CWI and MonetDB in Big Data research project

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Leiden Institute of Advanced Computer Science (LIACS) has received a grant award from NWO for a joint proposal with Centrum Wiskunde & Informatica (CWI), CWI spin-off MonetDB (Amsterdam), Tata Steel (IJmuiden) and BMW (Munich). The research and industry partners will join forces in a four-year research project that is aimed at developing a new system for controlling and optimizing industrial production processes. The project is part of the NWO Data Science program "challenging Big Data",

Usually industrial processes are monitored by many sensors, which typically generate huge volumes of non-standardised multi-dimensional data, both numeric and images. In practice a large proportion of this data is not used to the fullest. This project will use historic and on-line process data to develop predictive process models for real-time optimisation of production processes. This optimisation takes place along multiple competing objectives, most of them being quality criteria.

LIACS, CWI and database company MonetDB contribute the big data storage and processing, data mining and data driven modelling, and optimization and multiple criteria decision making expertise. In the project the Database Architectures research group of CWI will develop models and technologies to integrate the various data sources, including numerous types of sensors that provide numerical as well as image data, in order to store, process and analyze the data using modern database technology. MonetDB will disseminate the research results of the project via their open-source analytical column-oriented memory-optimized database management system MonetDB.

The benefit for Tata Steel and BMW is to enable them to produce higher quality end products with less downtime, thereby minimising waste and loss of productivity. With Tata Steel and BMW, the process chain represents steel production and steel forming, from a producer's as well as a consumer's perspective.

Source: LIACS/CWI