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The Digital Factory — a perspective for a closer cooperation between Math and Industry

Abstract: By definition, the digital factory represents a network of digital models and methods of simulation and 3D visualisation for the holistic planning, realisation, control and ongoing improvement of all factory processes related to a specific product. In the last five or ten years all industrialised countries have launched initiatives to realise this vision, sometimes also referred to as Industry 4.0 (in Europe) or Smart Manufacturing (US). In my presentation I will use this example to highlight chances and pitfalls in the collaboration between mathematics, engineering, and industry. I will present case studies showing how mathematics will be able to contribute towards digital manufacturing and close with some remarks about the perspective of collaboration between math and industry in Europe.