I4MS (phase 4) - uptake of digital game changers

a) Innovation Actions (IA)

As Phase 4 of I4MS[[See http://www.i4ms.eu]], this topic calls for Digital Innovation Hubs that strengthen European SMEs and mid-caps by experimenting and testing in one or more of the following areas. Proposers are requested to identify which of these is the centre of gravity of their proposed project. Proposals should cover the manufacturing sector at large, including discrete manufacturing, continuous production, and construction. If appropriate, building ecosystems around digital industrial platforms driven by European actors should be supported.

- Smart modelling, simulation, and optimisation for digital twins

Experimentation of novel modelling, simulation, and optimisation techniques, possibly combined with high-performance computing and data analytics, for digital twins covering the full lifecycle of products and systems.

- Laser based equipment in advanced and additive manufacturing

Actions will focus on assessment of technologies, systems, and processes and on digitisation opportunities, including the link between design tools and production and quality assurance. Actions should include the identification of high-potential business cases and support for the development of business models.

- Innovative Artificial Intelligence in manufacturing

Experimentation of innovative Artificial Intelligence techniques in manufacturing, aggregating and analysing data from multiple sources, including e.g. MES (manufacturing execution systems) data, real-time process analytical data, in-line

- **Cognitive autonomous systems and human-robot interaction**

Experimentation with cyber-physical systems in production environments, with special focus on reduction of waste, energy and resource consumption and efficient logistic processes. Adoption of robots safely cooperating with humans to support their work, improving both the efficiency and the working conditions and taking into account gender issues. In this topic, proposals should include partners that facilitate creation and experimentation with and by the arts[[Building on activities developed as part of the STARTS initiative in DG CONNECT (ICT-32-2018 and www.starts.eu)]] to ensure human acceptance of digital technologies in manufacturing and to stimulate new products and services.

- **Widening Digital Innovation Hubs**

Experimentation through Digital Innovation Hubs in regions which are so far underrepresented[[See http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool]] 🚀 in Smart Anything Everywhere and I4MS, building on the work by projects “Smart Factories in new EU Member States”[[https://smartfactories.eu/]] and “DIHELP”[[DIH Enhanced-Learning Programme, https://dihelp.eu/]]. The objective addresses all technology areas mentioned above and the technologies addressed in Smart Anything Everywhere and related areas[[Technology areas addressed are: Cyber-physical and embedded systems, Customised low energy computing powering CPS and the IoT, Flexible and Wearable Electronics]]. The hubs should strongly collaborate with other Innovation Actions funded under the Hubs part of the Focus Area, e.g. through joint highly innovative cross-border experiments.

Proposals should focus on minimising the entry barriers and demonstrating the clear added value of technologies, making SMEs and mid-caps more competitive by transferring innovative solutions into the wider manufacturing community. Special attention should be given to security considerations and to the development of skills.

All proposed innovation actions may involve financial support to third parties (typically in the order of EUR 20,000 to 100,000 per third party). For this topic, the four requirements described in the introductory section “Support to hubs” have to be applied.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 8 million would allow each area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. To obtain an adequate coverage of all areas, at least one
innovation action is supported for each of the areas, with the exception of the Widening Digital Innovation Hubs area, for which one innovation action is supported.

b) Coordination and Support Action (CSA)

The action will support the network of Digital Innovation Hubs and help achieve broad coverage in technological, application, innovation, and geographic terms, and link up with regional/national innovation initiatives, and other Digital Innovation Hubs. The action should build on the previously developed tools and innovation portal and aim to further improve them for the benefit of new Innovation Actions. The actions should also help in sharing best practices, dissemination, brokering between users and suppliers, leveraging investment and training and organise events. For these support actions, close cooperation is required with the European Factories of the Future Research Association (EFFRA[See https://www.effra.eu/]), and other CSAs funded under the Digital Innovation Hubs part of the Focus Area “Digitising and transforming European industry and services”.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 1 million would allow this area to be addressed appropriately.

The challenge is to accelerate the design, development and uptake of advanced digital technologies by European industry – especially SMEs and mid-caps –, notably in sectors where digital technologies are underexploited. SMEs and mid-caps in the manufacturing sector need support in the use of secure digital technologies in their production processes, products and business models to enable personalised products and to facilitate cost-effective small-scale production.

Proposals should address all of the following impact criteria, providing metrics to measure success when appropriate.

- Attract a significant number of new users of advanced ICT in the manufacturing sector, and more innovative technology suppliers, in particular SMEs and mid-caps.
- A sustainable network of Digital Innovation Hubs, providing European added value to investments done at national and regional level in Digital Innovation Hubs and reaching a high leveraging effect on other sources of funding, in particular regional and national funding.