Horizon 2020 Webinar
NMBP Calls In 2020
1st September 2019
Confidential

WHAT & WHO?

BUSINESS
FINLAND

What Money 4 Which Purpose?

	Finland	EU
R&D&I	Business Finland	Horizon 2020
Working Capital	Finnvera	EIB
Investments	Finnvera	EIB
Transactions	Finnvera	EIB

Structure of €77B Horizon 2020

I Excellent Science

1. European Research Council (ERC): frontier research
2. Future and Emerging Technologies (FET).
   a) Open
   b) Proactive
   c) Flagships
3. Marie Skłodowska-Curie (MSCA) – actions:
   training, career development and mobility for researchers
4. Research Infrastructures

II Industrial Leadership

1. Leadership in Enabling and Industrial Technologies
   - 1.1. ICT
   - 1.2. nanotechnology
   - 1.3. materials
   - 1.4. biotechnology
   - 1.5. manufacturing and processing
   - 1.6. space
2. Risk finance:
   loans & equity funding
3. Innovation in SMEs

20% of the budget or pillars II + III to SMEs
- SME Instrument(1/3)
- Collaborative projects (2/3)

III Societal Challenges

1. Health, demographic change and wellbeing
2. Food security, sustainable agriculture and forestry, marine, maritime and inland water research and bioeconomy
3. Secure, clean and efficient energy
4. Smart, green and integrtaed transport
5. Climate action, resource efficiency and raw materials
6. Europe in a changing world: inclusive, innovative and reflective societies
7. Secure societies – protecting freedom and security of Europe and its citizens

Also: European institute of innovation and technology, Science with and for society, Spreading excellence and widening participation

IV Joint Research Center JRC, excl. nuclear

Nuclear research: EURATOM

TECHNOLOGY VS CALL TYPES IN A NUTSHELL

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Technology Readiness Levels [Academic + Applied Research]

TRL 1 – Basic principles observed

TRL 2 – Technology concept formulated

TRL 3 – Experimental proof of concept

<!-- Companies' R&D starts from here -->

TRL 4 – Technology validated in lab

TRL 5 – Technology validated in relevant environment

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Technology Readiness Levels [Applied + Industrial R&D&I]

TRL 6 – Technology demonstrated in relevant environment **(~“MVP”)**

TRL 7 – System prototype demonstration in operational environment **(~“Pilot”)**

TRL 8 – System complete and qualified

<!-- Companies’ R&D ends here -->

TRL 9 – Actual system proven in operational environment

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RIA/IA Call Types & Funding (=Where The Money Is)

- **Top-down | Commercial Time Horizon ~3-5 yr**
  * 70 % grant for profit (100 % for non-profit)
  * Innovation Action (IA): TRL ~6-8 (~BF Co-Innovation)

- **Top-down | Commercial Time Horizon ~5-8 yr**
  * 100 % grant for profit / non-profit
  * Research and Innovation Action (RIA): TRL ~4-6 (~AoF+VTT)

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RIA/IA NMBP CALLS IN 2020

[1st Sept. 2019]

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Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

Three Calls:

1. FOUNDATIONS FOR TOMORROW'S INDUSTRY -The purpose of this call is to lay the foundations for tomorrow's industry in Europe, and to create jobs and growth through an innovation ecosystem for the design, development, testing, and upscaling of advanced materials and nanotechnologies. This should enable a vast array of applications and facilitate innovators to bring their disruptive ideas to the market. Success will be seen in an effective eco-system allowing innovators to overcome the technological and regulatory barriers.
2. TRANSFORMING EUROPEAN INDUSTRY - The purpose of this call is to transform European industry through the integration of digitisation and other enabling technologies and achieve global industrial leadership. Success will be seen in global industrial leadership, notably in manufacturing, and in opportunities for re-industrialisation
3. INDUSTRIAL SUSTAINABILITY - The purpose of this call is to further strengthen the global leadership of Europe's industry in environmental sustainability, through a combination of mature and disruptive technologies. Success will be seen in making measurable contributions to identified sustainable development goals

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FOUNDATIONS FOR TOMORROW'S INDUSTRY

- OPEN INNOVATION TEST BEDS
- DT-NMBP-04-2020: Open Innovation Test Beds for nanoenabled bio-based materials (IA)
  - Innovation action EU contribution between €7m and €15m
  - Call id: H2020-NMBP-TO-IND-2018-2020

- DT-NMBP-05-2020: Open Innovation Test Beds for materials for building envelopes (IA)
  - Innovation action EU contribution between €7m and €15m
  - Call id: H2020-NMBP-TO-IND-2018-2020

- DT-NMBP-06-2020: Open Innovation Test Beds for nanopharmaceuticals production (IA)
  - Innovation action EU contribution between €7m and €15m
  - H2020-NMBP-TO-IND-2018-2020

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How to read the Work Programme

- DT-NMBP-04-2020: Open Innovation Test Beds for nano-enabled bio-based materials (IA)
- Specific Challenge: Nano-enabled bio-based materials can contribute to a stronger circular economy and more sustainable growth, with due consideration to life-cycle impact as well as their potential to substitute scarce materials. Novel approaches should be deployed for industry to produce new, eco-friendly, nano-enabled bio-based materials with advanced properties and functionalities relevant for various applications.
- The challenge is to upscale and demonstrate in an industrial environment the sustainable conversion of different types of feedstock and bio resources in value-added novel, advanced, nano-enhanced bio-based materials and their application in products.
- Scope:
- □ Establish Open Innovation Test Beds (OITB) by upgrading existing or developing new materials facilities and pilot lines, and make available to industry and interested parties, including SMEs, their services for the design, development, testing, regulatory (including safety) and environmental assessment, and upscaling of specific material compositions;
- □ The focus is on new nano-enabled bio-based materials' functions, features, capabilities, robustness and properties, processing techniques and optimisation of process parameters, from the transformation of bio-based building blocks and to the production of new, ecofriendly, nano-enabled bio-based materials relevant to various applications, covering the full scale of new or existing industrial and consumer products;
- □ Proposals should assess regulatory, safety, economic and technical barriers and should develop and validate tools to enable in-line quality control processes;
- □ Open access at fair conditions and cost as well as outreach and dissemination across Europe, based on a distinct methodology;
- □ Materials should be demonstrated in relevant industrial environments;
- Proposals submitted under this topic are encouraged to include actions designed to facilitate cooperation, across Europe, with other projects; to enhance user involvement; and to ensure the accessibility and reusability of data produced in the course of the project.
- Proposals should therefore include a business case and exploitation strategy, as outlined in the LEIT Introduction in this Work Programme. In particular, they should demonstrate the likelihood of an additional turnover of at least 4 times the requested EU funding, within 5 years of the end of the grant.

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How to read the Work Programme

- Activities should start at TRL 4 and achieve TRL 7 at the end of the project.
- The Commission considers that proposals requesting a contribution from the EU between EUR 7 and 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.
- Expected Impact: The Open Innovation Test Bed should help industrialise a new generation of nano-enabled bio-based materials. Proposals must address all the following impact criteria:
- □ Realisation of open and upgraded facilities at the EU level for the design, development, testing, safety assessment, and upscaling of nano-enabled bio-based materials, easily accessible to users across different regions of Europe;
- □ At least a 20% increase in the number of new SME users for existing test beds;
- □ At least 15% improved industrial process parameters and 20% faster verification of materials performance for highly promising applications;
- □ At least 20% improvement in industrial productivity, reliability, environmental performance, durability, and reduction of life-cycle costs of these materials;
- □ Facilitating access to finance (for SMEs in particular) for investing in these materials or in applications using them;
- □ Identification of regulatory requirements and regulatory barriers to market introduction.
- Relevant indicators and metrics, with baseline values, should be clearly stated in the proposal.
- Type of Action: Innovation action

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FOUNDATIONS FOR TOMORROW'S INDUSTRY

- MATERIALS CHARACTERISATION and COMPUTATIONAL MODELLING
- DT-NMBP-11-2020: Open Innovation Platform for Materials Modelling (RIA)
  - Research and Innovation action EU contribution between €4m and €5m
  - H2020-NMBP-TO-IND-2018-2020

- NMBP-35-2020: Towards harmonised characterisation protocols in NMBP (RIA)
  - Research and Innovation action EU contribution between €4m and €6m
  - H2020-NMBP-TO-IND-2018-2020

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FOUNDATIONS FOR TOMORROW'S INDUSTRY

- GOVERNANCE, SCIENCE-BASED RISK ASSESSMENT AND REGULATORY ASPECTS
- NMBP-16-2020: Safe by design, from science to regulation: multi-component nanomaterials (RIA)
  - Research and Innovation action EU contribution between €6m and €8m
  - H2020-NMBP-TO-IND-20182020

- NMBP-36-2020: Monitoring and safety of transport infrastructures (CSA)
  - Coordination and support action EU contribution around €2m
  - H2020-NMBP-TO-IND-20182020

- NMBP-37-2020: Incentivising newcomers (CSA)
  - Coordination and support action EU contribution around €1.5m
  - H2020-NMBP-TO-IND-20182020

- NMBP-38-2020: Citizens and industrial technologies (CSA)
  - Coordination and support action EU contribution around €1.5m
  - H2020-NMBP-TO-IND-20182020

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FOUNDATIONS FOR TOMORROW'S INDUSTRY

- INDUSTRY COMMONS
- DT-NMBP-39-2020: Towards Standardised Documentation of Data through taxonomies and ontologies (CSA)
  - Coordination and support action EU contribution around €4m
  - H2020-NMBP-TO-IND-20182020
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- DT-NMBP-40-2020: Creating an open market place for industrial data (RIA)
  - Research and Innovation action EU contribution around €4m
  - H2020-NMBP-TO-IND-20182020

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TRANSFORMING EUROPEAN INDUSTRY

- FACTORIES OF THE FUTURE (FOF)
- DT-FOF-07-2020: Assembly of micro parts (RIA)
  - Research and Innovation action EU contribution between €8m and €10m
  - H2020-NMBP-TR-IND-20182020
- DT-FOF-09-2020: Energy-efficient manufacturing system management (IA)
  - Innovation action EU contribution between €8m and €10m
  - H2020-NMBP-TR-IND-20182020
- DT-FOF-10-2020: Pilot lines for large-part high-precision manufacturing (IA 50%)
  - Innovation action EU contribution between €12m and €15m
  - H2020-NMBP-TR-IND-20182020
- DT-FOF-11-2020: Quality control in smart manufacturing (IA)
  - Innovation action EU contribution between €8m and €10m
  - H2020-NMBP-TR-IND-20182020

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TRANSFORMING EUROPEAN INDUSTRY

- BIOTECHNOLOGY
- BIOTEC-06-2020: Reprogrammed microorganisms for biological sensors (IA)
  - Innovation action EU contribution between €6m and €8m
  - H2020-NMBP-TR-IND-20182020

- BIOTEC-07-2020: Multi-omics for genotype-phenotype associations (RIA)
  - Research and Innovation action EU contribution between €6m and €8m
  - H2020-NMBP-TR-IND-20182020

- CE-BIOTEC-08-2020: New biotechnologies to remediate harmful contaminants (RIA)
  - Research and Innovation action EU contribution between €4m and €5m
  - H2020-NMBP-TR-IND-20182020

- CE-BIOTEC-09-2020: Upcycling Bio Plastics of food and drinks packaging (RIA)
  - Research and Innovation action EU contribution between €6m and €8m
  - H2020-NMBP-TR-IND-20182020

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TRANSFORMING EUROPEAN INDUSTRY

MEDICAL TECHNOLOGY INNOVATIONS

- NMBP-21-2020: Biological scaffolds for tissue regeneration and repair (RIA)
  - Research and Innovation action EU contribution between €4m and €6m
  - H2020-NMBP-TR-IND-20182020

- DT-NMBP-23-2020: Next generation organ-on-chip (RIA-LS)
  - Innovation action Lump Sum EU contribution between €4m and €6m
  - H2020-NMBP-TR-IND-20182020

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INDUSTRIAL SUSTAINABILITY

SUSTAINABLE PROCESS INDUSTRY (SPIRE)

- LC-SPIRE-08-2020: Novel high performance materials and components (RIA)
  - Research and Innovation action EU contribution between €4m and €6m
  - H2020-NMBP-ST-IND-20182020

- DT-SPIRE-11-2020: Artificial Intelligence and Big Data Technologies for Process Industries (CSA)
  - Coordination and support action EU contribution between €0.4m and €0.6m
  - H2020-NMBP-ST-IND-20182020

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INDUSTRIAL SUSTAINABILITY

CATALYSING THE CIRCULAR ECONOMY
CLEAN ENERGY THROUGH INNOVATIVE MATERIALS

- LC-NMBP-31-2020: Materials for off shore energy (IA)
  - Innovation action EU contribution between €5m and €7m
  - H2020-NMBP-ST-IND-20182020

CULTURAL HERITAGE
ENERGY-EFFICIENT BUILDINGS (EEB)

- LC-EEB-04-2020: Industrialisation of building envelope kits for the renovation market (IA)
  - Innovation action EU contribution between €6m and €8m
  - H2020-NMBP-ST-IND-20182020

- LC-EEB-07-2020: Smart Operation of Proactive Residential Buildings (IA)
  - Innovation action EU contribution between €6m and €8m
  - H2020-NMBP-ST-IND-20182020

- LC-EEB-08-2020: Digital Building Twins (RIA) Research and Innovation action EU contribution between €5m and €6m
  - H2020-NMBP-ST-IND-20182020

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INDUSTRIAL SUSTAINABILITY

Contribution to COMPETITIVE, LOW CARBON AND CIRCULAR INDUSTRIES

- CE-NMBP-41-2020: ERA-NET on materials, supporting the circular economy and sustainable-development-goals
  - H2020-LOW-CARBONCIRCULAR-INDUSTRIES-2020
- CE-NMBP-42-2020: Materials life cycle sustainability analysis (RIA)
  - H2020-LOW-CARBONCIRCULAR-INDUSTRIES-2020
- CE-SPIRE-01-2020: Tapping into the potential of Industrial Symbiosis (IA)
  - H2020-LOW-CARBONCIRCULAR-INDUSTRIES-2020

- CE-SPIRE-07-2020: Preserving fresh water: recycling industrial waters industry (IA)
  - H2020-LOW-CARBONCIRCULAR-INDUSTRIES-2020

- CE-SPIRE-09-2020: Alternative mineral resources for high volume production (IA)
  - H2020-LOW-CARBONCIRCULAR-INDUSTRIES-2020

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Cross-Cutting activities

Large-scale research initiative on Future Battery Technologies” under Cross-cutting activities. LC-BAT-12-2020 to 15-2020 (RIA and CSA) (Cross-cutting WP) with a budget of 42 MEUR. DL 16.01.2020:

- LCBAT-12-2020 (RIA): Novel methodologies for autonomous discovery of advanced battery chemistries The performance and durability of batteries are limited due to insufficient knowledge in managing the complex processes taking place in the materials and in particular at the interfaces/interphases.
- LCBAT-13-2020 (RIA): Sensing functionalities for smart battery cell chemistries To incorporate functionalities into the battery cell for following relevant cell component parameters.
- LCBAT-14-2020 (RIA): Self-healing functionalities for long lasting battery cell chemistries Increased efforts in ensuring battery quality, reliability and life (QRL).
- LCBAT-15-2020 (CSA): Coordinate and support the large-scale research initiative on Future Battery Technologies: To network and coordinate the large scale research initiative on Future Battery Technologies and its contribution to the broader efforts of the European research and innovation stakeholders

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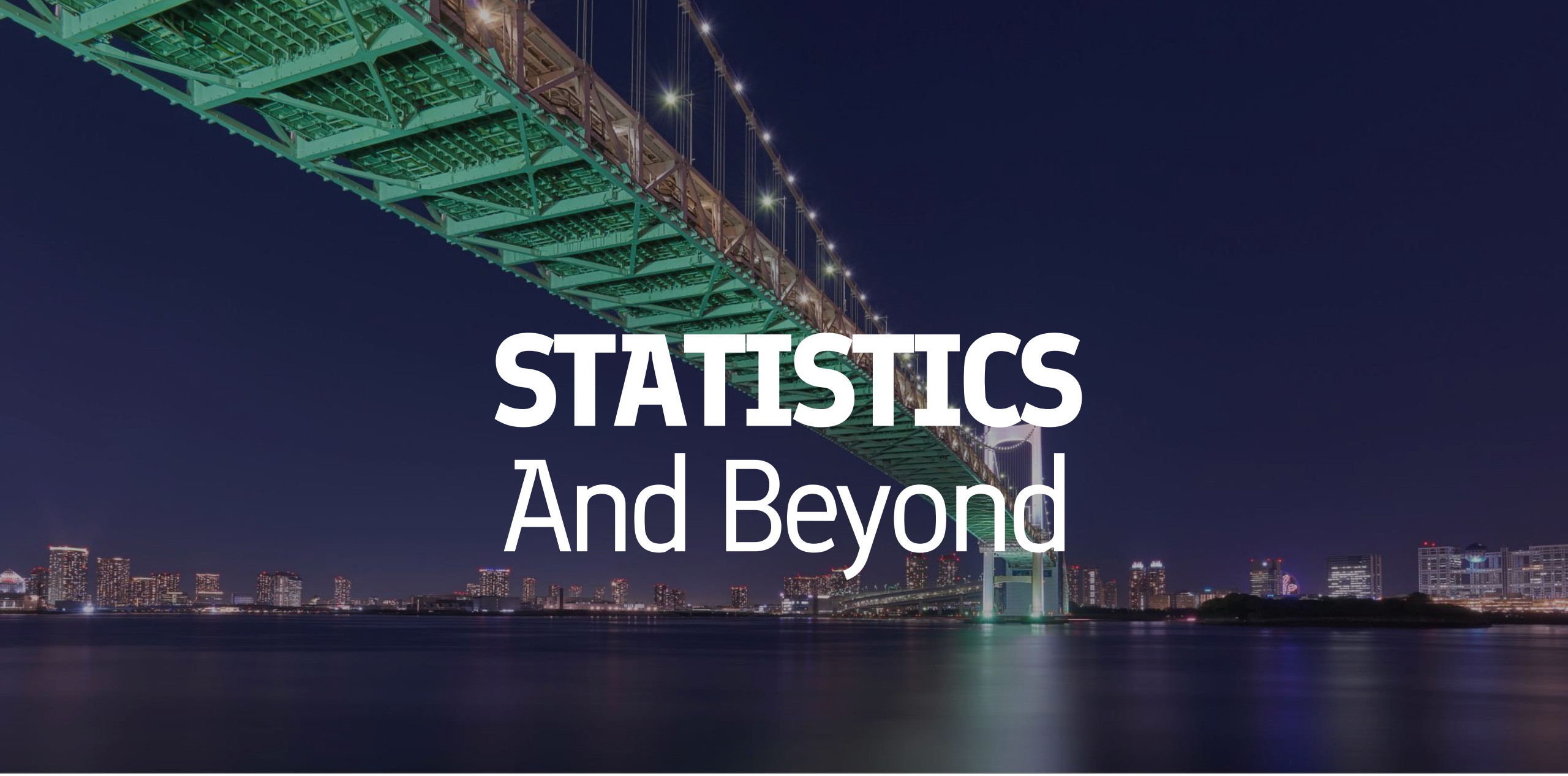
Calls to act 3rd of Sept!

- **CALL: FOUNDATIONS FOR TOMORROW'S INDUSTRY**
- DT-NMBP-12-2019: Sustainable Nano-Fabrication (CSA)

Second stage of two stage calls

- **CALL: FOUNDATIONS FOR TOMORROW'S INDUSTRY**
- DT-NMBP-03-2019: Open Innovation Test Beds for nano-enabled surfaces and membranes (IA)
- DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)
- DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)
- NMBP-15-2019: Safe by design, from science to regulation: metrics and main sectors (RIA)
-
- **CALL: TRANSFORMING EUROPEAN INDUSTRY**
- BIOTEC-02-2019: Boosting the efficiency of photosynthesis (RIA)
- DT-NMBP-18-2019: Materials, manufacturing processes and devices for organic and large area electronics (IA)
- DT-NMBP-19-2019: Advanced materials for additive manufacturing (IA)
-
- **CALL: INDUSTRIAL SUSTAINABILITY**
- CE-NMBP-25-2019: Photocatalytic synthesis (RIA)
- LC-NMBP-29-2019: Materials for non-battery based energy storage (RIA)
- LC-NMBP-32-2019: Smart materials, systems and structures for energy harvesting (RIA)



STATISTICS
And Beyond

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1 Jan 2014 – 15 April 2019

- ✓Total EC Contibution to Finland: EUR 910M .
- ✓Finnish success rate for funding is typically ca 15 % but varies upon the calls.
- ✓Success rates jump typically to 20-30 % when having existing networks with cPPPs and European technology platforms.
- ✓Finnish success rate below the EU-average
- ✓How to increase success rate?

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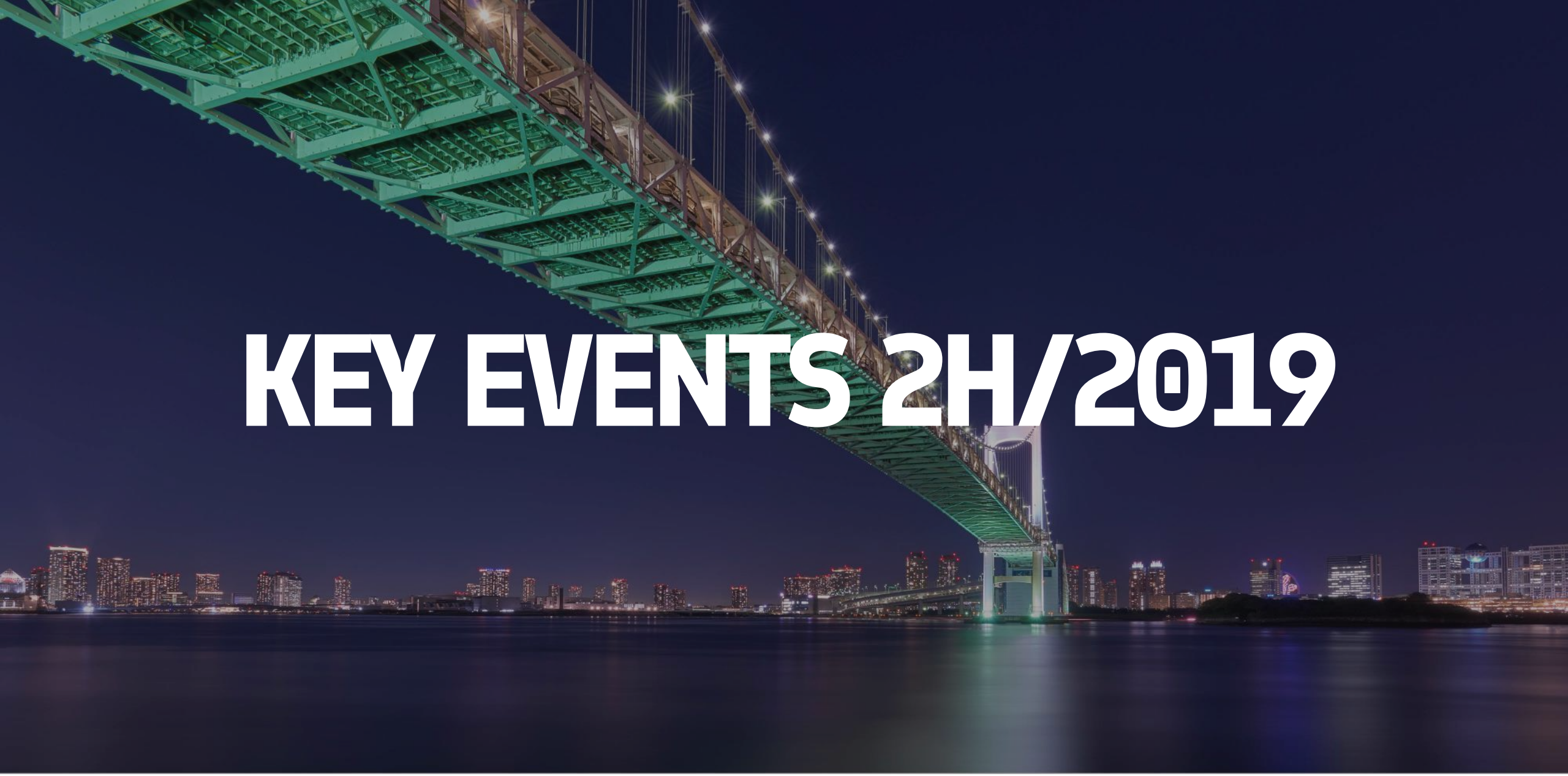
Key Platforms (cPPPs)

- Factories of the Future (http://www.effra.eu)
- Energy-efficient Buildings (http://e2b.ectp.org)
- European Green Vehicles Initiative (http://www.egvi.eu)
- Sustainable Process Industry (https://www.spire2030.eu)
- Photonics (http://www.photonics21.org)
- Robotics (https://eu-robotics.net)



KEY EVENTS 2H/2019

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Key NMBP related Events during Finnish Presidency

European Days for Sustainable Circular Economy 30.9.-1.10.2019

- **CE 2019 Conference** – Sustainable transition to a low-carbon, climate resilient circular economy: creating the knowledge base
- **SI 2019 Conference** – Sustainable innovation

MANUFUTURE 2019 (30 Sep – 1 Oct)

MANUFUTURE 2019 is part of Sustainable Days 30.9. – 1.10. The event for 750 people is organized in collaboration with the Ministry of Environment, DIMECC and others.

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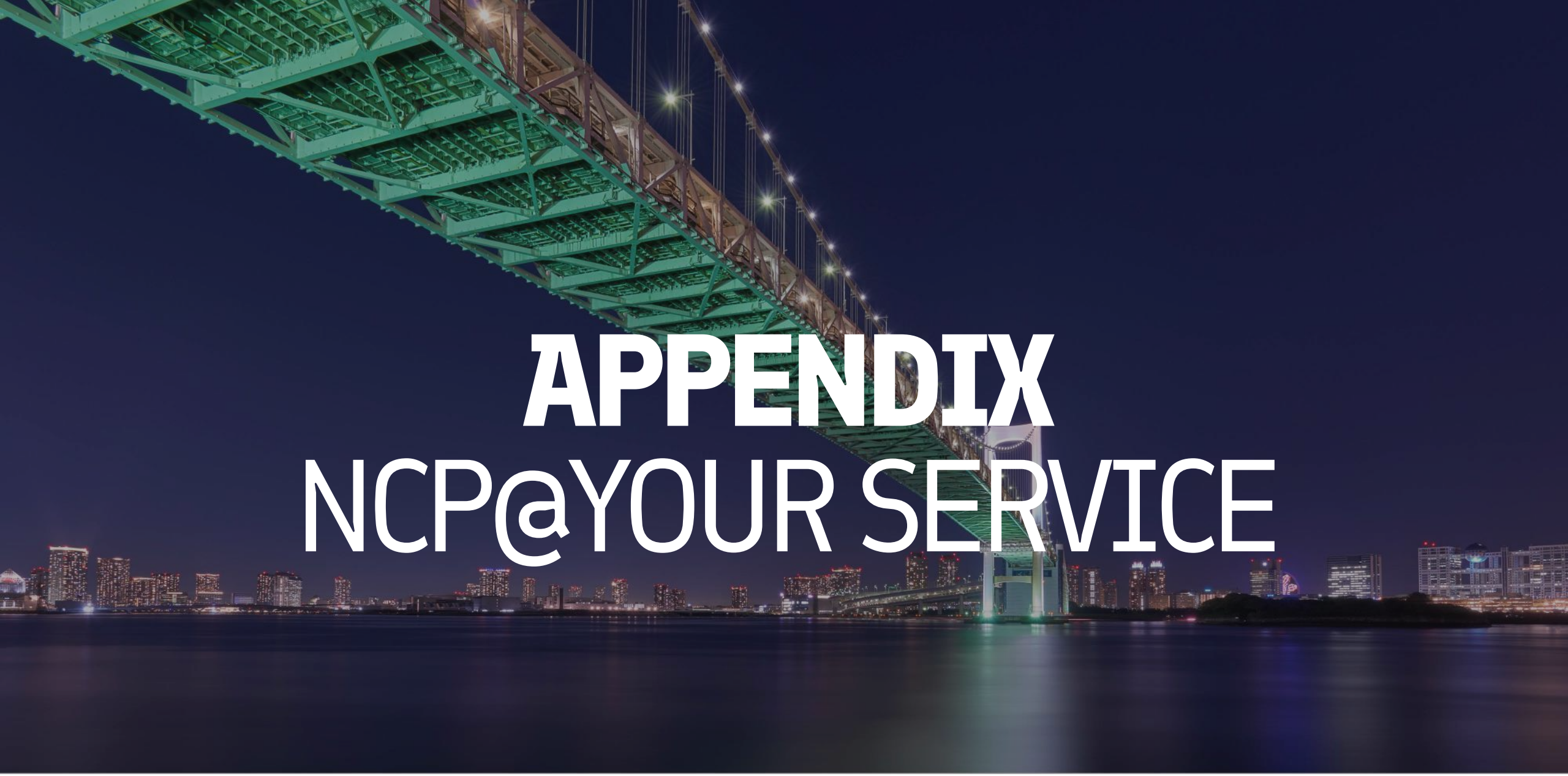
Key NMBP related Events, cont.

EFECS - European Forum for Electronic Components and Systems (19 – 21 Nov)

EFECS 19. – 21.11.2019 is the international forum with a focus on 'Our Digital Future' along the Electronic Components and Systems value chain in Europe. The organizers of the event include ECSEL Joint Undertaking and the European Commission, in association with EUREKA. Around 700 participants are expected.



APPENDIX
NCP@YOUR SERVICE

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What a NCP Can Do 4 You in Practise? (1)

- ✓To inform and to provide general and specific info about calls, conditions and offer Commission's annotated info behind calls.
- ✓To assist, advise and train e.g. about project submission, budgeting and reporting. Offers project proposal second opinion & pitching coaching.
- ✓All difficult questions are welcome and NCP has direct contacts to solve them from European Commission.
- ✓Signposting and cooperation with other funding opportunities (national & international).

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What a NCP Can Do 4 You in Practise? (2)

- ✓Finnish NCPs act as a co-delegate and expert members in different theme focused committees (e.g. ICT, Health, Security) in order to provide hints where EC R&D activities, funding instruments and conditions are going.
- ✓Business Finland has close cooperation nationally between Academy of Finland, VTT, Sitra, different ministries and key stakeholders to affect e.g. Finnish proposal bilateral discussions with Commission and to join forces with other delegates/NCPs.

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What a NCP Can Do 4 You in Practise? (3)

- ✓Also possibility to use national voice to foster Finnish research and innovation in the short term & in the long run (2021-2027).
- ✓NCP can provide call statistics, conclusions and reasons behind success rates. NCP has the access to all proposal Evaluation Summary Reports which provide valuable information about different consortia and lessons to learn.
- ✓Business Finland NCPs have the access to Business Finland customer portfolio (research and corporate projects) which helps to build either domestic and international consortia.

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What a NCP Can Do 4 You in Practise? (4)

- ✓Business Finland has close cooperation between e.g. Sweden, Norway and Japan which helps to organize other type of international R&D funding beyond European Commission.
- ✓Knows about the key technology platforms, PPPs and events in EU in advance.
- ✓Last but not least: no conflicts of interest.

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FURTHER INFO

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Who Knows What and Where?

- ✓Finnish Horizon 2020 Contacts & Organizations
  https://bit.ly/2TYayVo
- ✓Marie Skłodowska-Curie Actions
  https://ec.europa.eu/research/mariecurieactions/
- ✓EIB | Blending & Lending
  http://www.eib.org/en/products/blending/index.htm
  http://www.eib.org/en/products/lending/index.htm
- ✓EIB | Finland | Loan/guarantee & equity/VC
  https://bit.ly/2WmAHtv

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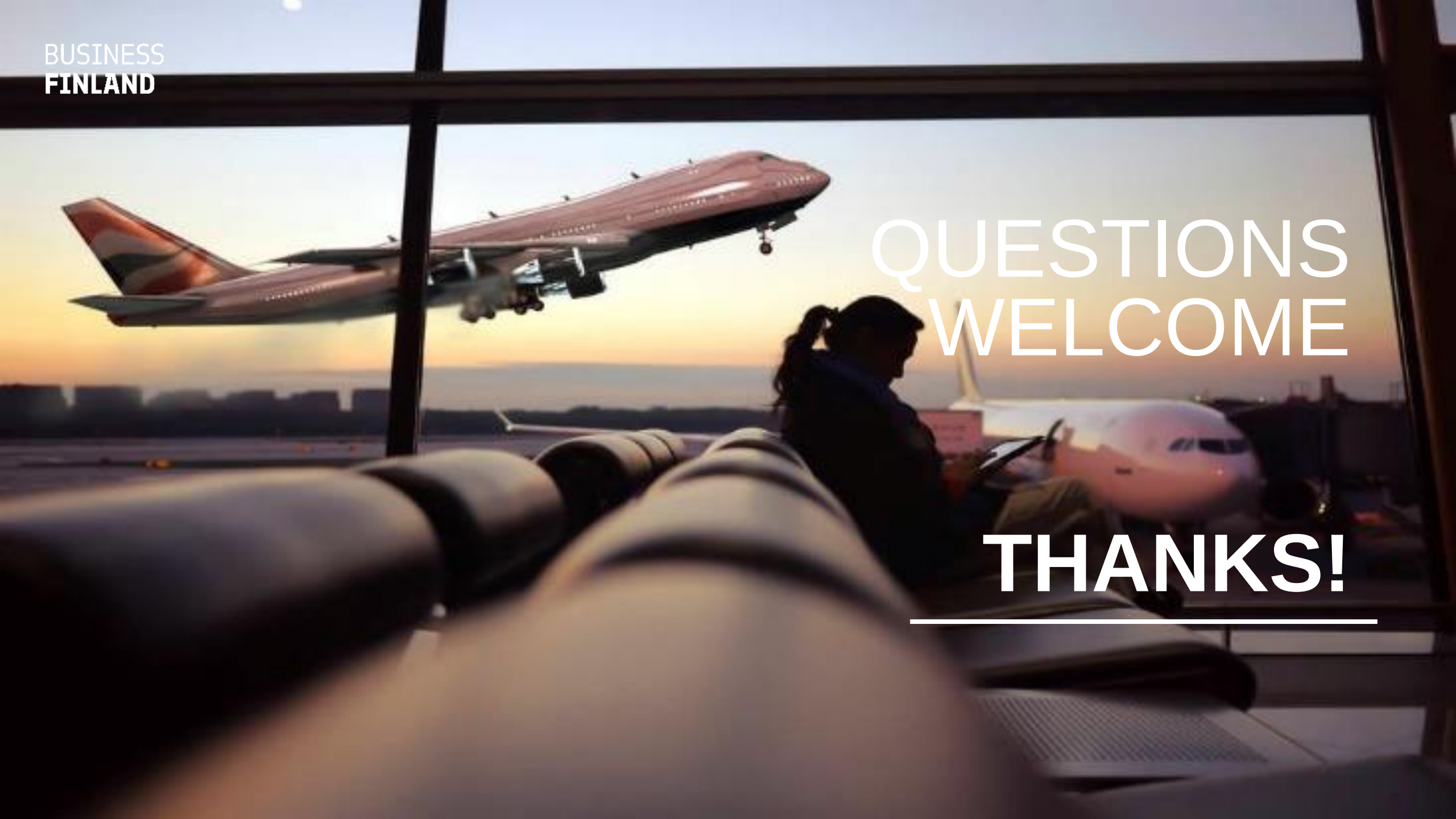

QUESTIONS
WELCOME

THANKS!

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WORLD **IDEAS**

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