Spoke 5

High-Quality AI

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Partners

7 Sapienza Dept. + 3 CNR Institutes

faculty members: 30 (Sapienza) + 4 (CNR)
new researchers: 18 (Sapienza) + 3 (CNR)
new PhD: 8 (Sapienza)
High-quality AI Motivation

- **AI-empowered dynamic systems** (Human-AI teams) including high-risk, safety critical systems
High-quality AI Motivation

- Demand to meet high quality requirements and certification standards
High-quality AI Objectives

- Develop **measurable qualities** and assessment/certification techniques
High-quality AI Methodology

- Rigorous mathematical methods for formal guarantees
High-quality AI Methodology

- AI systems able to self-assess the qualities of their outcomes (turn to human supervision if needed)
High-quality AI Methodology

- Whole AI: perception, actuation, learning, modeling, reasoning and planning
Research questions

Which formal, mathematical, scientific, engineering, and ethical qualities ...

Q5.1 Autonomous AI systems

Q5.2 Data-centric AI systems

Q5.3 Generative AI systems

Q5.4 Machine Learning systems
**WP structure**

**WP5.1** – Scientific, Methodological and Ethical Foundations for Verifiable **Adjustable Autonomy**

**WP5.2** – Data Quality and Management in **Data-Centric AI**

**WP5.3** – Quality in **AI Physical Systems**

**WP5.4** – **Natural Language Generation** and Text Quality Assessment

**WP5.5** – Quality Assessment in **Hard Science and AI**

**WP5.6** – Engineering and Scientific Qualities in **Machine Learning**

**WP5.7** – Mathematically-Grounded Qualities of **Transparent and Accountable AI Models**

**WP5.8** – **Pilots and case studies** for High-Quality AI validation and demonstration
Collaboration

- Spoke scientific meetings
- Transversal Projects
- Cascade calls
  - Academy
  - Industry
- International community
Impact

- **AI scientific community**: measuring and assessing AI quality becomes a major topic in AI conferences
- **Other scientific communities (SSH)**: collaboration to measure and assess human-related qualities of AI systems
- **Citizens**: improved understanding and trust in AI systems
- **Public/regulamentary bodies**: certification methods and support for regulatory actions
- **Industry**: new processes and business models for AI systems
Thank you for your attention