Connected Intelligent Industries
Horizon 2020
2 Dec 2019
Non-Confidential

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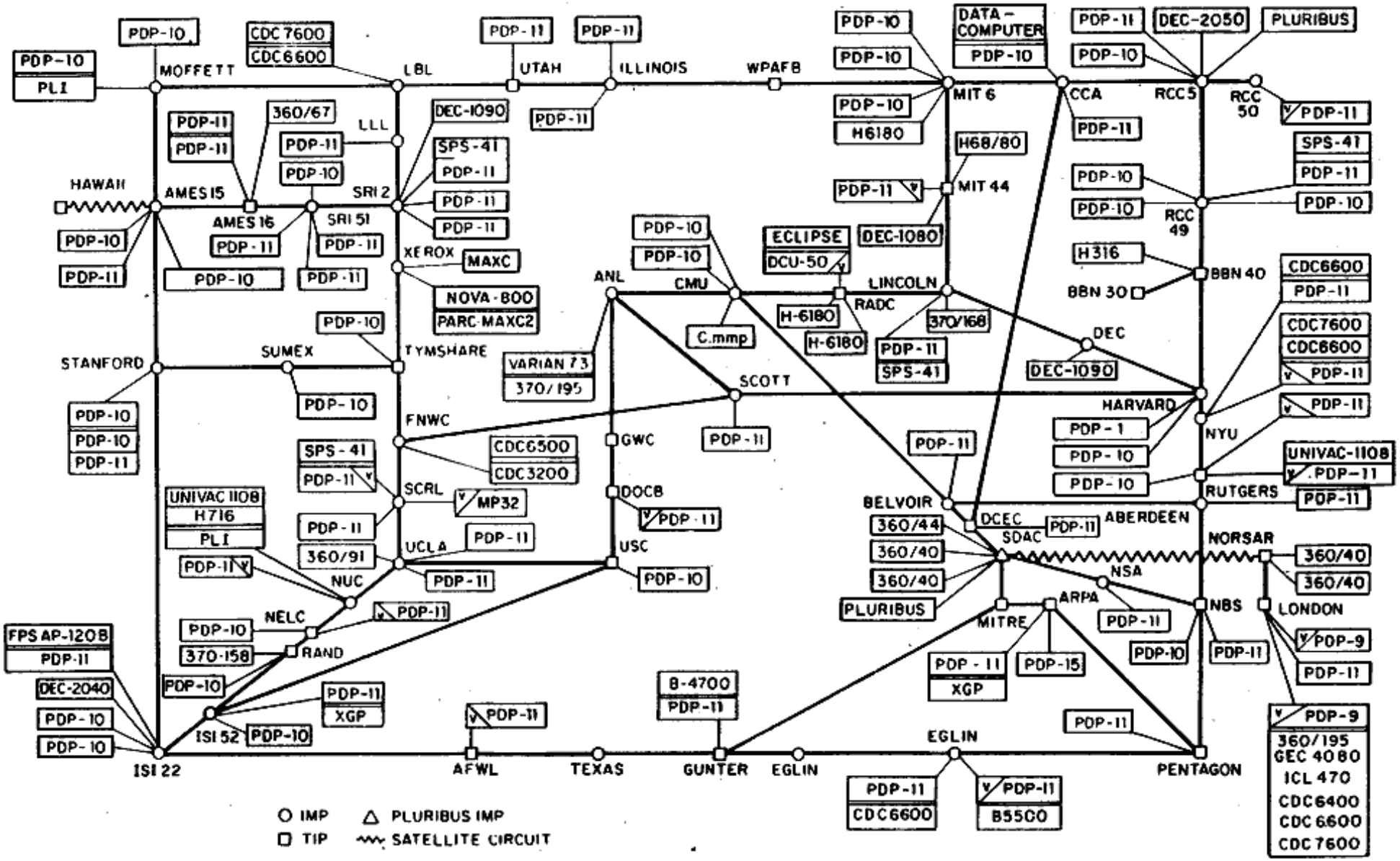
ARPANET LOGICAL MAP, MARCH 1977



(PLEASE NOTE THAT WHILE THIS MAP SHOWS THE HOST POPULATION OF THE NETWORK ACCORDING TO THE BEST INFORMATION OBTAINABLE, NO CLAIM CAN BE MADE FOR ITS ACCURACY)

NAMES SHOWN ARE IMP NAMES, NOT (NECESSARILY) HOST NAMES

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What Money 4 Which Purpose?

	Finland	EU
R&D&I	BF (Gr, R&D L)	Horizon 2020 (Gr)
Working Capital	Finnvera (Guar, L)	EIB (Guar, L)
Investments	Finnvera (Guar, L)	EIB (Guar, L)
Transactions	Finnvera (Guar, L)	EIB (Guar, L)
Anything	BFVC, Tesi (EQ., VC)	EU (EQ., VC)

Structure of €77B Horizon 2020 (2014-2020)

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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TOP 4 Call Types 4 Companies

- **Bottom-up | Commercial Time Horizon <3 yr (70 %)**
  EIC Accelerator ('SME-2'): TRL 6-9 (~BF | YIC)
  Fast Track to Innovation: TRL ~6-8 (~BF | Co-Innovation)

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

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

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EIC Accelerator

Develop business concept further into a market-ready product, service or process aligned with your company's growth strategy. Activities could, for example, include trials, prototyping, validation, demonstration and testing in real-world conditions, and market replication. Grants will finance activities from TRL 6-8. Activities above TRL 8 will financed only through blended finance.

- Project funding of €0.5-2.5M for 12-24 months + blended finance as an option of €0.5-15M.

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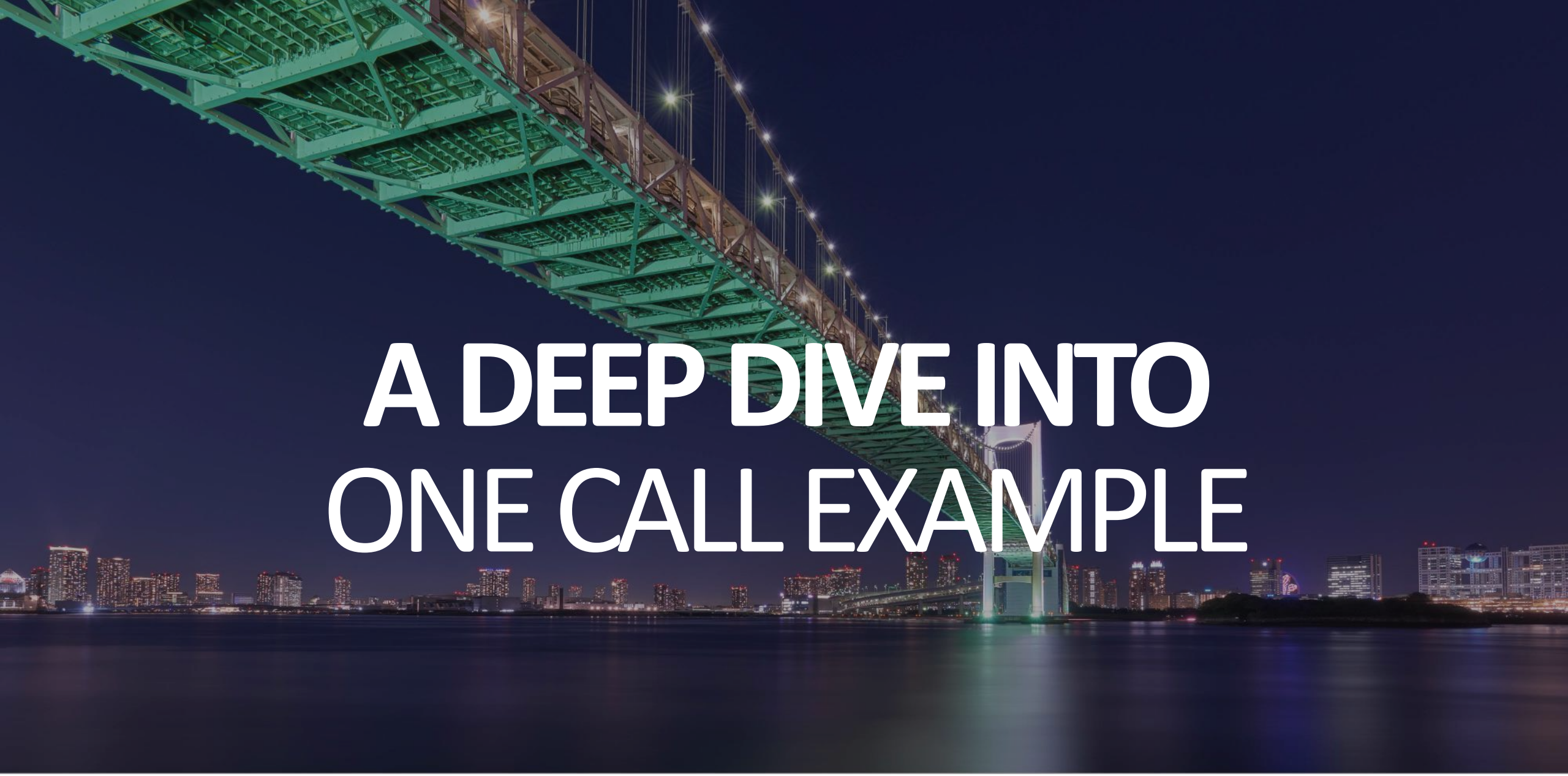
Fast Track to Innovation (FTI)

Fully-bottom-up innovation support programme promoting close-to-the-market innovation activities open to industry-driven consortia that can be composed of all types of participants. It can help partners to co-create and test breakthrough products, services or business processes that have the potential to revolutionize existing or create entirely new markets.

- 3-5 legal entities | 70 % grant (+25 %) | EUR 3M.
- Majority of the funding to industry (e.g. min. 60 % OR industry partners in the same consortium: 2/(3-4) or 3/5.



A DEEP DIVE INTO ONE CALL EXAMPLE

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* ICT-38-2020: Artificial intelligence for manufacturing

RIA | EUR 4-6M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: State-of-the-art AI technologies need to be integrated with advanced manufacturing technologies and systems in order to exploit their potential in manufacturing and process industry. Specific attention has to be given to standardisation, synchronising EU and Member States activities, and to international collaboration.

Scope: AI technologies in the manufacturing domain, for example in agile production processes and predictive quality, taking into account e.g. time criticality, safety and security.

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* ICT-38-2020: Artificial intelligence for manufacturing

1. Read LEIT-ICT Work Programme General Introduction w footnotes.
2. Read WP Call - Information and Communication Technologies / Artificial Intelligence and Technologies for Digitising European Industry and Economy Introduction w footnotes.
3. Read the specific call text (ICT-38-2020) w footnotes.
4. Build a holistic view of Challenge, Scope and Impact criteria and how your proposal could be a perfect fit to it. Ask advice!

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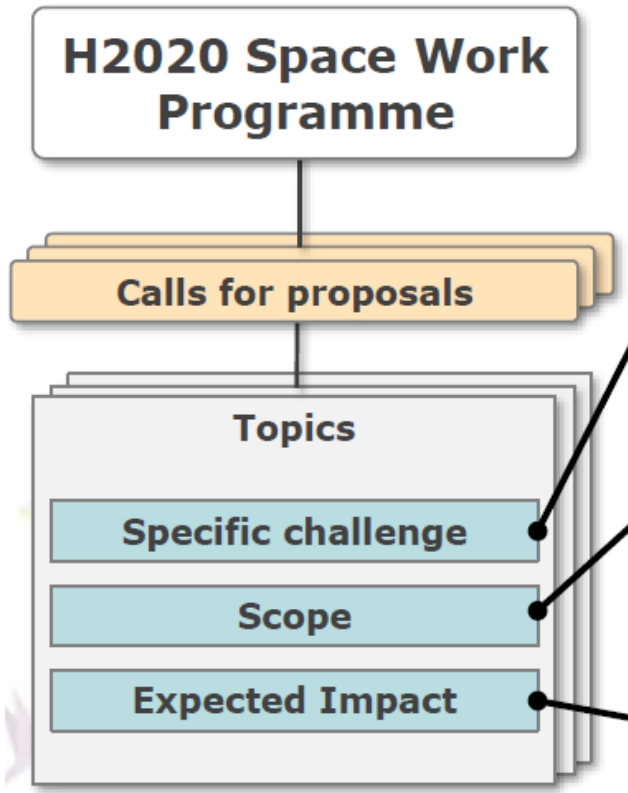
CALL topics

Carefully read the Topic text + additional documents:
proposal should answer scope and expected impacts of the Call topic



The 'problem'

Identifies the aspects of the challenge that needs to be tackled.

WP text does not outline the expected solutions to the problem, nor the approach to be taken by the applicant ("non-prescriptive" approach)

The 'problem in detail'

Provides **more details on the specific challenge** by specifying a perimeter to the problem described

The 'change' to be achieved

Provides a broad **description of what is the impact to be achieved through the project(s) to be funded.**

The **dissemination and exploitation** of future research results are vital for the impact

European Commission

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Topic – Proposal – Evaluation Criteria

Topics

- **Specific challenge**
- **Scope**
- **Expected Impact**

PART B

1. Excellence

1.1 Objectives
1.2 Relation to the work programme
1.3 Concept and methodology
1.4 Ambition

2. Impact

2.1 Expected impacts
2.2 Measures to maximise impact
a) Dissemination and exploitation of results
b) Communication activities

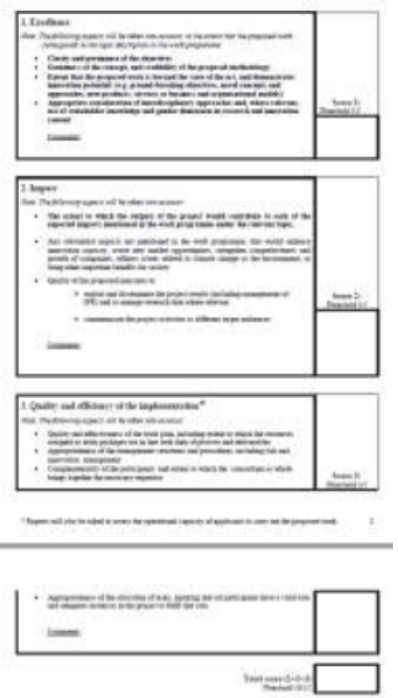
3. Implementation

3.1 Work plan, Work packages, deliverables
3.2 Management structure, milestones and procedures
3.3 Consortium as a whole
3.4 Resources to be committed

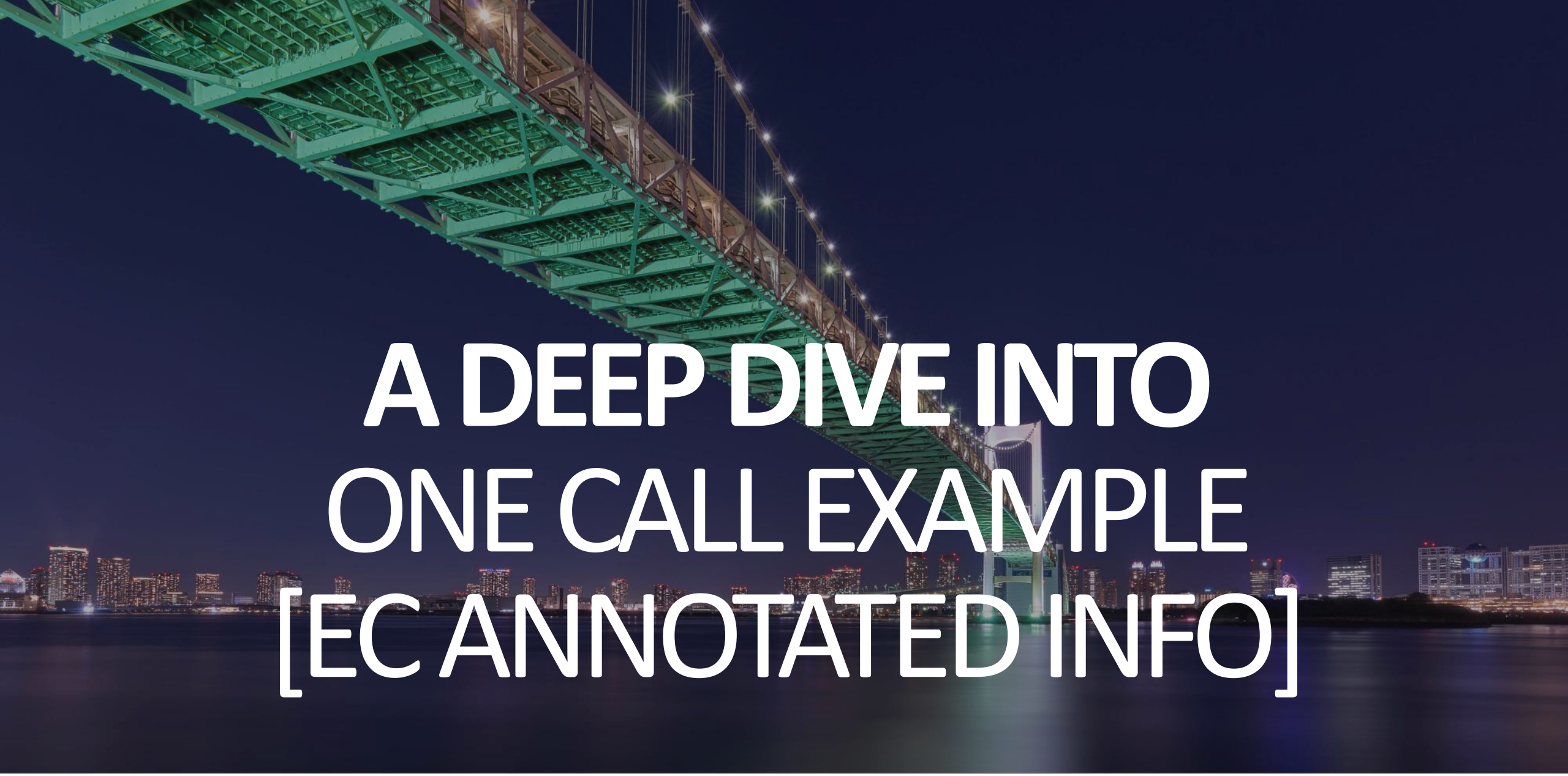
4. Members of the consortium

4.1. Participants (applicants)
4.2. Third parties involved in the project (including use of third party resources)

5. Ethics and Security



European Commission



A DEEP DIVE INTO ONE CALL EXAMPLE [EC ANNOTATED INFO]





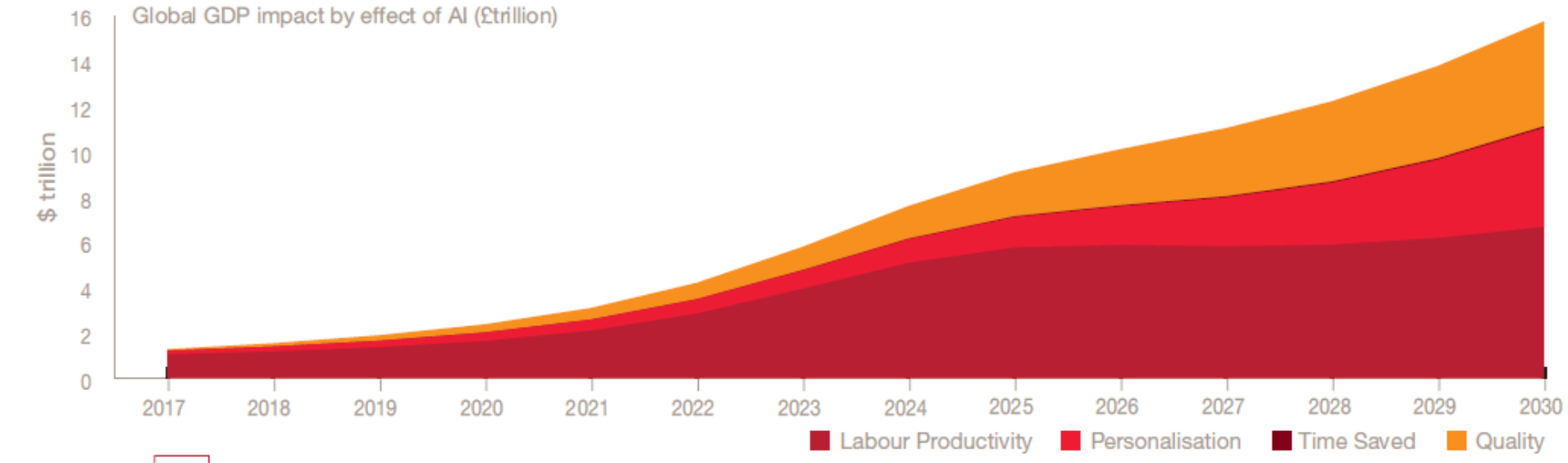

#DigitiseEU, #AI

ICT-38-2020
Artificial intelligence for manufacturing

Arian Zwegers

Technologies & Systems for Digitising Industry, DG CONNECT/A2, European Commission

Artificial Intelligence
Productivity, personalisation, time, quality



Labour productivity improvements are expected to account for over **55%** of all GDP gains from AI over the period 2017 – 2030.

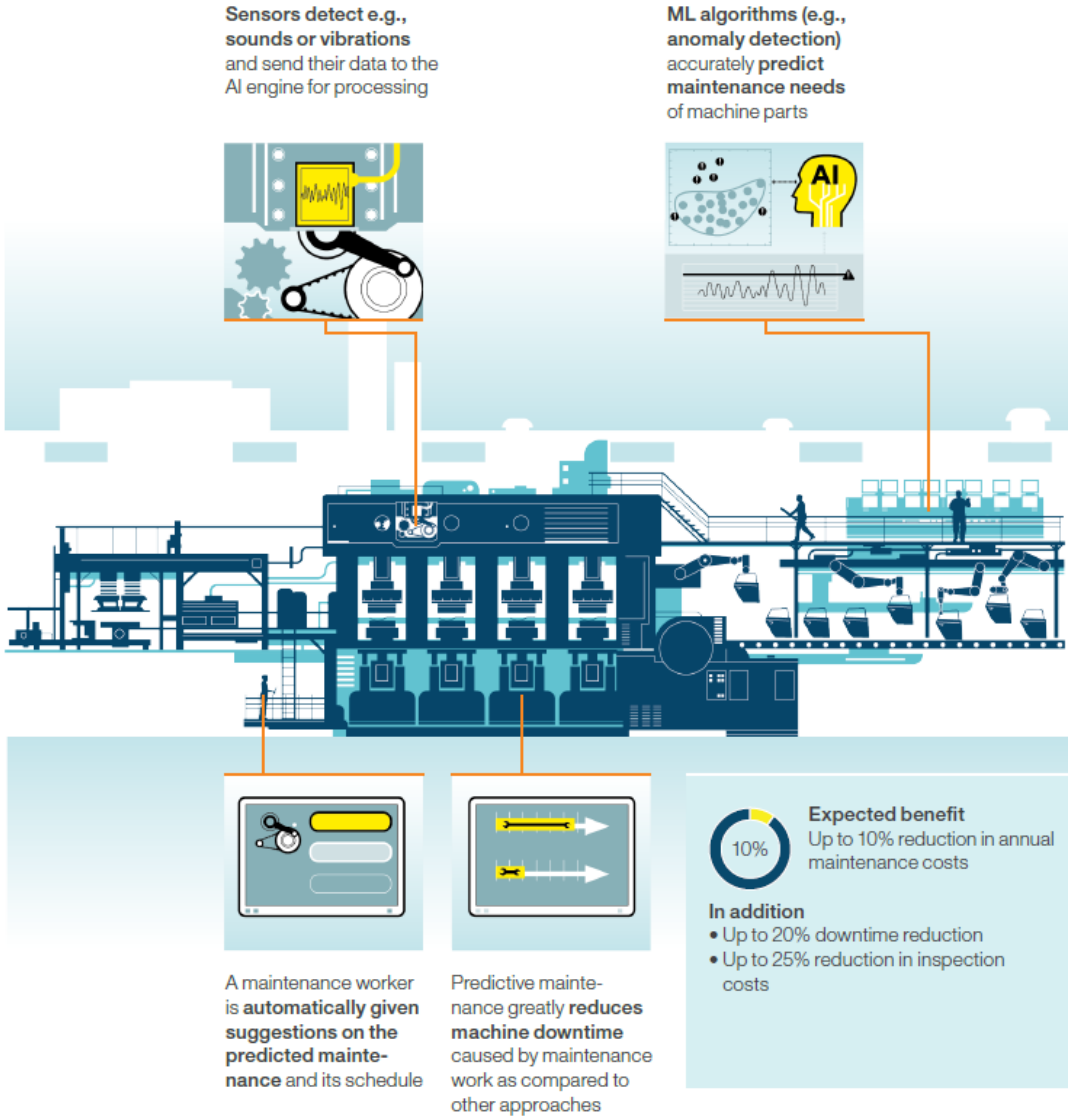
As new technologies are gradually adopted and consumers respond to improved products with increased demand, the share of impact from product innovation increases over time.

58% of all GDP gains in 2030 will come from consumption side impacts.

Source: PwC analysis

PwC, Sizing the prize, what's the real value of AI for your business and how can you capitalize?, 2017

Artificial Intelligence
Productivity, cost reductions

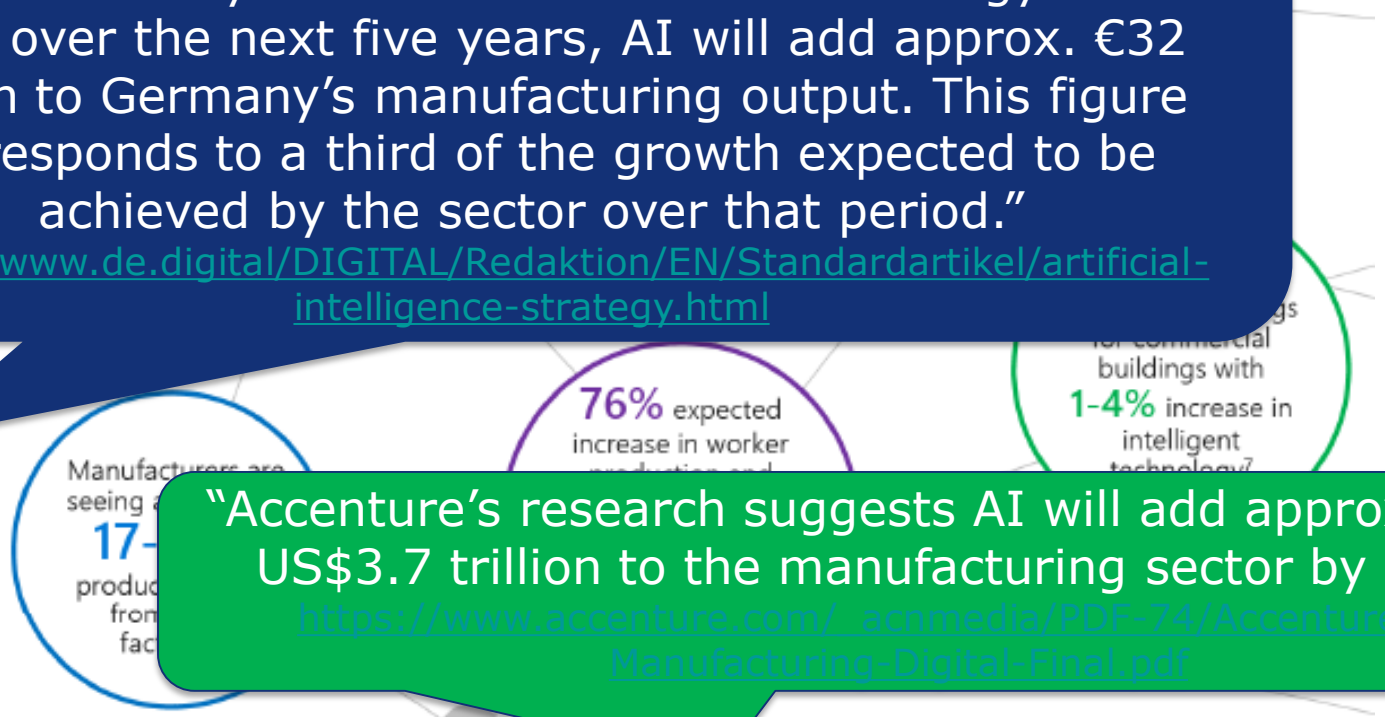


Predictive Maintenance
→ cost reductions

McKinsey, Smartening up with Artificial Intelligence (AI), April 2017

Artificial Intelligence for Manufacturing
What do analysts say?

"A study (in German) commissioned by the German Federal Ministry for Economic Affairs and Energy found that, over the next five years, AI will add approx. €32 billion to Germany's manufacturing output. This figure corresponds to a third of the growth expected to be achieved by the sector over that period."
https://www.de.digital/DIGITAL/Redaktion/EN/Standardartikel/artificial-intelligence-strategy.html



"Accenture's research suggests AI will add approximately US$3.7 trillion to the manufacturing sector by 2035."
https://www.accenture.com/_acnmedia/PDF-74/Accenture-Pov-Manufacturing-Digital-Final.pdf

"Gartner […] surveyed 3,000 CIOs operating in 89 countries in January. The […] firm found that AI implementations grew 37% during 2018, and 270% over the last four years."
https://www.forbes.com/sites/jonmarkman/2019/02/26/artificial-intelligence-beats-the-hype-with-stunning-growth/

Microsoft, The Future Computed – AI & Manufacturing, May 2019

Artificial Intelligence for Europe

Commission Communication COM(2018) 237,
published on 25 April 2018

STRATEGY FOR EUROPE TO LEAD THE WAY

Boosting EU's technological and industrial capacity & AI uptake

Preparing for socio-economic changes

Ensuring an appropriate ethical and legal framework

Development and use of AI for good and for all

COM(2018) 795, 7 December 2018

- Strategic actions and coordination
- Maximising investments through partnerships
- From the lab to the market: excellence centres, testing facilities, and Digital Innovation Hubs
- Skills and life-long learning
- Data: a cornerstone for AI - Creating a Common European Data Space
- Ethics by design and regulatory framework
- AI for the Public Sector
- International cooperation

Artificial Intelligence for Europe

Building Trust in Human-Centric Artificial Intelligence

COM(2019) 168, 8 April 2019

- Achieving trustworthy AI through 7 essential principles
  - human agency and oversight,
  - robustness and safety,
  - privacy and data governance,
  - transparency,
  - diversity and fairness,
  - societal and environmental well-being,
  - accountability
- Launching large-scale pilots in summer 2019
- Building international consensus for human-centric AI

Context

- Challenge for European economy to seize AI opportunities
  - Essential for Europe's mid and long term competitiveness, and welfare
- Topics support European businesses in developing building blocks of digital transformation

Specific Challenge

- Integrate AI with manufacturing technologies/systems to exploit potential in industry
- Standardisation and international collaboration to support deployment

Scope Research and Innovation Actions:

- Focus on integrating AI technologies in manufacturing
  - Taking into account domain-specific requirements,
  - Effective collaboration between humans and AI,
  - Instantiating ethical principles* by HLEG on AI for manufacturing,
  - Building on existing AI research results, e.g. ICT-26-2018-2020
- Proposals must develop innovative concepts and tools
  - Taking into account status and availability of production resources, learn from past experiences, and deal with unforeseen events
  - If appropriate, combine AI techniques with digital twins and real-life feedback from shop floor
  - Generative design approaches
- Demonstrate technologies and solutions in at least two different manufacturing use cases
  - If applicable, identify legal obstacles to implementation of proposed solutions

* https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai

Expected impact:

- Research and Innovation Actions
  - Products and services usable in a wide range of manufacturing processes leading to agile production processes and improved quality of products and processes
  - Humans working together with AI systems in optimal complementarity

- Coordination and Support Actions
  - Increased synchronisation and cooperation on AI and related digital technologies in manufacturing, with higher global impact

- Proposals need to describe how the proposed work will contribute to impact criteria, provide metrics, baseline and targets to measure impact

Open: 9 July 2019
Close: 16 Jan 2020

RIA: 47 M€, between 4 and 6 M€ would be appropriate,

CSA: 1 M€, 0.5 M€ would be appropriate, one CSA for each area

- 2. What do you NOT want?
  - AI research proposals, not for the sake of manufacturing
  - Known technologies applied in known use cases
    - Portfolio with only machine learning, only using machine-generated data, only for predictive maintenance
  - Big roles for non-practicing entities

- 3. Is this new or has it been called before?
  - New topic, building on previous topics, e.g. ICT-26-2018-2020
  - Link with DT-ICT-03-2020, requesting experimentation of innovative AI techniques in manufacturing

- 4. Unique instructions for evaluators?
  - Birds example about comments, scoring, and counting negatives
- 5. Current project portfolio?
  - AI4EU (from ICT-26-2018-2020)
  - Examples presented at 2 July 2019 workshop
    - PREVIEW (H2020-636892)
    - THOMAS (H2020-723616)
    - Boost 4.0 (H2020-780732)
    - Musketeer (H2020-824988)
- 6. Who are the leading players?
  - See 2 July 2019 workshop report

- 7. Is there a key group of actors (eg. cPPP or other) driving this?
  - FoF cPPP
  - BDVA and euRobotics cPPPs, Potential future AI PPP??
- 8. Are there any additional / background documents?
  - See next slide, quoted reports, and the 3 mentioned EC Communications
  - (documents by the 3 cPPPs)
- 9. Future Outlook
  - Discussion on Horizon Europe partnerships
  - Preparatory work by FoF, BDVA and euRobotics ongoing
  - Link with potential Common European Data Spaces topics under Digital Europe Programme
- 10. Upcoming information days
  - See next slide

Events

- European AI Alliance Assembly, 26 June 2019
  - https://ec.europa.eu/futurium/en/european-ai-alliance/join-first-european-ai-alliance-assembly
- Workshop on Artificial Intelligence for Manufacturing, 2 July 2019
  - https://ec.europa.eu/digital-single-market/en/news/workshop-artificial-intelligence-manufacturing
- ICT Proposers' Day 2019, 19-20 Sept 2019, Helsinki
  - https://ec.europa.eu/digital-single-market/en/news/digital-excellence-forum-ict-proposers-day-2019
- European Research & Innovation Days, 24-26 Sept 2019
  - https://ec.europa.eu/info/research-and-innovation/events/upcoming-events/european-research-and-innovation-days_en
- World Manufacturing Forum, 25-27 Sept 2019, Cernobbio
  - https://www.worldmanufacturingforum.org/
- Manufuture 2019, 30 Sept – 1 Oct 2019, Helsinki
  - https://www.dimecc.com/events/save-the-date-manufuture-2019-conference-in-helsinki/
- DEI Stakeholder Forum, 13-15 Nov 2019, Madrid
  - https://ec.europa.eu/digital-single-market/en/news/digitising-european-industry-stakeholder-forum-2019
- Webinar, Nov 2019


WHAT ELSE?

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Key Platforms (cPPPs, 1/2)

- 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)

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Key Platforms (cPPPs, 2/2)

- High Performance Computing (http://www.etp4hpc.eu)
- Advanced 5G networks for the Future Internet (https://5g-ppp.eu)
- Big Data (http://www.bdva.eu)
- ECSO (https://www.ecs-org.eu) + FISC (http://www.fisc.fi)

- AIOTI - Alliance Internet of Things Innovation (https://aioti.eu)

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APPENDIX A
ALL RIA/IA ICT CALLS IN 2020

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ICT-46-2020: Robotics in Application Areas (1)

RIA | EUR 6-7M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Robots face new technical and non-technical challenges. To address such issues in a modular and open way, and reduce the barriers that prevent a more widespread adoption of robots. 4 Priority Areas are targeted: healthcare, inspection and maintenance of infrastructure, agri-food and agile production.

Scope: Autonomy in robotic systems is built on a combination of 4 Core Technologies: AI & Cognition (interaction, safety), Cognitive Mechatronics (e.g. learning), Socially cooperative human-robot interaction, Model-based design and configuration.

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ICT-46-2020: Robotics in Application Areas (2)

IA | EUR 6-7M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Robots face new technical and non-technical challenges. To address such issues in a modular and open way, and reduce the barriers that prevent a more widespread adoption of robots. 4 Priority Areas are targeted: healthcare, inspection and maintenance of infrastructure, agri-food and agile production.

Scope: Through large-scale pilots, proposals are expected to make a significant step forward in platform development in one of the two application areas: In the Agri-Food sector from farming to processing and distribution OR Agile Production.

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ICT-47-2020: Research and Innovation boosting promising robotics applications

RIA | EUR 2-3M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Robotics enables a significant part of the economic impact of AI by delivering physical intelligence.

Scope: I. Development of autonomous robots at the micro- or millimetre scale; II. Integration and use of novel materials for service robotics; III. Beyond human speed, general purpose, dexterous manipulation of objects; IV. Application and integration of non-visual sensing for service robotics; V. Development of safe physical powerful robotic systems with proximity sensing capability; VI Variable autonomy systems for awareness. DIH!

BUSINESS
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ICT-49-2020: Artificial Intelligence on demand platform

IA | EUR 5M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: The ambition is to bring AI technologies and resources to integrators and innovators in all sectors and actively engage with a wide user community, to foster adoption of AI, via use-cases experiments.

Scope: This topic builds on ICT26-2018-20, a reference access point gathering and providing access to AI-related knowledge, algorithms and tools and access to related infrastructures, equipment, and data resources, offering also experts support to potential users of AI in order to facilitate the integration of AI.

BUSINESS
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ICT-38-2020: Artificial intelligence for manufacturing

RIA | EUR 4-6M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: State-of-the-art AI technologies need to be integrated with advanced manufacturing technologies and systems in order to exploit their potential in manufacturing and process industry. Specific attention has to be given to standardisation, synchronising EU and Member States activities, and to international collaboration.

Scope: AI technologies in the manufacturing domain, for example in agile production processes and predictive quality, taking into account e.g. time criticality, safety and security.

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ICT-36-2020: Disruptive photonics technologies

RIA | EUR 3-6M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Advanced photonics technologies.

Scope: The focus is on the following themes (sub-topics): i. 3D light field and holographic displays (Mixed Reality); ii. Packaging and module integration for photonic integrated circuits (PIC); iii. Light to Fuel (direct and efficient (>5%) conversion of solar energy into chemical fuel); iv. Next generation biophotonics methods and devices as research tools to understand the cellular origin of diseases (photonics-based in-vivo/in-vitro imaging systems and techniques).

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ICT-37-2020: Advancing photonics technologies and application driven photonics components and the innovation ecosystem (1)

RIA | EUR 3-5M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Distributed smart photonic sensor networks involving public participation through community-based monitoring could assist in creating inventories of emitted pollutants, identifying pollution hotspots, and alerting citizens in real time on potential health risks.

Scope: The focus is on the following themes (sub-topics):
i. Flexible Farm-to-Fork Sensing; ii. Novel Photonics Integrated Circuit (PIC) Technology building blocks.

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ICT-37-2020: Advancing photonics technologies and application driven photonics components and the innovation ecosystem (2)

IA | EUR 4-7M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Distributed smart photonic sensor networks involving public participation through community-based monitoring could assist in creating inventories of emitted pollutants, identifying pollution hotspots, and alerting citizens in real time on potential health risks.

Scope: iii. Smart Photonic Sensing for Environmental Pollution Detection: Prototyping, demonstration and validation in real settings of an innovative, cost-effective, portable, smart hyperspectral sensing system, pollution detection.

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ICT-50-2020: Software Technologies

RIA | EUR 3-5M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: The increased complexity of present and emerging ICT systems poses several challenges at software and hardware level including new requirements in terms of integration and cybersecurity.

Scope: Proposals will address at least one of the following two areas: 1. Development tools & methods for interoperable, adaptive, secure and trustworthy software; 2. Advanced Software systems and architectures (e.g. self-managed software, dynamic optimizations & resource pooling).

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ICT-51-2020: Big Data technologies and extreme-scale analytics

RIA | EUR 3-6M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: Novel methods, approaches and engineering paradigms in machine learning, analytics and data management.

Scope: Proposals should cover at least one: ML/DL, architectures for collecting, managing and exploiting vast amounts of data; system engineering/tools to contribute to the co-design of federated/distributed systems; new methods for extreme-scale analytics, deep analysis, precise predictions and automated decision-making; novel visualization techniques; data fusion and data integration technologies; efficient sharing of data.

BUSINESS
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ICT-40-2020: Cloud Computing: towards a smart cloud computing continuum

RIA | EUR 3-5M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: The challenge is to develop comprehensive cloud solutions and testbeds combining various execution platforms for ubiquitous and seamless computing environments.

Scope: Proposals will address at least one of the following areas: i. Advanced cloud technologies and testbeds combining aspects of network, computing and data/information resources; ii. Advanced Cloud Data Privacy and Security techniques; iii. Novel programming models and semantically interoperable services.

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ICT-52-2020: 5G PPP – Smart Connectivity beyond 5G

RIA | EUR 5-12M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: It also looks beyond 5G to prepare for the realisation of Smart Connectivity systems as a platform for a Next-Generation Internet.

Scope: E.g. it should enable novel interaction between human and digital systems based on new terminal types embedded in the daily environment, e.g. in cars, doors, mirrors, and new interfaces recognising gestures, facial expressions, sound and haptics.

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ICT-41-2020: 5G PPP – 5G innovations for verticals with third party services

IA | EUR 4-6M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Software networks provide high flexibility through implementation of virtual network functions (VNFs).

Scope: Experimentation facilities able to provide enhanced experimentation infrastructures on top of which third party experimenters e.g. SMEs or any service provider and target vertical users will have the opportunity to test their applications in an integrated, open, cooperative and fully featured network platform running across multiple domains, and tailored to specific vertical use case. Incl. CAM, smart factories and industry 4.0 use!

BUSINESS
FINLAND

ICT-42-2020: 5G PPP – 5G core technologies innovation

IA | EUR 4-6M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: The challenge is to reap the fruits (new technologies, HW devices) of earlier R&D investments in these enabling technologies to support the emergence of new markets and new market actors in Europe.

Scope: The key 5G technological blocks under consideration are primarily hardware-based and include, but are not limited to, phase array antenna, array processors, millimetre wave devices and subsystems, photonics based devices, baseband processor platforms, low-cost access points, IoT etc.

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ICT-54-2020: Blockchain for the Next Generation Internet

RIA | EUR 8/6/6M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: Developing a more human-centric Internet supporting values of openness, decentralisation, inclusiveness and protection of privacy and giving the control back to the end-users, in particular of their data.

Scope: 3 sub-topics, proposals should address only one of these: i. Advancing research on Blockchain and Distributed Ledger Technologies; ii. Fostering trust in internet information exchange and content with blockchain; iii. Bringing forward the emergence of collective intelligence on the internet (social media).

BUSINESS
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ICT-56-2020: Next Generation Internet of Things

RIA | EUR 5-8M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: The challenge is to leverage EU technological strength to develop the next generation of IoT devices and systems which leverage progress in enabling technologies such as 5G, cyber-security, distributed computing, artificial intelligence (AI), Augmented Reality and tactile internet.

Scope: Reference implementations should include proof-of-concept, demonstrations and validation, driven by realistic use cases with advanced needs in areas such as wearables, transportation, agriculture homes, health and energy.

BUSINESS
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ICT-57-2020: An empowering, inclusive Next Generation Internet

RIA | EUR 2-4M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: Leveraging on multidisciplinary expertise drawing on knowledge from both the technological and human sciences, novel technologies, such as automatic translation as well as speech and sign recognition and synthesis.

Scope: Develop novel mobile applications translating between speech and sign languages to assist people with hearing impairments. The resulting applications should be open source, robust, cost-effective and validated across a wide spectrum of users.

BUSINESS
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ICT-44-2020: Next Generation Media

IA | EUR 5/2M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: The challenge for the traditional media sectors is to compete in this extended ecosystem and to meet user expectations by rapidly embracing new technologies for creation, management, and distribution of content.

Scope:i. Business Innovation Ecosystems (Develop new business innovation ecosystems by using approaches, such as a sandbox, for technology-driven innovation in media); ii. New User Driven and Enriched Experiences in Future Media.

BUSINESS
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ICT-58-2020: International partnership building between European and African innovation hubs

IA | EUR 1-2M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: To reinforce cooperation and strategic partnership with selected countries in Africa.

Scope: 1.reinforcing the development and establishment of Pan-African networks of Digital Innovations/Tech Hubs through strengthening local digital innovation and startup ecosystems; 2.developing a mutually beneficial cooperation between African and European DIHs.

BUSINESS
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DT-ICT-03-2020: I4MS (phase 4) - uptake of digital game changers

IA | EUR 8M | Opening 9 Jul 2019 | DL 13 Nov 2020

Specific Challenge: The challenge is to accelerate the design, development and uptake of advanced digital technologies by European industry – especially in SMEs and mid-caps.

Scope: In one or more of the following areas: Smart modelling, simulation, and optimisation for digital twins; Laser based equipment in advanced and additive manufacturing; Innovative AI in manufacturing; Cognitive autonomous systems and human-robot interaction; Widening Digital Innovation Hubs.

BUSINESS
FINLAND

DT-ICT-04-2020: Photonics Innovation Hubs

IA | EUR 9.5-19M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: The challenge is to provide a sustainable ecosystem of research and innovation support for the benefit of SMEs facilitating a broad uptake and integration of photonics technologies.

Scope: Open access to Photonics Innovation Hubs: One-stop-shop access, supported through a network of competence centres, to services and capabilities such as expertise, training, prototyping, design, engineering, business support, financing advice and pilot manufacturing for first users and early adopters.

BUSINESS FINLAND

DT-ICT-05-2020: Big Data Innovation Hubs

IA | EUR 8-12/5-7/5M | Opening 9 Jul 2019 | DL 13 Nov 2020

Specific Challenge: The challenge is to break "data silos" and stimulate sharing, re-using and trading of data assets by launching a second-generation data-driven innovation hub.

Scope: Sub-topic 1: Federate and network the relevant actions and initiatives; Sub-topic 2: Select, launch and incubate innovation experiments in view of bringing to the market new solutions and services based on secure, trusted value chains; Sub-topic 3: Select, launch and incubate innovation experiments for data driven services and tools to reshape media value chain.

BUSINESS
FINLAND

DT-ICT-09-2020: Boost rural economies through cross-sector digital service platforms

IA | EUR 15M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: One key challenge is to overcome the barrier of missing interoperability of smart object platforms and service platforms that share and exploit data between them.

Scope: To develop and demonstrate cost-efficient and flexible cross-domain applications through large-scale pilots. These should build on an open, API-based, interoperable and federated IoT architecture and include a reference implementation supporting flexible integration of heterogeneous services. E.g. smart cities, distributed energy, smart logistics and mobility.

BUSINESS
FINLAND

DT-ICT-12-2020: AI for the smart hospital of the future

IA | EUR 7-10M | Opening 19 Nov 2019 | DL 22 Apr 2020

Specific Challenge: AI in this context has the potential to deliver integrated physical and digital services that address a wide range of healthcare applications, for example in patient care, diagnosis, treatment and in hospital based laboratory and support services.

Scope: Devise in-facility pilot demonstrators that deliver innovative AI-based solutions in a health and care setting such as a hospital, primary or home care. Pilots should enable or support clinical, diagnosis and treatment, etc.

BUSINESS
FINLAND

SU-ICT-02-2020: Building blocks for resilience in evolving ICT systems

RIA | EUR 4-5M | Opening 25 Jul 2019 | DL 19 Nov 2020

Specific Challenge: Algorithms, software and hardware systems must be designed having security, privacy, data protection, fault tolerance and accountability in mind from their design phase in a measurable manner.

Scope: Proposals are invited against at least one of the following three subtopics: a) Cybersecurity/privacy audit, certification and standardization, b) Trusted supply chains of ICT systems, c) Designing and developing privacy-friendly and secure software and hardware.

BUSINESS
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APPENDIX B
A CYBERSECURITY CALL PICK IN 2020

BUSINESS
FINLAND

SU-DS04-2018-2020: Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks and data breaches

IA | EUR 6-8M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: The Electrical Power and Energy System (EPES) is of key importance to the economy, as all other domains rely on the availability of electricity.

Scope: The proposals should demonstrate how the actual EPES can be made resilient to growing and more sophisticated cyber and privacy attacks and data breaches. E.g. (i) assessing vulnerabilities and threats, (ii) designing adequate security measures, (iii) implementing resilience tests, (iv) demonstrating the effectiveness of the measures with a cost-benefit analysis.

BUSINESS FINLAND

WORLD **IDEAS**

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