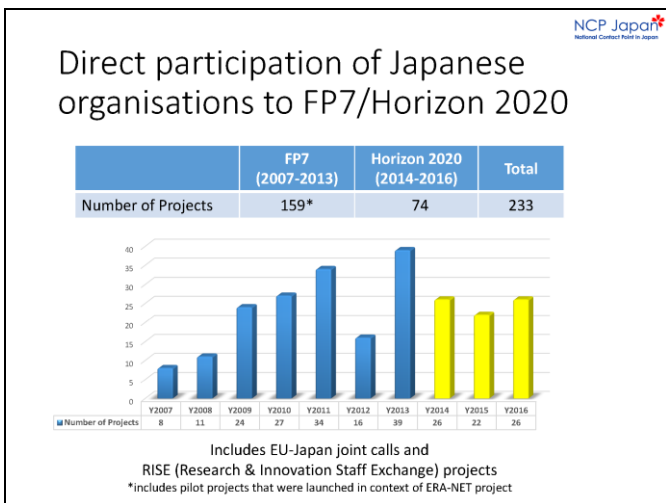
Q&A included:

- *Are the workshops open to industry participants?* We organise workshops with government and industry to identify possible topics for coordinated calls and once the topic was ‘sufficiently mature’ we launched the coordinated calls having aligned our administrative processes.
- *The calls should be for parallel projects in Japan and in Europe with a coordinated agreement. Should the projects start together or could they be separate projects that identify common objectives and reach an agreement?* It must be ONE project but with two parallel administrative tracks – the consortium must work together from the start. *Many JBCE companies have research teams in Europe, would it be okay to have the same company participating in both Europe and Japan?* NEC is an example of that. No strict rules about that if it makes sense to the project.
- *Usually on the EU-side you need to involve the entities of several member-states. Does this apply also for coordinated calls with Japan?* Yes, on the EU-side you need at least 3 partners from 3 member-states / [associated countries](#), in addition to the partner(s) from Japan.
- *How do you evaluate the evaluators?* The ICT Work Programme is very detailed so we look for experts from academia and industry to evaluate them. Entities can also raise concerns if they feel they were incorrectly evaluated. *The Juncker team should finalise FP9 in 2018; under the new Commission could the content of FP9 be revised?* The core of FP9 will be defined in 2018, I do not expect any major changes.

Achievements, status (and difficulties) of Japanese entities in Horizon 2020

Stijn Lambrecht – Project Manager, NCP Japan, EU-Japan Centre for Industrial Cooperation

Participation by Japanese entities (from Japan) fluctuates depending upon how many calls there are in relation to Japan. International cooperation in general (not just with Japan) has declined slightly. Japanese entities that participate in a coordinated call are not technically participating in an administratively Horizon 2020 project, but in the Japanese side of the call. ICT (thanks to the joint calls) and MSCA (for exchanges) are the main areas for Japanese participation. Coordinated calls aside, the proportion of companies in joint calls is low – most Japanese participants are from universities and research institutes.



Participation Japan affiliated companies in Europe

	FP7	Horizon 2020	Total
Number of projects	241	95	336
Number of companies	75	50	125
Amount of EC contribution	€ 91 Mil	€ 54 Mil	€ 145 Mil

Participation of Japanese affiliated companies largely in ICT

Four slides from Stijn Lambrecht's presentation

Affiliate Company Name	Number of Projects	Country in which the company is based	Amount of EC contribution (in EUR)
RENAULT SAS	17	France	10,555,570
NEC EUROPE LTD	19	United Kingdom	9,210,326
FUJIFILM MANUFACTURING EUROPE BV	4	Netherlands	3,862,886
FUJITSU TECHNOLOGY SOLUTIONS GmbH	2	Germany	3,034,216
DAIDO INDUSTRIAL BEARINGS EUROPE LIMITED	1	United Kingdom	1,963,033
Nissan West Europe SAS	1	France	1,941,275
TOYOTA MOTOR EUROPE	6	Belgium	1,750,824
HORIBA JOBIN YVON S.A.S.	4	France	1,496,860
FUJIFILM DIOSYNTH BIOTECHNOLOGIES UK LIMITED	2	United Kingdom	1,256,576

Comparison with similar companies in USA, EU and South Korea

USA	EU contribution	Project Number	EU	EU contribution	Project Number	South Korea	EU contribution	Project Number
Ford	265,801	1	VW	8,422,776	11	Hyundai motor	4,079,750	2
Eaton	397,625	1	PSA	5,304,446	8	Samsung	3,883,138	5
GE	1,948,717	10	Siemens	67,539,461	76	LG	197,750	1
Dow Chemical	880,538	2	Philips	27,837,562	44	Samsung SDI	946,321	3
DuPont	1,465,551	4	ABB	5,261,625	12	Doosan	562,825	1
			BASF	7,812,024	17			
			BAYER	2,181,549	8			
			LINDE	5,951,998	4			
			Alstom	16,760,882	16			
			Schneider Electric	7,002,496	15			

European companies are participating quite well in Horizon 2020. Participation level from US companies and South Korea is similar to that of Japanese companies' affiliates in Europe.

All Horizon 2020 calls are open to Japanese participation, even if Japan has not been identified as a target country. Two Japanese entities took part in the My-AHA open call. A Japanese affiliate took part in the INLANE project. Two Japanese universities took part in the PROTINUS (MSCA) project.

There are of course difficulties that need to be addressed when setting up EU-Japan cooperation projects. The NCP Japan exists to provide support from the start of the process (explaining what the programme is, how to apply, etc.), through the lifetime of the project (e.g. support a project's audit):

- Access to funding does not affect European affiliates of Japanese entities, but does affect Japanese entities in Japan (when there is no coordinated call or funding foreseen by the Commission) – e.g. how to cover travel costs to take part in consortium meetings in Europe;
- Administrative difficulties – generally in terms of validation of organisations. It costs money (requires sworn translators) and entities can be reluctant to prove their existence;
- Project management difficulties – linguistic and other issues (most project coordinators are non-native English speakers); but if referred to the NCP Japan, the Japanese partners can be helped; and,
- Access to entrance points to get started – it helps if the Japanese partners can network in Europe (but this costs money), they lack FP experience and often do not use the Commission's partnering services.

There are strategies to increase the involvement of Japanese entities: rather than having a passive approach (a Japanese organisation is invited to join a consortium to bring in its know-how / technology), an active approach could help – e.g. through information days or brokerage events with the opportunities to meet

the Commission and attend pitches by potential consortium partners; taking part in events linked to [relevant projects](#) or using partner search services⁵ to showcase what you want to offer / are seeking. The [NCP system](#) (funded by national governments, not the Commission) is designed to give all partners equal access to information, helping identify partners and proposal-writing / checking.

Q&A included:

- *Costs of using the NCP system?* It is completely free – it is funded by the national governments. Costs of taking part in NCP Japan training courses are also covered – selection criteria are used to assign places.
- *NCP Japan bridges the cultural and linguistic divide. There are other difficulties: the lack of predictable financing on the Japan-side (for Japan-based entities) is serious – funding is often only for a single year. Does the NCP also deal with financial regulations (accounting can be problematic)?* The NCP does do that to some extent. The EUJC has taken part in FP7 and Horizon 2020 projects so has in-house expertise we can draw on.

NEC Laboratories Europe – Experiences & Opportunities

Lars Brückner – NEC Europe Ltd

NEC has been a successful participant in EU R&D&I programmes. Standardisation has been very important for NEC both in making use of EU projects and in innovation. NEC uses AI, data science and ICT platforms to create solutions for society. NEC first took part in an [EU project in 1998](#). NEC has 100 leading researchers addressing European and global technology trends. Close collaboration with top universities and research institutes and major industry and with European standardisation organisations is key. NEC's European R&I team in Germany sees itself not only as a R&I lab but also as a 'standardisation lab. Really successful R&D&I work is only viable if you invest heavily in standardisation work.

NEC's main research themes (all linked to ICT): 5G Networks, SDN / NFV, Security, Data Science, IoT Platform and Smart Transportation. In terms of Horizon 2020, NEC's main interests are [societal challenges](#) (pillar III) and [industrial leadership](#) (pillar II).

NLE – EU R&I Programmes		
H2020 – NLE participation		
		H1
EU H2020 Project 5G ENSURE	EU RIA 76/24	SEC
EU H2020 5GPPP Flex5GWare	EU RIA 76/24	NSDA
EU H2020 5GPPP 5G-NORM A	EU RIA 76/24	SGN
EU H2020 5GPPP 5G-CROSSHAUL	EU RIA 76/24	SGN
EU H2020 5GPPP P6 SONATA (SDN)	EU IA 58/42	SDN
EU H2020 5GPPP for Analytics	EU RIA 76/24	NSDA
EU H2020 5GPPP Superfluidity	EU RIA 76/24	NSDA
EU H2020 5GPPP SSI-CLOPS (NSDA)	EU RIA 76/24	NSDA
EU H2020 5GPPP SSI-CLOPS (SDN)	EU RIA 76/24	SDN
EU H2020 TYPES	EU IA 58/42	NSDA
EU H2020 5GPPP VirtWind (NSDA)	EU IA 58/42	NSDA
EU H2020 5GPPP VirtWind (SDN)	EU IA 58/42	SDN
5G Phase 2 Placeholder (no growth, 11 resource continuity)	EU RIA 76/24	SDN
EU REPLICATE	EU IA 58/42	IPC
EU H2020 Autopilot	EU IA 58/42	CSST
EU H2020 IoT CPass.io	EU RIA 76/24	CSST
EU H2020 IoT CPass.io (ITS)	EU RIA 76/24	ITS
EU H2020 IoT FIESTA-IoT	EU RIA 76/24	CSST
EU FP7 IoT Mobinet (CSST)	EU 43/67	CSST
EU H2020 IoT Wise-IoT	EU RIA 76/24	CSST
EU AUTOPILOT (ITS)	EU IA 58/42	ITS
EU Mobinet (ITS)	EU 43/67	ITS
EU SCOUT	EU RIA 76/24	ITS
EU H2020 Project TREDISEC		

Slide showing recent projects NEC has been involved in, from [Lars Brückner's presentation](#)

This seminar is looking at future EU-Japan cooperation. Three areas to consider: Coordinated calls; EU only calls; and, EU-Japan regulatory cooperation (regulator led, but should be supported by stakeholders). NEC's main motivation for taking part in EU projects – open innovation with institutions and customers with goals including identifying trends, achieving standardisation (turning European standards into international ones), bringing Japanese technology to the EU market and opening international markets.

NEC feels to be successful in the EU – including in EU & EU-Japan projects – you need to:

⁵ Mr Lambrecht identified 4 partnering services: [Participant Portal Partner Search](#), [Horizon 2020 National Contact Point \(NCP\) Networks](#); [Enterprise Europe Network \(EEN\)](#) for SMEs and the [CORDIS Partners service](#)

- Do top quality research, produce good quality publications, have scientific excellence, build networks;
- Focus on strategic research agendas to identify what is coming and recognise new trends;
- Identify / push European work of global importance – e.g. Europe is the key IoT context globally;
- Ensure early / timely investments and involvement with a long-term commitment. You must invest financially, administratively and in terms of time;
- Do standardisation work;
- Position yourself in new areas such as IoT, AI. Combine own initiatives with head office initiatives, EU priorities / budgets, and results of discussions with partners in EU; and,
- Lead work on European Technology Platforms.

Challenges

- Long-time investment – reference work prior to actual project participation – e.g. big data value PPP: 2 years of preparation work before actual project inclusion
- Despite good networks, preparation work starts early and small
- Necessary: scientific work, good networking, good lobby work
- Necessary: own long-term strategy – not just joining/swimming along
- Necessary: good financial planning/additional financial resources – EU project funding/support does not suffice to survive
- Despite expertise, sometimes size matters even more (additional expertise helps, e.g. standardisation)

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Challenges

- Beginning of 2000s EU projects seen as having too little impact in terms of innovation & products
- H2020 with bigger projects including PPPs - big impact focus regarding innovation & products
- Situation now:
 - Impact/results & KPI approach in principle good, but:
 - Impact focus too big
 - Heavily increased competition
 - Inflationary approach to impacts/results
 - Product focus at the expense of research focus & science focus
 - Expertise/excellence no longer key decider
 - Acceptance of proposals not transparent – appears random at times
 - Financial/budgetary problems in view of long-term investment and planning necessary – overhead too big

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Challenges and critical evaluations identified in [Lars Brückner's presentation](#)

In terms of expectations / recommendations for the future, NEC feels there should be additional resources made available – lack of financing can be quite an obstacle. Project flexibility should be possible – the opportunity to explore different potential outcomes. Expertise and excellence should be the key criteria. There should be more transparency regarding proposal acceptance; and project evaluations need to be of a higher quality.

Expectations

- **H2020 & FP9**
- Participation & role of European companies of Japanese parentage in EU projects
 - **Openness & clarity of fundamental importance and necessity**
 - **Welcoming companies – understanding and appreciating contributions**
- Japanese affiliated companies in Europe
 - Are European companies - employ Europeans - invest in Europe
 - Open innovation - work with European universities, research institutes, local companies (start-ups, SMEs, multinationals)
 - Develop European standards – export to international level
 - Help open international markets for all European companies

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Expectations

- **H2020 & FP9**
- European Commission has stated that H2020 is 'open to the world'
- Indeed, there should be no so-called 'European'-companies-only approach
- Therefore, there should be no IPR-in-EU-only approach
- Consequently, Article 30.3 (of Model Grant Agreement) should not be added to grant agreements as matter of principle/pre-condition
- Unfortunately, European Commission appeared to announce just that during last week's Budapest ICT proposals Day
 - "Commission right to object to transfers or licensing" to be added to all grant agreements – announcement made in context of Big Data calls
- **This approach is a huge risk = show-stopper for many companies**

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Expectations or recommendations for FP9 identified in [Lars Brückner's presentation](#)

The application of [Article 30.3](#) of the Model Grant Agreement to all grant agreements as matter of principle/pre-condition and thus the strict objection to IPR transfers and licensing would be a show-stopper. How do you reconcile it with 'open to the world'? It would heavily affect both foreign affiliates in Europe and European companies doing R&I not only in Europe but globally. R&D&I for companies such as NEC is co-funded by the global HQ and IPR is administered globally, too. If the Commission wants to restrict IPR transfers and licensing. NEC Laboratories Europe would be heavily restricted in its further

participation in EU R&I programmes. A lot of other affiliated companies – not just those from Japan – are worried by this. If this is pushed through successful R&D&I work in Europe, which creates global business opportunities for European companies (e.g. [FIWARE](#)), and indeed Europe's role as a global leader, would be at risk.

Challenges & Expectations

EU-Japan joint calls

- Projects generally are too small - bigger budgets are necessary
- More clarity needed on focus/objective of joint EU-Japan calls:
 - Cooperation or common work/interoperability?
 - Common trials?
 - How to manage with small budgets?
- Clarity on openness and role of affiliated companies in Europe regarding participation in European consortium

Challenges & Expectations

EU-Japan joint calls

- Project (start) information different in EU and Japan
- Separate kick-offs - need for more time to get to know each other
- Coordination is key – as is language
- Advisable to have similar budget sharing
- Different contractual elements: EU consortium has contract with EU - in Japan only coordinator has contract with Japan authorities plus sub-contracts with participants;
- Different types of reporting
- In EU consortium has with EU on NDA, data protection etc. - not in Japan)
- Future: EU-Japan joint calls need to give greater attention to data protection topic

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Expectations or recommendations for Coordinated Calls identified in [Lars Brückner's presentation](#)

Experiences and expectations of Siemens

Eddy Roelants – Siemens

Siemens' investment in R&D has increased by 25% since 2014 and is currently exceeding €5 billion. Siemens has restructured and now focuses on 3 strands – electrification, automation and digitalisation. Siemens has taken part in all 8 of the FPs. In terms of Horizon 2020, Siemens is involved in all 3 pillars, with major focus on pillars 2 & 3 (LEIT & societal challenges) and thus on demonstration projects and the uptake of technologies. Siemens feels that the 3 pillar set-up is consistent with the 'innovation pipeline' and should be retained for the next FP.

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Siemens' interests in Horizon 2020

Pillar I: Excellent science
 • Siemens' interest mainly in FET, and (few) Marie Skłodowska-Curie Actions (MSCA)

Pillar II: Industrial Leadership
 • Main interests in "Leadership in Enabling and Industrial Technologies" (LEIT) because it helps Siemens to strengthen its more basic technological competencies and helps to build up new ones where necessary, e.g. ICT, Robotics, Factories of the Future (Advanced Manufacturing), Big Data Value, Embedded Systems (ECSEL),...

Pillar III: Societal challenges
 • Well aligned with Siemens' original "Megatrends" (Climate Change, Demographic Change, Urbanization and Digitalization), here R&D is coupled to innovation (from idea to market) with help of pilots, large-scale demonstration projects and uptake → **clear improvement compared to FP7!**

→ Proven Track of this 3-pillar setup (reflects the innovation pipeline from low to high TRLs)

→ **Further use of a balanced 3-pillar setup for FP9 strongly recommended!**

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Feedback from passed Horizon 2020 Call Waves

What we liked:

- H2020 = world's largest public funding R&D Framework Program, with a clear 3-pillar structure along the innovation pipeline
- New H2020 Internet Portal (submission, LEAR...) worked very well already from the start
- **Major incentives to participate are:**
 Building up know-how, acquiring new ideas, achieving synergies and critical mass, pre-competitive cross-border cooperation and networking with (potential) customers and suppliers, and acquiring skilled people and talents internationally...
 Funding is a relatively small (but stimulating) incentive for the many used resources (e.g. many proposal preparations that lead to rejections)... but is **not** the main motivation to participate

Observations & improvement potentials:

PRIVATE SECTOR PARTICIPATION INCLUDING SMES (FUNDING)

OVERALL SUCCESS RATE (PROPOSALS)

(Source: DG RTD Annual Monitoring Reports)

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Siemens' interests in, and feedback regarding, Horizon 2020 as identified in [Eddy Roelants' presentation](#)

It is not always necessary to have a joint-call to involve Japanese partners – some calls do not *mandate* Japanese involvement, but see Japanese participation as an asset. Examples of Siemens' publically-funded R&D cooperation with Japan: [VirtuWind](#) (with NEC Europe Ltd.) and [InRel-NPower](#) (with MIE University and Kyushu University) under Horizon 2020; and [GanMobil](#) (with Fujitsu Electronics Europe GmbH) under [funding by the German Federal Ministry of Education and Research](#) (BMBF).

Siemens is actually ranked among the top 3 biggest industrial beneficiaries under Horizon 2020, but money is not its main motivation – just €10-15m/yr of its world-wide yearly R&D expenditure of about €5 billion comes from Horizon 2020 funding. But it is a welcome compensation for preparing the many proposals (many of them in areas of high-risk). The main benefits are acquiring new ideas, critical masses for topics and getting to know skilled people and talents; plus standardisation and pre-standardisation

efforts that start with such projects. Siemens has noted a declining participation of industry and success rate. Firms are under-represented in Horizon 2020 – 64% of R&D expenditure in Europe comes from industry (50% from large companies and 14% from SMEs), but the 26% of public funding is divided equally (13% each) between large companies and SMEs.

Siemens has identified various ways that to improve ‘impact’:

How to maximize impact of FP9?
Definition of Impact

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Definition of impact as provided by the European Commission :

"The term impact describes all the changes which are expected to happen due to the implementation and application of a given policy option/intervention. Such impacts may occur over different timescales, affect different actors and be relevant at different scales (local, regional, national and EU). In an evaluation context, impact refers to the changes associated with a particular intervention which occur over the longer term."

There are multiple ways in which research achieves impact and creates value

E.g.

1. **Increasing the stock of useful knowledge** (e.g. Publications, Patents)
2. **Training skilled people** (Developing human capital)
3. **Creating new scientific instrumentation and methodologies and collaborating with users** in the use of such facilities or processes – e.g. CERN, or the use of MRI what originates from use first in analytical chemistry
4. **Collaborating in research projects and networks with users** (Co-Production of knowledge, interdisciplinary approaches)

Remark: Impact cannot always be measured quantitatively, sometimes impact can only be described qualitatively (eg. for EIT KICs it can look at the ability to create networks)

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8 points on impact (Summary)

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How to Maximize Impact – our 8 Points / recommendations:

1. **Mission driven approach is supported** (continuation of SC pillars under Horizon 2020 – ensure **interdisciplinary approach / Technology neutrality** – non prescriptive (how to achieve the mission) – see also Larry Report
2. **Further increase industry participation** in cooperation R&D projects (2/3 R&D exp in EU only ca. 26% funding goes to industry)
3. **Further measures to increase the success rates, to reduce administrative burdens** to get more industry on board. **Introduce higher flexibility in the calls.**
4. **Use existing good practices** in PPPs or JTIs to measure or evaluate impact ("Hard" or "Soft" KPIs)
5. **Need for systemic innovation to transform whole systems through an interdisciplinary approach** – new KETs as building blocks required (we call these CCTS – eg. Cybersecurity as one of them)
6. **Right framework conditions for innovation are needed: a more risk-taking culture, skilled labor force and an innovation-friendly regulatory environment.** Consistent application of the "Innovation Principle"
7. **For mission driven R&D, often regulatory/policy initiatives will be needed to stimulate the intro of new technologies or the phasing out of older ones,** e.g. more polluting technologies, when addressing Climate Change (e.g. EPS of 550 g CO₂/kWh).
8. **Enhanced coordination/synchronization of EU R&D&I work programs** (H2020/FP9) and Structural & Cohesion funds (ESIF) & EFSI (Juncker Plan) **with national and regional efforts** (especially for mission driven R&D)


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Expectations or recommendations for Coordinated Calls identified in [Eddy Roelants' presentation](#)

It is important that there is an inter-disciplinary approach rather than ‘silos’ (contrary to Horizon 2020 where some parts are run by DG RTD and some by DG CNECT, for example). When the Commission defines a mission it should define the problem and what should be solved, but *not* the technology to use. The proportion of evaluators from industry (as opposed to academics) should be increased and should match that of the consortia applying. The current structure of involving academics, industry and research institutes should be retained for FP9. Although the average success rate is c.15%, Siemens reached an average success rate around 30% thanks to it being very selective and only getting involved with projects that it makes sense to be a part of. Cost claims and accounting obligations should be further simplified, there should also be greater project flexibility (e.g. adapting the project during progress). Sometimes the focus on ‘impacts’ is exaggerated because it is often not easy to estimate.

In addition to the ‘[precautionary principle](#)’ also the ‘innovation principle’ with a more risk-taking culture should be consistently applied to new legislative or policy proposals. Policies or legislation should also be used to stimulate the uptake of new technologies and/or phase out older ones. E.g. to encourage the phasing out of older polluting energy technologies, one could set a performance standard ‘ceiling’ of 550 grams CO₂ per kWh and thereby stimulate the uptake of newer, greener energy generating technologies.

There has been some discussion as to whether large companies should be entitled to public funds under FP9. As explained above, the money is not the main motivating factor explaining large companies’ involvement in projects. However, without that possibility, large companies would probably become even more selective about the projects they engaged in and that could disrupt the current proven ‘ecosystem’ where small & large companies, universities & research institutes cooperate.



General recommendations for FP9

- **Increased budget** for FP9 compared to Horizon 2020, in order to strengthen the EU in the global knowledge economy
- Continue with a **well-balanced 3-pillar structure**, including EIC & LEIT in the central pillar
- **Retain financial incentives (grants) for large firms** to join FP9 (question addressed to the FP9 HLG1)
 - To continue the proven innovation ecosystem and collaborative R&D environment of large firms, SMEs, universities and research institutes built up in 30+ years of successive FPs
 - To keep Europe attractive as location for research and innovation
 - Large firms account for half of EU R&D, but receive no more than 13% of H2020 funding – “small” incentive compensates for all proposal preparatory work, for 3-4/5 rejected proposals
 - To ensure impact on economy and society
- **Continue (and expand where appropriate) successful contractual PPPs and JTI**s with their industry driven strategic R&D agenda
- **Continue addressing societal challenges**; a mission-oriented approach could be considered

→ No “revolution” but evolution !

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**General recommendations for FP9 from
[Eddy Roelants' presentation](#)**

Q&A to both NEC and Siemens

- *Is there any statistical evidence that by taking part in Horizon 2020 or equivalent programmes you are more likely to get standardisation?* By taking part in a consortium working part on a same topic (e.g. an industry 4.0 project for M2M data exchanges) you can be in a pre-standardisation phase – as a result of involving key practitioners, the first ideas for standards can appear. When doing the long-term preparation work for a proposal you cannot give exact figures for standardisation. NEC's motivation for taking part in a project could be linked to standardisation possibilities.
- *Given anyone can become an evaluator, why are there insufficient numbers of industrial evaluators? A lack of candidates from industry people or a problem in the Commission that it is not allocating the right proposals to the evaluators?* The remote part of the evaluation is not a problem, but operational level people lack the time to come to Brussels for 4 days of evaluation hearings – video-conferencing should be used.
- *What is the European Commission justification for the Article 30.3 IPR / licensing issue?* This is not a new issue. It was part of the discussion in the EU institutions. NEC has been able to negotiate this requirement away based on clear arguments. Quite often that negotiation was part of the eventual individual project discussion. What is new is that the Commission officially announced this will be a core element of *all* the grant agreements. If the Commission follows through, it would be a ‘show-stopper’. It was less of a show-stopper for Siemens (being based in Europe), but is still in issue if it wanted to use the technology outside the EU. [Robert-Jan Smits](#) has talked about a ‘deploy it in Europe first’ policy, but this would be contrary to the ‘open to the world’ tenet and also potentially contrary to business sense – preventing a new technology from being deployed where demand is strongest. We need to check whether this would apply in all areas or to specific sensitive topics.
- *How do we address a better balance than ‘impact’ that would be acceptable to the European Commission?* NEC feels that the ‘impact’ / KPI focus is by no means bad and should *not* be abolished; but maybe ‘impact’ has been misunderstood – you feel that you have to promise more than you know you can deliver. Overall, we seemed to have arrived at a situation where sometimes to be successful you almost have to make up something, even if what you have previously achieved is good.
- *Lambrecht – Where does the low success rate come from?* A heavy over-subscription of good proposals in response to many calls.

Marco Canton undertook to follow up with Ms Haglund-Morrissey and Mr Roger to relay the comments that were discussed during the second part of the seminar.

Closing remarks

Aiko Higuchi – EU-Japan Centre for Industrial Cooperation

Thanked the participants for taking part and explained the background and the plans for follow-up actions for the seminar.