20th DECSoS Workshop on Dependable Smart Cyber-physical Systems and Systems-of-Systems

Workshop at SAFECOMP 2025, September 9th, Stockholm, Sweden

Erwin Schoitsch, AIT Austrian Institute of Technology
Amund Skavhaug, NTNU, Trondheim, Norway

Co-funded by the European Union

Dependable Cyberphysical Systems and SoS (1)

Welcome and Introduction

09:00 – 09:30 **DECSoS Workshop Introduction: European Research and Innovation Projects in the Field of Cyber-Physical Systems and Systems-of-Systems (Selective Overview on some EU Research projects),** *by Erwin Schoitsch and Amund Skavhaug.*

Session 1: Dependable AI "work in progress"

09:30 – 10:00 **Dependable AI Inference - A work-in-progress on CPU, Co-Processor and FPGA Approaches,** *by Carlos Rafael Tordoya T., Hans Dermot Doran, Pablo Ghiglino and Mandar Harshe.*

10:00 – 10:30 Coffee Break

Session 2: Autonomous Vehicles and Systems

10:30 – 11:00 **Methodology for Test Case Allocation based on a Formalized ODD,** *by Martin Skoglund, Fredrik Warg, Anders Thorsen, Sasikumar Punnekkat, and Hans Hansson.*

11:00 – 11:30 **Safety-Aware Strategy Synthesis for Autonomous System of Systems with UPPAAL,** *by Nazakat Ali, Muhammad Naeem, Julieth Patricia Castellanos Ardila, and Sasikumar Punnekkat.*

11:30 – 12:00 **From Bouncing Break-ins to Frictional Firewalls: Ideas about Interacting Requirements for Vehicle Safety and Security,** *by Luca Arnaboldi, David Aspinall, Christina Kolb and Sasa Radomirovic.*

12:00 – 13:00 Lunch Break

Dependable Cyberphysical Systems and SoS (2)

Session 3: Cybersecurity of complex Systems (of Systems)

13:00 – 13:30 **A ThreatGet-Based Framework for Aligning System Security with the Cyber Resilience Act,** *by Abdelkader Magdy Shaaban and Christoph Schmittner.*

13:30 – 14:00 **i7Fuzzer: Neural-Guided Fuzzing for Enhancing Security Testing of Stateful Protocols,** *by Loui Al Sardy, Avinash Rajendra Prasad , and Reinhard German.*

14:00 – 14:30 **Towards a Hybrid LLM-Based Intrusion Detection System for Cyber-Physical Systems Applications,** *by Mamdouh Muhammad, Abdelkader Magdy Shaaban, Reinhard German, and Loui Al Sardy.*

14:30 – 15:00 **PROTECTION: Provably Robust Intrusion Detection system for IoT through recursive Delegation,** *by Riad Ibadulla, and H. Asad.*

15:00 – 15:30 **Coffee Break**

Session 4: Cybersecurity of complex Systems (of Systems)

15:30 – 16:00 **Medicare: An AI-Driven Healthcare Consultation And Appointment System with LLM Chatbot,** *by Vansh Batra, Devansh Om Saxena, and Dr. Arun. A.*

16:00 – 16:30 **Towards Credible Simulators: A Validation Methodology for Safety-Critical Virtual Testing,** *by Ramana Reddy Avula, Mazen Mohamad, Behrooz Sangchoolie, and Marvin Damschen.*

16:30 – 17:00 **Cybersecurity in Partitioned Space Embedded Systems,** *by Luis Ortiz, Alfons Crespo, Marc Fontalba, Patricia Balbastre, José E. Simó, and Pedro Albertos.*

European Research Consortium for Infomatics and Mathematics (Cooperating for Excellence in Research)

ERCIM
European Research Consortium for Informatics and Mathematics

ERCIM is a Consortium of 15 leading research institutions from 15 European countries committed to information technology and applied mathematics

- by promoting cooperation in research, technology transfer, innovation and training; International e.g. Japan JST
- **Working Groups** (workshops, position papers), e.g. Ethics – Beyond Compliance, DES WG, FM WG, Security and Trust Management
- Fellowship Program, PhD Cor-Baayen Award; Strategic Reports (SW, AI)
- ERCIM News (quarterly, downloadable)
- Workshops, Conferences, e.g. Digital Twin, Ethics, Privacy & Security

CNR, IT

NTNU, NO

CWI, NL

RISE, SE

FhG-IUK, DE

FNR, LUX

SBA, AT

FORTH, GR

SZTAKI, HU

INESC, PT

Univ. of Cyprus

INRIA, FR

Univ. Warsaw, PL

ISI, GR

ITIS-UMA, ES

EWICS History & Mission
European Workshop on Industrial Computer Systems

- **founded 1974** as European branch (Purdue Europe) of the International Purdue Workshop on Industrial Computer Systems (IPWICS)
- **TC 7 on Reliability, Safety, and Security:** only remaining TC (out of 14) (Others: CAMAC-System CERN) – **2023-25 Reorganized as an Association** according to German Law (formerly: Belgium)
- **Mission of EWICS**
  - ✓ *"To promote the economical and efficient realisation of programmable industrial systems through **education**, information exchange, and the elaboration of standards and guidelines."*
- **Annual SAFECOMP Conference www.safecomp.org (bi-annual since 1979, annual since 1985)**
- **Working in Subgroups (Guidelines and in Pre-Standardization) (Safety, Reliability, Security)**
- **Contact Chairpersons and EWICS: www.ewics.org**
  - Mario Trapp mario.trapp@iks.fraunhofer.de
  - Francesca Saglietti saglietti@informatik.uni-erlangen.de
  - Uwe Becker uwe.becker@draeger.com

EWICS Membership and Mode of Operations

- **Working in Subgroups**: meeting 3 - 4 times a year
- **Liaisons** by joint membership and cooperation
  - with national and international Standardisation Bodies (ISO, IEC, ISA)
  - national and international Societies and Organisations (IFIP, IFAC, ISA)
  - national projects, European networks (ENCRESS, ESRA, ReSIST, ICCF)
  - German Chapter of INCOSE, Joint Research Centre ISPRA, etc.
  - involved in standardization: IEC 61508 and others, e.g. medical, IEC 61511, cybersecurity
  - roadmap projects for the CEC (for JRC Ispra), now project with JRC ISPRA on ERNCIP
- **Workshops**
- on Security of Safety Related Systems, Risk and Safety of Medical Devices, Diversity, Human Factors, Education and Training, Experience with Standards, Industrial Experience with Formal Methods, Automated Driving/Autonomous Systems (Munich 1919), CPS/IoT/Industry4.0 (Jan. 2020, Vienna, last before Corona-Break Feb. 2020), co-operation with Dagstuhl (AI Workshop)
- **Membership: Participation welcome!**
  - Cross sector - medical, transport, security, energy, chemical, ...
  - Industry, users, regulators, R&D, academy
  - (Indirectly) Supported by member companies (no fee, no reimbursement)
  - Well balanced – No single group can impose its views

EWICS Current Subgroups

- **NEW: Trusting Next-Gen Robotics and Automation Systems**
  - Magnus Albert magnus.albert@sick.de
  - Jeremie Guiochet jeremie.guiochet@laas.fr
- **NEW: Autonomous Systems**
  - Elena Troubitsyna elena.troubitsyna@abo.fi
  - Frank Ortmeier frank.ortmeier@ovgu.de
- **Security of Safety-Critical Computer Systems (SEC)**
  - Janusz Gorski jango@pg.gda.pl
  - Barbara Gallina barbara.gallina@mdh.se
- **Safety of Medical Devices (MeD)**
  - Uwe Becker uwe.becker@draeger.com
  - Christoph Schmitz christoph.schmitz@zuehlke.com
- **Maintenance of Diverse Systems (MDS)**
  - Erwin Schoitsch erwin.schoitsch@ait.ac.at
  - Francesca Saglietti saglietti@fau.de

Inside Industry Association

niac

EPoSS European Technology Platform on Smart Systems Integration

Chips JU

Co-funded by the European Union

European Research and Innovation Projects in the Field of Cyber-Physical Systems and Systems-of-Systems (Key Digital Technologies - Overview);

EC: Targeted Research Area: FP7, H2020 and and now HORIZON Europe, with specific industry driven ETPs (European Technology Platforms) and JTIs (Joint Technology Initiatives) – continuation in new Research and Innovation Framework **HORIZON Europe** (ECSEL JU successor is **KDT – Key Digital Technologies and was transformed to CHIPS JU) extended scope, Chips-Act initiatives added**)

Industry Associations:

- **INSIDE Industry Association** (European Technology Platform (ETP) dedicated to Research, Development, and Innovation (RD&I) in Intelligent Digital Systems)
- **ENIAC** (European Nanoelectronic Initiative) → JU, Ind. Association AENEAS
- **EPoSS** (European Technology Platform on Smart Systems Integration)

HORIZON Europe: includes KDT JU (Key Digital Technologies), now **CHIPS-JU**, basis Chips-Act (combining ARTEMIS, ENIAC, EPoSS) – industry-driven PPP (Public-Private-Partnership), 2021 - 2027, and **own Work-Programme, regular Calls**

Other industry-driven PPPs (e.g. electric vehicle, smart grid, euRobotics etc.), AIOTI, …

AIT was and is in many ARTIEMIS/ECSEL/KDT projects actively involved (already founding member of ARTEMIS Austria, now ESBS Austria (Electronic & SW based Systems)

Societal Challenges in industrial developed countries – Example Japan

Looking for a governmental strategy: Controlled Approach

For the „benefit of all“ in an ageing society with depopulation, economic stagnation, high inflation:

- Create a sustainable, inclusive socio-economic system
- Controlled utilization of Cyberspace,
  for a „innovative, creative society“ replacing „mechanical, manual production“ (see Leseticky/Malek)
- Integration of cyberspace & physical space

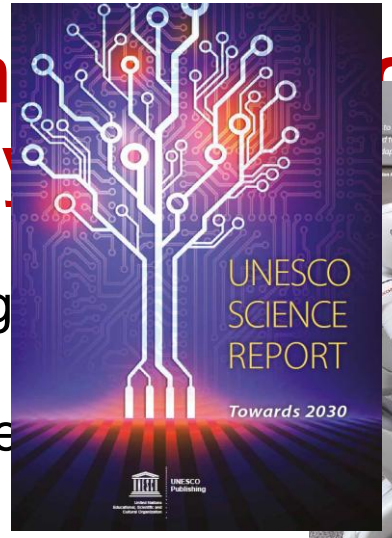
“We aim at creating a society where we can resolve various social challenges by incorporating the innovations of the fourth industrial revolution (e.g. IoT, big data, artificial intelligence (AI), robot, and the sharing economy) into every industry and social life. By doing so the society of the future will be one in which new values and services are created continuously, making people‘s lives more conformable and sustainable.

This is Society 5.0, a super-smart society. Japan will take the lead to realize this ahead of the rest of the world.”

Japans Strategy:

“To balance economic advancement with the resolution of social problems“ (includes environmental problems, climate change) – MISSING: Ethical Concerns, Considerations?

Japanese An… …ciety 5.0 – leading be… …0



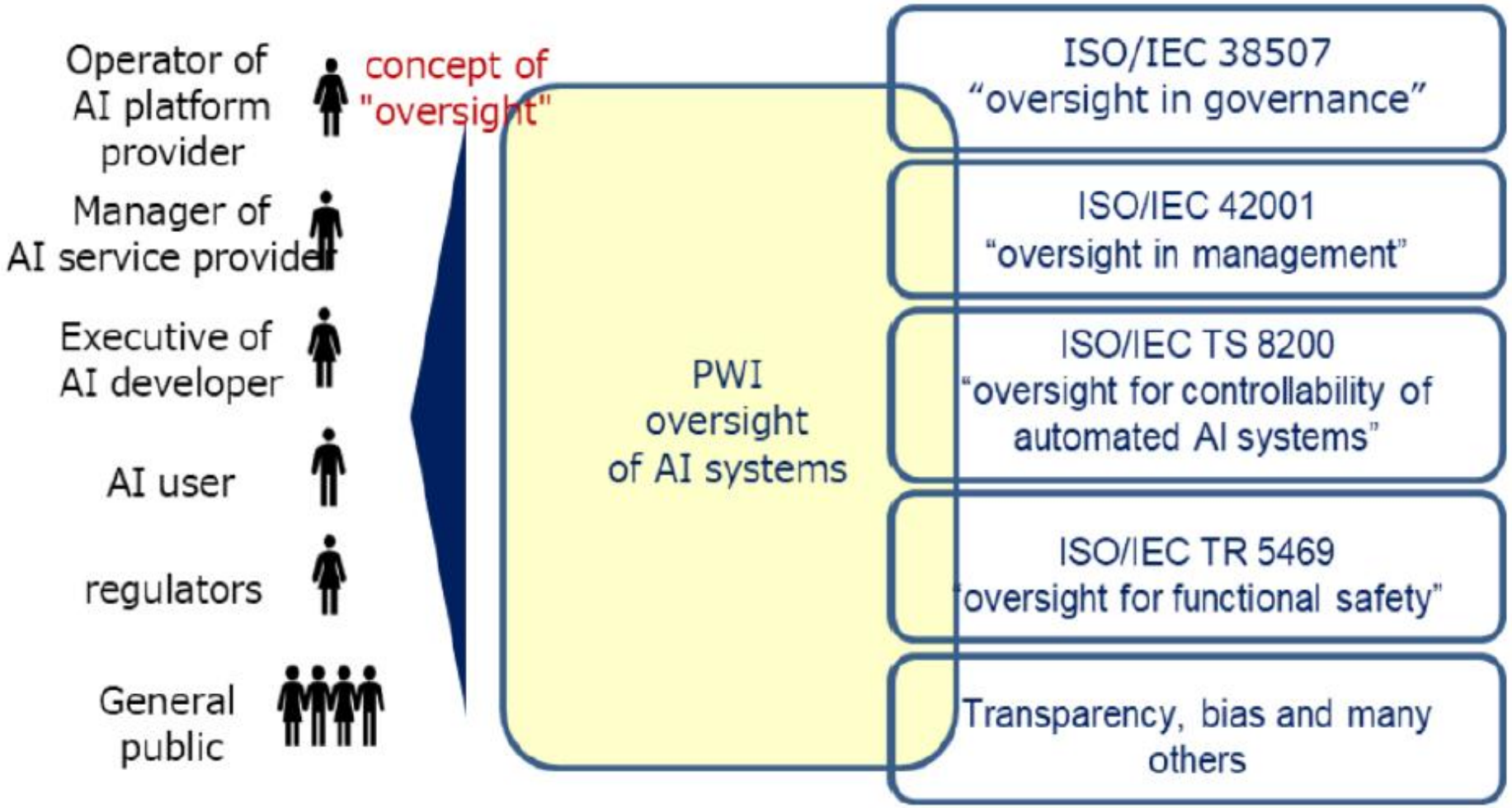
- Official Japanese governmental strateg…
- **„Super smart society“**
- Powered by I4.0 and digital technologie…
- Full support: Industry, Government
- Reports Japan 2017, 18; Basis:
  The concept of “Society 5.0”: 5th Science and Technology Basic Plan by the Council for Science, Technology and Innovation 2016.
- **UNESCO 2019 Follow-Up**

Source: Mayumi Fukuyama, (2018). Society 5.0: Aiming for a New Human-Centered Society, Japan Spotlight, July/August 2018

New Challenges with Rise of AI: Human Oversight

NEW:
ISO/IEC TS 42109
Use cases of human-machine teaming
PWI Governance and management of human oversight of AI systems
……. and 10 others on trustworthiness and GenAI issues

Train the people (user), not only the AI-system!



- Source: ISO/IEC PWI 18966 Meeting 2023

Standards/Recommendations on Ethical/Secure

European AI Regulation 2024/1689: AI-Act (in force: Aug. 1st, 2024)

„…setting harmonised rules for the development, placement on the market and use of AI systems in the European Union, following a proportionate risk-based approach (minimal, limited, high, unacceptable – list of prohibited AI systems).” (M/593)

Risks considered: Health, Safety, Cybersecurity, Fundamental Rights

EC Standardization request to ESOs (CEN, CENELEC, ETSI): → CEN/CLC JTC 21 (May 2023)

“Harmonized Standards” → support EU legislation, transfer “vague essential legal requirements” into “concrete technical requirements”, adhering to them provides a ”presumption of conformity” (Providers, but also Users)

1. Risk management system for AI systems [Art. 9 AI Act]
2. Governance and quality of datasets used to build AI systems [Art. 10 Data and data governance]
3. Record keeping - built-in logging capabilities in AI systems [Art. 11 Techn. doc., Art. 12 record-keeping]
4. Transparency and information to the users of AI systems [Art. 13 Transparency and user info]
5. Human oversight of AI systems [Art. 14 Human oversight]
6. Accuracy specifications for AI systems [Art. 15 Accuracy, robustness and cybersecurity]
7. Robustness specifications for AI systems [Art. 15 Accuracy, robustness and cybersecurity]
8. Cybersecurity specifications for AI systems [Art. 15 Accuracy, robustness and cybersecurity]
9. Quality management system for providers of AI system [Art. 17 QM for providers]
10. Conformity assessment for AI systems [Art. 19 + Art. 43 Conformity Assessment]

Main Operational Objectives

Covered in principle by ISO/IEC JTC1 SC42, SC27,SC7
Management systems (~60),
CEN/CENELEC JTC21 (~20, incl. parallel development)
- to be „harmonized“.

Recent standardization work **on AI – Cybersecurity: (AIT ThreatGet Tool)**

- ISO/IEC CD 27090: Artificial intelligence – Guidance for addressing security threats to artificial intelligence systems
- CEN/CLC JTC 21 “Artificial intelligence”: WG 5: WD “Artificial intelligence – Cybersecurity specifications for AI systems”

CEN/CENELEC following the Standardization Request

CEN/CENELEC JTC 21 standards under development, expected to provide presumption of conformity with the EU AI Act. These include:

- prEN AI Trustworthiness Framework (JT021008)
- prEN AI Risk Management (JT021024)
- prEN AI Quality Management System (QMS)
- prEN Quality and Governance of Datasets in AI
- prEN Concepts, Measures, and Requirements for Managing Bias in AI Systems
- prEN Cybersecurity Specifications for AI Systems

The INSTAR project: International Standards' Alignment

EU-funded CSA Horizon Europe Project

Start: January 2024	**Duration:** 30 months
Budget: €1,500,000	Learn more **HERE**.

Consortium

BluSpecs (coordinator), Fraunhofer, Fortiss, AIOTI, Trialog, TU Delft, Trust-IT, COMMpla, NCSRD, AIT

INSTAR aims to support the implementation of the EU Digital Partnerships and the EU-US TTC by working together with 7 relevant entities from Australia, Canada, Japan, Singapore, South Korea, Taiwan and USA, to drive international common standards for 6 emerging technologies.

7 Partners from

Australia
Canada
Japan
Singapore
South Korea
Taiwan
USA

6 Technological domains

AI
Cybersecurity & Digital ID
Quantum
IoT
5G & 6G
Data technologies

Examples of Research Projects towards Society 5.0/Industry 5.0/Mobility 5.0/Agriculture 5.0 targeting Technology Development and Human-Centered Approaches

AIMS5.0 - Focus: Smart Manufacturing of the Future
ShapeFuture: Focus Advanced Mobility

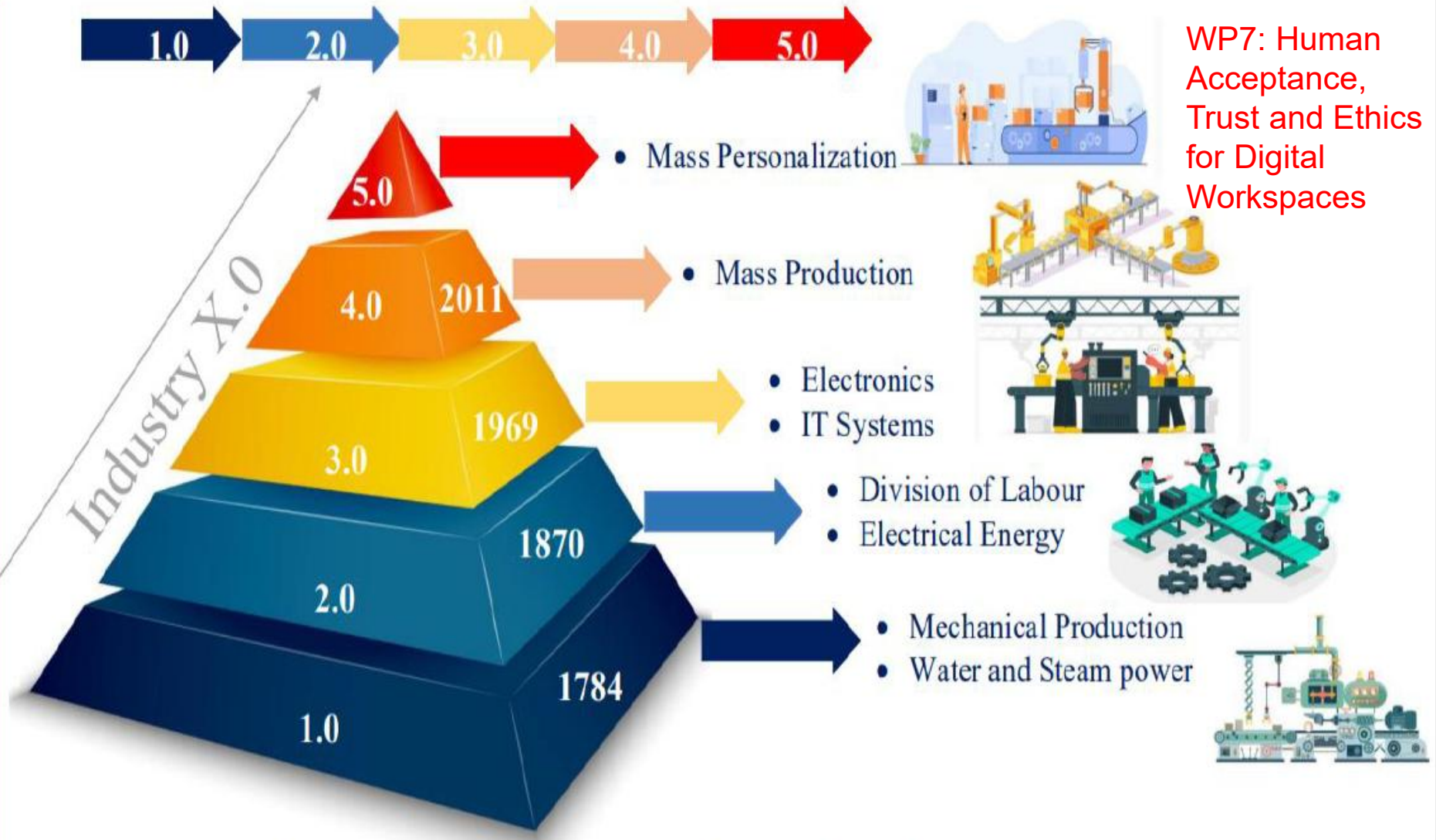
WPs on „Human acceptance, trust and ethics for Digital Workspaces” and “Standardization” (in close cooperation)

Driving the fifth industrial revolution

AIMS5.0 Project

Digital Transformation in Industry

In order to realize the digital sovereignty of the European industry, a number of overarching challenges are yet to be confronted.



Source: P. Kumar et al, "Industry 5.0: A survey on enabling technologies and potential applications", Elsevier Journal of Industrial Information Integration, Volume 26, March 2022, 100257

WP7: Human Acceptance, Trust and Ethics for Digital Workspaces

AIMS5.0 - Human-centered Options

- Intelligent data management and measurement to create **more efficient and more sustainable working conditions** for energy optimized production.
- More **accurate process control parameters** derived from a **digital twin** yield to more robust and more sustainable production environment.
- Comprehensive **human-machine simulation** based on the **digital twin** increases **safety** by predicting evolving potentially hazardous situations.
- Improve the **efficiency of maintenance** work and human involvement, and to prevent high loss due to machine and product damage.

AIMS5.0 - Use Cases and SM-New Technologies

USE Cases cover:

- Automotive
- Manufacturing
- Semiconductor development
- Consumer Electronics
- Robotics
- Aviation
- In-door Food Production
- Exo-Skeletons (human empowerment)

Smart Manufacturing IEC TR 63283-4 „New Technologies“:

- AI (Artificial Intelligence),
- Edge computing,
- Cloud technology,
- Digital twin,
- New communication protocols, 5G, TSN,
- Big data and data analytics,
- IoT and IioT,
- Privacy technology, etc.

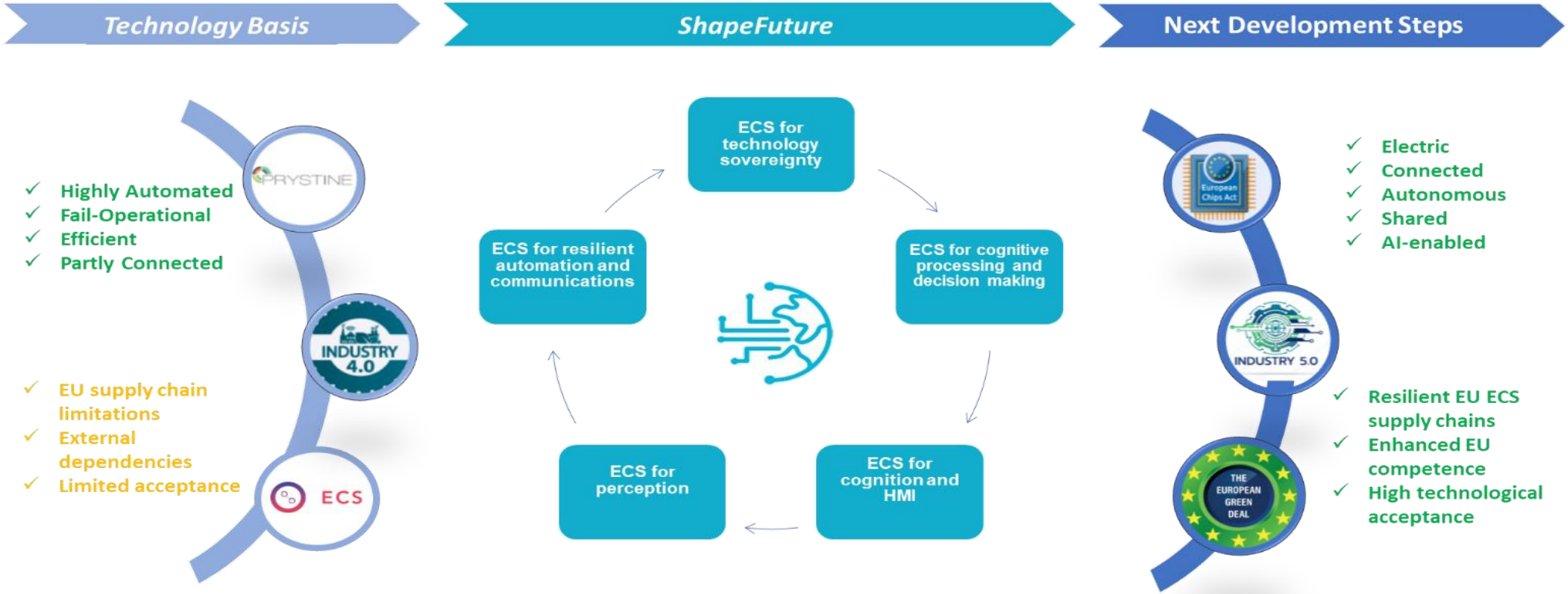
The ShapeFuture consortium: Mobility Focus

- 41 partners
- 12 countries

- Leading automotive OEMs
- Semiconductor companies
- Technology partners
- Universities and research institutes
- Coordinator: Infineon Technologies A.G. (DE)

ShapeFuture: Project Vision – Mobility Focus

ECS Innovation at the Heart of Europe's Mobility Transformation:
Elevating Sovereignty and Manufacturing Strategy by Perfecting Programmable ECS Solutions for Intelligent, Safe, Connected, and Highly Automated Vehicles



Examples of Research Projects towards Society 5.0 targeting AI - Technology Development and Human-Centered Approaches

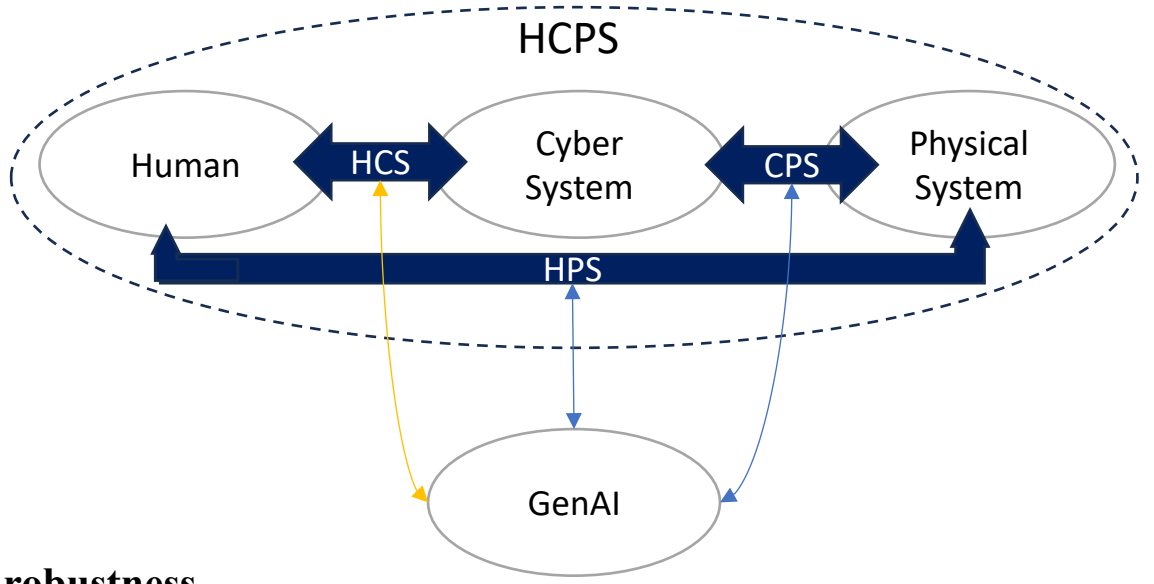
RobustifAI

Robustifying generative AI through human-centric integration of neural and symbolic methods

Ethics Guidance and Checks, SSH (Social Sciences and Humanities) expert considerations - a Mandatory Requirement!

RobustifAI (started June 1, 2025) - Vision

Context



Generative AI

- a powerful class of AI models that learn patterns from existing data and, after simple instructions, generate new contents.

GenAI faces significant shortcomings

- E.g., hallucinations, bias, and potential misuse
- When transition from experimental use to real-world applications, **robustness** becomes critical for both **performance** and **reliability**
- Requires making GenAI systems resilient to extreme, anomalous, or unsafe behaviours to ensure reliable operation in diverse and unpredictable conditions

RobustifAI will address the challenge of robustness by focusing on

- foundation models
- **used in the context of human cyber-physical systems (HCPS), which are broad to cover** applications in many sectors, including *robotics*, *automotive*, *healthcare*, *industrial automation*, and *IT infrastructure.*

RobustifAI (started June 1, 2025) - Vision

Objectives

Objective 1 Harden the GenAI system development process and the methods within to become neural-symbolic with improved performance and robustness.

Objective 2 Enhance GenAI adaptability and self-monitoring ability for evolving or new environments

Objective 3 Retrofit GenAI system development process to ensure human centricity

Objective 4 Enable sustainable GenAI solutions across diverse applications

Table 1: RobustifAI vision - from challenges to innovative axes and objectives.

Challenges Innovations	Neuro-symbolic	Adaptive	Human-centric
Technical Robustness	✓✓✓	✓	✓
Operational Robustness	✓✓	✓✓✓	✓✓
User robustness	✓	✓✓	✓✓✓
Objectives	O1	O2	O3
	O4		

Key issue: Ethical aspects to check for developments and use cases – Ethics Guide and Repository developed (Ethics Checks/review with PO and external expert on 6-months schedule)

RobustifAI - Use Case Scenario Overview

UC1

Autonomous driving data generation

validating

Operational Robustness

UC2

Service Robot

validating

User Robustness (Elderly home, Chalmers kitchen)

UC3

Security Operation Centre

validating

Technical Robustness

*Images generated by OpenArt AI.

What's NEW in AI? Human-Machine Teaming

Definition of "human-machine teaming" (ISO/IEC 22989):

- *integration of human interaction with machine intelligence capabilities*
- Humans and machines such as AI and robots work as a team to solve problems.
- Both humans and machines are supposed to play a role in problem solving.

Examples:

- *Medical AI + Doctor* treats patients.
- *Autonomous Vehicle + Human Driver* drives a car.
- *Deep Learning + Human Inspector* inspects products for shipment.
- *Dispatch AI + Human Drivers* provides rideshare.
- *Robots + Discovery AI + Scientist* explores for great discoveries.
- *Personal Agent + Human User* solves daily problems.
- And examples from Smart Manufacturing etc.

Robotic safety standards' view not sufficient – ethical and societal impact of decision making missing, human role, oversight and sovereignty

Human-Machine Teaming ISO/IEC JTC1 SC42 WG4

- Why human machine teaming? Considering AI capabilities are progressing so rapidly, it is time to think about:
  - Relationship between humans and machines - Redefine
  - What humans should do and what machines should do
- Benefits of the framework for HMT the framework for HMT provides:
  - An overall picture of the relationships between machines and humans involved in problem solving.
  - A solution for deploying AI applications.
  - A dynamic view of the relationship between human and machine.

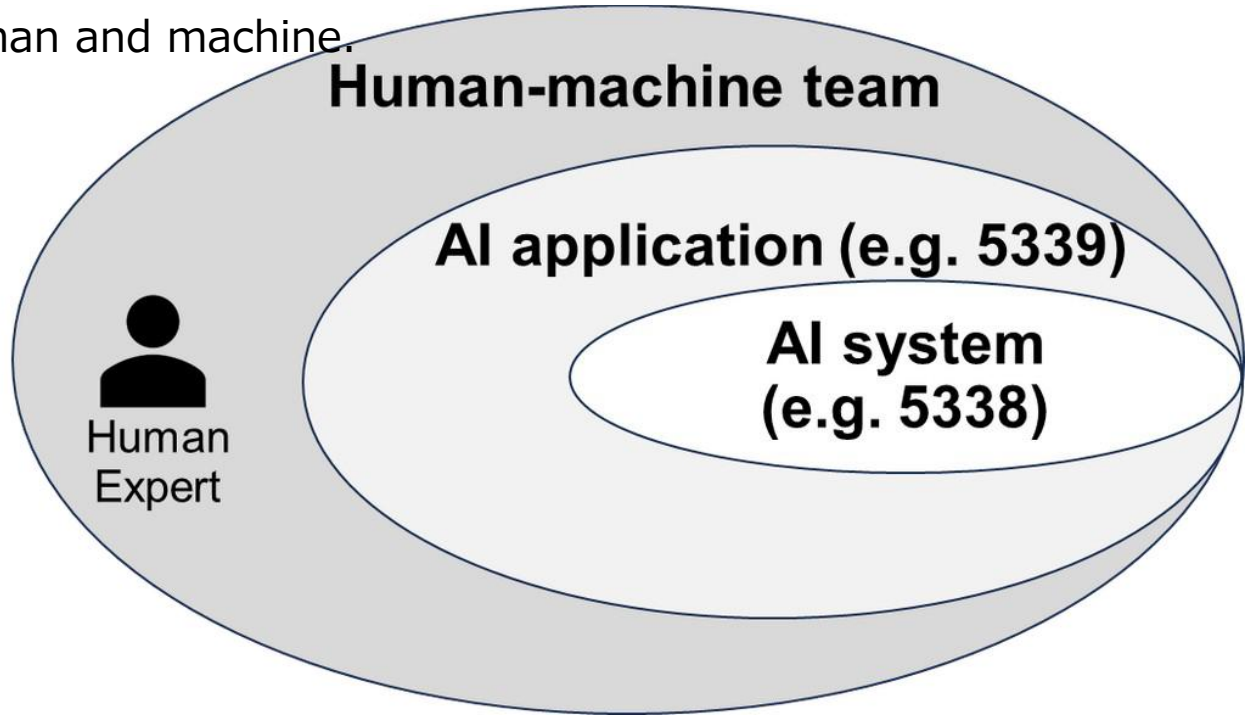
Human experts and Human End Users different

Human end users see the results of problem solving

Human experts:

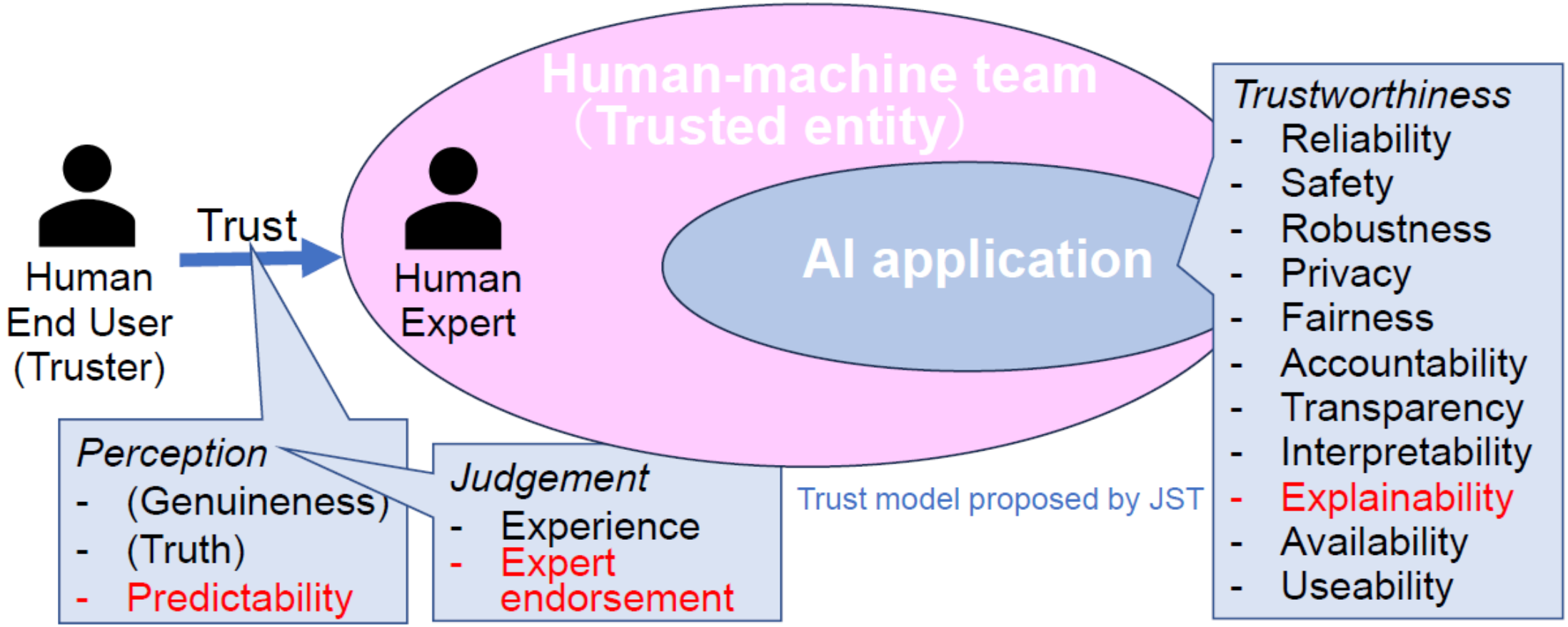
- Solving solely before
- Danger of replacement?

Sometimes: End User = Expert role

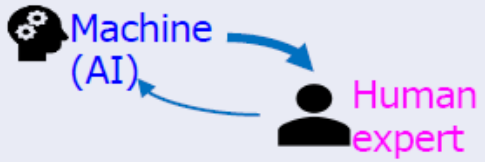


Human expert + AI appl. – more trustable

For the End-User (as „truster“):
Explainability – includes human expert
Predictability – through supporting human expert
Endorsement of the AI-system by the human expert in the team



Relationships/Roles defined in Framework

Relationship (Type)	Execution of task		Information flow
	Machine (AI)	Human expert	
Human Supervisor (AI as tool) 		(Macro decision)	Instructions from human to machine Feedback reversely
Human Mentor (AI as assistant) 			More from human to machine
Peer (AI as collaborator) 			Both ways equally
Machine Mentor (AI as coach) 			More from machine to human
Machine Supervisor (AI as manager) 	(Macro decision)		Instructions from machine to human Feedback reversely

Human Oversight vs. HMT – complementing!

Human oversight [1] is about ensuring the quality and accountability of outputs while HMT is about who (machine or human) does what, when and how in the process – additional to the ethics/human aspects stds.

Table A.1 — the key differences between human-machine teaming and human oversight

	HMT	HO
Human's role	humans and machines work together as a team to achieve common goals	humans monitor and control AI applications to ensure their safe and ethical use
Objective	who (machine or human) does what, when and how in the process	ensuring the quality and accountability of outputs
Purpose	focusing on the collaborative relationship between humans and machines to achieve shared goals	aiming to ensure the responsible use of AI applications by humans, addressing accountability and governance
Scope	focusing on the specific interactions within the team; primarily focuses on the operation and monitoring stages	focusing on the trustworthy use of the "team"(either HMT or AI applications only) throughout all stages

What raised first our interest?

- even before start of ISO AWI TR 42109?

SAFCOMP Conferences 2023 (2024 again) (Poster exhibition, booth):
HMCES project "Human-Machine Co-Evolution Systems",
Presented by *Yukata Matsubara (Nagoya Univ.), Akihisa Morikawa (IMAGINARY Corp.), Daichi Mizuguchi (Atelier Corp.), Kiyoshi Fujiwara (AIST)* – *the VISIONARY VIEW of Synergetic Co-Evolution*

Note: Attending conferences may make sense!

Interesting topics discussed:

- "Advanced symbiotic society of humans and machines"
- "Creating a technological foundation for a society where humans and machines (AI) coexist and evolve together" – AI2X co-evolution
- Issues for Safety:
  - Potential for AI to evolve with human evolution and environmental changes
  - Lack of established standardization technology to manage reliability and safety
  - Potential for unexpected evolution in AI and human systems
  - Issues for ethics, society: countered by EU AI-Act, US TAG Act
- Human-Machine Co-Evolution Systems GUIDELINES shown

Symbiotic Society – is this the next step after Society 5.0?

The future society we envision

Serious problems in Japan

- **Decrease in productivity** (aging society, shortened working hours, etc.)
- **Low sense of happiness** (51st in world happiness ranking)

Improvement

Advanced symbiotic society of humans and machines (with AI)

- improves well-being by **optimizing for each individual**
- **continues to improve productivity, convenience, safety, and happiness**

"Co-Evolution" of humans, machines (AI), and society

1. Not only AI's improvement
2. Changes in human values and behavior
3. Changes in laws, infrastructure, lifestyles

?

(Question mark on slide 5)

The Symbiotic Society – a Future Beyond the original Society 5.0 (Source: **HMCES** project; presentation at HMT Workshop Munich, June 24-25, 2025, by Akihisa Morikawa).

Remaining Questions and Conclusions

The paper shows some important areas, where smart technologies could lead towards a better, human centred society, and may be, visionary “Human-Machine Synergetic Society”.

- However, we should be aware that many of the achievements could be effective too late or used against us as well, or lead to wrong decisions because of badly trained or biased AI systems.
- We need a culture of **“`Responsible AI” – there are many guidelines and recommendations.**
- **UNESCO “Recommendations on the Ethics of AI”**: approved by 193 nations (almost all) of the UN - Should this make us feel comfortable? Looking around on the world politics and human rights situation, **let us be less sure about the impact of such recommendations and take care and stay alert.**
- **What are realistic assumptions on strength of ethical rules and human attitudes?**
- **Human-Machine Teaming is a new concept – it needs/will start a new perception and uptake of AI-driven technology – barriers of psychological and cultural nature are to be expected**

Co-funded by the European Union

Acknowledgements

Part of the work received funding from the EC from the EU Horizon Europe Programme, the ECSEL and ChipsJU Joint Undertaking and the partners' national funding authorities (in Austria FFG (Austrian Research Promotion Agency) on behalf of BMIMI, The Federal Ministry of Innovation, Mobility and Infrastructure): AIMS5.0 (Grant agreement n° 101112089), AfarCloud (nr. 783221), A-IQ Ready (nr. 101096658), PowerizeD (nr. 101096387), AIMS5.0 (nr. 101112089), ShapeFuture (nr. 101139996). and AI4CSM (nr. 101007326-2)). The INSTAR Support Action (nr. 101135877) and the RobustifAI project (nr. 101212818) are funded by Horizon Europe.

Thank You for your kind attendance !!