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DIGITbrain – a new approach to deliver Digital Twin technologies

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The goal of the DIGITbrain Project (funded by the EC, grant Nr. 952071) is to enable customised Industrial Products, means manufacturing machines and processes, and facilitate cost-effective distributed and localised production for manufacturing SMEs by applying modelling, simulation, optimisation, analytics, and machine learning tools and augmenting the concept of Digital Twins with a memorising capacity.

Building on the CloudiFacturing Solution (and the Digital Agora, publicly known as emGORA Workspace), a platform for offering and consumption of digital services, the DIGITbrain Platform will extend the CloudiFacturing solution with new capabilities, like publishing, composing and orchestration of data, models, algorithms, and resources. The new solution integrates technologies like Clouds, FIWARE, co-simulation, Machine Learning, etc., in order to develop a MaaS (Manufacturing as a Service) business model to be implemented by the Digital Innovation Hubs (DIHs) later on.

During the lifetime of the DIGITbrain project, two Open Calls are focused on attracting third Parties (especially manufacturing and ISV SMEs and mid-caps) to perform their experiments and to make SMEs more competitive by transferring innovative solutions into the wider manufacturing community. Experiments will be implemented in close collaboration with Digital Innovation Hubs. Currently the first Open Call is in evaluation; the next Open Call will be launched in July 2022.

Technically DIGITbrain is based on the previous mentioned Digital Agora (workspace/marketplace), additionally further services are developed, like automated deployment, execution on Edge and Cloud, HPC resources and the memorising capability of the “Digital Product Brain” in order to monitor, explore and learn from the implemented Digital Twins. The “Digital Product Brain” itself is the coordinating building block of the DIGITbrain Solution and it aims to configure, manage, and monitor Digital Twins and their DMA (Data, Model, Algorithm) Tuples (representation of individual behaviours of Industrial Products).

Practically as a user, you just have to author, publish, and compose your assets (Data, Model, Algorithm) for using them or offering them as a service on the DIGITbrain solution.

Main advantages of the DIGITbrain concept are

- The clear separation of Data, Model and Algorithms (Assets) in the DIGITbrain Concept offers reusable building blocks to compose Digital Twins more rapidly.
- For transparency, analysis and further usage, those assets are described and published by metadata as well
- Provision of authoring tools and algorithms should lower the barriers and ease the access to the DIGITbrain solution for the involved SME's and DIHs.

Together with the DIHs, innovative services will be developed, published on the Digital Agora and delivered to European SMEs. Additional consulting services, provided by the involved DIHs, the contributing SMEs and core partners in the project, supports the adaption of the new technical services and are core of the envisaged community building process. Together with the DIHs and based on the DIGITbrain solution, the new business model “Manufacturing as a Service” MaaS will be explored, investigated, and established later.

Speaker bio: <https://www.westminster.ac.uk/about-us/our-people/directory/kiss-tamas>

Most suitable track

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