

I. Industry 4.0/Advanced manufacturing

This topic contributes to SO 1.1 “To improve sustainable linkages among actors of the innovation systems for strengthening regional innovation capacity in central Europe”.

THEMATIC FOCUS	<p>The thematic focus of the fourth call in SO 1.1 is on Industry 4.0 and Advanced manufacturing. Projects are expected to tackle challenges related to the transformation and growing complexity of manufacturing systems, to the effective use of advances in science and engineering that create new opportunities for manufacturers, and to the scaling-up of emerging technologies into commercial manufacturing applications. For central Europe this topic is essential because this functional area is characterised by a strong manufacturing industry, which is now in need to keep up with technological trends and concepts of digitalisation (such as internet of things, big data and cloud computing, 3D printing and visualisation technologies, artificial intelligence or advanced robotics).</p> <p>Related to the exploitation of existing results, nine Interreg CE projects with direct and relevant contributions to this topic were identified and are listed at the end of this document. They address this topic from different and complementary perspectives and focus on various challenges of the above mentioned technology areas by e.g.</p> <ul style="list-style-type: none"> > Boosting linkages and capacities amongst the relevant technology and innovation actors of smart engineering and rapid prototyping, > Improving the adoption of advanced manufacturing technologies and micro- and nanotechnology-related processes and materials by SME, > Bridging service gaps and enabling SMEs across central Europe to access high level technology services > Testing transnational advanced manufacturing qualification programmes and crowd funding solutions > Supporting the servicing of processes in manufacturing companies etc.
CHALLENGES	<p>Central Europe faces crucial disparities regarding regional innovation. “Islands of innovation”, located around agglomerations or in western intermediate areas, have been established with well performing innovation systems characterised by strong links between its actors. However, several, mostly rural and peripheral regions and areas are characterised by a low level of R&D and weak linkages, which result in insufficient technology transfer and problems to access R&D-results and financing of innovation, especially for SMEs. The dynamism of regions and their connections through networks are opportunities in the frame of the globalisation process (Territorial Agenda 2020).</p> <p>There is a high and mostly unexploited potential of transnational cooperation for enhanced implementation of support structures and measures for improving the performance of regional innovation ecosystems in the area of advanced manufacturing and Industry 4.0. Further development of instruments for place-based and innovation-driven growth is needed in order to improve innovation and digitalisation capacities and thus increase productivity of SMEs in central European regions.</p> <p>Since innovation and technology development are the result of a complex set of relationships among key actors of the regional innovation systems (within RIS3), stronger links within and between regions as well as a critical mass of innovative actors are required (especially applying a triple or quadruple helix approach) for improving innovation capacity. This shall further enhance knowledge and technology transfer between key players of innovation systems in order to bring innovation closer to the market and will ultimately contribute to innovation-driven growth at regional level and reduce disparities.</p> <p>In this context, an innovation system is to be understood as “the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies” (cf. Freeman, 1987). Actors of the innovation system include stakeholders from the research and business sectors, policy makers and public authorities.</p>
POLICY FRAMEWORK	<p>The topic of Industry 4.0 and advanced manufacturing reflects the importance of industry in central Europe, in particular the manufacturing sector, and the high interest of innovation actors across the central Europe area in cooperating on this topic and related challenges.</p> <p>Projects focussing on Industry 4.0 and advanced manufacturing funded under SO1.1 in the first and second call compose of the largest thematic cluster with a high strategic relevance, e.g. contributing to the European Strategy for Deployment of Key Enabling Technologies (KETs) as outlined in the Communication ‘A European Strategy for Key Enabling Technologies - A bridge to growth and jobs’ (2012)¹. KETs are considered a central industrial policy as they provide the basis for innovation in a whole array of industries and, when exploited appropriately, may reverse the decline in manufacturing and boost growth and jobs. The importance of KETs for European industrial future is also further reiterated in the industrial policy Communication, A Stronger European Industry for Growth and Economic Recovery’ (2012)² and ‘For a European Industrial Renaissance’ (2014)³.</p>
EXPECTED RESULTS	<p>Transnational cooperation among those industrial sectors that are technology priority areas in central Europe will help to strengthen regional innovation capacities and contribute to a better implementation of regional smart specialisation strategies.</p> <p>Transnational and internationalised regional networks and clusters will help to foster technology transfer and the development and implementation of new services that support innovation in businesses. Sustainable linkages between regional ecosystems will contribute to increasing regional competitiveness and resilience. Increased cooperation between RIS3 key actors will improve access to research results, thus stimulating further investment in innovation.</p> <p>The main result envisaged can be summarised as: <i>“Increased and more sustainable linkages of actors in the innovation systems achieved through transnational cooperation strengthening the innovation capacity within central European regions”.</i></p>

¹ COM(2012) 341 final, <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0341:FIN:EN:PDF>

² COM(2012) 582 final, <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0582:FIN:EN:PDF>

³ COM(2014) 14 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0014&from=EN>