

ANNEX 1 – Background of the Partners

Background of TIMi:

TIMi SRL is a Belgian software company specialising in high-performance data processing, predictive analytics, automated machine learning (AutoML), data preparation (ETL), data cataloguing/governance, and decision-support platforms.

Here is a Non-exhaustive list of TIMi+Frank Vanden Berghen (TIMi's owner) prior technical background linked to this project:

- High-performance data transformation, data cleaning, and ETL processing engine. This engine is named "Anatella"; Anatella is more than a mere ETL :
Anatella is the most efficient & unified "on-premise"/Sovereign data platform available today. Anatella is a world-leading solution in these fields: Data Preparation/ETL/ELT/ BPA/BPM/ESB/Data Flow Automation tool (automate the most complex tasks with no code); BigData processing engine (1 TIMi-server is faster than 267 Spark-servers); Large DataLake Management engine (thanks to its integration with distributed storage engine such as MinIO, RustFS, AWS S3) ; an advanced GIS tool ; a Social Data Scraping Tool; a cutting-edge Advanced Analytics/Machine Learning tools; a cutting-edge Data Segmentation/Clustering tool; a Generative AI management&integration tool; a static document generator (to create complex static reports in PDF); a Data Governance and Data Lineage solution (through the integration with Marvim); a Statistical analysis tool; a tool to do Graph Analytics on Large Social Networks; a tool to do Natural Language Processing
- Predictive modelling, automated machine learning algorithms, scoring engines. This engine is named "TIMi Modeler";
- Data governance, metadata management, cataloguing, and lineage platforms and frameworks (including the "Marvim" platform and related components);
- 3D data visualisation and data clustering/segmentation tool . This engine is named "Stardust";
- A web-based Business Intelligence, dynamic reporting and dashboarding engine. This engine is named "Kibella";
- A high-performance, non-linear, constrained optimization library named "Condor".
- Proprietary middleware prototypes, overlay frameworks, API wrappers, and application integration layers;
- Pre-existing data connectors, parsing libraries, in-memory analytical engines, and generic tactical data correlation methods;
- Frameworks for REST APIs, batch integration components, command-line interfaces, and C2 data pipeline integration modules;
- Associated software architectures, binary components, internal benchmarks, and algorithmic know-how.

For the sake of completion, you'll find the documentation of the 5 engines quoted hereabove (Anatella, TIMi Modeler, Marvim, Stardust, Kibella, Condor) inside this ZIP file :

https://download.timi.eu/docs/extras/Cap4Land_Background_TIMi.zip

Here are the SHA256 checksum of each PDF doc :

afc46d049b7acc6f00b748c4b21a560ffbc25610d9c407146c793e8c6096a5e8	AnatellaQuickGuide.pdf
103a445df3a60b47ffc3be1bd412346b742b5fdc1fb5898b18bab580917cf18c	TIMi_Modeler_QuickGuide.pdf
8f0902f121ad2ac2fe37783195dcdf360dec4d19664479194681c19ab7bc52a7	MarvimQuickGuide.pdf
1811e927ef7b73315794a8cc4ae7d901ef9efead6283d2980246f01ca3aaba51	StarDustQuickGuide.pdf
deed2423d566f9d73d628275a21eafa400a6c1a2b9e5253d9eebb9638f1262fb	KibellaQuickUserGuide.pdf
1fb87fabd09bcda3ad1886c6def3633a56e14484cc9410673e3288083d8cf102	CONDORManual_1.05.pdf

One of the distinctive features of TIMi is the uncommon processing power offered by Anatella and Modeler on very modest hardware : i.e. TIMi is one of the best edge-computing platform: TIMi offers the capacity to process a near unlimited data volumetry, "at the edge" (e.g. on a common laptop with SSD and 16GB of RAM). Thanks to Anatella, many Telecom companies and Governments are processing databases & datalakes that are growing at a rate of several billion of rows per day.

Non-exhaustive list of competences related to the edge-computing platform:

- Development of very efficient Low-Level C/C++/ASM/CUDA code
- Strong background in everything AI-related : machine learning (multinomial predictors, Decision trees, bootstrapping techniques, linear identification technique), deep learning, LLM, non-linear mathematical optimization theory (Newton's based algorithm, SQP, Trust Region Methods, LP, IP), linear algebra (matrix factorizations, LAPACK, numerical stability of algorithms, LARS, Elastic Net, large scale computations, ...), etc.
- Strong background in robust & optimal control theory. That includes: system identification, soft sensors, development of L1-optimal L^∞ controllers, development of "GPC" engines (GPC=Global Predictive controllers).
- Strong knowledge in the development of massive, high-performance Linux&Windows applications (>1 million line of codes);

For the avoidance of doubt, new developments, specific in-situ data fusion logic, calibration algorithms, and tactical intelligence modules created independently by TIMi during the Project shall constitute TIMi's Own Results under Article 9.2.

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