# EU H2020 FIRST- vF Interoperation suppoRting buSiness innovation

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The manufacturing industry is entering a new era in which new ICT technologies and collaboration applications are integrated with traditional manufacturing practices and processes to increase flexibility in manufacturing, mass customization, increase speed, better quality and to improve productivity.

Virtual factories are key building blocks for Manufacturing 2.0, enabling the creation of new business ecosystems. In itself, the concept of virtual factories is a major expansion upon virtual enterprises in the context of manufacturing, which only integrates collaborative business processes from different enterprises to simulate, model and test different design options, to evaluate performance, thus to save time-to-production [1]. Creating virtual factories requires the integration of product design processes, manufacturing processes, and general collaborative business processes across factories and enterprises. An important aspect of this integration is ensure straightforward compatibility between the machines, products, processes, related products and services, as well as any descriptions of those.

Virtual factory models needs to be created before the real factory is implemented to better explore different design options, evaluate their performance and virtual commission the automation systems thus saving time-to-production [2]. This foundational concept to future manufacturing allows the flexible amalgamation of manufacturing resources in multiple organizations to model, simulate, test factory layouts and processes in a virtual reality environment, virtual factory design and virtual factories, finally create the real factory in shorter time, with demand driven product lines.

EU H2020 "vF Interoperation suppoRting buSiness innovaTion" (FIRST) provides new technology and methodologies to describe manufacturing assets; to compose and integrate existing services into collaborative virtual manufacturing processes; and to deal with evolution of changes. Moreover, the issues and gaps are investigated from a global view, i.e. among European member states and Chinese perspectives.

References
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