Towards AI powered manufacturing services, processes, and products in an edge-to-cloud-knowlEdge continuum for humans [in-the-loop]

Fact Sheet

Project Information

<table>
<thead>
<tr>
<th>knowlEdge</th>
<th>Funded under</th>
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<tbody>
<tr>
<td>Grant agreement ID: 957331</td>
<td>H2020-EU.2.1.1.</td>
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<th>Start date</th>
<th>End date</th>
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<td>1 January 2021</td>
<td>31 December 2023</td>
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<th>Overall budget</th>
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<td>€ 5 996 151,25</td>
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Coordinated by
TEKNOLOGIAN
TUTKIMUSKESKUS VTT OY
Finland

Project description

Novel artificial intelligence platform could transform knowledge exchange

Artificial intelligence (AI) is the software engine for the fourth industrial revolution that is changing the way we live and work. However, the complex technologies and the lack of skilled talent are barriers to progressing AI and thus increasing product quality and business sustainability. The EU-funded knowlEdge project will address the need for new AI solutions that are agile, reusable, distributed, scalable, accountable, secure, standardised and collaborative. The proposed new framework
will ensure the secure management of distributed data and facilitate knowledge exchange. To achieve its goal, the project will combine innovative technologies from data management, data analytics and knowledge management.

**Objective**

AI is one of the biggest mega-trends towards the 4th industrial revolution. While these technologies promise business sustainability and product/process quality, it seems that the ever-changing market demands and the lack of skilled humans, in combination with the complexity of technologies, raise an urgent need for new suggestions. Suggestions that will be agile, reusable, distributed, scalable, accountable, secure, standardized and collaborative. To break the entry barriers for these technologies and unleash their potential, the knowlEdge project will develop a new generation of AI methods, systems and data management infrastructure. This framework will provide means for the secure management of distributed data and the computational infrastructure to execute the needed analytic algorithms and redistribute the knowledge towards a knowledge exchange society. To do so, knowlEdge proposes 6 major innovations in the areas of data management, data analytics and knowledge management: (i) A set of AI services that allow the usage of edge deployments as computational and live data infrastructure, an edge continuous learning execution pipeline; (ii) A digital twin of the shop-floor to test the AI models; (iii) A data management framework deployed from the edge to the cloud ensuring data quality, privacy and confidentiality, building a data safe fog continuum; (iv) Human-AI Collaboration and Domain Knowledge Fusion tools for domain experts to inject their experience into the system to trigger an automatic discovery of knowledge that allows the system to adapt automatically to system changes; (v) A set of standardization mechanisms for the exchange of trained AI-models from one context to another; (vi) A knowledge marketplace platform to distribute and interchange AI trained models. The knowlEdge consortium consists of 12 partners from 7 EU countries, and its solution will be tested and evaluated in 3 manufacturing sectors.

**Programme(s)**

**Topic(s)**

**Call for proposal**

H2020-ICT-2020-1

**Funding Scheme**
RIA - Research and Innovation action

Coordinator

TEKNOLOGIAN TUTKIMUSKESKUS VTT OY

Address
Tekniikantie 21
02150 Espoo
Finland

Activity type
Research Organisations

EU contribution
€ 766 901,25

Website
Contact the organisation

Participants (11)

FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

Germany

EU contribution
€ 783 750

Address
Hansastrasse 27C
80686 Munchen

Activity type
Research Organisations

Website
Contact the organisation

ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS

Greece

EU contribution
€ 654 000

Address
Charilaou Thermi Road 6 Km 6
57001 Thermi Thessaloniki

Activity type
Research Organisations

Website
Contact the organisation

NEXTWORKS

Italy

EU contribution
€ 337 375

Address
Via Livornese 1027

Activity type
Private for-profit entities
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<td>Higher or Secondary Education Establishments</td>
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<tr>
<td>BARCELONA SUPERCOMPUTING CENTER-CENTRO NACIONAL DE SUPERCOMPUTACION</td>
<td>Spain</td>
<td>€ 536 875</td>
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<td>INFORMATION CATALYST FOR ENTERPRISE LTD</td>
<td>United Kingdom</td>
<td>€ 582 500</td>
<td>St Georges Court Winnington Avenue CW8 4EE Northwich Cheshire</td>
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FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY

Italy
EU contribution
€ 438 500
Address
Via Pier Carlo Boggio 61
10138 Torino
Activity type
Research Organisations
Contact the organisation

PARMALAT SPA

Italy
EU contribution
€ 417 500
Address
Via Delle Nazioni Unite 4
43044 Collecchio
Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)
Contact the organisation

KAUTEX TEXTRON GMBH & CO KG

Germany
EU contribution
€ 455 000
Address
Kautexstrasse 52
53229 Bonn
Activity type
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(excluding Higher or Secondary Education Establishments)
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