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# **AGENTIC AI CHALLENGES AND ACTIONS**

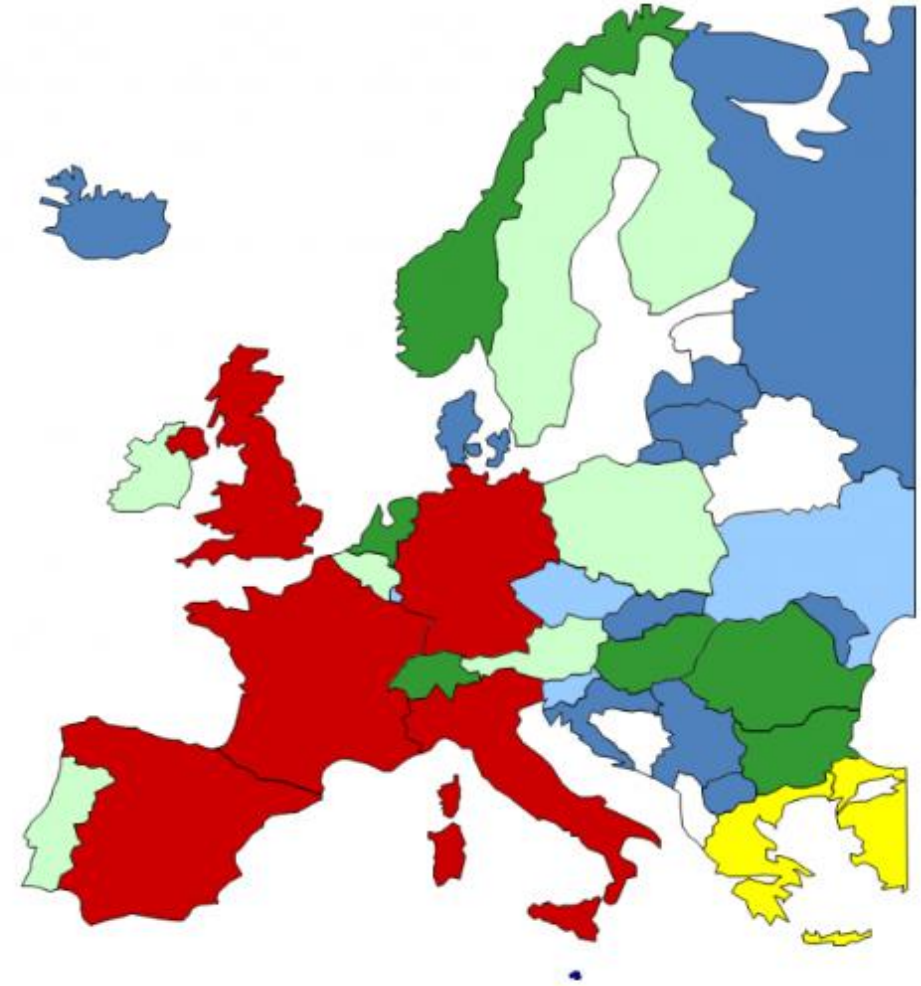
Prof. Rui L. Aguiar

*Steering Board Chair*

- To develop position papers on technological, research-oriented and societal issues
- To seek discussion of issues with decision makers in the political and public domain as well as in the industry and research community to bridge the gap between R&D and the expectations from the European society.
- To regularly develop an updated Strategic Research and Innovation Agenda (SRIA) for Europe in the communication networks, now for the SNS JU according with specific MoU
- To strengthen Europe's leadership in networking technology and services so that it best serves Europe's citizens and the European economy.
- To support the 5G PPP initiative and the SNS Joint Undertaking

# MEMBERSHIP

- around 1000 members
  - (large) Industry: ~150
  - Research: ~330
  - SME: ~350
  - Cooperation (e.g. registered entities outside EU): ~130



# Strategic Research and Innovation Agenda



Network 2026 SRIA is being redone with five major lines:

- System Views & Architecture Orientations
- Softwarization and Intelligence in Networks
- Protocols and Communication Paradigms
- Physical Layer Innovations
- Transversal and Disruptive Technologies

Several topics are transversal across all the areas (e.g. security, devices, sustainability, etc..)



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## **AGENTIC AI AND CHALLENGES**

# SETTING THE STAGE: PREVIOUS PRIORITIES: SNS AND OPERATORS



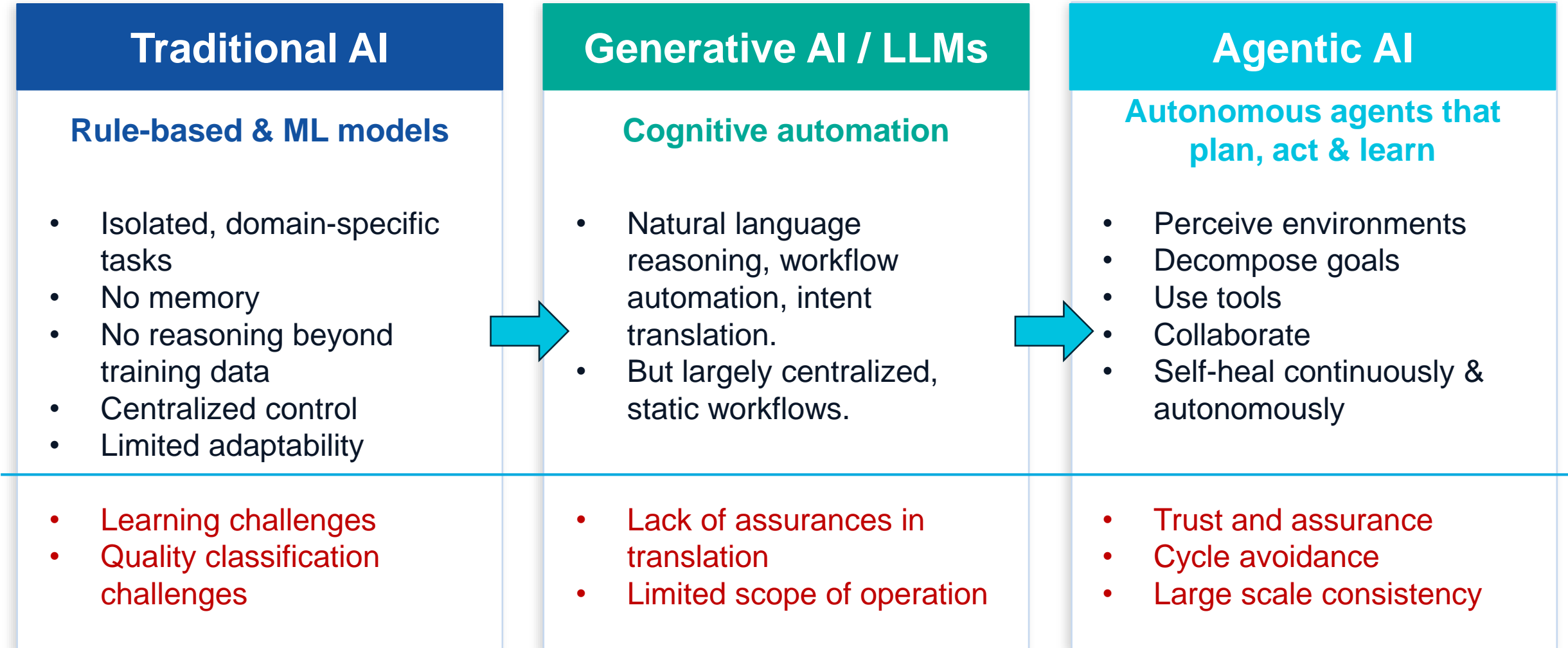
- HORIZON-JU-SNS-2023-STREAM-B-01-06 “EU-US 6G R&I Cooperation” - establish foundational work for AI/ML integration in 6G research, including data generation, shared datasets, and common evaluation frameworks.
- HORIZON-JU-SNS-2024-STREAM-B-01-08 “Reliable AI for 6G communications systems and services” — aimed at end-to-end system integration of AI/ML solutions and research into AI-native network functions.
- (2025, still not active) Mandatory open AI/ML training data release across Stream B topics — dataset creation and sharing is a built-in requirement of the 2025 programme
- (pending) HORIZON-JU-SNS-2026-STREAM-B-01 “Collection, Generation and Validation of Datasets suitable for training AI Models for 6G Networks and for AlaaS” - produce a curated collection of data and supporting infrastructure that enables robust AI model development for 6G networks and services

# SETTING THE STAGE: PREVIOUS PRIORITIES: EU CLUSTER 4



- 2025: Several AI and generative AI topics under Cluster 4 Digital calls (e.g., cognitive computing, software engineering for AI, GP-AI strategies)
  - HORIZON-CL4-2025-04-DATA-02: Empowering AI / generative AI along the Cognitive Computing continuum
  - HORIZON-CL4-2025-04-DATA-03: Software Engineering for AI and generative AI
  - HORIZON-CL4-2025-04-DIGITAL-EMERGING-04: Assessment methodologies for General Purpose AI capabilities and risks
  - HORIZON-CL4-2025-04-DIGITAL-EMERGING-07: Enhanced Learning Strategies for GP-AI: Advancing GenAI4EU
- 2026: AI-oriented calls under “Digital Emerging” (AI agents, genAI boosters, AI science pilots, robotics platforms)
  - HORIZON-CL4-2026-05-DIGITAL-EMERGING-02: Next-Generation AI Agents for Real-World Applications (RIA)
  - HORIZON-CL4-2026-05-DIGITAL-EMERGING-03: Apply AI: Agile & Intelligent Robotics Platforms (RIA)
  - HORIZON-CL4-2026-04-DIGITAL-EMERGING-19: Challenge-Driven GenAI4EU Booster in Apply AI prioritised sectors (RIA)
  - HORIZON-CL4-2026-04-DIGITAL-EMERGING-01: Apply AI: Pilot of the “Science for AI” Pillar of RAISE - Resource for AI Science in Europe

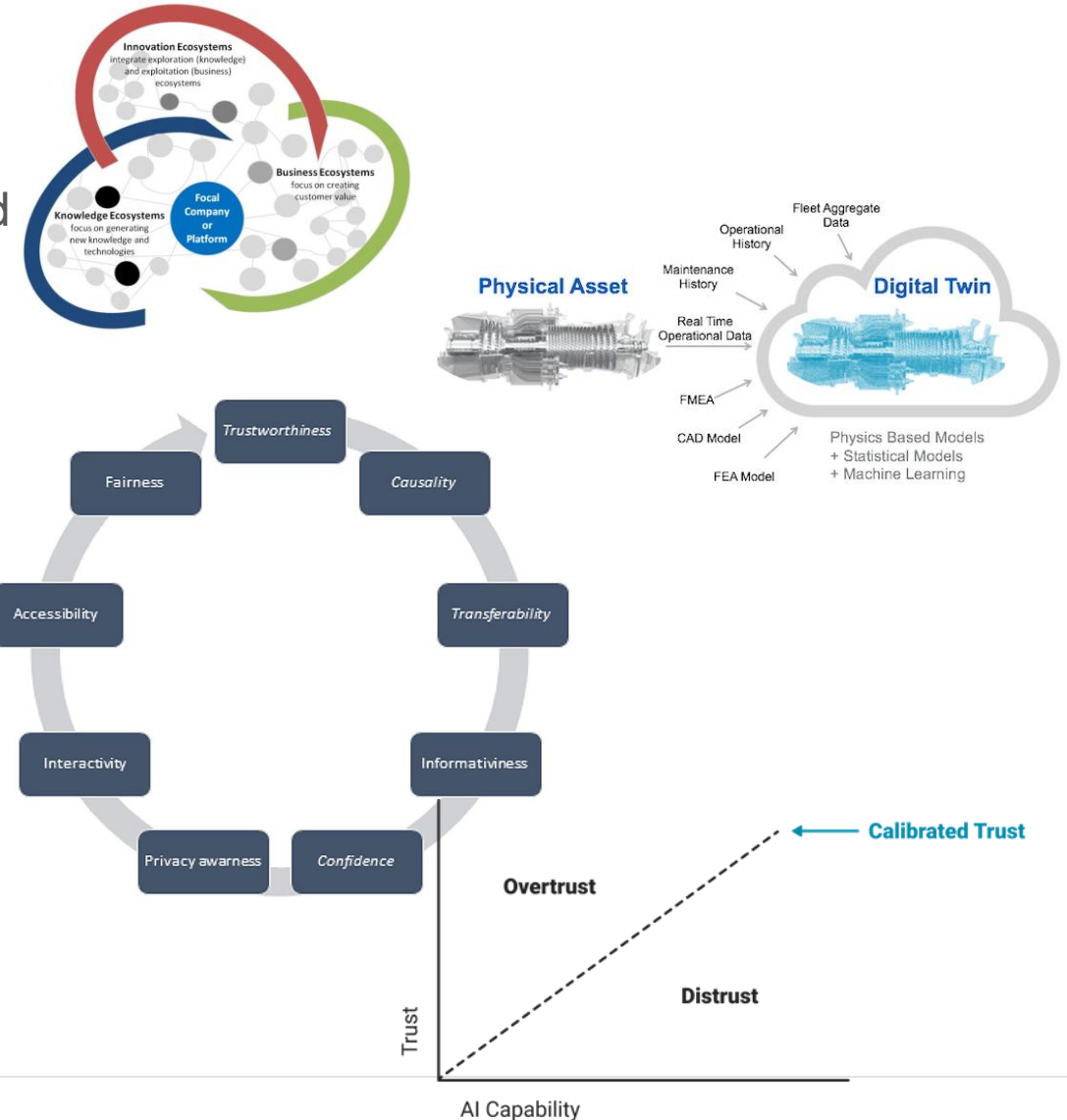
# THE AI EVOLUTION: FROM STATIC MODELS TO REASONING AGENTS



Paradigm	Primary output	Typical autonomy	Where it fits in telco
Rule-based automation	Deterministic action	Low	Repetitive workflows
	<b>Very common</b>		
Predictive ML	Forecast/score	Medium	Detection + optimisation inputs
	<b>Featured in many domains</b>		
GenAI copilot	Explanation/draft plan	Medium	Operator assistance
	<b>Under limited usage</b>		
Agentic AI	Executed workflow + outcomes	High (bounded)	Intent-to-assurance, closed loops
	<b>Exploring stage</b>		

# CURRENT TOPICS TO REFLECT

- With ecosystem or without ecosystem
  - In-house Solutions vs Expert external knowledge
  - Hybrid Solutions
  - Auditing of actions - and quality of solutions provided
  - One-size fits all? Quality and target of the agent(s)?
- Required Digital Twins
  - Unavoidable for safety, planning, optimization?
- Control and understanding of system
  - Visibility of actions
  - xAI
  - Fulfilment of intent and verification
  - Trust both in agent(s) and in solution provider(s): cyk
- Large scale interactions
  - Validated Agent  $\neq$  Validated System of Agents
  - Ownership  $\neq$  Responsibility
- Data, Law and Regulation
  - GPDR and data usage
  - AI act and human-in-control
  - Data ownership and relevance



- Progressive application along a plier approach
  - Top-level: customer-related actions and aided-OAM.
    - Errors/mistakes/misactions not critical, and human supervision possible.
  - Low-level: optimization at physical layer
    - Limited scope, much more controlled environment, less legal hurdles
- Data and standards balancing act
  - Progressive path towards the commercialization scope
  - Trust and quality issues being built, with progressive ecosystem coalescing into real industry solutions
    - Operators **vs** manufacturers **vs** solution providers
    - Who will be able to **train** and to **deliver** which agents for what purpose(s)

**Current danger: rushing into solutions without real validations, jeopardizing the potential of the technology**



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**THANK YOU FOR YOUR ATTENTION**

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