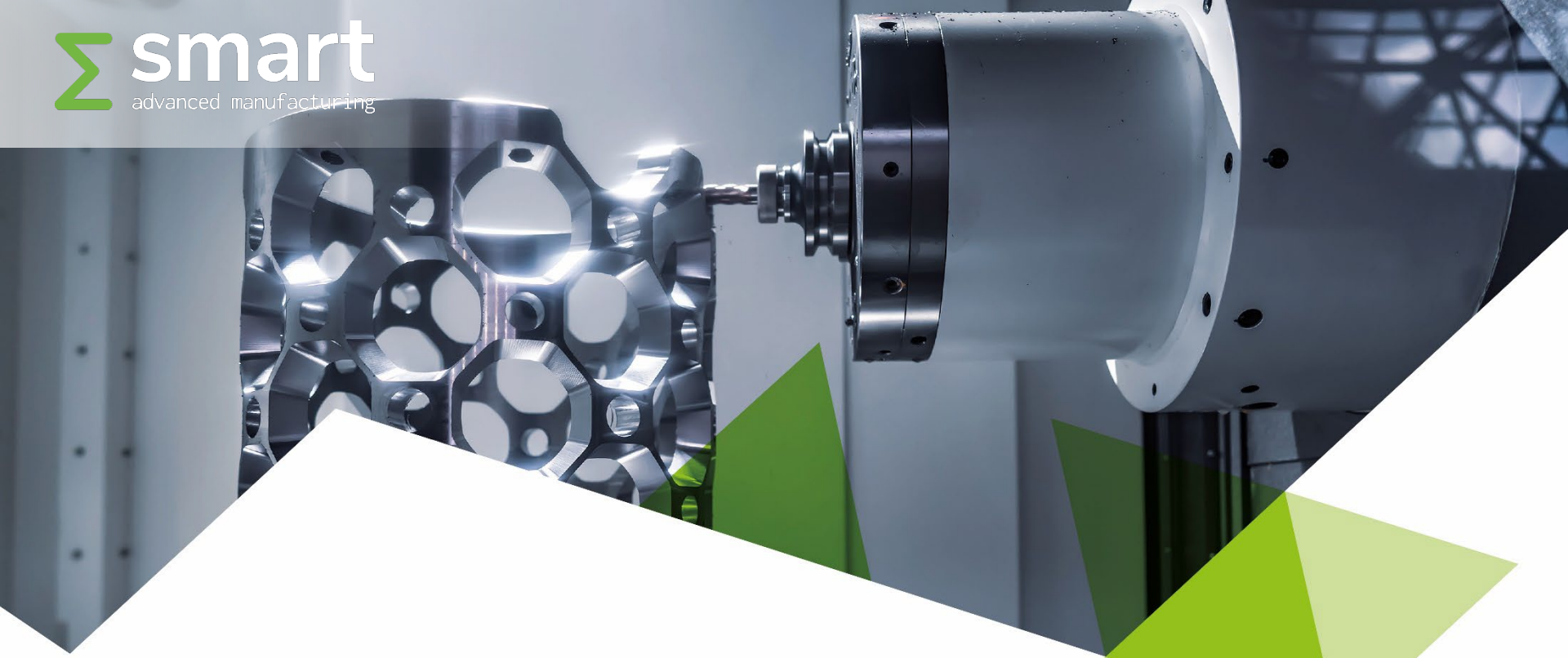
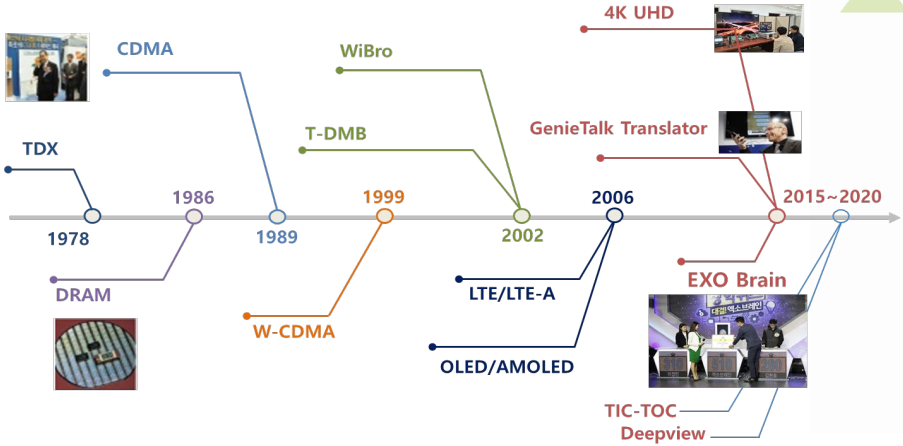
smart
advanced manufacturing

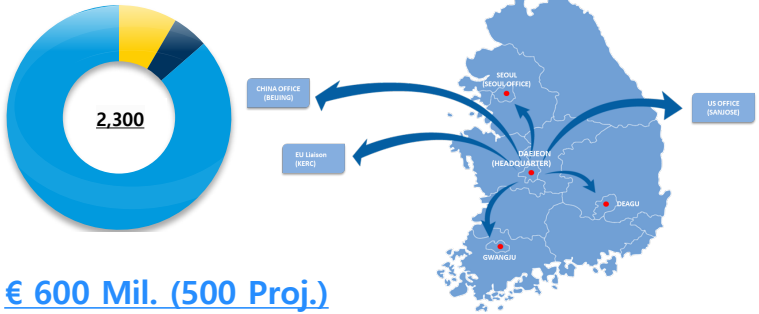


Optimization solution development through AI and simulation integration


smart
advanced manufacturing

smart
advanced manufacturing





€ 600 Mil. (500 Proj.)

Artificial Intelligence Research Lab.

- Supercomputing Research Center
- DNA+Drone Platform Research Center
- Intelligence Information Research Division
- Future Computing Research Division
- AI SoC Research Division
- Intelligent Robotics Research Division
- Autonomous Unmanned Vehicle Research Dept

Telecommunications & Media Research Lab.

- Future Mobile Comm. Research Division
- Network Research Division
- Radio & Satellite Research Division
- Media Research Division
- Creative Content Research Division

Intelligent Convergence Research Lab.

- Technology Policy Research Division
- Standards & Open Source Research Division
- Cyber Security Research Division
- Smart ICT Convergence Research Department
- City & Transportation ICT Research Department
- Welfare & Medical ICT Research Department
- Energy & Environment ICT Research Department
- Defense & Safety ICT Research Department

ICT Creative Research Lab.

- Future & Basic Technology Research Division
- Materials and Components Research Division
- Reality Devices Research Division
- Photonic/Wireless Devices Research Division
- Cyber Brain Research Department

PROPOSAL INTRODUCTION (I)

Vision :

- Integration technology development of AI and simulation for accurate and realistic future prediction

Motivation :

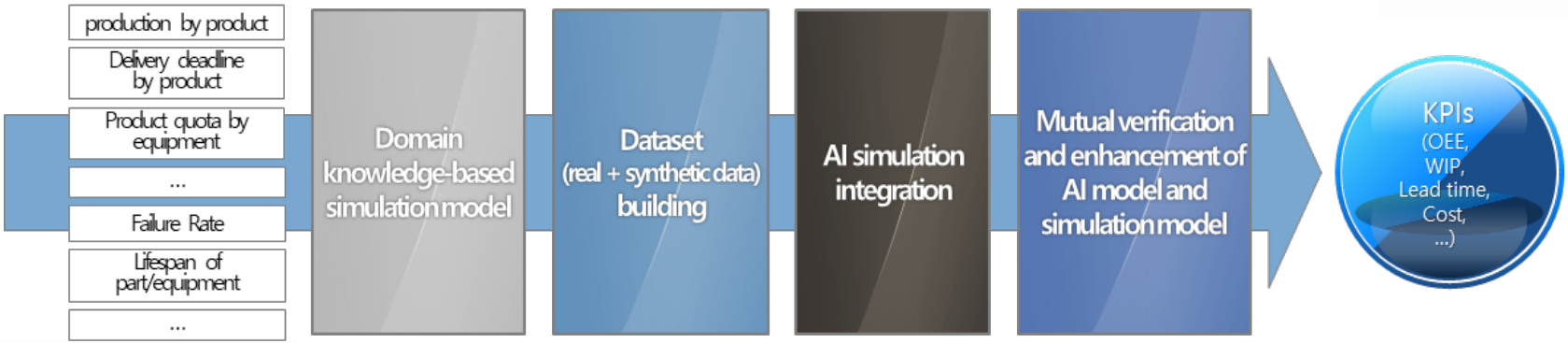
- To decrease gap(real world malfunction problem) between real environment and virtual simulation/prediction

Content :

- Simulation model development embedding AI model
- AI model development using real historical data and synthetic data
- Mutual verification technology development of AI model and simulation model
- International standardization : ISO TC 184/SC 5/WG 13 16400 series

PROPOSAL INTRODUCTION (I)

Optimization technology of reconfiguration through the integration of AI and simulation in cold forging manufacturing line



PROPOSAL INTRODUCTION (II)

Expected outcome :

- AI and simulation integration technology
- High-reliability digital twin technology through AI and simulation integration
- ISO TC 184/SC 5/WG 13 16400-6 describes a method to embed AI models in an EBC(Equipment Behaviour Catalogue) template

Impacts :

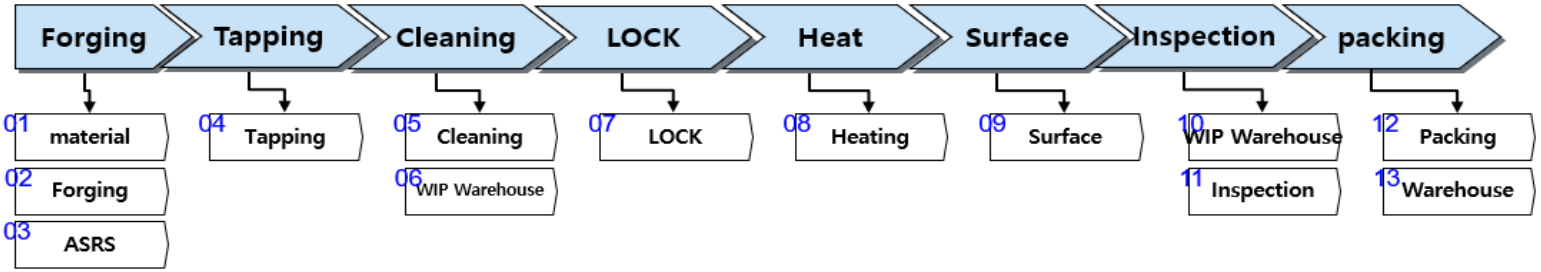
- Expansion of the digital twin market due to reliable digital twin services (e.g., quality/demand prediction, abnormal detection, etc.) by decreasing the gap between a real environment and a virtual simulation/prediction

Schedule :

- 2023~2025 (3 years)

Use Case: Cold forging manufacturing line that produces nuts

"ISPark": A leading company in the business of Digital Twin solutions on CAD/CAM/CAE/PLM and various manufacturing IT fields. Based on partnership with Dassault Systemes. They have many references from design to digital manufacturing and MES implementations in the manufacturing field such as Samsung, Hyundai Motors, LG and Doosan based on 3DEXPERIENCE Platform. "ISPark" also has a lot of experience in the AI and Metaverse businesses, which are at the forefront of technology. They have a lot of experience in performing projects, such as AI analysis demonstration in the making display process, XR shopping platform implementation, education and training contents production in military and manufacturing industry.



- Reduction of operating time due to failures such as sudden equipment error and mold breakage
- Resolve bottleneck problems and line balancing due to product item/quantity/delivery-date change
- Rapid response to product defects or design changes

PARTNERS

Current *Consortium :*

-

Partner search:

- Partners who can collect data and provide data

CONTACT INFO

Young-Ae CHUN (Principal Researcher)
yajeon@etri.re.kr

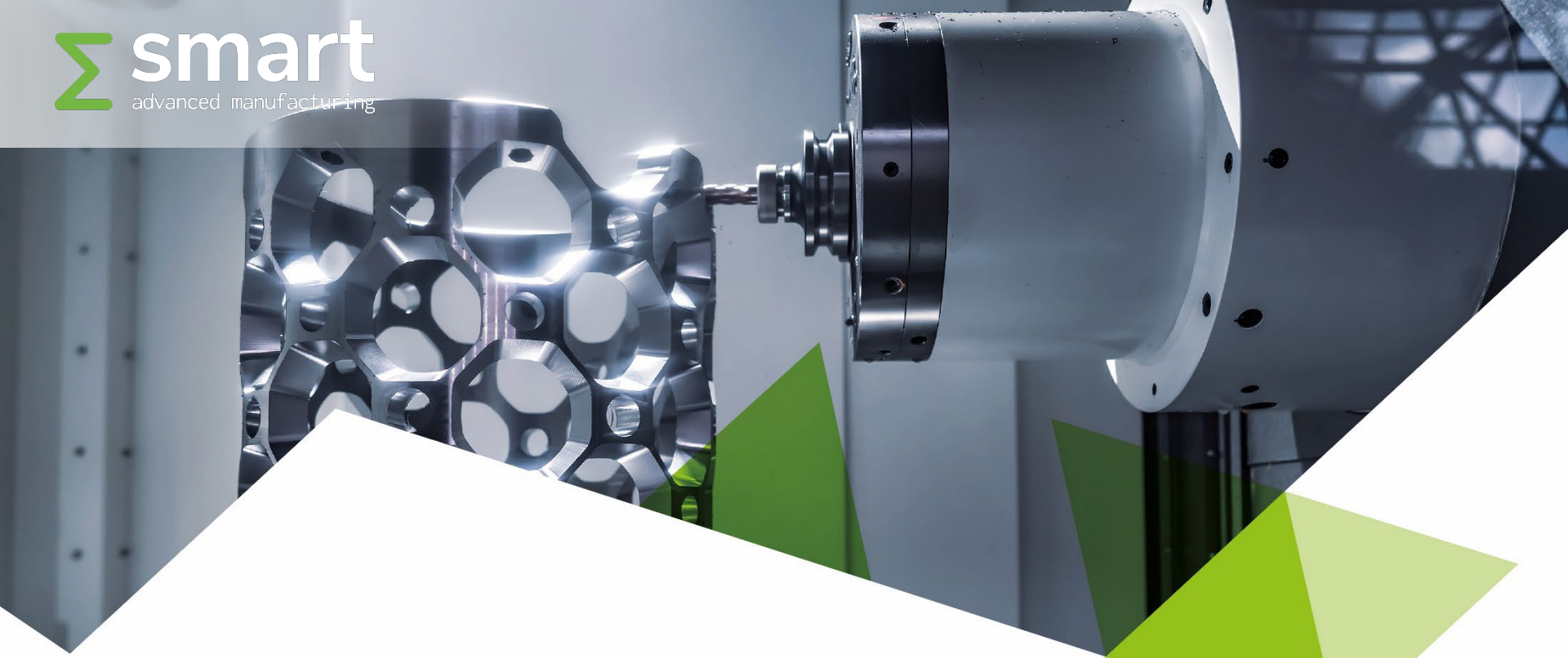
Industry and IoT Intelligence Research Department

ETRI
Electronics and Telecommunications Research Institute

Maia KIM (Policy Officer)
maia@k-erc.eu
NCP Horizon Europe---Digital, Industry & Space / Civil Security for Society

KERC
Korea-EU Research Centre

Rue de la science 14A, Brussels



THANK YOU

www.etri.re.kr