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## *Smart Structures and NDE for Industry 4.0*

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*Editors*

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Of central importance for industry 4.0 is its interface with other smart infrastructures, such as those for smart mobility, the smart grid, smart logistics and smart homes and buildings. Links to both business and social networks – the business web and the social web – also play an increasingly important role in the digital transformation to industry 4.0. Industry 4.0 will see digital networks spreading across all global locations and structures and becoming widespread. Industry 4.0 applications have the potential to be pioneers or to create impetus for geographically diversified production and supply networks in new growth markets. The developers of innovative industry 4.0 applications are, however, more likely to continue to strengthen domestic research and development operations.

### 6. Smart Products for Digital Industry 4.0.

Smart products integrated into modern production flows are able to self-process, store data, communicate and interact within the industrial ecosystem. Starting from the earliest approaches which enable products to identify themselves via RFID, the products' capabilities to provide information have since evolved. This results in improved products, more rapid time to market, and reduced production costs. The digital model concept was developed within the sendler/circle, which is an association of engineering and software professionals comprising a special interest group. They met in May 2014 in a Bavarian village and adopted four theses, known in the industry as –theses from Hechenberg– Industry 4.0 represents a new stage in the organization of the industrial value chain and a fundamental transformation in industrial production. Industry 4.0 is a vision that evolved from an initiative to make the German manufacturing industry more competitive (–Industrie 4.0–) to a globally adopted term. Industry 4.0 is often used interchangeably with the notion of the fourth industrial revolution. It is characterized by, among others, 1) even more automation than in the third industrial revolution, 2) the bridging of the physical and digital world through cyber-physical systems, enabled by Industrial IoT, 3) a shift from a central industrial control system to one where smart products define the production steps, 4) closed-loop data m