Application-level Swarm-based Orchestration Across the Cloud-to-Edge Continuum

Prof Tamas Kiss – University of Westminster

Cognitive Computing Continuum Webinar – 8th October 2024

Co-funded by the European Union

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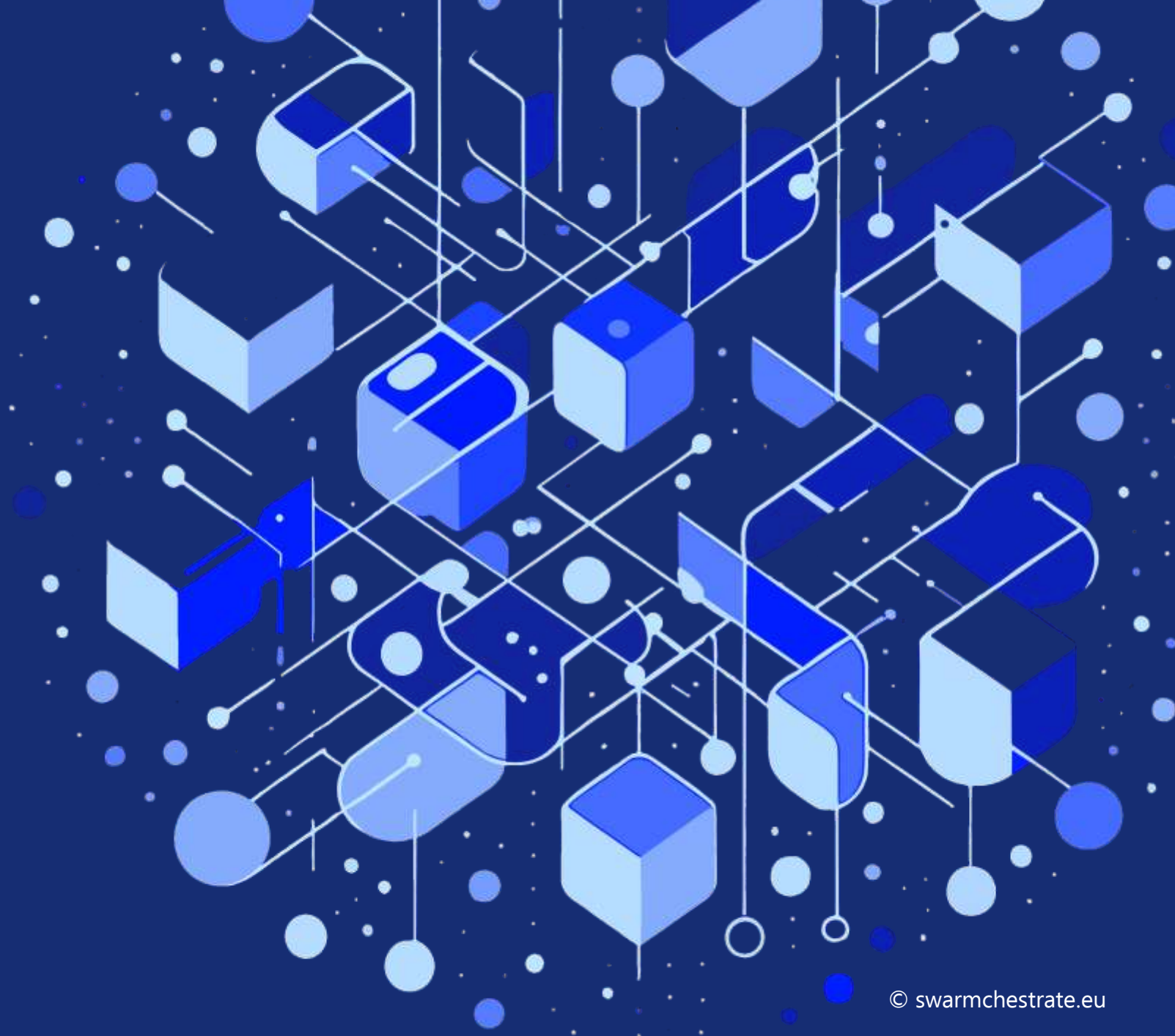
Project Details



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Swarmchestrate

Application-level Swarm-based Orchestration Across the Cloud-to-Edge Continuum

- Funded by EU Horizon Europe, UKRI, and South Korea
- Value: ~ EUR 5.8 Million
- Duration: 1 January 2024 – 31 December 2026
- 14 project partners from Europe and South Korea
- A combination of academic and industry partners
- Project coordinator: Dr Robert Lovas (SZTAKI HUN-REN Hungary)
- Project Scientific Coordinator: Prof Tamas Kiss (University of Westminster UK)

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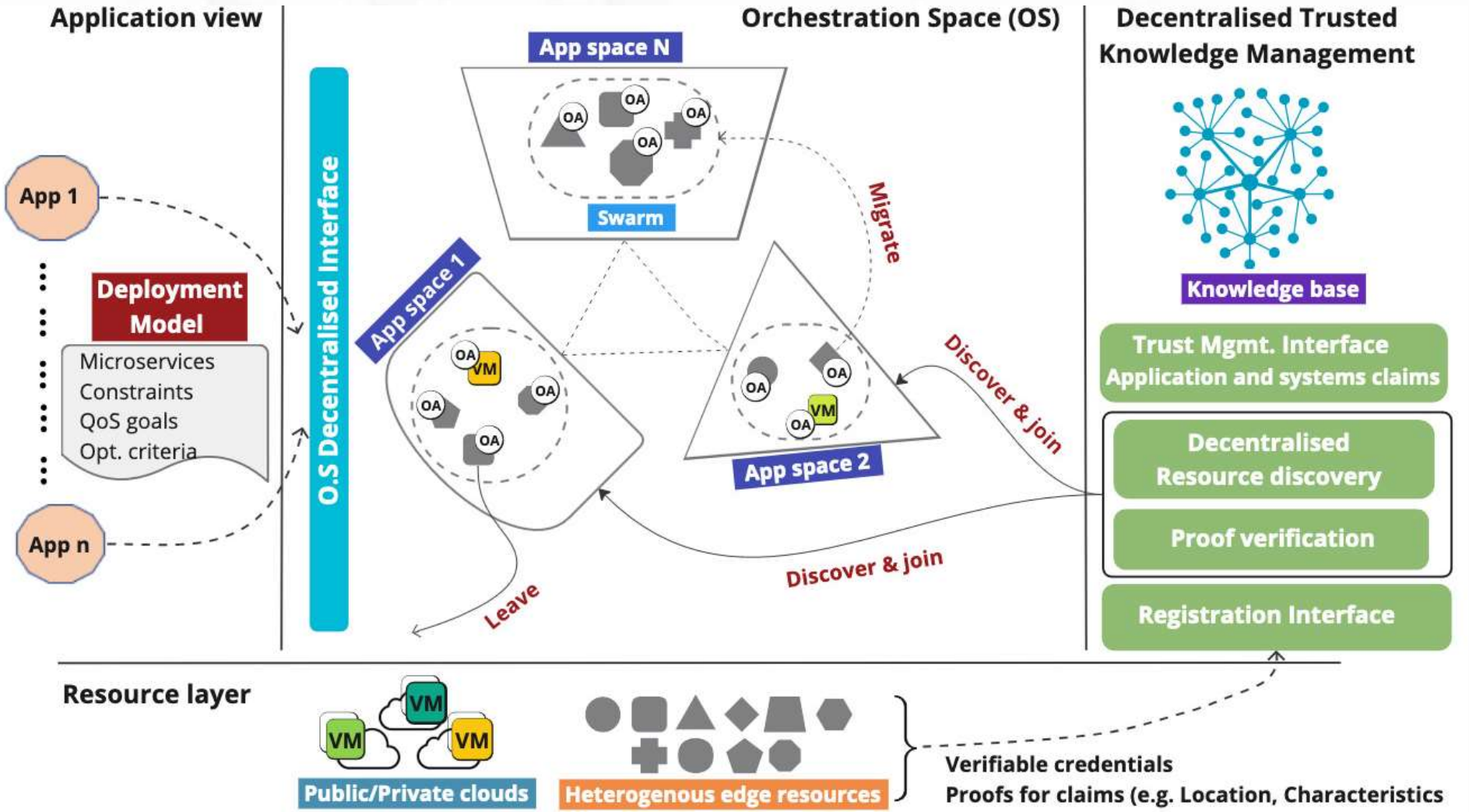
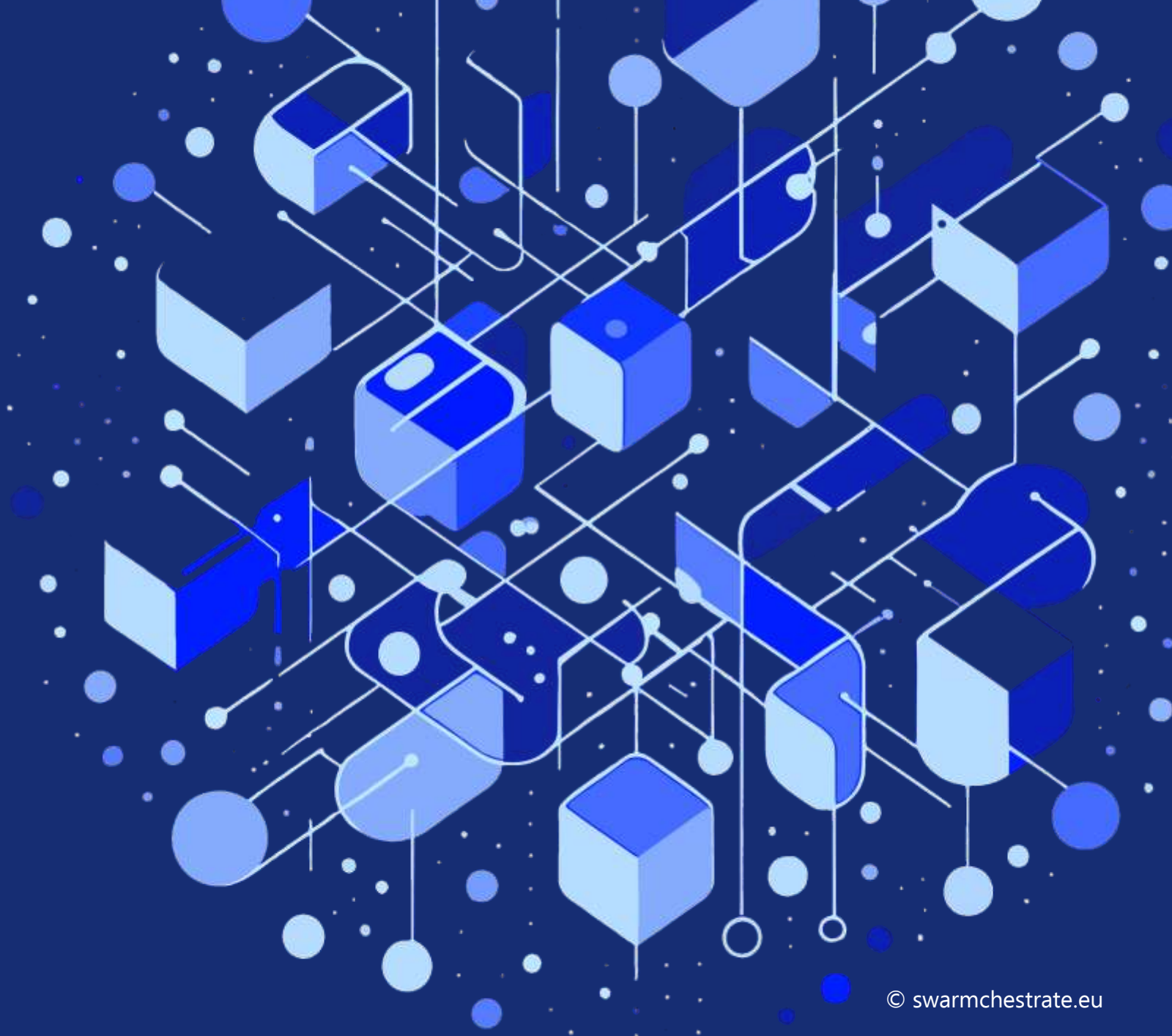
Swarmchestrate Concept

swarmchestrate



Project Use Cases



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Swarmchestrate Use Cases

- **Flood Prevention:** Network of ultrasound water-level measurement sensors used for the early flood warning in the Athens metropolitan area

- **Parking Space Management:** Processing data from battery-operated parking occupancy sensors

- **Digital Twin of Natural Habitat:** Getting and processing data collected from the physical environment cost-effectively

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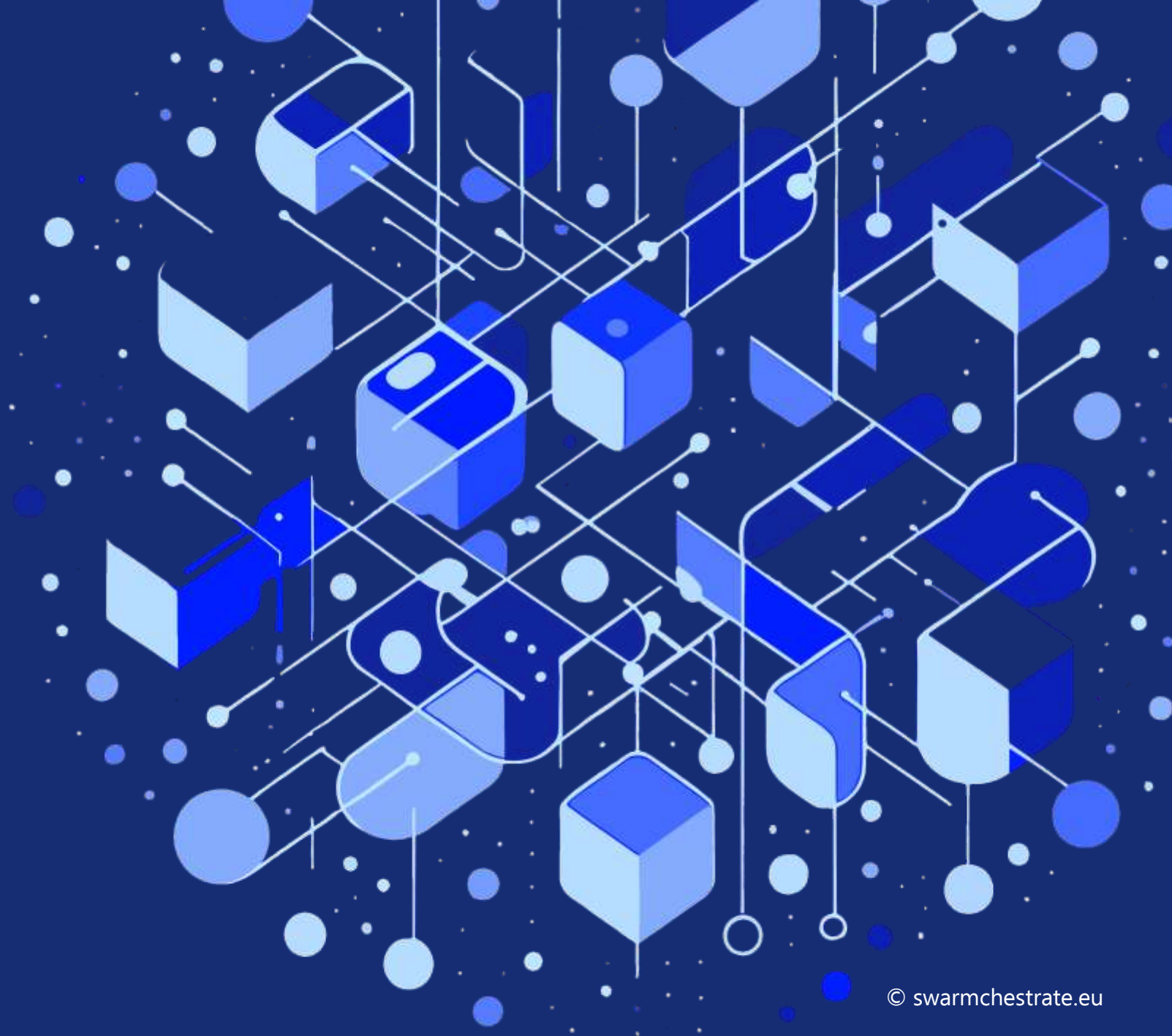
Project Impact



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Project Impact

- Optimise deployment and execution of hyper-distributed applications with a generic decentralised orchestration framework
  - Optimise quality of service requirements
  - Reduce energy consumption and environmental footprint
  - Reduce costs of operation
  - More efficient application execution to result in better and most efficient management of the targeted areas, especially flood prevention, parking space management and environmental modelling

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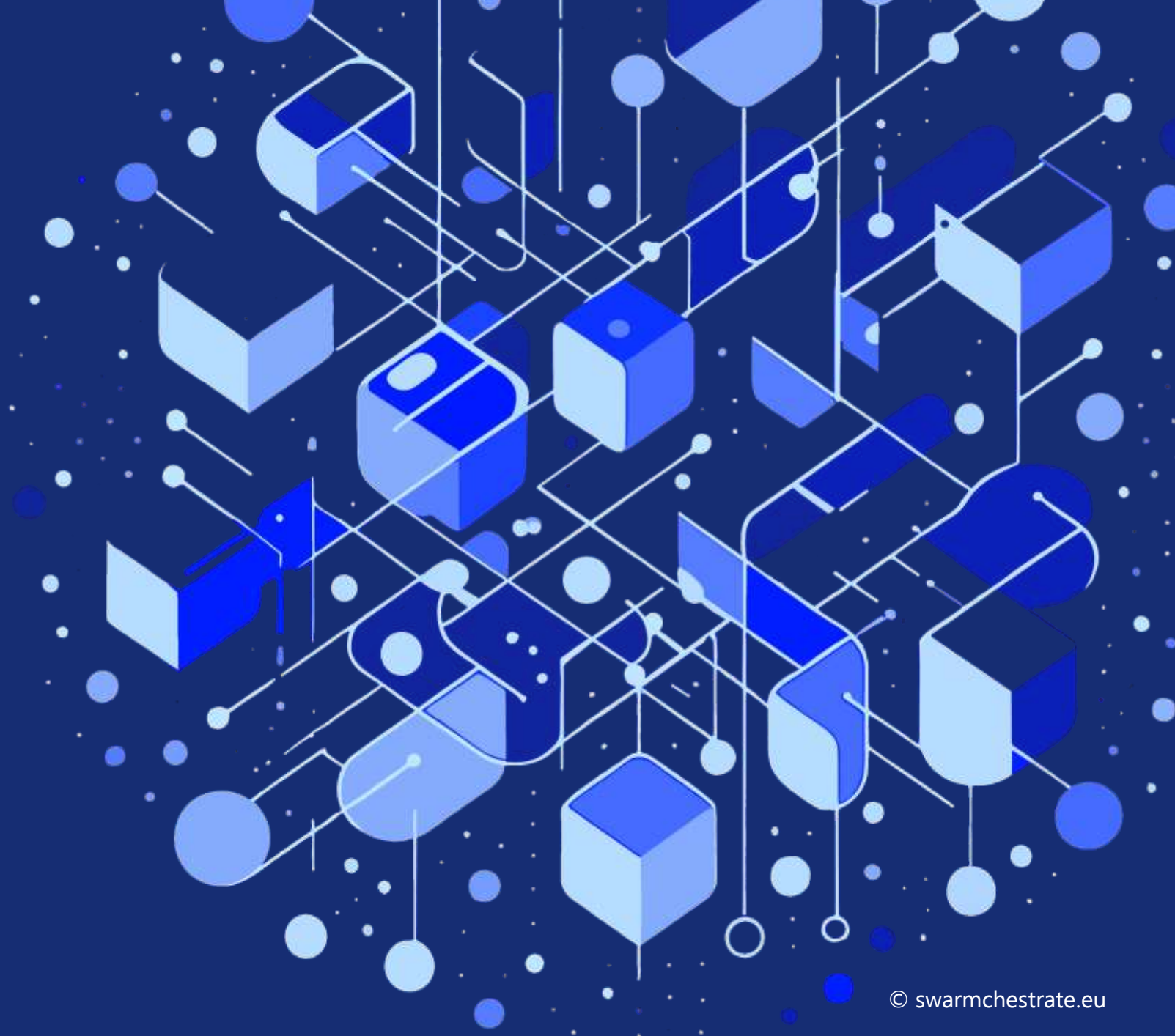
Next steps



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Next steps

- Design and implementation of the decentralised orchestrator is ongoing
  - Focus is on application deployment – run-time management in next phase
  - Development deployment mechanisms, AI optimisation algorithm, Swarm concepts and simulation environment
- First prototype is expected around the end of this year
- Specification and alignment of the demonstrators is work in progress

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Stay updated!

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Tamas Kiss – Swarmchestrate Scientific Coordinator

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PARTNERS

HUN REN SZTAKI

TECHNISCHE UNIVERSITÄT BERLIN

Tampere University

IRI UL

FRI University of Ljubljana

fuelics

Suite5 We Deliver Intelligence

FRONTENDART

FONDAZIONE BRUNO KESSLER

UST

Edinburgh Napier University

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