Series: upcoming challenges for smart manufacturing #02

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ITEA Chairwoman Zeynep Sarilar on the integration of high-tech concepts, customer/human-centric design, security, servitisation and the importance of open source.

What is happening now in manufacturing is not improvement but revolution. Manufacturing needs to be smart to survive… that's a no-brainer. But to be smart, a number of challenges must be overcome. I would like to focus on only five of these, and suggest ways of tackling these from a software innovation perspective, or the ITEA Cluster viewpoint.

When we look at these five challenges, we cannot ignore the key role that software innovation plays in meeting these. Indeed, ITEA is an environment where we focus on future markets and the challenges posed by a fast-changing world in which 'smart' is the key concept. ITEA truly is a Global Village for Software Innovation, a community like other EUREKA Clusters that works hard to facilitate impactful results in an atmosphere of intensive international collaboration with a common goal – to turn innovative ideas into new companies, jobs, economic growth and benefits for society.

1. **Integration of High-Tech Concepts**: smart manufacturing will involve many high-tech concepts like Smart Factory Data, Flexible Production and Collaborative Robotics. The challenge is to integrate these new technologies to create an efficient manufacturing environment that interacts with its manufacturing plants, collaborates with its value chain including customers and cooperates with machines/robots and employees.
2. **Customer/Human-centric Design**: Use of existing technologies will be the disruptive change and this will be based on the requirements received from customer. Human-centric design methodologies will be used to find a change that a customer is willing to pay for and to create revenue after delivery through an ongoing connection to customers. These novel concepts need open and flexible

platforms that enable these services to be developed and delivered for fast adoption.

3. **Security by design**: Security is a key subject. Security by design will be the model for making systems reliable and safe. Manufacturers will connect their factories with each other and with external partners for smart solutions. Although it may be an expensive exercise it will help to organise things better. Connecting is not only a security issue but it also creates conflicts on data ownership. Despite all the legal issues and potential attacks from hackers, security is indispensable.
4. **Servitisation**: Servitisation is a new manufacturing business model that requires a totally digital environment and a common language between partners and components. Once this happens, manufacturing will be based on services. Virtualisation, online data services supported by IoT and cloud technologies will change the nature of manufacturing and business models. The shift towards servitisation gains momentum each and every day.
5. **Open Source**: Open source has a vital role to play in the future of smart manufacturing; it enables direct technology transfer between academia, SMEs and industry. Each new concept or algorithm can be openly shared by industry via open source and that shortens time to market. But it is essential to guarantee continuity of support for open source platforms.

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