

General Information	
Preliminary title of the European Partnerships	Made in Europe
Short description of the partnership	Towards a competitive manufacturing industry with a world-leading reduction of its environmental footprint, guaranteeing the highest level of well-being for workers, consumers and society.
Services directly involved	RTD.D2 (chef de file) and CNECT.A2
Context and problem definition	<p>Europe's manufacturing competence, based on value-added, high-quality products, customisation and product-service offers, attractive to global customers and local consumers, is facing a fierce race on technologies, skills, price, quality, and speed with traditional (US, Japan, Korea) and new competitors (e.g. China). In the period between 1995 and 2013, the European Value Added produced by the manufacturing sector fell from 23% to 17% on a global scale, which is significant, taking into account that manufacturing constitute 83% of the exports of the Union.</p> <p>Europe is facing a three-fold challenge with respect to its leadership position in manufacturing, particularly with respect to its</p> <ul style="list-style-type: none"> <li>• Competitiveness – based on technological innovation, core competences, and swift market uptake;</li> <li>• Autonomy – core materials, key technologies, skills, and mastery of the strategic value chains, taking advantage of the digital transformation;</li> <li>• Strategic advantage in taking up sustainability challenges (more inclusive productivity, higher job quality, environment and energy use).</li> </ul> <p>These challenges arise because of Europe's still relatively fragmented single market leads to higher production costs together with long investment cycles for the uptake of emerging technologies. Over the next decade, global manufacturing is expected to undergo unprecedented transformation, driven by the convergence and scale-up of technologies such as Artificial Intelligence (AI), Robotics, Industrial Internet of Things, Big Data, Cybersecurity, Materials Design, Production Technologies (e.g. Automation, Customisation), Design Technologies, Human Interaction Technologies, Mechatronics (including bio-sensors), Bio-inspired manufacturing, Nanotech/Quantum, Blockchain.</p> <p>For Europe's industry to respond cohesively, an inspiring and impactful partnership is needed, able to provide industrial focus on agreed objectives whilst addressing weaknesses and catalysing strengths. Strategic value chains – which are in the process of being defined at the European level – are relevant, in particular the one on Industrial Internet of Things, and, more importantly, dependent on a functioning manufacturing landscape in Europe. These, together with the Union's investment programmes, as well as the European Innovation Council will be key links to the Partnership.</p>
Objectives and expected impacts	<p><b>Objectives:</b></p> <p>The objective is to develop and adapt new <b>technologies for manufacturing influencing and influenced by policy making</b>, in particular towards</p> <ul style="list-style-type: none"> <li>• A <b>Circular Economy</b> with products reused in new value chains (value loops) minimising their environmental footprint;</li> <li>• A higher <b>productivity</b> with innovative businesses, high quality products, and improved worker skills, increasing the industrial contribution to EU GDP to 20 %;</li> <li>• Creation of <b>new value-added jobs</b> through technology-driven innovations (e.g. in design, engineering, logistics and end-of-life management) and new business approaches (e.g. customisation, product-service systems). Manufacturing already stands for more than 100 million direct and indirect jobs in the EU, with engineering accounting for more than 11 million jobs.</li> </ul>

- **Digital transformation** of the manufacturing sector, contributing to increased productivity, new value-added jobs, and the circular economy.

#### **Expected impact:**

Towards a truly **Circular Economy**

- Circularity at local and factory-level; from “zero waste” manufacturing to more extensive de-manufacturing (smart recycling) and re-manufacturing (repair, refurbishing, re-use); new local ecosystems for value creation.

Higher, more **inclusive productivity** and added value

- Demonstrate 750 significant and marketable innovations and 100 patents in Horizon Europe priorities related to (a) Health, (b) Digital, Industry and Space and (c) Climate, Energy and Mobility;
- Customised manufacturing equipment and products, e.g. within the agri-food sector (agricultural machinery and food processing), construction (machinery), mobility (specialised vehicles) or medical (equipment), support for regional innovations and new customers/markets;
- Application of AI leading to increased productivity and quality. The use of AI will enable large revenue increases in manufacturing environments, and will increase the number of innovative solutions for market deployment.
- The Partnership will enable collaboration on digital industrial platforms across industrial actors and define data sharing models. The aim is to build up a common data space across relevant factories and value chains in a strengthened European Research Area.

New companies, **jobs, skills** and quality of life

- Manufacturing to also become a driver for regional development, including upskilling through better alignment with InvestEU and ERDF initiatives;
- New, disruptive innovator companies enhancing Europe's competitiveness. Under Horizon 2020, SME participation in partnerships in manufacturing has been 25% higher than for the Framework Programme as a whole. The partnership is expected to have a high SME participation and to deliver hundreds of new disruptive innovator start-ups able to compete and export manufacturing technologies;
- More high quality jobs, new skills and more job satisfaction by increasing the number of new job profiles by 2030 (the future partnership is expected to lead to job growth of 3% every year in manufacturing) to the benefit of the entire economy. In the engineering sector, job creation in Europe has increased by 3.2% during the period of Horizon 2020.

**Digital transformation** of the manufacturing sector

- Increased uptake of digital technologies. In 2017, the percentage of enterprises with high levels of digital intensity in manufacturing ranged from 10% (for fabricated metal products) to 24% (for manufacturing of electric appliances and automotive). By 2030, more than half of enterprises in the manufacturing sector need to be highly digitised.

#### **Private R&I investment:**

By 2030, a three-fold increase in private R&I investment by the partnership (baseline 2020). The high rate of overall private investments (64%) in R&I in the entire private sector is expected to be increased, by enlarging private investments in R&I whilst developing a more innovative ecosystem with more sustainable start-ups.

#### **Expected timeframe:**

A 7-year timeframe from the beginning of the Partnership's implementation in 2021 to its end in 2030 (Final calls in 2027).

<p>Necessity test: rationale for a European Partnership</p>	<p>Developments in the discrete manufacturing sector are currently scattered across Europe, driven by companies, research organisations, industrial labs, and startups. Joining forces is Europe's only chance to be competitive internationally. A Partnership is necessary to mobilise the communities, identify a common strategic research agenda around long-term goals, and federate efforts and investments. A joint European roadmap and implementation in collaborative projects will facilitate the manufacturing community in Europe to increase synergies and coordination to compete effectively worldwide. A strong partnership at European level will help catalyse synergies in technological development bearing on the strategic transformation of manufacturing as a whole. For instance, only a Partnership can bring harmonisation in data sharing into the manufacturing sector.</p> <p>The partnership approach is more effective compared to regular calls under the Framework Programme because it acts as a driver for clustering many different actors around agreed industrial objectives. Furthermore, it helps achieve cross-sectoral cooperation under a jointly developed, long-term strategic agenda, with continuity in implementation. This is crucial for achieving speed and scale of response based on predefined productivity, quality, and skills targets for the entire industry. The complex value chains in discrete manufacturing require a strategic, coordinated approach, with wide involvement of the full range of actors to reach Circular Economy objectives, create new value-added jobs, and enable the digital transformation making the manufacturing sector more competitive.</p> <p>Industry has a strong record of building competitive leadership based on a partnership approach. Made in Europe builds on the Horizon 2020 cPPP "Factories of the Future" that has demonstrated in 2017 a leverage of private R&amp;I investment by a factor of 4.65. Furthermore, a strong uptake by new innovative SMEs (32% participation and funding rate), a wide range of new job profiles and curricula created to equip the current work force with new skill sets show that a Partnership can act as a catalyst.</p>
<p>Relevant for the following parts of Horizon Europe</p>	<p>Pillar II 'Global Challenges and European Industrial Competitiveness'</p> <p><input checked="" type="checkbox"/> Cluster Health</p> <p><input type="checkbox"/> Cluster Culture, creativity and inclusive society</p> <p><input type="checkbox"/> Cluster Civil Security for Society</p> <p><input checked="" type="checkbox"/> Cluster Digital, Industry and Space</p> <p><input checked="" type="checkbox"/> Cluster Climate, Energy and Mobility</p> <p><input checked="" type="checkbox"/> Cluster Food, Bioeconomy Natural Resources, Agriculture and Environment</p> <p><input type="checkbox"/> Cross-cluster</p> <p><input type="checkbox"/> Pillar III 'Innovative Europe'</p>
<p>Currently identified links with other partnership candidates /Union programmes</p>	<ul style="list-style-type: none"> <li>• Key Digital Technologies</li> <li>• AI, data and robotics</li> <li>• Smart networks and Services</li> <li>• Clean Steel - Low Carbon Steelmaking</li> <li>• European Metrology</li> <li>• Carbon Neutral and Circular Industry</li> <li>• Photonics</li> <li>• Batteries</li> <li>• Global competitive space systems</li> <li>• Rail Research and Innovation</li> <li>• Clean Sky 3</li> <li>• Towards zero-emission road transport (2Zero)</li> <li>• Mobility and Safety for Automated Road Transport</li> <li>• Towards a competitive European industrial battery value chain</li> <li>• Built environment and construction</li> </ul>

	<ul style="list-style-type: none"> <li>• <u>EIT Manufacturing</u> focusing on entrepreneurship and education</li> <li>• <u>EIT Raw materials</u> to deliver solutions for industrial use</li> </ul> <p>Other funding instruments, as provided under ERDF, InvestEU, Digital Europe, and the targeted programmes from EIB.</p>
Does the proposed partnership build on currently active ones?	cPPP Factories of the Future (FoF) under Horizon 2020. “Factories of the Future” – The new Partnership will include a wider set of stakeholders, and be more integrated to strategic value chains, as well as concentrating also on linked funding instruments for market uptake.
Expected type and composition of partners	<ul style="list-style-type: none"> <li>▪ The Partnership will ensure complete openness in all activities, from project participation to defining research agendas, to participation in working groups. In addition, it will go above and beyond to encourage participation from stakeholders who have not yet been in research projects, as well as from underrepresented geographical regions that can benefit from an accelerated research activity within manufacturing.</li> <li>▪ Industry (large &amp; SMEs) stakeholders; RTOs (private &amp; public); universities; foundations &amp; societal organisations (e.g. trade unions).</li> <li>▪ It will be important to include societal organisations and institutes offering social sciences &amp; humanities expertise when tackling a reorganisation of industry towards, new ways of working, skills and regional and societal impact.</li> </ul>
Contributions and commitments expected from partners	Industry should commit to contribute in-kind towards the goals of this partnership as well as to activities linked to market, regulatory, societal uptake.
Currently envisaged implementation mode(s).	<input checked="" type="checkbox"/> Co-programmed European Partnership <input type="checkbox"/> Co-funded European Partnership <input type="checkbox"/> Institutionalised European Partnership <ul style="list-style-type: none"> <li><input type="checkbox"/> Article 185</li> <li><input type="checkbox"/> Article 187</li> <li><input type="checkbox"/> EIT-KIC</li> </ul>
Justification of the implementation mode	<p>Co-programmed is the preferred implementation mode. It is best fitted with the large range of sectors and actors concerned, which makes the type of financial commitments expected from co-funded or Institutionalised Partnerships unduly complex.</p> <p>The co-programmed model allows the needed flexibility to foster synergies with other EU instruments targeting the latest stage of R&amp;I, such as the Innovation Fund and InvestEU, as well as with other local/regional initiatives or multinational actions such as an IPCEI (e.g. batteries) or future research in the area of Artificial Intelligence.</p>
Proposed starting year	2021