



# Graph-Massivizer

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# Graph-Massivizer

- Extreme and Sustainable Graph Processing for Urgent Societal Challenges in Europe
- HORIZON-CL4-2022-DATA-01-05
  - Extreme data mining, aggregation and analytics technologies and solutions (RIA)
- € 4,998,062.50
- 2023 – 2025



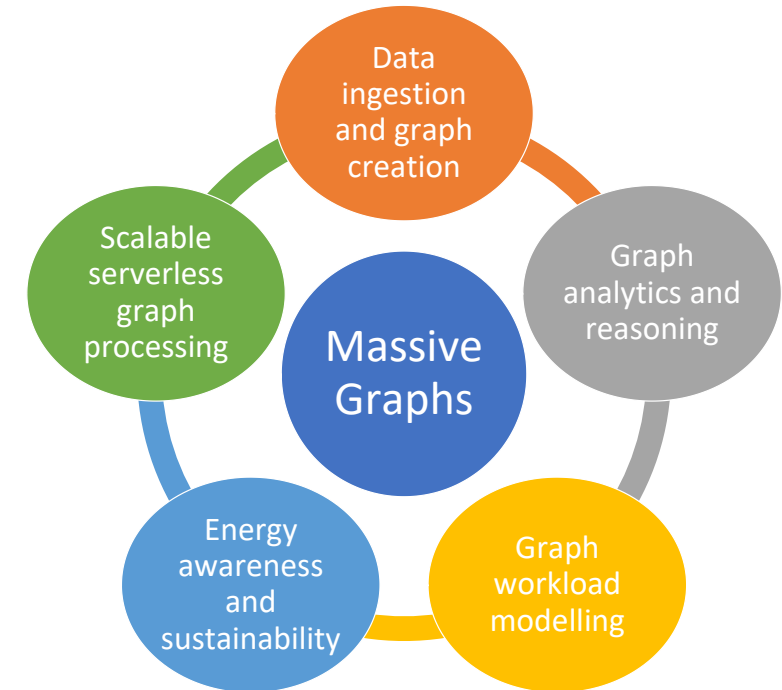
# Goal

- High-performance and sustainable graph processing of extreme data
  - Holistic platform and integrated toolkit
  - Proper response for any need and any organisation by 2030
- Graphs
  - Universal mathematical abstractions
  - Capture, combine, model, analyse, and process knowledge about the real and digital worlds



# Massive Graph

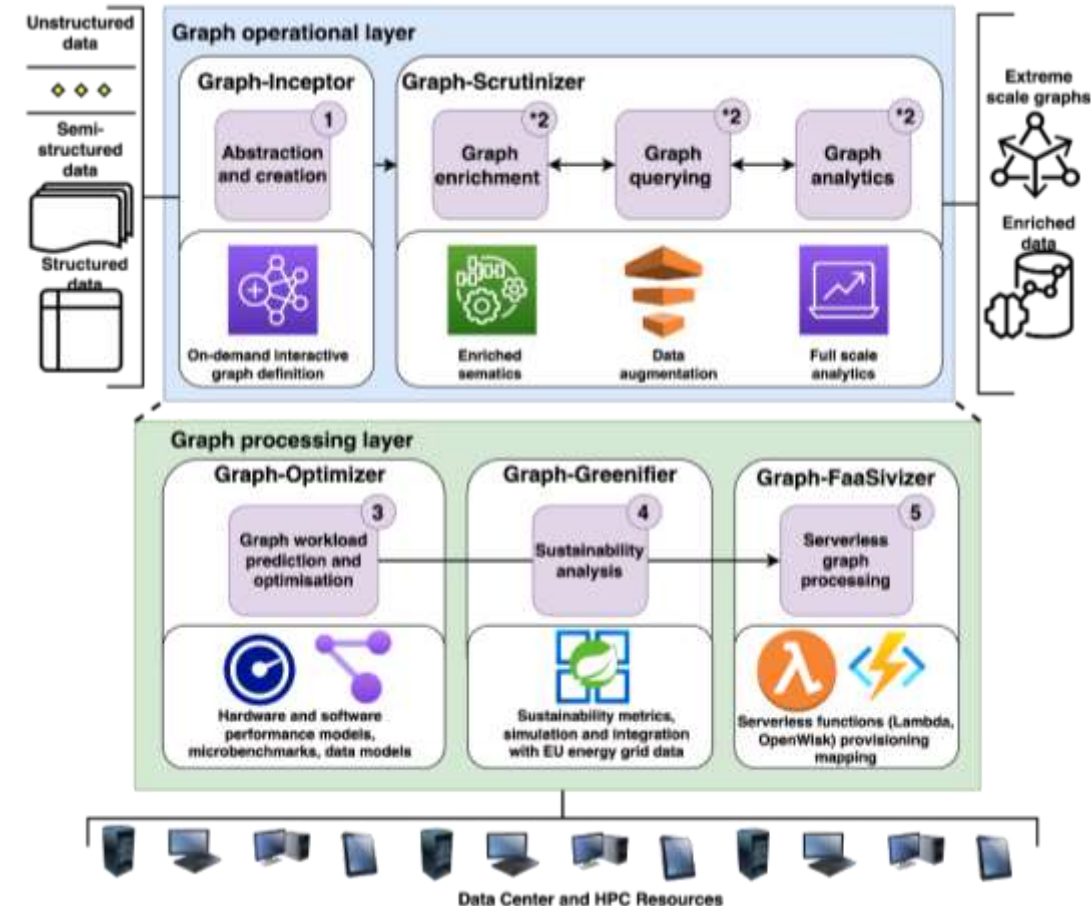
- **Massive graph (MG)** representation of **extreme data**, integrating patterns and storing interlinked descriptions of objects, events, situations, concepts, and semantics
  - General graphs, knowledge graphs, property graphs
- **Extreme data challenge**, extending graph processing technology by orders of magnitude for several **“V”**-characteristics
  - **Volume** graph challenge by supporting up to billions of vertices and trillions of edges
  - **Velocity** graph challenge of dynamically changing topologies
  - **Viridescence** graph challenge for sustainable processing at



# Graph-Massivizer Toolkit



- Graph operational layer
  - Graph-Inceptor: extreme data ingestion, MG creation and storage
  - Graph-Scrutinizer: MG analytic and reasoning
- Graph processing layer
  - Graph-Optimizer: workload modelling with performance and energy guarantees
  - Graph-Greenifier: sustainable and energy-aware MG processing
  - Graph-Choreographer: scalable serverless MG analytics over a codesigned computing continuum





# Use Cases

- UC-1: Green and sustainable finance
- UC-2: Global foresight for environment protection
- UC-3: Green AI for sustainable automotive industry
- UC-4: Data centre digital twin for sustainable exascale computing



	Volume	Velocity	Value	Veracity	Variety	Viscosity	Viridescence
UC-1	✓		✓	✓			✓
UC-2	✓				✓	✓	✓
UC-3		✓		✓	✓		✓
UC-4	✓	✓			✓		✓

LinkedIn: <https://www.linkedin.com/company/graph-massivizer-project/>

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# Thank you !



[www.graph-massivizer.eu](http://www.graph-massivizer.eu)