

 #DigitiseEU

Upcoming I4MS and AI calls in H2020

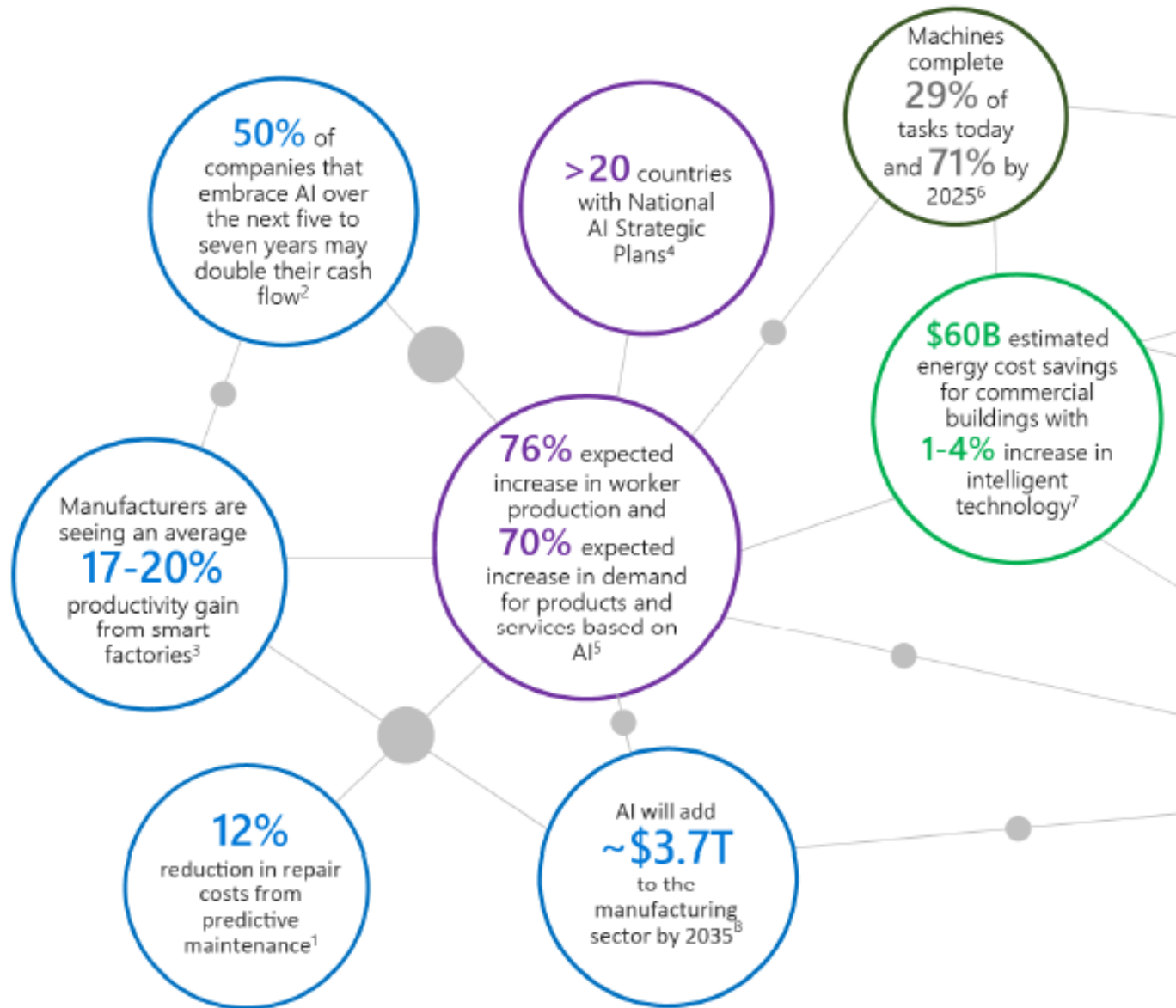


05 November 2019, Innovation&Manufacturing Brokerage Event

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

Artificial Intelligence for Manufacturing

What do analysts say?



Artificial Intelligence for Manufacturing

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"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://](https://www.de.digital/DIGITAL/Redaktion/EN/Standardartikel/artificial-intelligence-strategy.html)

www.de.digital/DIGITAL/Redaktion/EN/Standardartikel/artificial-intelligence-strategy.html

Manufacturers are seeing a 17% increase in production from factories

76% expected increase in worker productivity and

1-4% increase in intelligent technology?

"Accenture's research suggests AI will add approximately US\$3.7 trillion to the manufacturing sector by 2035."

[https://www.accenture.com/](https://www.accenture.com/acnmedia/PDF-74/Accenture-Pov-Manufacturing-Digital-Final.pdf)

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"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://](https://www.forbes.com/sites/jonmarkman/2019/02/26/artificial-intelligence-beats-the-hype-with-stunning-growth/)

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**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**

BOOSTING EU'S TECHNOLOGICAL AND INDUSTRIAL CAPACITY: 2018 - 2020



€1.5 billion EC investments into AI in 2018-20
70% increase of annual investment



Basic and
industrial
research



AI-on-demand
platform



Network of AI-
focused Digital
Innovation Hubs
(DIHs)



Strengthening
AI research
excellence
centres



Setting up
industrial data
platforms

BOOSTING THE EU'S TECHNOLOGICAL AND INDUSTRIAL CAPACITY: BEYOND 2020

Increasing investments into AI
from €4-5 billion / year today
to €20 billion / year in the 2020s

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

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
- 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>

Scope Coordination and Support Actions:

- **Standardisation**
 - **Extend, further develop, and support implementation of a model for synchronisation of standardisation activities on AI and related digital technologies in manufacturing at large**
 - At Member State, European level, in global context
 - Taking into account legal and ethical issues where relevant
 - Building on previous activities, e.g. Joint MSP/DEI Working Group on standardisation in support of Digitising European Industry*
- **Cooperation EU-Japan**
 - **Support possible cooperation with Japan in AI-driven innovation in manufacturing and digital industrial platforms**
 - Assess opportunities and kick-off cooperation activities
 - Twinning with Japanese projects to exchange knowledge and experience, exploit synergies and develop recommendations for collaboration activities

* <https://ec.europa.eu/digital-single-market/en/news/final-workshop-standardisation-support-digitising-european-industry-initiative-report-and>

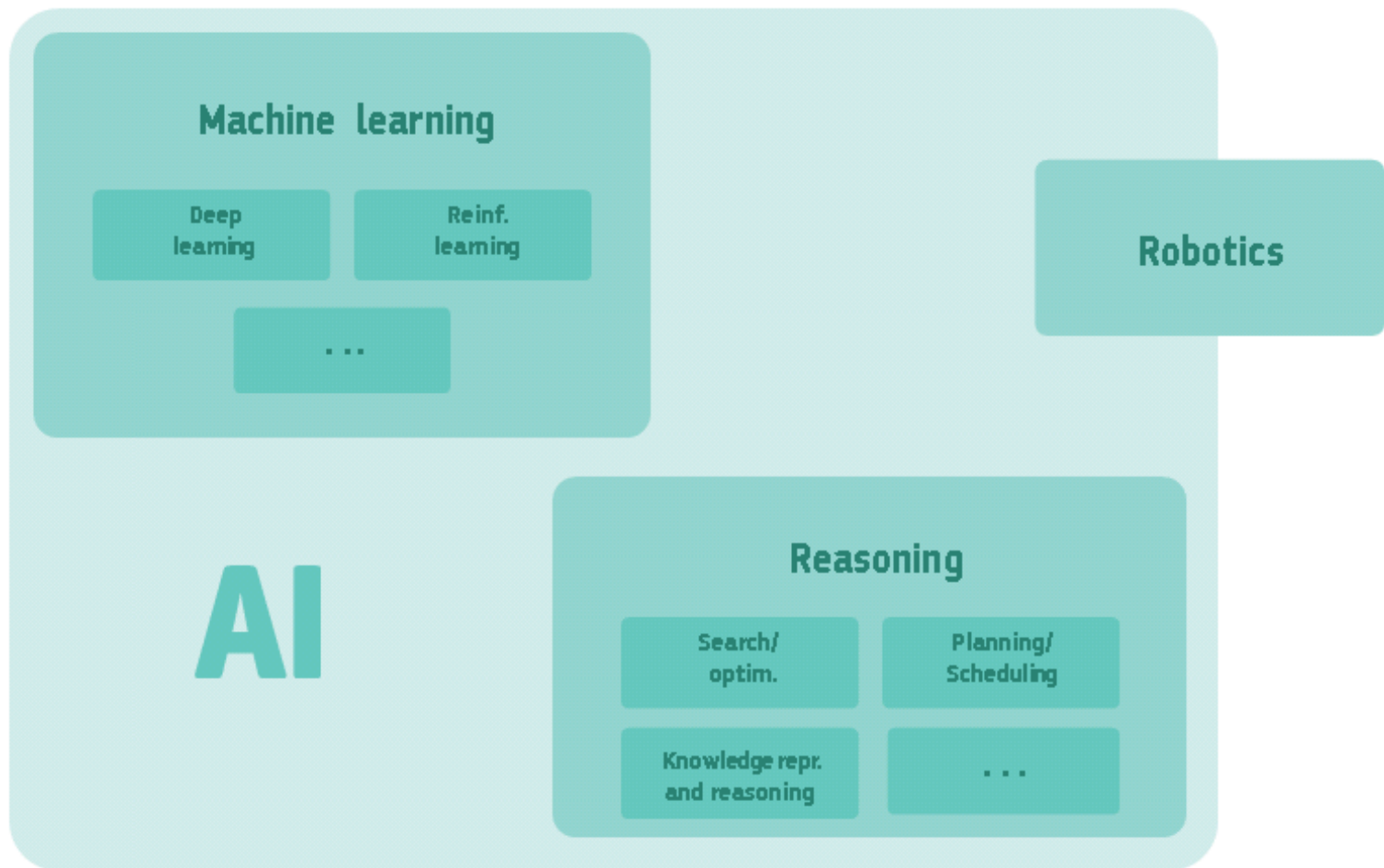
Expected impact:

- 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

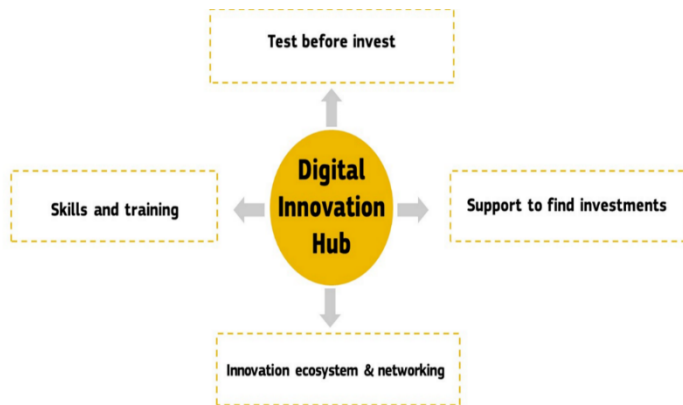
RIA: 47 M€, between 4 and 6 M€ would be appropriate,

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



- DEI Stakeholder Forum, 13-15 Nov 2019, Madrid
 - [https://
ec.europa.eu/digital-single-market/en/news/digitising-europe
an-industry-stakeholder-forum-2019](https://ec.europa.eu/digital-single-market/en/news/digitising-europe-an-industry-stakeholder-forum-2019)
- Webinar, 18 Nov 2019, 11.00 CET
 - [https://
ec.europa.eu/digital-single-market/en/news/info-session-horizo
n-2020-artificial-intelligence-manufacturing](https://ec.europa.eu/digital-single-market/en/news/info-session-horizon-2020-artificial-intelligence-manufacturing)

- Digital Innovation Hubs provide technological expertise and experimentation opportunities to enable the digital transformation of the industry and the public sector

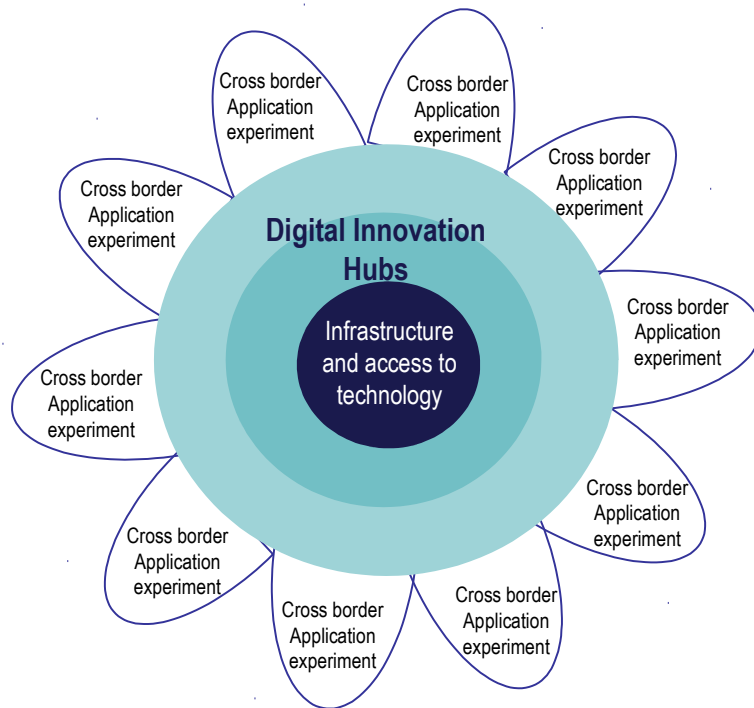


Focus area "Digitising and transforming European industry and services"

- DT-ICT-01-2019: Smart Anything Everywhere (SAE)
- DT-ICT-02-2018: Robotics – Digital Innovation Hubs
- **DT-ICT-03-2020: I4MS (phase 4) - uptake of digital game changers**
- **DT-ICT-04-2020: Photonics Innovation Hubs**
- **DT-ICT-05-2020: Big Data Innovation Hubs**
- DT-ICT-06-2018: Coordination and Support Activities for Digital Innovation Hub network
- In SC2: DT-RUR-12-2018: ICT Innovation agriculture – Digital Innovation Hubs for Agriculture (DG AGRI budget)

- Consortia should be deeply rooted in regional/national innovation ecosystems
- Critical mass of highly innovative, cross border experiments. At least 50% of the budget should directly benefit SMEs or slightly bigger companies. Financial Support to Third Parties may be used.
- Activities should aim at long-term sustainability and include a business plan for the DIHs, 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 highly innovative experiments



Develop novel products or services, improve processes with digital technologies.

Bring together actors along value chain.

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

Facilitate cost-effective small-scale production

All proposed innovation actions may involve financial support to third parties (typically in the order of EUR 20.000 – 100.000 per third party)

Accelerate design, development and uptake of advanced digital technologies by European industry – especially SMEs and mid-caps. Manufacturing SMEs and mid-caps need support in using secure digital technologies in production processes, products and business models to enable personalised products and to facilitate cost-effective small-scale production

Innovation Actions

- Digital Innovation Hubs that strengthen European SMEs and mid-caps by experimenting and testing in one or more areas. Identify area of centre of gravity
- Cover manufacturing sector at large, including discrete manufacturing, continuous production, and construction.
- If appropriate, building ecosystems around digital industrial platforms driven by European actors should be supported
- Minimising entry barriers and demonstrating added value of technologies, making SMEs and mid-caps more competitive by transferring innovative solutions into the wider manufacturing community. Special attention should be given to security considerations and to the development of skills.

Innovation Actions, Areas

- Smart modelling, simulation, and optimisation for digital twins
- Laser based equipment in advanced and additive manufacturing
- Innovative Artificial Intelligence in manufacturing
- Cognitive autonomous systems and human-robot interaction
- Widening Digital Innovation Hubs

Up to 8 M€ would be appropriate

At least one IA for each area, with the exception of the Widening Digital Innovation Hubs area, for which one IA is supported

Innovation Actions – 70 M€

+ CSA – 1 M€

13 November 2019 17h00

Innovation Actions – 70 M€

+ CSA – 1 M€

13 November 2019 17h00

Coordination and Support Actions

- Support network of Digital Innovation Hubs, help achieve broad coverage in technological, application, innovation, and geographic terms, and link up with regional/national innovation initiatives, and other Digital Innovation Hubs
- Build on previously developed tools and innovation portal and aim to further improve them for the benefit of new Innovation Actions
- Help in sharing best practices, dissemination, brokering between users and suppliers, leveraging investment and training, and organise events
- Cooperation with EFFRA, and with relevant CSAs

Up to 1 M€ would be appropriate

Expected Impact

- Attract a significant number of new users of advanced ICT in the manufacturing sector, and more innovative technology suppliers, in particular SMEs and mid-caps
- A sustainable network of Digital Innovation Hubs, providing European added value to investments done at national and regional level in Digital Innovation Hubs and reaching a high leveraging effect on other sources of funding, in particular regional and national funding

Thank you!

Contacts



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