Internet of Things
Striving for new Partnerships
IoT Large-Scale Pilots

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IoT Adoption is maturing

**European IoT Spending by Industry**
(2018 Size and 2018-2022 CAGR)

**IoT Adoption Across European Verticals**
(% of companies with more than 10 employees adopting at least one IoT solution in 2018)

### Verticals
- Finance
- Manufacturing
- Retail/Wholesale
- Professional Services
- Healthcare
- Transport
- Telecom/Media
- Utilities/O&G
- Government/Education

Source: IDC Worldwide Semiannual Internet of Things Spending Guide 2019
• An Action Plan DIGITISING EUROPEN INDUSTRY

Digital Platforms & Pilots
Work Programme 2018-20

- Focus Area on Digitisation & Transformation

**Horizon 2020 (300 M€ for 2018-20)**
- Next generation platform building and piloting through large scale federating projects
- Common EU-wide strategies pooling resources
Approach for Digital Industrial Platforms

Value chain

Functions

Processes

Manufacturing of goods and fluids
Agro-Food

Products

Energy
Automotive Mobility
Smart City / Home, Buildings

Health and well-being Industry

Sectors

Marketplace
Big Data and Cloud
Autonomous systems/ Artificial Intelligence
Cyber-physical and safety-critical Systems
IoT/Connectivity
Digital / electronic systems / components
FA IOT Pilot areas:

- **Pilot 1:** Smart living environments for ageing well (EU contr. 20 MEUR)
- **Pilot 2:** Smart Farming and Food Security (EU contr. 30 MEUR)
- **Pilot 3:** Wearables for smart ecosystems (EU contr. 15MEUR)
- **Pilot 4:** Reference zones in EU cities (EU contr. 15MEUR)
- **Pilot 5:** Autonomous vehicles in a connected environment (EU contr. 20 MEUR)

**Total budget:**

- 100 MEUR (funding rate: 70%)

[https://european-iot-pilots.eu/](https://european-iot-pilots.eu/)
Working in partnership with alliance AIOTI

Alliance for Internet of Things Innovation

Contribute to e.g.: Digital Single Market
Digitising European Industry
EC’s H2020 Large Scale Pilots

AIOTI WG03

Analyze landscape
Identify gaps, divergences, common concerns
Publish guidance and recommendations
Task sub-teams to address themes

Engage, disseminate and influence

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• **Strategy 2020 and beyond...**

- Support roll-out of digital transformation: a DIH in every region
- Collaboration of DIHs:
  - Best practices
  - Business models
- A digital Investment Programme for SMEs addressing the investment and knowledge gaps: DIH at the centre

**Next EU Multi-Annual Financial Framework 2021 - 27**

- Strategic partnerships with strong impact
- Digital Industrial Platforms:
  - led by EU actors
  - in key sectors
- Strengthen EU actors by overcoming fragmentation in standardisation

**Digital Day April 2018**
- 25 European countries States signed up to co-operate on **Artificial Intelligence**
- 22 European countries joined **Blockchain** Partnership
Strategy 2020 and beyond..

- Strategic partnerships with strong impact
- Digital Industrial Platforms:
  - Led by EU actors
  - In Key Sectors
- Strengthening EU actors by overcoming fragmentation in standardisation
HORIZON EUROPE
Investment Priorities 2021–2024

Clusters

Health

Inclusive and Secure Societies

Digital, Industry and Space

Climate, Energy and Mobility

Food and Natural Resources

Manufacturing Technologies

Key Digital Technologies

Advanced materials

Artificial Intelligence & Robotics

Next generation Internet

Advanced computing and Big Data

Circular industries

Space technologies
Evolution of the IOT Ecosystem

The complex infrastructure of thousands of connected objects distilled into a single ecosystem

Diverse Topology of Network connectivity and Protocols

The important role analytics systems, including AI/ edge/cloud analytics,

The sizable security challenges and increasing attack surface
2021–2027
Key Digital Technologies

Trends

KDTs + Disruptive technologies (More Ts)

Artificial Intelligence / Machine Learning
Edge-Computing (low-power processing)
Cryptography
DLT - Blockchains

Emerging Technologies
Neuromorphic / Quantum
AI on chip level
More than Moore:
“true” heterogeneous Integration
Si, SiGe, III/Vs (GaAs, GaN)
MEMS, NEMs, Photonics...
CMOS + non-CMOS Chiplets
Next Generation Internet: Data, Analytics, Transactions

- Exploding no. of transactions / volume
- Need ultra-fast communication, distributed processing and analytics
- Increasing real-time requirements
  - e.g. Autonomous Driving, Industry, Health, FinTech
R&D Drivers for Next Generation IoT

- Data-Centric and Secure Architectures
- Real-Time Applications
- 5G/6G Network infrastructures
- Edge Computing
- Distributed AI and Analytics
- Augmented Reality and Tactile I/F
A number of technological trends will thoroughly reshape the internet over the next 10-15 years.

Source: NLnet & Gartner; Next Generation Internet study
**Target:** Use strongholds in connectivity to secure EU industry positions across full value chain

**Services:** computing and storage, data analytics

**Networks:** numerous implementation scenarios, one versatile infrastructure

**Devices:** types of connected devices potentially unlimited

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**Business layer, business service/application requirements**
Evolution of Partnerships

- **Cluster 3:**
  - Partnership Area 2 (out of 8)
    - Advancing key digital and enabling technologies and their use

- **Digital-Centric Partnerships proposed:**
  - Smart Network & Services
  - EuroHPC
  - Key Digital Technologies

- **Launch of Impact Assessment & Strategic Plan**
  - Open online consultation June – August

- **Envisage Presentation of Partnership Portfolio & Policy**
  - At R&I Days Event 24-26 September 2019
Council in June 2019
Negotiation Box
Background & Useful links:

- **Digitising European Industry Strategy (DEI):**
  

- **Supporting and Building Platforms under DEI**
  

- Workshop [Open MARKETPLACES to spur innovative energy services](https://ec.europa.eu/digital-single-market/en/industrial-platforms-and-large-scale-pilots)
  
  - EC (ENER + E4) Workshop co-organised with AIOTI on 22 Oct. 2018 in Brussels

- **AIOTI White Paper on IoT Data Market Places – Drivers and Architectures**
  
  - Authors: O. Elloumi, T. de Block, N. Samovich - See alliance AIOTI.eu

- **AIOTI White Paper on IoT Relation and Impact on 5G**
  
  - Authors: G. Karagiannis, Th. Klein - See alliance AIOTI.eu

- “Artificial Intelligence and Digital Innovation Hubs for the European industry beyond 2020”
  
  - EC 13-15 November 2019 in Madrid (Spain)

- **IoT Week 2019**
  
  - 18-20 June 2019 in Aarhus (Denmark)