

**Oberhausen (visitable at short notice)****ASSISTANCE SYSTEMS FOR PLASTIC PROCESSING**

*Application for plastics processing - increased productivity and product quality as well as enhanced working conditions thanks to a combination of expert know-how, simulation and automation*

**SUMMARY**

Expert knowledge of plastics processing is combined with results from live computer simulations to automatically generate information on how to optimize the production process.

**CURRENT SITUATION**

Plastics processing is becoming more and more complex. The interactions of process parameters, material influences, environmental influences, thermodynamics and mechanics are so many and varied that even skilled employees often have difficulty in parameterizing the process. With production costs being generally high in Germany, is it absolutely essential to have economical, productive processes, which means that computer-aided assistants are indispensable.

**PROJECT DESCRIPTION**

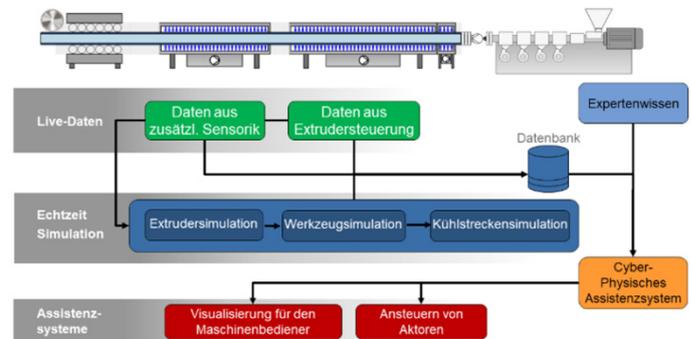
Within the scope of this project, various computer simulation systems, which were previously only used offline in the design of screw and extruder, extrusion die and nozzle as well as for design of the cooling section of the plastic injection system, now automatically generate process quality results live during the production process on the basis of a new method for the digital acquisition of process data. In combination with an expert database, these results will lead to recommendations or to autonomous intervention that will improve the process.

**REFERENCES**

Plastics processing companies, raw material production and machine building; international partners

**INDUSTRIE 4.0 – FEATURES**

System performance optimization through process optimization by means of sensors and mapping of customers' individual processes directly from ERP and MES. Quality assurance services, remote services for various applications. Flexible use even with changing packed goods.

**PARTNERS**

Funding applied for:

**SOLUTION**

By combining the acquisition of process data with various computer simulation solutions (digital twin), information on the production process is made available in real-time. No physical measurement system would be able to generate such information. This additional information from the process allows the generation of optimization suggestions in a quality that could not be achieved using conventional methods.

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**STANDARDIZATION APPROACHES**

The aim is to use standardized interfaces and components, and avoid proprietary solutions. Information is transferred to other systems and processes via open communication interfaces using OPC UA. The administration shell could facilitate this method.