

Optimizing Manufacturing Processes through Artificial Intelligence and Virtualization

Fact Sheet

Project Information

OPTIMAI

Grant agreement ID: 958264



DOI

10.3030/958264

Start date

1 January 2021

End date

31 December 2023

Funded under

INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Advanced manufacturing and processing

Total cost

€ 10 453 125

EU contribution

€ 8 359 087,50

Coordinated by

ETHNIKO KENTRO EREVNAS
KAI TECHNOLOGIKIS
ANAPTYXIS
Greece

Project description

Advanced technologies for smart industries

Industry is the backbone of the European economy. Enabling technologies like artificial intelligence (AI) and digital twins (DT) are powering remarkable growth potential and driving the next generation of industry. Using these technologies, the EU-funded OPTIMAI project will strive to strike an optimal balance between fast, cheap and reliable production choices that have a big impact on the competitiveness

of an industry. To this end, the project will develop smart instrumentation of production with AI-enabled sensors for quality inspection and monitoring. Using AI models, collected data will be analysed for the early detection of defects, the identification of upstream deficiencies and the reconfiguration of production parameters. To optimise production planning, the project will virtualise production using digital twins of processes and sensors.

Objective

"There is a common saying in industry, and more generally in engineering ""fast, cheap, reliable, choose two out of three"". This saying captures the trade-off between resources, production time, quality and performance that are inherent in every manufacturing process. Conceptually, different points on this ""Pareto front"" correspond to different production choices and directly affect the competitiveness of an industry. OPTIMAI aims to redefine and optimize this Pareto front through integrating several enabling technologies in a common framework.

The starting point for OPTIMAI is the smart instrumentation of production with AI-enabled sensors for quality inspection and monitoring, integrated on a secure middleware layer. To ensure data integrity and traceability, OPTIMAI foresees distributed ledger technology combined with a cyber-security module. Collected data are analysed using AI models for the early detection of defects and upstream causes of deficiencies. OPTIMAI also explores the virtualization of production using digital twins of processes and sensors that combined with AI models trained on production data, form a simulation engine for exploring production scenarios and optimizing production planning. Another innovative point is the rapid reconfiguration of production equipment via automated feedback from quality control results or via a context aware Augmented Reality ecosystem for fast and informed decision making. At the same time OPTIMAI put emphasis on establishing a comprehensive ethics and regulatory framework for the deployment of its technology realizing that a production line is a workplace and as such concerns related to privacy, protection of human rights and safety have to be carefully addressed before any kind of technology is adopted. OPTIMAI foresees an extended pilot phase on three industrial sites covering a representative sample of European industry in order to maximize its impact and facilitate commercial uptake."

Fields of science

[social sciences](#) › [economics and business](#) › [economics](#) › [production economics](#)

[natural sciences](#) › [computer and information sciences](#) › [artificial intelligence](#)

[engineering and technology](#) › [electrical engineering, electronic engineering, information engineering](#) › [electronic engineering](#) › [sensors](#)

[social sciences](#) › [law](#) › [human rights](#)

Programme(s)

H2020-EU.2.1.5. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Advanced manufacturing and processing MAIN PROGRAMME

H2020-EU.2.1.5.1. - Technologies for Factories of the Future

Topic(s)

DT-FOF-11-2020 - Quality control in smart manufacturing (IA)

Call for proposal

H2020-NMBP-TR-IND-2018-2020

[See other projects for this call](#)

Sub call

H2020-NMBP-TR-IND-2020-singlestage

Funding Scheme

IA - Innovation action

Coordinator



ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΕΡΕΥΝΑΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΚΗΣ ΑΝΑΠΤΥΞΗΣ

Net EU contribution

€ 1 300 000,00

Address

**Charilaou Thermi Road 6 Km
57001 Thermi Thessaloniki
Greece**

Activity type

Research Organisations

Non-EU contribution

€ 0,00

[Contact the organisation](#)

Region

**Θεσσαλονίκη > Κεντρική
Μακεδονία > Βόρεια Ελλάδα**

[Website](#)

[Participation in EU R&I
programmes](#)

Participants (15)



FINT FUTURE INTELLIGENCE LIMITED

Cyprus

Net EU contribution

€ 510 562,50

SME Yes

Address

**Gladstonos 116, M Kyprianou
House, 3-4Th Floor
3032 Limassol**

[Contact the organisation](#)

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 218 812,50

[Participation in EU R&I
programmes](#)



IDRYMA TECHNOLOGIAS KAI EREVNAS

Greece

Net EU contribution

€ 955 625,00

Address

**N Plastira Str 100
70013 Irakleio**

[Contact the organisation](#)

Activity type

Research Organisations

Non-EU contribution

€ 0,00

[Website](#)

Region

**Ηράκλειο > Κρήτη > Νησιά
Αιγαίου**

[Participation in EU R&I
programmes](#)



EVT EYE VISION TECHNOLOGY GMBH

Germany

Net EU contribution

€ 411 250,00

Address

Activity type

Non-EU contribution

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Gartenstrasse 26
76133 Karlsruhe

[Contact the organisation](#)

Region

Baden-Württemberg >
Karlsruhe > **Karlsruhe,**
Stadtkreis

Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)

€ 176 250,00

[Participation in EU R&I](#)
[programmes](#)



VISUAL COMPONENTS OY

+ Finland

Net EU contribution

€ 616 875,00

SME **i** Yes

Address

Vanrikinkuja 2
02600 Espoo

[Contact the organisation](#)

Region

Manner-Suomi > **Helsinki-**
Uusimaa > **Helsinki-Uusimaa**

Activity type

Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)

Non-EU contribution

€ 264 375,00

[Website](#)

[Participation in EU R&I](#)
[programmes](#)



YOUBIQUO SRL

🇮🇹 Italy

Net EU contribution

€ 426 475,00

SME **i** Yes

Address

Via Gaetano Filangieri 127
84013 Cava De Tirreni Sa

[Contact the organisation](#)

Region

Sud > **Campania** > **Salerno**

Activity type

Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)

Non-EU contribution

€ 182 775,00

[Participation in EU R&I](#)
[programmes](#)



PANEPISTIMIO THESSALIAS

Greece

Net EU contribution

€ 344 375,00

Address

**Argonafton Filellinon
38221 Volos**

[Contact the organisation](#)

Activity type

**Higher or Secondary
Education Establishments**

Non-EU contribution

€ 0,00

Region

**Μαγνησία > Θεσσαλία >
Κεντρική Ελλάδα**

[Website](#)

[Participation in EU R&I
programmes](#)



ENGINEERING - INGEGNERIA INFORMATICA SPA

Italy

Net EU contribution

€ 627 375,00

Address

**Piazzale Dell'agricoltura 24
00144 Roma**

[Contact the organisation](#)

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 268 875,00

[Website](#)

[Participation in EU R&I
programmes](#)



UNIMETRIK SA

Spain

Net EU contribution

€ 439 775,00

SME Yes

Address

**San Blas 11 - Pol Ind De Gijain
01170 Legutiano**

[Contact the organisation](#)

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 188 475,00



UNIVERSITAT POLITECNICA DE VALENCIA

Spain

Net EU contribution

€ 323 125,00

Address

Camino De Vera Sn Edificio
3A
46022 Valencia

Activity type

Higher or Secondary
Education Establishments

Non-EU contribution

€ 0,00

[Contact the organisation](#) [↗](#)

Region

Valencia/València > Comunitat
Valenciana

[Website](#) [↗](#)

[Participation in EU R&I
programmes](#) [↗](#)



CARR COMMUNICATIONS LIMITED

Ireland

Net EU contribution

€ 346 937,50

SME [i](#) Yes

Address

24 Fitzwilliam Place
A96 PR60 Dublin

Activity type

Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)

Non-EU contribution

€ 148 687,50

[Contact the organisation](#) [↗](#)

Region

Ireland > Eastern and Midland
> Dublin

[Website](#) [↗](#)

[Participation in EU R&I
programmes](#) [↗](#)



UNIVERSIDAD AUTONOMA DE BARCELONA

Spain

Net EU contribution

€ 549 875,00

Address

**Calle Campus Universitario
Sn Cerdanyola V
08290 Cerdanyola Del Valles**

[Contact the organisation](#)

Activity type

**Higher or Secondary
Education Establishments**

Non-EU contribution

€ 0,00

Region


Barcelona > Cataluña

[Website](#)

[Participation in EU R&I
programmes](#)



TRILATERAL RESEARCH LIMITED

 Ireland

Net EU contribution

€ 475 125,00

SME  Yes

Address

**Fdw House Blackthorn
Business Park Coes Road
Dundalk Louth**

[Contact the organisation](#)

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 203 625,00

Region

**Ireland > Eastern and Midland
> Mid-East**

[Participation in EU R&I
programmes](#)



KLEEMANN HELLAS SA

Greece

Net EU contribution

€ 256 025,00

Address

**Industrial Area Of Stavrochori
Kilk
611 00 Kilkis**

[Contact the organisation](#)

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 109 725,00

Region

Κιλκίς > Κεντρική Μακεδονία

[Participation in EU R&I
programmes](#)



TELEVES SA

Spain

Net EU contribution

€ 434 437,50

Address

**Rua Benefica De Conxo 17
15706 Santiago De
Compostela**

[Contact the organisation](#)

Region

Galicia > A Coruña

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 186 187,50

[Participation in EU R&I
programmes](#)



MICROCHIP TECHNOLOGY CALDICOT LIMITED

United Kingdom

Net EU contribution

€ 341 250,00

Address

**Phase 2 Castlegate Business
Park
NP26 5YW Gwent**

[Contact the organisation](#)

Region

**Wales > East Wales >
Monmouthshire and Newport**

Activity type

**Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)**

Non-EU contribution

€ 146 250,00

[Participation in EU R&I
programmes](#)

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