The different CloudSME Simulation Use Cases

3D Scan/Modelling of Orthopaedic Insoles – Podoactiva & INGECON

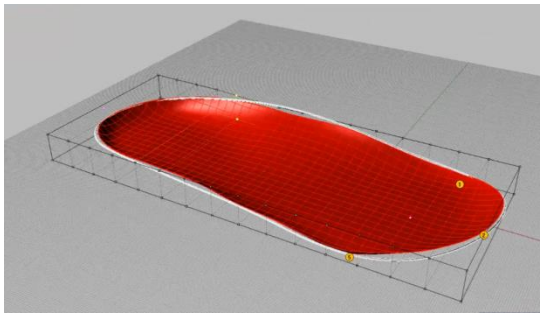

Figure 1: 3D scan insole design simulation scenario on the CloudSME platform

3D Modelling enables the pre-design of products on the computer screen. Thus, failures and weaknesses can be detected and eliminated in advance. This will dramatically speed up time-to-market.

Our partner **Podoactiva**, a Spanish biotechnology company specialised in podiatry and biomechanics, uses the platform to explore a new business model, offering their patented 3D scan insole design method in the cloud. Adapted to the customer's needs they design insoles, using advanced CAD and simulation tools, developed by the software vendor **INGECON**. This experiment can be joined by other orthopaedic foot specialists, which likes to use the innovative 3D simulation and rendering application in their own business, which is developed in collaboration of **Podoactiva** and **INGECON**.

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Data mining for the optimisation of aircraft maintenance – 2MoRO

Our French partner **2MoRO** is a Developer and software vendor of MRO (Maintenance, Repair & Operations) solutions. The scope of this experiment is the optimisation of the maintenance plan of aircraft, based on a large amount of data and correlation in order to enable:

- aircraft operators as airlines to fly more with minimum operational and maintenance costs.
- aircraft maintenance centres to be more efficient and decrease costs as they can optimize their resources allocation
- (aircraft, engines, equipments and parts) manufacturers to improve their current and future products (design, reliability, etc.) by a better knowledge of their fleet while in service.

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Discrete Event Simulation – SIMUL8, Saker Solutions & CTOOLS

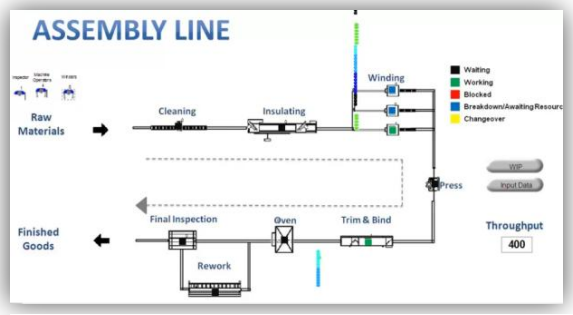

Figure 2: Enhance your workflows, using simulation.

Discrete Event Simulation (DES) enables companies from any branch to enhance their workflows and to detect problems before they actually occur.

SIMUL8, a British simulation software developing company, will create a class of template models with CloudSME partner **Saker Solutions**, which can be easily tailored to different systems. The templates can be notably used by the following industries:

- Logistics, engineering,
- Automotive component manufacturers,
- Oil/gas component manufacturers,
- Small engineering and manufacturing sub-contractors,
- Banks, insurances, breweries.

CTOOLS, for instance, is an innovative cutting tool maker for a diverse range of industries, which wants to optimize its resource capacity management through the CloudSME project. **Saker Solutions** is a British consultancy, providing advice to manufacturing and service customers on choosing simulation products as well as training in simulation best practise.

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Fluid Dynamics Simulation – ASCOMP & Eurobios

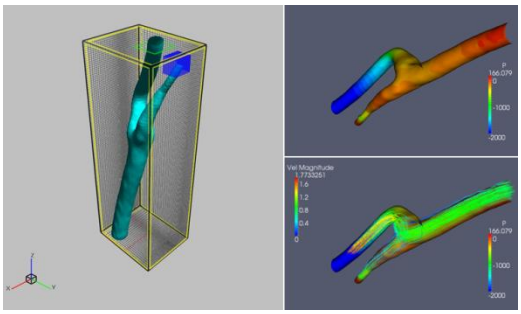

Figure 3: ASCOMP simulation scenario of blood flow in the left coronary artery.

Computational Fluid Dynamics is used in a wide field of the industries to simulate the interaction of liquids and gases (air, water, oil, blood, etc.) with surfaces and flow boundaries. Offering CFD simulation, which is usually very computing intensive, on a cloud platform, will open the benefits of this technology to a much bigger group of users.

Our Suisse partner **ASCOMP** is a technology development company specialized in the simulation of industrial fluid dynamics and heat & mass transfer, with specific focus on multiphase flow and complex-physics fluids. **Eurobios** is a French consultant, trainer and value added reseller for use cases on physical modelling and numerical simulations in large scale projects.

The scope in this experiment is to deploy **ASCOMP**'s CFD platform TransAT, into the cloud to be accessed by a wide range of SMEs from the following industries:

- Energy Related Segment: Nuclear Energy, oil & gas, gas and coal-fired power plants
- Enviroment Sector: Water Technology, natural hazards, pollution dispersion
- Novel Technologies: Micro-fluidics, Medical devices, Bio-fluids and renewable energies (solar and wind)

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