# smart
advanced manufacturing

**PAMAI**

**Process Aware Manufacturing**

**Artificial Intelligence**

# ORGANISATION PROFILE

Analythinx is Turkey based tech company focused on big data analytics solutions with either human-generated and machine generated data. Some headlines are

- Team of 41 skilled data scientists and engineers

- Partner with leading technologies in the field including Google Cloud, Azure, Dataiku, Alteryx

- Completed an autonomous machine learning platform project approved and funded by national R&D organization of Turkey (TUBITAK)

- Operating at two offices at state-approved R&D sites.

# PROPOSAL INTRODUCTION (I)

**Vision**: The absolute goal of this project is to provide an intuitive means of data integration for complex manufacturing systems. Aligning & merging relevant data from successive steps of manufacturing process is a burdensome task for six-sigma, statistical learning or more sophisticated AI projects and we aim to minimize this hassle.

**Motivation**: Analythinx has ongoing consulting projects with process manufacturing firms for developing digital twins of manufacturing sites. For both reporting and analytical modelling needs, a process-aware data integration is a key task to calculate KPIs, create meaningful reports and investigate causal relationships.

**Content**: The project scope is defined as
- Process Abstraction: Utilizing end-user input to infer succession and progression of manufacturing process steps (via GUI) to map IoT and ERP data to process steps.
- Data Augmentation: Creating machine learning features from raw data using process input.
- Machine Learning: For predefined KPIs (cycle time, unplanned stoppages, quality), utilize supervised learning to predict failures/quality problems/stoppages and report root cause in terms of features.
- Optimization: On the decision-space (boundaries of which defined by end-user), find best interventions to improve given KPIs.

# PROPOSAL INTRODUCTION (II)

**Expected outcome:** Project outcome will be an enabler for digital twin implementations, an integrated augmentation, machine learning and optimization tool that can address predictive quality, predictive maintenance or energy optimization use-cases with minimal guidance.

**Impacts**: The project will provide an essential tool for any process (continuous) manufacturing company aiming to improve process monitoring with machine learning and statistical methods. Generalization of the end product to a variety of industries will amplify the impact significantly.

**Schedule**: We expect to start the project on 2024 – H2.

# PARTNERS

**Current Consortium:** Analythinx is already included in the project as data & analytics solution provider. For industry partnership, national candidates in Türkiye are willing to participate. Yet, we prefer to collaborate with international partners to extend multinational coverage.

**Partner search**: We are expecting to partner with

1- Industry Partner: Manufacturers operating process/batch manufacturing industries (cement, steel, glass, FMCG or similar)

2- Software houses with Backend, Front-end, Devops capabilities.

# CONTACT INFO

**Contact info**: Dr Ahmet Melih Selçuk (CEO, Founding Partner)

E-mail: ahmet.selcuk@analythinx.com
Linkedin: https://www.linkedin.com/in/ahmet-melih-sel%C3%A7uk-ph-d-5a800b55/
Website: www.analythinx.com

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