Information and Communication Technologies
Horizon 2020

Information & Communication Technologies

Edina Németh – ICT, FET
Horizon 2020 Programme Committee Member (PC)
National Contact Point (NCP)

Central European cooperation for Industry 4.0 workshop
20 September 2017
Content

• ICT in H2020 - context
• ICT Work Programme – what is new?
  • Partnerships
  • Digital Innovation Hubs
  • Platforms and Pilots
• National Contact Points
• ICT Proposers’ Day 2017 – Budapest, Hungary
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Policy Context

Digitising European Industry

Com (2016) 180
ICT in 3 Pillars of H2020

- Excellent Science: ~25%
- Industrial Leadership: ~55%
- Societal Challenges: ~20%
Simplification?
Creating Industrial Leadership and Competitive Frameworks

- Leadership in enabling and industrial technologies
- ICT
- Nanotech., Materials, Manuf. and Processing
- Biotechnology
- Space
- Access to risk finance
- Innovation in SMEs

Excellence in the Science Base

- Frontier research (ERC)
- Future and Emerging Technologies (FET)
- Skills and career development (Marie Curie)
- Research infrastructures

Tackling Societal Challenges

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and the bio-based economy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, resource efficiency and raw materials
- Inclusive, innovative and reflective societies
- Secure Societies

Europe 2020 priorities

- Europe 2020
- International cooperation
- Simplified access
- European Research Area
- Dissemination & knowledge transfer

Shared objectives and principles

- Common rules, toolkit of funding schemes

= ICT

ICT in H2020 (€ 13 576)

= €1120 m
= €300 m
= €380 m
= €110 m
= €325 m
= €425 m
= €2 660

= €7,36 bn
= ECSEL: 1,2 bn

= €2,696 bn

= €0,86 bn

= €3 556 bn
Where to find ICT R&D&I in H2020?

Everywhere!

change of mindset
Guide to ICT-related activities in WP

- Comprehensive coverage of the three H2020 pillars
- Detailed list of calls and topics
- Available on H2020 website
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Work Programme 2018-20
To facilitate coordination of European, national & regional initiatives such as Industrie 4.0 (DE), Smart Industry (NL) (SK), Industrie du Futur (FR)

Mainstreaming digital innovation across all sectors:
Setting up a pan-European network of Digital Innovation Hubs

Strengthening leadership in digital technologies
- Public-Private Partnerships
- Industrial platforms
- Large scale pilots & test beds

Preparing People for the digital age: Skills & Training

Regulatory framework:
- Free flow of data & data ownership
- Safety & liability of autonomous systems & Internet of Things

Challenges & opportunities of the Internet of Things

To focus investments
(Horizon 2020, EU Investment Plan, EU Structural & Investment Funds, national & regional funds, private sector)

MOBILISING €50bn of public & private investments

CLOUD
European Cloud Initiative in a data-driven economy:
- European Open Science Cloud
- European Data Infrastructure
- Widening access & building trust
  - High Performance Computing
  - Quantum

STANDARDS
Fast development in 5 priority areas:
- 5G
- Cloud Computing
- Internet of Things
- Data Technologies
- Cybersecurity

DIGITAL PUBLIC SERVICES

eGovernment Action Plan:
- New Digital Single Gateway
- eJustice Portal
- “Once-only” principle in Administrations
- Cross-border Health services
- eProcurement & “Once-only” in public procurement

#DigitiseEU
@DSMeu
DigitalSingleMarket
bit.ly/DigitiseEU
Technologies for Digitising European Industry:
LAE, photonics, nano-electronics, smart systems, manufacturing, robotics

European Data Infrastructure:
HPC, Big Data and Cloud technologies

5G

Next Generation Internet (NGI): Open Internet, AI, Interaction, IoT, language, inclusion, social connectivity

Cross-cutting activities: STARTS, Start-up EU, PCP, fintech

Digitising and transforming European industry and services:
  • Hubs
  • Platforms & Pilots

Cybersecurity: cyber attacks, resilience, cybersecurity & privacy, quantum key

Work Programme 2018 – 2020
Work Programme 2018 – 2020

- Digitising European Industry: 28%
- European Data Infrastructure: 19%
- Next Generation Internet (NGI): 11%
- Digital Innovation Hubs: 10%
- Cross-cutting activities: 3%
- Platforms and Pilots: 8%
- Cybersecurity: 5%
- 5G: 16%
- Digital Innovation Hubs: 10%

Total: ~ 2.7 B €
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Strategic Research Agendas

FP7
- ARTEMIS JTI
- ENIAC JTI
- Smart Systems R&D (EPoSS)

H2020
- Electronic Components & Systems JTI
- Factory of the Future PPP
- Future Internet PPP & SME Accelerator
- Networking R&D
- Photonics R&D
- Robotics R&D
- Advanced Computing
- Content Technologies and Information Management
- Expansion of use cases
- 5G PPP
- Photonics PPP
- Robotics PPP
- Big Data PPP
- Cyber Security PPP

AZ INNOVÁCIÓ LENDÜLETE

NEMZETI KUTATÁSI FEJLESZTÉSI ÉS INNOVÁCIÓS HÍVATAL
10 Public-Private Partnerships

- **Factories of the Future (FoF)**, to support the manufacturing industry through the development of sustainable production technologies and systems (1150 M€)
- **Energy-efficient Buildings (EeB)**, to increase the competitiveness and energy efficiency of the construction industry (600 M€)
- **European Green Vehicles Initiative (EGVI)**, to develop a competitive and resource efficient transport system with significantly less CO2 emissions (750 M€)
- **Sustainable Process Industry (SPIRE)**, to make the process industry more resource- and energy-efficient (900 M€)
- **Photonics**, one of the key enabling technologies for our future prosperity and an essential element of many sectors, from energy and health, to everyday products like DVD players and mobile phones (700 M€)
- **Robotics**, a key driver of industrial competitiveness and essential to address key societal challenges in areas such as demographic change, health and well-being, food production, transport and security (700 M€)
- **High Performance Computing (HPC)**, which plays a pivotal role in stimulating Europe’s economic growth and advancing European science (700 M€)
- **Advanced 5G networks for the Future Internet (5G)**, stimulate development of network internet infrastructure to ensure advanced ICT services for all sectors and users (700 M€)
- **Big Data Value PPP**, towards a data-driven economy in Europe (500 M€)
- **Cyber Security PPP** (450 M€)
Partnerships
Digital Value Chain

- Micro-electronics
- Robotics
- AI
- 5G
- Cloud computing
- Autonomous driving
- Healthy aging
- Smart Factory
- Internet of Things
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Focus Area: Digitising & transforming European industry and services

<table>
<thead>
<tr>
<th>Mission</th>
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<tbody>
<tr>
<td>✓ Enabling all sectors and application areas to adapt, transform and benefit from digitisation, by allowing also smaller and newer players to capture value</td>
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<td>✓ Develop industrial strategies, incl. new business models</td>
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<tr>
<td>✓ Connect to member states and regions, for synergies/align R&amp;I agendas</td>
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<tr>
<td>✓ Removing barriers for innovation enabled by digitisation</td>
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<table>
<thead>
<tr>
<th>Component</th>
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<tr>
<td>✓ Innovation hubs</td>
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<tr>
<td>✓ Cross-sectorial and integrated <strong>digital platforms</strong> and <strong>large-scale pilots</strong> for experimentation and co-creation with users</td>
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Source: EU Commission
Levels of digitisation differ - size of company, sector, region

42% of large companies is highly digitised in the EU vs 16% of SMEs

56% of companies in computer programming, consultancy and information services are highly digitised. Only around 6% of companies in basic metals & fabricated metal products excluding machines & equipments are highly digitised.

53% of Danish companies are highly digitised vs 8% in Bulgaria and Romania
What is a Digital Innovation Hub?

A one-stop-shop providing services to companies in the region through a multi-partner cooperation:

- Access to Specialist Expertise and Infrastructure
- Brokering/matchmaking
- Awareness Creation around Digital Technologies
- Innovation Scouting
- Digital Maturity Assessment
- Visioning and Strategy Development for Businesses
- Mentoring
- Training
- Access to Funding and Investor Readiness Services
Focus area "Digitising and transforming European industry and services" calls for digital innovation hubs (for 300 M€)

Innovation actions with the following characteristics:

• Consortia should be deeply rooted in regional/national DIH

• Critical mass of highly innovative, cross border experiments. At least 50% of the budget should directly benefit SMEs or slightly bigger companies.

• Activities should aim at long-term sustainability and include a business plan for the digital innovation hubs, a plan to attract investors, to address training and skills development needs and dissemination. Established networks reaching out to SMEs like the Enterprise Europe Network and the NCP network should be used.

• Selected projects are expected to collaborate on building a network of Digital Innovation Hubs, covering most regions in Europe.
Critical Mass of Cross-Border Application Experiments

Develop novel products or services with digital technologies.

Bring together actors along value chain.

Suppliers to assist new users in customising and applying digital technologies in their environment.

Financial support to third parties may be used for flexibility.

Many projects are using FSTP to implement open calls in H2020.
Digital Innovation Hubs

• Smart Anything Everywhere (SAE), (CPS, SSI, MNT)
• I4MS (phase 4) - uptake of digital game changers and digital manufacturing platforms
• Photonics
• Robotics (healthcare, infrastructure, agri-food, production)
• Big Data Innovation Hubs
• Digital Innovation Hub network
Digital Innovation Hubs

• **Survey to map Digital Innovation Hubs around the EU:**

• **Call for Digital Innovation Hubs in EU13 Member States is NOW OPEN!**
  [https://ec.europa.eu/eusurvey/runner/ApplicationForm](https://ec.europa.eu/eusurvey/runner/ApplicationForm)

• **Apply now by 22 October!**

  • The European Commission is looking for organisations based in BG, HR, CY, CZ, EE, HU, LV, LT, MT, PL, RO, SK, SI taking on the role of a Digital Innovation Hub (DIH) to participate in a training programme managed by PwC and Oxentia.

  • More information about the **call** are presented [here](https://ec.europa.eu/eusurvey/runner/ApplicationForm) while the overall **Project** is described [here](https://ec.europa.eu/eusurvey/runner/Questionnaire#).
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Digital Industrial Platforms
What do we mean?

❌ A place or opportunity for public discussion
e.g. European Platform of National Initiatives

✅ An operating system that integrates different technologies and various applications and services

❌ Online platforms
in the consumer world
e.g. Facebook, Nest, Android

✅ Industrial platforms
in the business world

In different ways and to varying degrees they may take in:
1) a community role
2) an infrastructure role
3) a data role
Digital Industrial Platforms

Smartphone analogy

Applications

Platform / Operating System

Sensors / Connection with physical world
Digital Industrial Platforms

Examples

Community-led sector-specific (vertical)
- AUTOSAR
- ISOBUS
- FITMAN

Community-led cross-sector (horizontal)
- S3P
- IDS
- CRYSTAL
- FiWARE
- Arrowhead

Commercial with open interfaces
- ADAMOS
- Dassault Systèmes

Photo: TRUMPF
Digital Industrial Platforms
Alignment of R&I efforts

Focus investments on:

• Integration of key digital technologies
• Digital industrial platforms, reference architectures, ...
• Reference implementations, large-scale piloting, experimentation environments
• Ecosystem building and standardisation
Development and integration of platforms, reference architectures, ...

Close-to-reality experimentation in xxx model factory

Large scale experimentation in yyy lab

SME testing facility at zyx digital innovation hub

Real production OEM x with supply chain

Best practice Experimentation in zzz lab

Best practice Experimentation in xyz lab

Regional Investments

Member States Investments

EU Investments FoF/SPIRE/ECSEL/...

Digital Industrial Platforms
Pooling Investments
WP 2018-2020
Topics pan-European platform-building and piloting

Digital Manufacturing Platforms
- Agile Value Networks: Lot-size One
- Zero-defect Processes and Products
- Machines & Human Competences
- Sustainable Value Networks

A digital "plug and produce" online equipment platform for manufacturing
...

Agricultural Digital Integration Platforms
- Optimize farm operations
- High-precision farming

Digital Service Platforms for Rural Economies
...

Smart Hospital of the Future
Smart and Healthy Living at Home
- Healthy & independent living
- Early risk detection and intervention
...

Interoperable and Smart Homes and Grids
Big Data Solutions for Energy
...

Cross-cutting issues, IoT, Big Data, Security...
WP 2018-2020

Focus Area

Focus Area 'Digitising and transforming European industry and services', Platforms and Pilots

LEIT-ICT

- DT-ICT-08-2019: Agricultural digital integration platforms, €30
- DT-ICT-09-2020: Digital service platforms for rural economies, €30
- DT-ICT-10-2018-2019: Interoperable and smart homes and grids, €30
- DT-ICT-11-2019: Big data solutions for energy, €30
- DT-ICT-12-2020: The smart hospital of the future, €25
- DT-ICT-13-2019: Digital Platforms/Pilots Horizontal Activities, €4

SC1

- DT-TDS-01-2019: Smart and healthy living at home, €60

(LEIT-NMBP:

- DT-NMBP-20-2018: A digital 'plug and produce' online equipment platform for manufacturing, €20)

AZ INNOVÁCIÓ LENDÜLETE

NEMZETI KUTATÁSI, FEJLESZTÉSI ÉS INNOVÁCIÓS HIVATAL
Channels for H2020 ICT Funding

- H2020 projects in LEIT (eg. Research and Innovation Actions, Innovation Actions, SME Instrument, FTI projects, Prizes)
- H2020 projects in Societal Challenges (same)
- H2020 projects in Excellent Science (eg. Marie Curie Projects, FET, Infrastructures)
- ECSEL JTI, AAL, ERA-NETs
- Calls for Third Parties / Expressions of Interest through large initiatives (eg. PPP projects, Large Scale Pilots, Smart Anything Everywhere, I4MS, IoT EU platforms, FET Flagships etc.)
Channels for H2020 ICT Funding

- Work Programme / Call
- Project
- Third Party Call
- Cascading Grant
H2020 calls

- **Future Internet PPP** – Accelerators (FP7, closed)
- **ECHORD ++** - Robotics (FP7, closed)
- **I4MS** – ICT Innovation for Manufacturing SMEs
- **SAE** - Smart Anything Everywhere
- **FIRE** – Future Internet Research & Experimentation
- **FET Flagships** – Human Brain, Graphene
- **Internet of Things - European Platforms Initiative**
- Pre-commercial procurement (PCP) tenders
- …Further competitive calls on Participant Portal
# Upcoming open calls of DIH projects (using FSTP)

<table>
<thead>
<tr>
<th>Project</th>
<th>Technology Area</th>
<th>Call 1</th>
<th>Call 2</th>
<th>Call 3</th>
<th>Call 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I4MS (Innovation for Manufacturing SMEs) Initiative</strong></td>
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<tr>
<td>HORSE</td>
<td>Robotics</td>
<td>Nov.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>ReconCell</td>
<td>Robotics</td>
<td>Nov.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>L4MS</td>
<td>Logistics for Manufacturing</td>
<td>Sep.18</td>
<td>Sep.19</td>
<td>-</td>
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<tr>
<td>CloudiFacturing</td>
<td>HPC cloud-based simulation services</td>
<td>Jul.18</td>
<td>Jul.19</td>
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<tr>
<td><strong>SAE (Smart Anything Everywhere) Initiative</strong></td>
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<tr>
<td>FED4SAE</td>
<td>Cyber-Physical and Embedded Systems</td>
<td>Nov.17</td>
<td>May.18</td>
<td>Nov.18</td>
<td>-</td>
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<tr>
<td>TETRAMAX</td>
<td>Low energy computing powering CPS and IoT</td>
<td>Nov.17</td>
<td>Oct.18</td>
<td>Sep.19</td>
<td>Apr.20</td>
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<tr>
<td>• Bilateral</td>
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<tr>
<td>• Value chain/interdisciplinary</td>
<td></td>
<td>Feb.18</td>
<td>Dec.18</td>
<td>Oct.19</td>
<td>Apr.20</td>
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<tr>
<td>• Entrepreneurial</td>
<td></td>
<td>Aug.18</td>
<td>Aug.19</td>
<td>Aug.20</td>
<td>-</td>
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<tr>
<td><strong>DIATOMIC</strong></td>
<td>Organic and large area electronics</td>
<td>Mar.18</td>
<td>Sep.18</td>
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<tr>
<td><strong>SMARTEES</strong></td>
<td>Smart System Integration</td>
<td>Dec.17</td>
<td>Nov.18</td>
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<tr>
<td><strong>Other projects</strong></td>
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<tr>
<td>Data Pitch</td>
<td>Data brokerage between public sector organisations and SMEs</td>
<td>Jul.17–end of Sep.17</td>
<td>Autumn 18</td>
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</tbody>
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National Contact Point

Partner Search & Proposal Development
NCP system in Hungary

• Free information on Horizon 2020 – per thematic area
• Information days: http://nkfih.gov.hu/nemzetkozi-tevekenyseg/horizont-2020-rendezvenynaptar/nkfi-hivatal-h2020
• Electronic / phone / personal information on funding opportunities and processes
• Personal consultations with potential applicants, feedback on project ideas and proposals
• H2020 news, events
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For more information

- Digitising European Industry [WG2 report](http://bit.ly/DigIndEU)
- Industrial Innovation [Information Days](http://bit.ly/DigIndEU)
  - Brussels, 3-4 Oct 2017
  - Brussels, 19 Oct 2017
  - Budapest, 9-10 Nov 2017
ICT Proposers’ Day
9-10 Nov 2017
Budapest

INFORMATION – BROKERAGE – CONSORTIUM BUILDING - EXHIBITION


Twitter: https://twitter.com/ictproposereu (hamarosan)
### ICT Proposers’ Day

9-10 Nov 2017 - Budapest

#### Day 1: Thursday 9/11/2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>9:30 - 11:00</td>
<td><strong>NGI &amp; 5G</strong>&lt;br&gt;5G - Phase 3 &amp; Global 5G Collaborations (part I)&lt;br&gt;Digital Platforms &amp; Manufacturing&lt;br&gt;European Data Infrastructure: HPC (part I)&lt;br&gt;FET Proactive&lt;br&gt;Cybersecurity &amp; Digital Privacy&lt;br&gt;Innovation Radar Pitching session</td>
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<tr>
<td>11:30 - 13:00</td>
<td><strong>Digitising European Industry</strong>&lt;br&gt;Digital Platforms for Homes&lt;br&gt;HPC (part II)&lt;br&gt;FET Open&lt;br&gt;H2020: Proposal Making*&lt;br&gt;Innovation Radar Pitching session</td>
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<td>14:00 - 16:30</td>
<td><strong>European Data Infrastructure</strong>&lt;br&gt;Agriculture Platforms &amp; Horizontal Actions&lt;br&gt;Infrastructures and European Open Science Cloud&lt;br&gt;FET Flagships&lt;br&gt;E-health, Well-being and Ageing (Part I)&lt;br&gt;Artificial Intelligence &amp; Start-ups</td>
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<tr>
<td>16:00 - 17:30</td>
<td><strong>FET</strong>&lt;br&gt;Artificial Intelligence&lt;br&gt;Smart Systems &amp; Flexible Wearable Electronics&lt;br&gt;European Data Infrastructure: Big Data&lt;br&gt;H2020: Proposal Making&lt;br&gt;Cybersecurity &amp; Digital Privacy: Authentication prize&lt;br&gt;Innovation Radar Awards</td>
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* * Information/ Horizontal session
# ICT Proposers’ Day

**9-10 Nov 2017 - Budapest**

**Day 2: Friday 10/11/2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>NGI &amp; 5G</th>
<th>Digitising European Industry</th>
<th>European Data Infrastructure</th>
<th>FET</th>
<th>Societal Challenges</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 - 11:00</td>
<td>NGI and EU-US Collaboration</td>
<td>IPR Helpdesk &amp; EUPL*</td>
<td>H2020: Proposal Making*</td>
<td>Quantum Technologies Flagship</td>
<td>Transformations &amp; Governance</td>
<td>SME Instrument/Fast Track to Innovation</td>
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<td></td>
<td><strong>COFFEE BREAK</strong></td>
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<td><strong>LUNCH</strong></td>
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<tr>
<td>14:00 - 15:30</td>
<td>NGI, Interactive Technologies and Digital Curation of Cultural Heritage</td>
<td>Photonics</td>
<td>Software Technologies</td>
<td>Cascading Grants*</td>
<td>CEF*</td>
<td>STARTS*</td>
</tr>
</tbody>
</table>

* Information/Horizontal session

CPPP (NCP) in the room on the 1st floor TBC
Standardisation in the room on 1st floor
Thank you and get in touch!

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