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Data Quality for Responsible AI in Energy Systems (DARES) Proposal Success Story

prof. Dmitry Pavlyuk
Transport and Telecommunication Institute

Project Information

Title: Data Quality for Responsible AI in Energy Systems



Funder: NordForsk +
ERDF 1.1.1.5/1/24/I/001 “Support for Latvia’s
Participation in International Research and
Innovation Programs”

Call: Responsible Use of Artificial Intelligence

Duration: 36 months (started March 2026)

Total budget: NOK 15 606 082 (~1.45 mln. euro)

Supervisor (TSI): prof. I. Yatskiv (Jackiva)

Leading Researcher: prof. D. Pavlyuk

PhD candidate: to be hired <https://euraxess.ec.europa.eu/jobs/434842>

Webpage:

<https://tsi.lv/projects/data-quality-for-responsible-ai-in-energy-systems-dares-233124/>

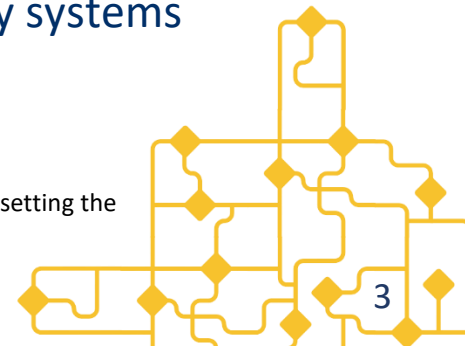
Why Data Quality?

- AI is a powerful tool, but it **strongly depends** on data quality (Taylor et al., 2025)
- EU AI Act classifies energy systems as critical infrastructure and states to **requirements for data quality** (EU AI Act, Article 10)
- Data within energy systems are **extremely heterogeneous**
- State-of-the-art ‘fit-to-purpose’ metrics are **difficult to apply** to AI training data quality

Key challenge:

redefine data quality for effective implementations of AI for energy systems

Taylor, L., de Souza, S. P., Martin, A., & López Solano, J. (2025). Governing artificial intelligence means governing data:(re) setting the agenda for data justice. Dialogues on Digital Society.



Project Consortium



University of Copenhagen (UCPH), Denmark – Coordinator

- *Expertise:* Science and Technology Studies, HCI, Responsible AI
- *Lead WP5* Energy system futures for responsible AI (Action)



University of Bergen (UiB), Norway

- *Expertise:* political sociology, AI regulation, responsible innovation
- *Lead WP1* Policy and regulatory mapping across Nordic-Baltic countries (Policy)



LUT University, Finland

- *Expertise:* energy systems, data practices, qualitative research
- *Lead WP2* Data quality practices in real energy organizations (Practice)



Transport and Telecommunication Institute (TSI), Latvia

- *Expertise:* transport and mobility modelling, AI applications, synthetic data
- *Lead WP3* Synthetic data generation and evaluation (Practice)



KTH Royal Institute of Technology, Sweden

- *Expertise:* Data management, Quality-Aware Representation Learning
- *Lead WP4* Quality Aware Representational Learning (Technology)

Industry & Policy Partners

Energy Industry Cases

- HOFOR (city utility, Denmark)
- Enyday (energy company, Denmark)
- City of Lappeenranta (Finland)
- Lappeenranta Energia (city utility, Finland)
- Lathi GEM (green electrification mobility cluster, Finland)
- City of Lahti (Finland)
- Smart E3 project (Finland)

Regulatory Engagement

- Norwegian Energy Regulatory Authority, RME
- Danish National Centre for AI in Society, CAISA
- Nordic-Baltic AI Centre

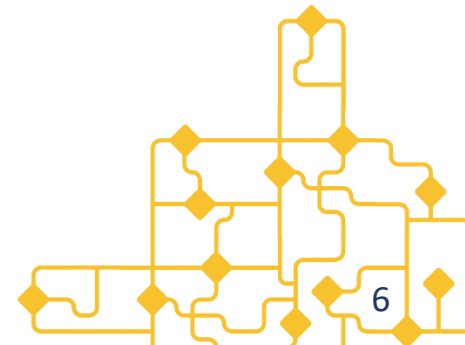


How the Consortium formed?

- Initiated by **UCPH**, prof. Irina Shklovski
- **TSI** was invited to proposal writing
 - after successful collaboration within the DCODE project, 2021-2024 (H2020-MSCA-ITN-2020, Marie Skłodowska-Curie Innovative Training Networks) Human-centric design of systems powered by Big Data, Machine Learning and AI



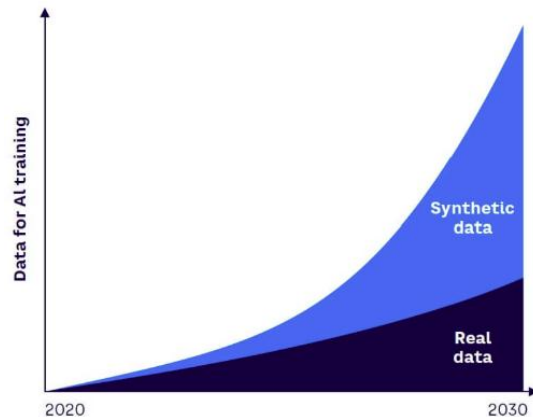
- Consortium focus: **interdisciplinarity**
 - ICT experts in data management and synthetic data generation with SSH experts in AI ethics, energy systems and data practices
- Approach: **iterative writing**
 - every partner wrote a proposal part several times



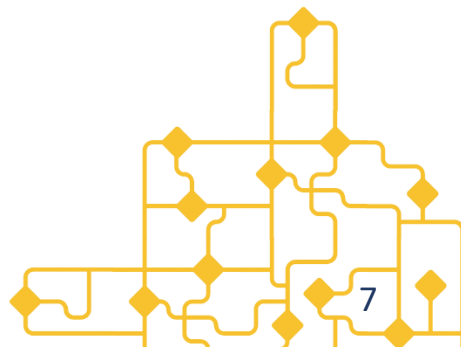
TSI Role

- Focus:** Synthetic data generation
(Gartner: 60% of AI training data is synthetic)
- Domain:** Electric vehicle (EV) data
(mobility patterns, charging behavior, infrastructure)
- Key idea:** develop a pipeline for training AI models using the EV data-rich areas (96% of new cars are EV in Norway) for generating synthetic data for data-scarce areas (Latvia, less than 10% of new cars)
- Potential AI:** GAN, VAE, foundation models

Both AI and transport match primary TSI expertise!

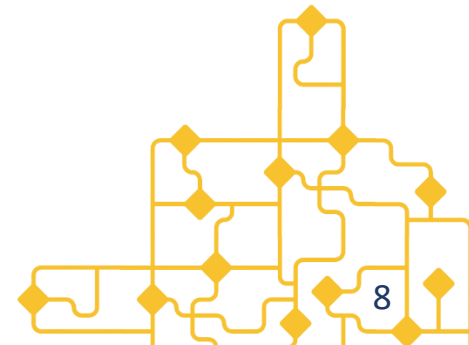


Source: Arthur D. Little, Gartner



Key Success Factors

- **Leader:** Strong project leadership
- **Strong partners:** UCPH, UiB, KTH, LUT, TSI
- **Trust:** Previous experience of successful collaboration among consortium members
- **Interdisciplinarity:** ICT, Energy, and Social Sciences and Humanities
- **Concept:** Emerging concept that bridges disciplines
- **Strengths:** Strategic use of each partner's core strengths
- **Gender balance:** close to 50/50 across the consortium





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Thank you!

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