# Information and Communication Technologies Horizon 2020

### Information & Communication Technologies

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Horizon 2020 Programme Committee Member (PC) National Contact Point (NCP)

Central European workshop

5 April 2018



### Content

- ICT in H2020 context
- ICT Work Programme what is new?
  - Partnerships
  - Digital Innovation Hubs
  - Platforms and Pilots
  - Channels for funding
- National Contact Points
- ICT Event 2018 Vienna Austria



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# Policy Context

#### To facilitate coordination of European, national & regional initiatives

such as Industrie 4.0 (DE), Smart Industry (NL) (SK), Nouvelle France Industrielle (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

#### 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

# Digitising European Industry

Com (2016) 180



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

MOBILISING € 50 bn of public & private investments



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### ICT in 3 Pillars of H2020

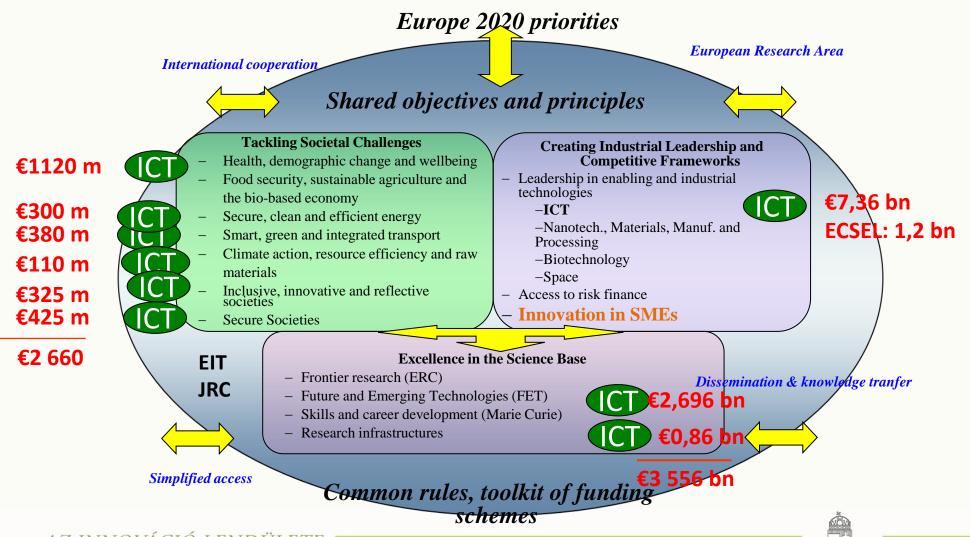




# Simplification?



## ICT in H2020 (€ 13 576)



#### 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



# A guide to ICT-related activities in WP2018-20

#### ICT in H2020 - an overview

ICT is present in many of the H2020 areas. This guide is designed to help potential proposers find ICT-related topics across the different parts of H2020 in work programme 2018-20.

Like in previous work programmes (2014-15 and 2016-17), actions supported through the last phase of Horizon 2020 will cover the full innovation chain, from basic research to market uptake:

- Advanced research to uncover radically new technological possibilities and ICT contributions to upstream research and innovation are addressed in the "excellent science" part of the work programme, respectively under "future and emerging technologies" and "European research infrastructurers" (enfrastructurers)
- Research and innovation activities on generic ICT technologies either driven by industrial roadmaps or through a bottom-up approach are addressed in the 'leadership in enabling and industrial technologies' (LEIT) part of the work morranme.
- Multi-disciplinary application-driven research and innovation leveraging ICT to tackle societal challenges are addressed in the different 'societal challenges'.

However, although the overall structure of this work programme is similar to previous ones, a few changes need to be

- A new part is introduced to implement a pilot of the European Innovation Council (EIC), bringing together several innovation support schemes: the SME Instrument, the Fast Track to Innovation (FTI), FET Open, and Horizon Prizes Each addresses the needs of a particular community in the innovation ecosystem.
- Activities aiming at supporting innovative SMEs through the dedicated SME instrument are now all grouped together in a single fully bottom-up togic.
- As part of the EIC pilot, FET Open should provide a bold exploratory engine that shatters the frontiers of current thinking, and aims at combining high scientific ambition with concrete technological implications.
- While the concept of focus area has been strengthened further, the 'cross-cutting activities' part introduced in the previous work programme is now replaced by virtually linked calls.
- A smaller rumber of major actions which out across the programme boundaries are implemented as focus areas. Each of these aligns with major political or polity drivers, and is endowed with a substantial budget to allow for work of sufficient scale, depth and breacth. The linking of topics from different parts of the work programme is achieved through aligning aspects of the implementation such as proposal submission deadlines and evaluation procedures, and also putting in place measures to share information and create synergies between ongoing projects throughout the life-cycle (e.g. publicity, project monitoring). At the same time, the 'contributing' calls and topics remain within the structure and logic of their respective work programme parts in Horizon 2020. Overall the expected effect is to get more from the same investment and build critical mass where it is needed.



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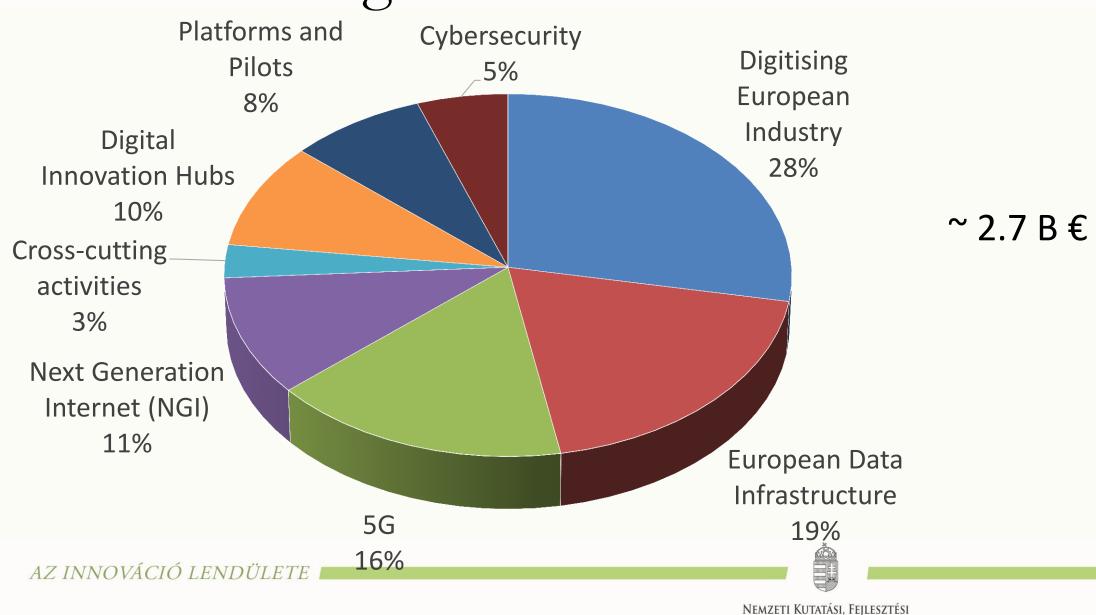
# Work Programme 2018-20



# Work Programme 2018 – 2020

- Technologies for Digitising European Industry: LAE, photonics, nano-electronics, smart systems, manufacturing, robotics
- European Data Infrastructure: HPC, Software, 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



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# Strategic Research Agendas

FP7

H2020

**ARTEMIS JTI** 

**ENIAC JTI** 

**Smart Systems R&D (EPoSS)** 

**Electronic Components & Systems JTI** 

**Factory of the Future PPP** 

**Future Internet PPP & SME Accelerator** 

**Expansion of use cases** 

**Networking R&D** 

**Photonics R&D** 

**Robotics R&D** 

5G PPP

**Photonics PPP** 

**Robotics PPP** 

**Advanced Computing** 

Content Technologies and Information Management

**Big Data PPP** 

Cyber Security PPP

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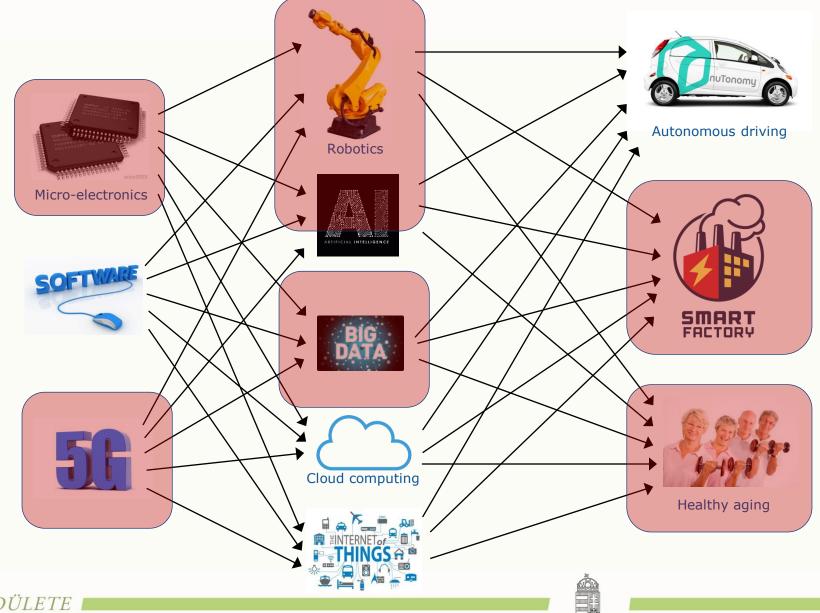
## 10 Public-Private Partnerships

- <u>Factories of the Future (FoF)</u>, 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€)
- <u>Sustainable Process Industry (SPIRE)</u>, to make the process industry more resource- and energy-efficient (900 M€)
- <u>Photonics</u>, 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€)
- <u>High Performance Computing (HPC)</u>, 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€)
- <u>Big Data Value PPP</u>, towards a data-driven economy in Europe (500 M€)
- Cyber Security PPP (450 M€)

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# Partnerships Digital Value Chain



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# Focus Area: Digitising & transforming European industry and services

#### **Mission**

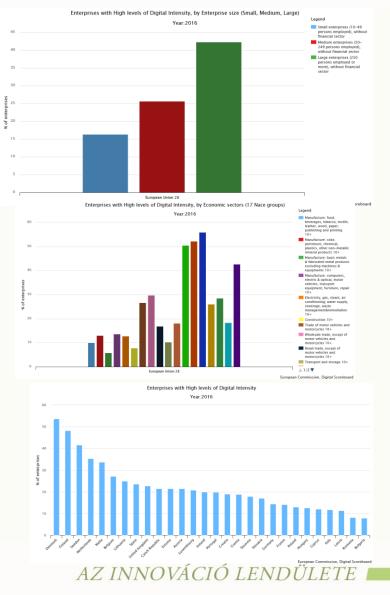
- ✓ Enabling all sectors and application areas to adapt, transform and benefit from digitisation, by allowing also smaller and newer players to capture value
- ✓ Develop industrial strategies, incl. new business models
- ✓ Connect to member states and regions, for synergies/align R&I agendas
- ✓ Removing barriers for innovation enabled by digitisation

#### Component

- ✓ Innovation hubs
- ✓ Cross-sectorial and integrated digital platforms and large-scale pilots for experimentation and co-creation with users



### 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.

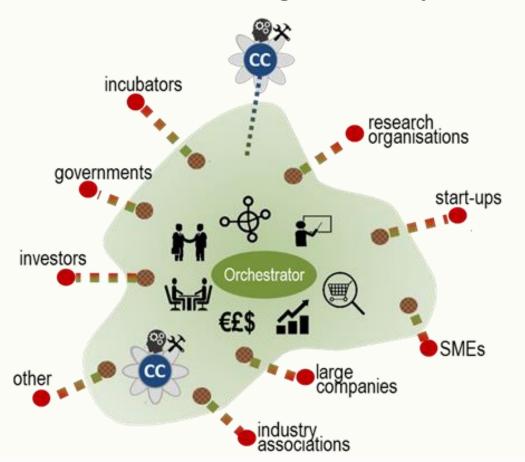
Only around 6% of companies in basic metals & fabricated metal products excluding machines & equipments are highly digitised.

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

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### WP 2018 - 2020 - ICT

Focus area "Digitising and transforming European industry and services" calls for digital innovation hubs

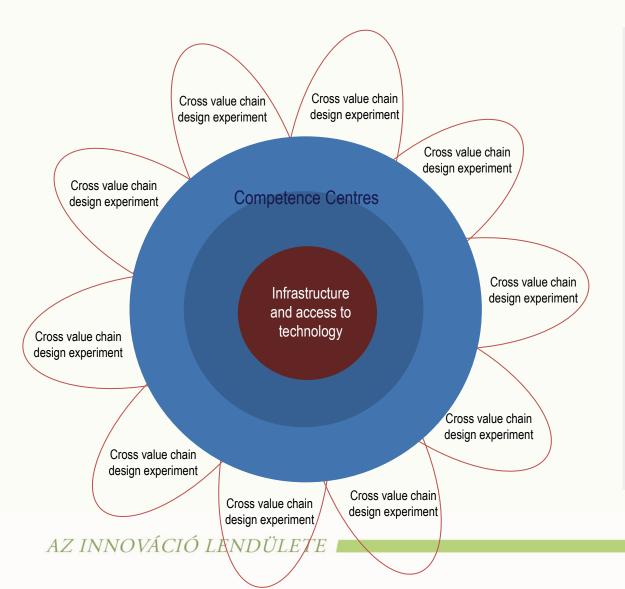
Innovation actions with the following characteristics:

- 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.

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#### 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 in SC2

Disclaimer: Preliminary information, workprogramme has not been approved yet

DT-RUR-12-2018: ICT Innovation agriculture – Digital Innovation Hubs for Agriculture



• To accelerate the adoption of ICT-based solutions for more productive and sustainable agriculture systems.

Innovation Action up to 10M €

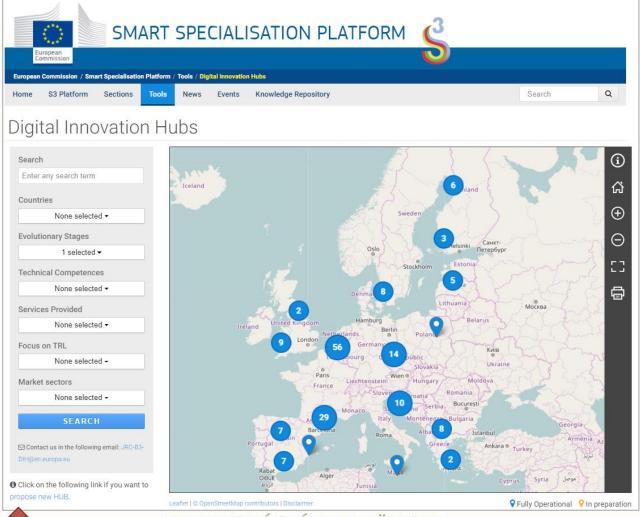


Topic published under the Societal Challenge 2 Work Programme "Food Security, sustainable agriculture and forestry, marine, maritime and inland water research and the bio economy".

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# Digital Innovation Hubs



 Catalogue of Digital Innovation Hubs around the EU:

http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool

 Add your Digital Innovation Hub to the catalogue:

http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool/-/dih/add hub





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# Digital Industrial Platforms

What do we mean?

X 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

X 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

It's a Spear!

It's a Rope!

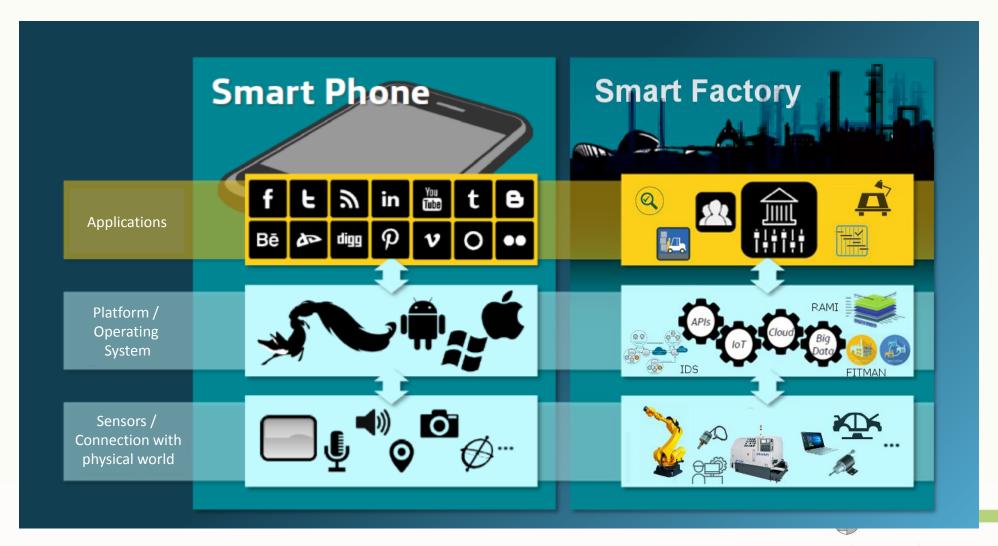
It's a Tree!

It's a Fan!

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# Digital Industrial Platforms

Smartphone analogy



Nemzeti Kutatási, Fejlesztési És Innovációs Hivatal

## Digital Industrial Platforms

Examples

Community-led sector-specific (vertical)



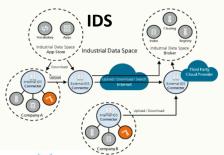
ISOBUS





Community-led cross-sector (horizontal)













Commercial with open interfaces



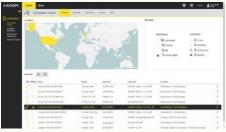


Photo: TRIIMP











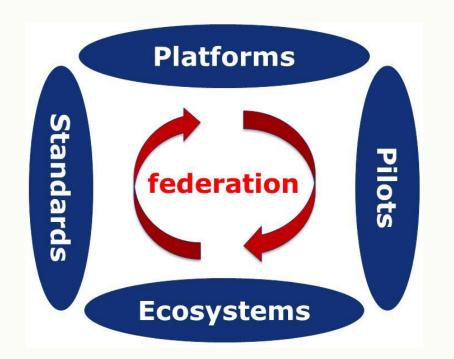
NEMZETI KUTATÁSI, FEJLESZTÉSI ÉS INNOVÁCIÓS HIVATAL

## Digital Industrial Platforms Alignment of R&I efforts

EU actors join forces along common interests Future global standards & platforms driven by interests of EU actors

#### Focus investments on:

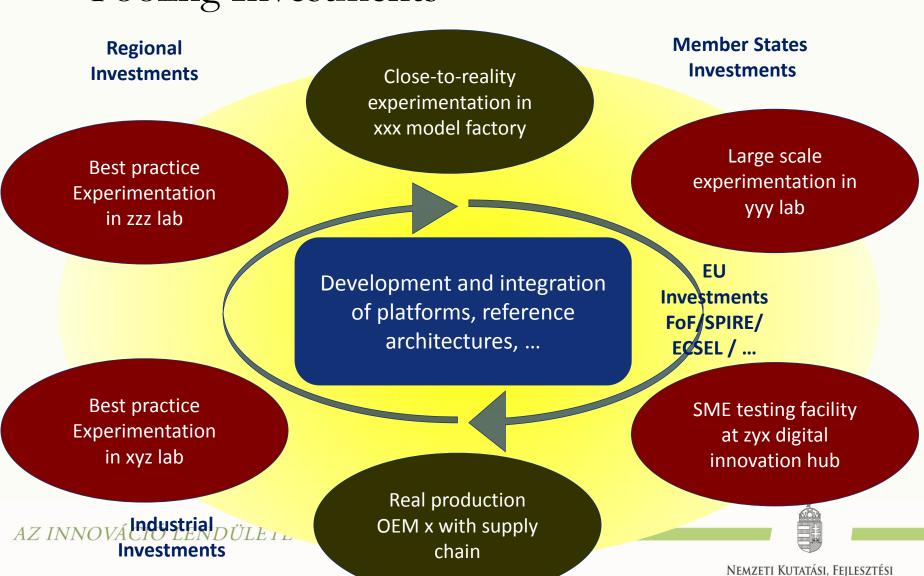
- Integration of key digital technologies
- Digital industrial platforms, reference architectures, ...
- Reference implementations, large-scale piloting, experimentation environments
- Ecosystem building and standardisation







# Digital Industrial Platforms Pooling Investments



Source: EU Commission

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### 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

•••

Source: EU Commission



#### 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...** 

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### WP 2018-2020

#### Focus Area

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

#### LEIT-ICT

•	DT-ICT-07-2018-2019: Digital Manufacturing Platforms for Connected Smart Factories	95 M€
•	DT-ICT-08-2019: Agricultural digital integration platforms	30 M€
•	DT-ICT-09-2020: Digital service platforms for rural economies	tbc
•	DT-ICT-10-2018-2019: Interoperable and smart homes and grids	30 M€
•	DT-ICT-11-2019: Big data solutions for energy	30 M€
•	DT-ICT-12-2020: The smart hospital of the future	tbc
•	DT-ICT-13-2019: Digital Platforms/Pilots Horizontal Activities	4 M€

#### SC1

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

60 M€

#### **LEIT-NMBP**:

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

20 M€



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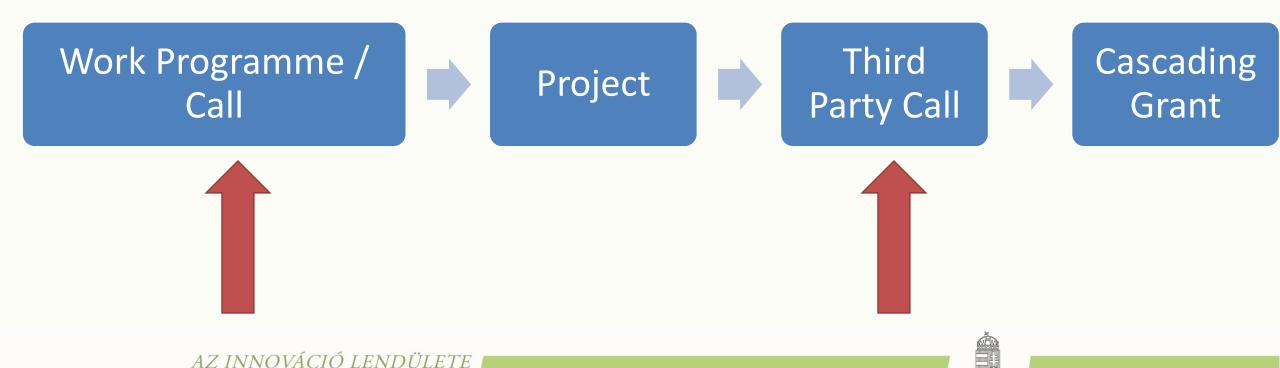
# Channels for H2020 ICT Funding

- 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

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### H2020 calls

- <u>I4MS</u> ICT Innovation for Manufacturing SMEs
- <u>SAE</u> 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
- Future Internet PPP Accelerators (FP7, closed)
- ECHORD ++ Robotics (FP7, closed)



# Upcoming open calls of DIH projects

(using FSTP)

)							
Project	Technology Area	Call 1	Call 2	Call 3	Call 4		
I4MS (Innovation for Manu	4MS (Innovation for Manufacturing SMEs) Initiative						
HORSE	Robotics	Nov.17	-	-	-		
ReconCell	Robotics	Nov.17	-	-	-		
L4MS	Logistics for Manufacturing	Sep.18	Sep.19	-	-		
CloudiFacturing	HPC cloud-based simulation services	Jul.18	Jul.19	-	-		
MIDIH	CPS/IoT for Manufacturing	Mar.18	Mar.19	-	-		
AMABLE	Additive Manufacturing	Mar.18	Mar.19	Mar.20	-		
SAE (Smart Anything Everywhere) Initiative							
FED4SAE	Cyber-Physical and Embedded Systems	Nov.17	May18	Nov.18	-		
TETRAMAX • Bilateral	Low energy computing powering CPS and IoT	Nov.17	Oct.18	Sep.19	Apr.20		
Value chain/     interdisciplinary		Feb.18	Dec.18	Oct.19	Apr.20		
Entrepreneurial		Aug.18	Aug.19	Aug.20	-		
DIATOMIC	Organic and large area electronics	Mar.18	Sep.18	-	-		
SMARTEES	Smart System Integration	Dec.17	Nov.18	-	-		
Other projects							
Data Pitch	Data brokerage between public sector organisations and SMEs	Jul.17-end of Sep.17	Autumn 18	-	-		

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### National Contact Point

Partner Search &

Rroposal Development



# NCP system in Hungary

- Free information on Horizon 2020 per thematic area
- Information days: <a href="http://nkfih.gov.hu/nemzetkozi-tevekenyseg/horizont-2020-rendezvenynaptar/nkfi-hivatal-h2020">http://nkfih.gov.hu/nemzetkozi-tevekenyseg/horizont-2020-rendezvenynaptar/nkfi-hivatal-h2020</a>
- Electronic / phone / personal information on funding opportunities and processes
- Personal consultations with potential applicants, feedback on project ideas and proposals
- H2020 news, events
- National H2020 website: <a href="http://www.h2020.gov.hu/">http://www.h2020.gov.hu/</a>





> Hello Edina Nemeth

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➤ Consortium Area

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Ideal-ist addresses ICT companies and research organizations worldwide wishing to find project partners for a participation in the Horizon 2020 program of the European Commission.

Ideal-ist offers a unique and quality-labelled Partner Search and other services helping to ease participation in Horizon 2020. Learn more <u>About ideal-ist</u>



Open calls

View All

- > 2016 Mobility for Growth
- > 2016-2017 Green Vehicles

Recent Partner Searches

PS-IL-102368: Range Anxiety's reduction for the L-Category Vehicles users



Information and Networking Days on Horizon 2020 Big Data PPP

1-1-2047

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### ICT Event 4-6 Dec 2018

Vienna



#### Information — Brokerage — Consortium Building - Exhibition

Web: https://ec.europa.eu/digital-single-market/en/events/ict-2018-imagine-digital-connect-europe

Twitter: <u>@ICT2018 eu</u>



### Thank you and get in touch!

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