# ITEA Press release

SAMUEL: making AM more consistent, reliable and trustworthy

*13 September, Berlin – Additive manufacturing (AM), also known as 3D printing in industrial production, is a rapidly progressing technology where digital designs are directly transformed into physical objects. AM opens the door to customised products, rapid prototyping and innovative production solutions. As demand for 3D printed parts grows, it is a challenge to balance certified manufacturing with cost reduction. Many actors in the field lack awareness of new advancements, whilst reconciling data collection and reuse with intellectual property protection is difficult. The ITEA project SAMUEL has created innovative solutions to help additive manufacturing users learn more and improve their work, thereby making the whole process more consistent, reliable and trustworthy. The achievements of the SAMUEL project have been recognised with the 2023 ITEA Award of Excellence for Innovation.*

### Valorise your production data and unlock your company’s experience

The SAMUEL project - led by Canadian SME 3DSemantix and comprising eight partners from Belgium and Canada - introduced a unique set of tools and processes built on the pillars of artificial intelligence (AI), 3D model analysis, geometric search and data collection. This toolset helps designers, engineers and supply chain experts make informed decisions throughout the additive manufacturing process as well as lets users identify and validate relevant information, notably appropriate design rules, materials, equipment, manufacturing partners and process parameters. The innovative toolset incorporates data mining and machine learning modules, exploiting manufacturing data, new material definitions and equipment parameters. This ensures not only that design constraints are met but also that validation occurs during manufacturing.

Specifically, by leveraging a company’s historical data to create AI prediction models to help with build time estimation and part orientation, SAMUEL reduces the chances of production failures or incorrectly quoted prices. Another application automatically identifies previous designs of similarly produced parts to use past manufacturing experience to quickly set up successful equipment settings and post-processing operations.

Make the right match …

SAMUEL also helps contractors navigate the AM industry via a web platform that allows users to privately upload their 3D designs and use them as a search key to automatically locate the most experienced AM suppliers for these. The platform automatically creates a unique AI model for each AM partner. Members of the platform can identify potential AM manufacturers based on their experience related to a specific targeted 3D design, its material, quantity produced and/or its manufacturing process. Candidates are ranked as Experts, Core business or Skilled according to the targeted design. Other qualified manufacturers are also listed.

… and get competitive

Importantly, SAMUEL protects intellectual property by extracting valuable knowledge without revealing the actual designs. Following the introduction of data management systems to secure data,

documents and process flows, the next evolution is data valorisation to leverage experience and knowledge with AI models to answer business questions such as defining an optimal print orientation or live AM anomaly detection with high accuracy and actionable results. SAMUEL will enable companies within the additive manufacturing domain that recognise this early, and can act on it, to become more competitive.

This project has received funding from:



## *Note for editors, not for publication*

\* The acronym SAMUEL stands for Smart Additive Manufacturing – an AM Intelligent Platform

## For interview requests, questions and additional information about SAMUEL and ITEA, please contact:

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#### SAMUEL project partners <https://itea4.org/project/samuel.html>

#### About ITEA

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