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Media Contact:
Andrea Hanninger
andrea@cloudSME.eu

DIGITbrain: Faster development of Digital Twins through the Use of Preconfigured Components

DIGITbrain Project aims at revolutionizing the manufacturing industry by providing an accessible, modular, and collaborative platform that allows for a more flexible development of Digital Twin solutions and a new manufacturing model, called Manufacturing as a Service. At this year's Hanover Fair the Innovation Action will take the opportunity to present an outlook on its final solution which is going to be completed in the upcoming nine months.

The benefits of the use of Digital twins in the manufacturing industry are obvious. Digital twins deliver valuable insights into the production process and allow for manufacturers to test different scenarios, predict failures, and make adjustments in real time. This enables an increased efficiency of the production, improved product quality and a reduction of costs as a consequence. However, the development of Digital Twins is not trivial and consumes a lot of time, cost and efforts. This is, where DIGITbrain solution comes in.

By allowing for modularized compilation of preconfigured components (microservices, algorithms, models), the DIGITbrain project offers a groundbreaking approach to the development and management of Digital Twin solutions for the manufacturing industry. This approach will facilitate and therefore accelerate the development and customization of Digital Twins to suit the specific needs of individual manufacturing processes or machines, but also enable new business models for software developers who'd like to set up digital twins for their customers in the manufacturing industry.
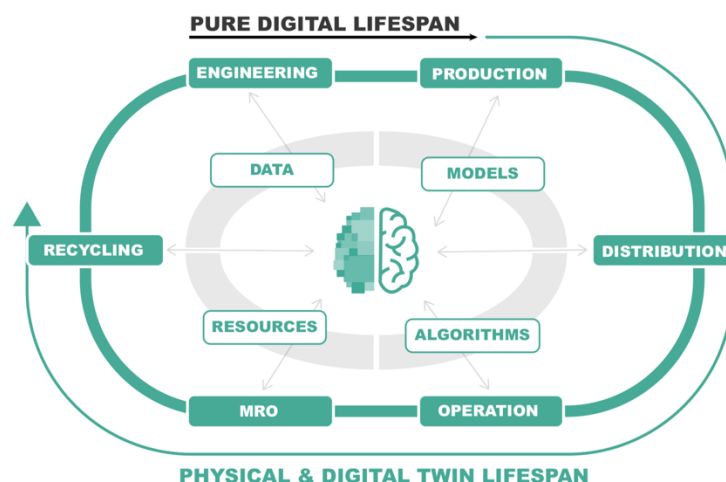
Microservices, algorithms or manufacturing machine providers can either team up to develop and monetize the mentioned components or make their own offer on the DIGITbrain solution for it to be leveraged by manufacturers for their purposes. Manufacturing machine providers play a key role here: Offering preconfigured models on the DIGITbrain solution, they will facilitate the development of Digital Twin solutions for their machines, which will be a vital incentive for their customers to use their product, since they will be enabled to quickly derive insights from their machines.

By expanding the concept of a digital twin to a smart entity which is empowered with analysis and decision support capabilities and a memorizing capacity that stores all data from the whole life-cycle of an industrial product/machinery, Db also presents an evolution of the digital twin concept - the Digital Product Brain. The combination of the gathered data with dedicated models within the different stages of the product lifecycle empowers the industrial product with an adaptive capacity unlocks completely new scenarios; e.g., the possibility to remotely steer and optimise the behaviour and performance of the industrial-product instance according to the operating conditions. Doing so, the DBP provides the basis for a new business modell, called Manufacturing as a Service (MaaS), which is attractive for both, manufacturers, and machine providers alike. Manufacturers will be enabled to outsource a part of their production whenever needed by accessing unused manufacturing machines in a remote production facility, they sometimes would not be able to even afford. Manufacturing machine providers on the other side will not only be able to gain additional revenues by licensing the DT-based solution related to their equipment rented. They will also be able to capitalize on their unused capacity while gathering more feedback about the usage of their equipment at the same time which can then feed into later design decisions.

The DIGITbrain solution will extend the emGORA workspace - which has been developed within the predecessor project 'CloudiFacturing" - by a standards-based ecosystem on which digital twin models can be quickly deployed, executed, and exploited.

Interested in learning more about the DIGITbrain solution?

Then either join our consortium partner cloudSME at our booth at the Hanover Fair: Hall 017, Booth E18 or visit: www.digitbrain.eu

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cloudSME is a European cloud technology provider founded 2016 in Duisburg, Germany. The small company is a spin-off of the cloudSME FP7 project which is supported by a multi-disciplinary network of academia and business. cloudSME is the sole commercial provider of the ***CloudBroker platform*** (CBP) which was awarded as best European innovation by the European Commission in 2015. The CBP enables untroubled management and operation of virtual machines, cluster, and software, "on click deployment" in different clouds and widely automates processes, like billing of software licences and computing consumption costs, initializing virtual machines, software images and roll-out of created infrastructures. As a neutral infrastructure service partner, the CBP is connected to different IT and Cloud providers in Europe, such as the German OpenStack-Cloud & gridscale - hosted in Germany and Europe.

Beyond this, cloudSME is operating the **emGORA workspace** which resulted from the former **CloudiFacturing Project** which **DIGITbrain Project** builds on. The emGORA workspace **is** a modular delivery-as-a-service platform that aims to democratise access to advanced ICT solutions and expert knowledge to accelerate the digital transformation of manufacturing SMEs.