

4STEPS

*Towards the application of
Industry 4.0 in SMEs*

Interreg 
CENTRAL EUROPE European Union
European Regional
Development Fund

4STEPS

4STEPS project is addressing the main challenge of Industry 4.0 (I4.0) as tool towards a new, digital industrial revolution holding the promise of increased flexibility in manufacturing, mass customisation, increased speed, better quality, improved productivity and its development is supporting the RIS3 in the target regions in the different sectors. SMEs in the target regions are lagging in the adoption of innovative tools and solutions proposed by I4.0 revolution and need to increase transnational collaboration in facing this challenge.

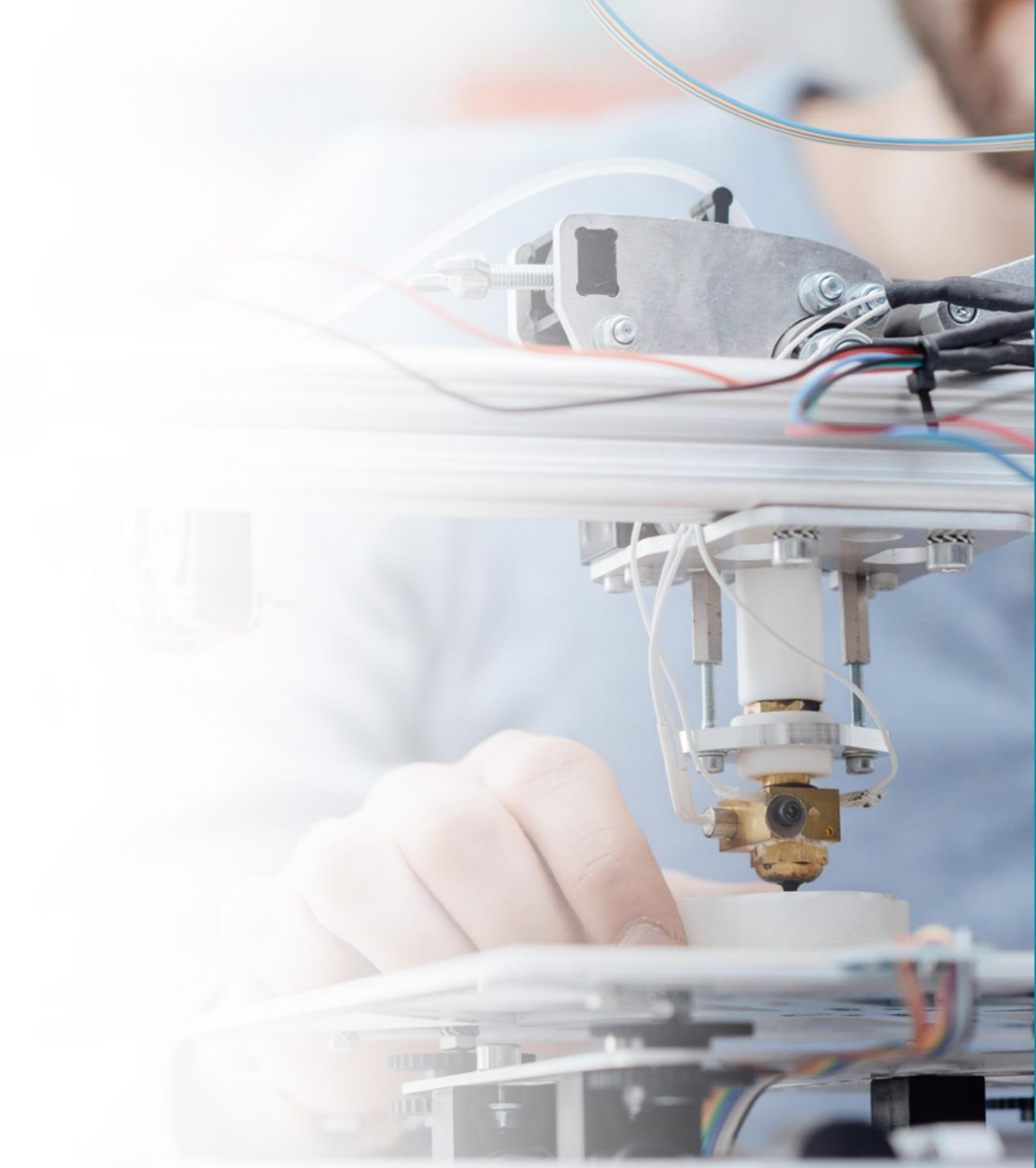
The main project objective is to support the successful RIS3 implementation applying the I4.0 to all the industrial sectors identified by each region. The innovative elements of 4STEPS will be the methodology applied based on the involvement of all the actors of the quadruple helix, thanks to a bottom-up approach.



ABOUT THE PROJECT

Project partners' competence is diverse when it comes to the nine Industry 4.0 technological pillars. Two project partners - namely CNA from Italy, and CCIS from Slovenia- indicated that they are not specifically focusing on either of the pillars, but horizontally, they are covering most of the pillars due to their widespread technical network.

CNA for example actively participates within the High Technology Network, collaborating relevant stakeholders to answer in a concrete and qualified way to the needs of the companies requiring external support for research and innovation and for the introduction of the nine key enabling technologies inside their organizations. Regarding Chamber of Commerce of Slovenia, they are not technologically oriented, but process oriented, but still, they are connecting all nine pillars on horizontal level. CCIS has many competences and skills (tangible and intangible assets) and services for supporting the implementation of Industry 4.0.



ABOUT THE PROJECT

As far as the specific Industry 4.0 technological pillars are concerned, the contributions from the partners reflect that most of the partners have competence in the field of additive manufacturing and simulation pillars.

Some partners provide valuable inputs in connection with Augmented Reality (RE:LAB, FHV, PBN,VDC) and Industrial Internet of things (IIoT) (RE:LAB FHV DEXIC, PBN) so they might provide support for institutions in this area as well. Transnational catalogue also depicts, that some partners are dealing with Autonomous Robots, (FHV, PBN, VDC), so they might advocate SMEs in this field too.

According to the contributions by partners, it can be seen that Horizontal and vertical integration, cybersecurity and cloud technologies, as well as big data analytics currently do not belong to the priorities of the majority of the partners, since only few partners are dealing with these pillars in their institutions.



SERVICES

Services are provided in next fields

SUPPORT SERVICES

● Horizontal support

CNA Emilia Romagna

CNA is offering technical support services that cover all areas of Industry 4.0, such as trainings, promotions, counselling and assistance on topics of technological readiness level, innovation, finances, customer support, legislation etc.

Chamber of Commerce of Slovenia

CCIS is providing process-oriented support services horizontally across all nine pillars, this includes assessments, workshops and coaching for digital readiness and concepts of Industry 4.0, sustainable value chain, customer experience, access to finance, awareness of cybersecurity and pilot platform for the e-life cycle of products.



NINE PILLARS OF INDUSTRY 4.0

● **Autonomous robots**

Vorarlberg University of Applied Sciences

FHV integrates autonomous robots into its scientific curricula and project work together with businesses, industry and academia. They are helping users make use of autonomous robot technology and learn and build-up of a sophisticated knowledge base.

Pannon Business Network Association

PBN has experience and knowledge in the field of autonomous robots on topics of autonomous mobile robots, collaborative robots and flying autonomous robots.

Regional Development Agency Bielsko-Biala

During 4STEPS, ARRSA has started using autonomous robots and are organising training programs in terms of programming short production lines, machine learning and human-robot cooperation.



Simulation

Regional Development Agency Bielsko-Biala

FabLab Bielska-Biala is offering 3D scanning which can be used in rapid prototyping, quality control, reverse engineering, 3D modelling and simulation. Services include consultations and training for youth, students and SMEs.

Vorarlberg University of Applied Sciences

FHV works on simulation and optimization in fields of machine learning, product and service personalisation and distributed execution framework. Services are performed on intra-organizational projects in close collaboration with local businesses and industry.

Pannon Business Network Association

PBN is constantly monitoring the latest leading software and technologies on the market on topic of modelling, 3D scanning and digital twinning, to provide extended technical knowledge and communicate the results to partners.

Virtual Dimension Center

VDC is consulting companies regarding use cases for and trends in augmented reality simulation. Its members are offering or using simulation software in fields like product development or production planning.



NINE PILLARS OF INDUSTRY 4.0

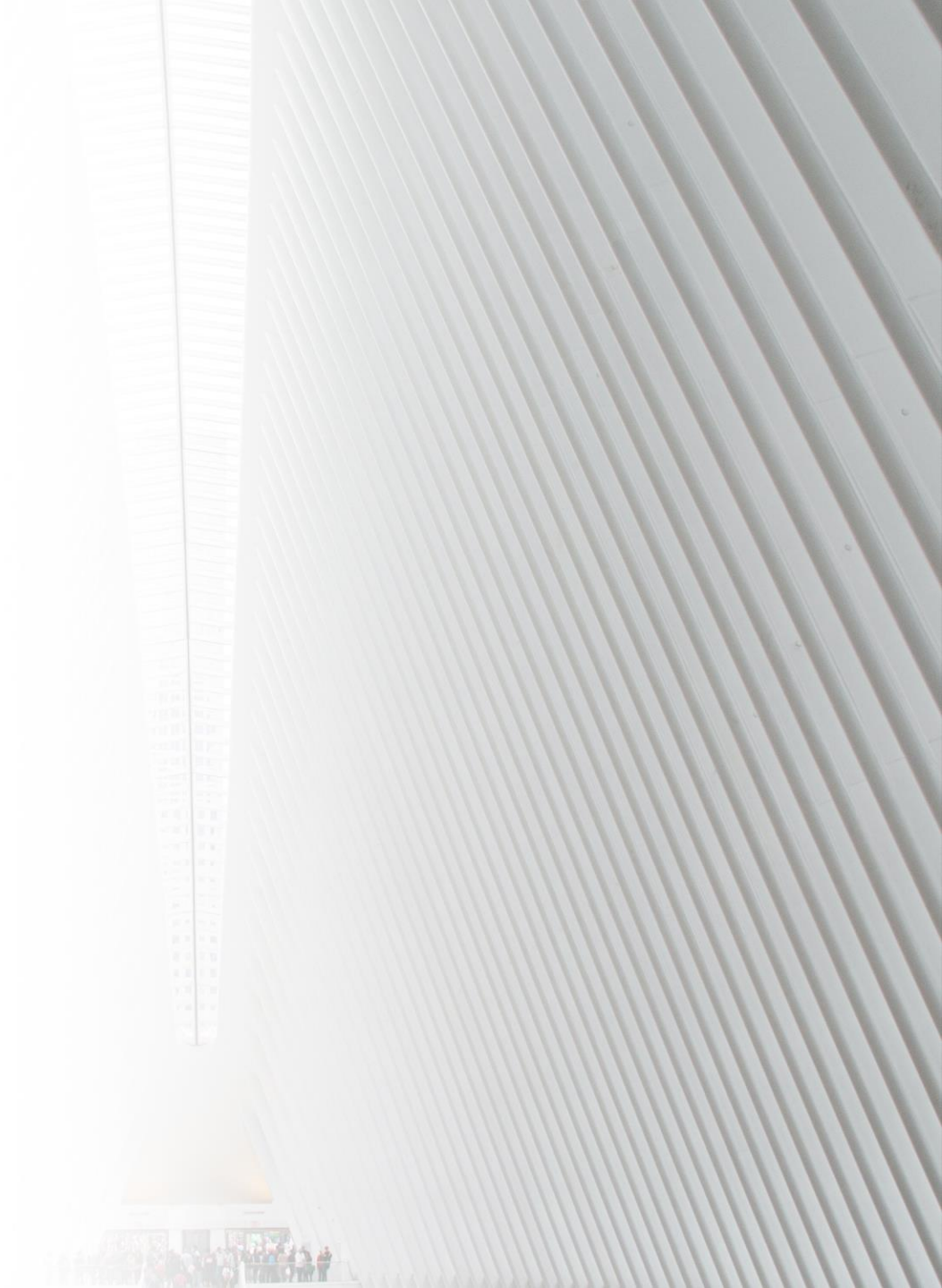
● **Horizontal and vertical systems integration**

Vorarlberg University of Applied Sciences

FVH is working on the challenges to integrate different IT systems and machines horizontally and vertically for a seamless exchange of data and information.

Pannon Business Network Association

PBN is dealing with integration of all data, gained from the available machines at the different technological pillars, into a common system.



NINE PILLARS OF INDUSTRY 4.0

● Industrial Internet of Things

RE:Lab s.r.l.

RE:Lab is active in the IoT domain, both developing products and participating in R&D projects. Among its expertise include IoT connectivity platform, urban mobility and intelligent transport systems.

Vorarlberg University of Applied Sciences

FHV is working on convergence of Blockchain with emerging technologies in I4.0 and IoT such as semantic database solutions, machine learning, cloud manufacturing, 3D printing and machine-to-machine.

Dex Innovation Centre

The digital innovation hub offers complete equipment for creating devices based on the meaning of the Industrial Internet of Things especially in field of printed circuit boards.

Pannon Business Network Association

Association is dealing with the topic of Industrial Internet of Things for 3D printing.



NINE PILLARS OF INDUSTRY 4.0

● **Cybersecurity**

Vorarlberg University of Applied Sciences

FHV educates students and SMEs about the threats in digitalization also offers a qualification network about cybersecurity.

● **Cloud technologies**

Virtual Dimension Center

VDC is providing a network emulator for testing distributed virtual work environments.

Additive manufacturing

RE:Lab s.r.l.

RE:Lab promotes the processes of tailoring and personalization of products, through the use of additive technologies and digital manufacturing

Regional Development Agency Bielsko-Biala

FabLab Bielsko-Biała is focused on 3D printing and rapid prototyping technologies. Their main scope of activities is in education and raising awareness in terms of the possibilities of this cutting-edge technology.

Vorarlberg University of Applied Sciences

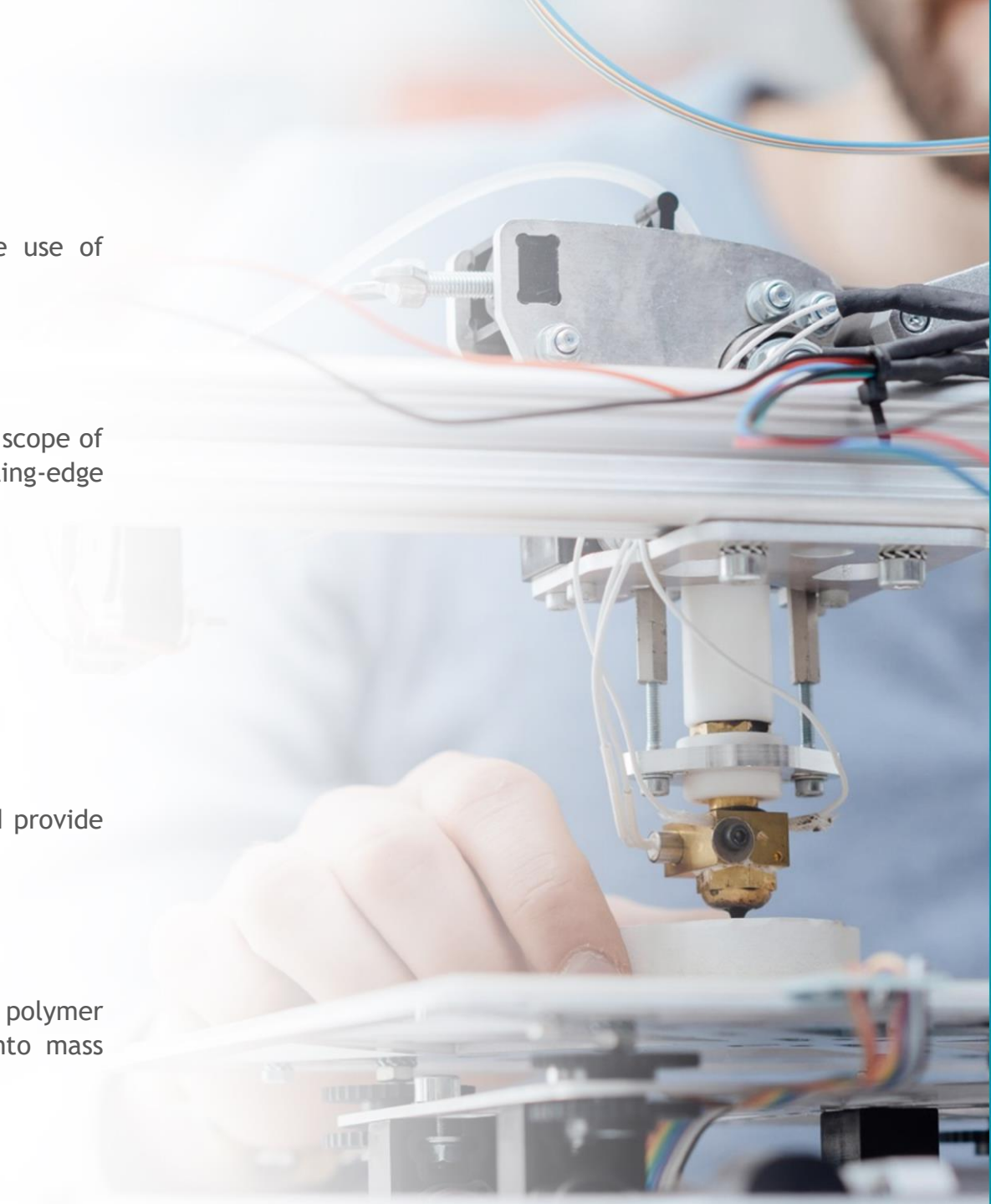
FHV pro-actively makes use of 3D printing for education purposes of students and others.

Dex Innovation Centre

Members of Dex Innovation Centre are offering 3D printing according to personal design and provide workshops.

Pannon Business Network Association

PBN's goal is the integration of the additive manufacturing - based on wide spectrum of polymer printers and expertise - into the research and development, prototype production and into mass customized manufacturing.



NINE PILLARS OF INDUSTRY 4.0

Augmented reality

RE:Lab s.r.l.

RE:Lab is active in the area of Augmented Reality especially for the valorisation of Cultural Heritage.

Vorarlberg University of Applied Sciences

FHV uses augmented reality for a virtual tours and manufacturing. They are providing AR clean room to test its effectiveness for various applications.

Pannon Business Network Association

PBN is providing an AR application which shows the 3D printer parameters in real time using Augmented Reality technology.

Virtual Dimension Center

VDC is consulting companies regarding use cases and trends in augmented reality.





NINE PILLARS OF INDUSTRY 4.0

● **Big data and analytics**

Vorarlberg University of Applied Sciences

FHV runs several projects in the field of big data and analytics. They are using big data and analytics for simulation and optimization.

4STEPS

List of service providers

- CNA Emilia Romagna
- RE:Lab s.r.l.
- Regional Development Agency Bielsko-Biala
- Vorarlberg University of Applied Sciences
- Dex Innovation Centre
- Pannon Business Network Association
- Chamber of Commerce of Slovenia
- Virtual Dimension Center



PROJECT PARTNERS



Emilia Romagna

CNA Emilia Romagna:

CNA Emilia Romagna has a long experience in promoting and supporting innovation in SMEs by acting as an intermediary between the supply of research output and small enterprises' demand, through specific actions including the development, dissemination and implementation of best practices for the introduction and management of innovation and in the field of RIS3 and Innovation 4.0.



RE:Lab s.r.l.:

RE:Lab is a research-oriented SME, born in 2004 as a spin-off of the Human Machine Interaction (HMI) Group of the University of Modena and Reggio Emilia. RE:Lab main business is the design and development of hardware and software embedded systems, human interaction, algorithms for intelligent systems, and applications for machine learning, test and reliability.



Agencja Rozwoju Regionalnego S.A.
Bielsko-Biala

Regional Development Agency Bielsko-Biala:

The range of services provided by the Regional Development Agency Joint Stock Company includes: Comprehensive aid for small and medium enterprises, professional counselling, organizational, economic, financial, legal and marketing issues, organization of training and seminars, International cooperation, creating associations, looking for foreign investors, promotion of the region and its economic potential.

PROJECT PARTNERS

Vorarlberg University of Applied Sciences:



FHV is active in the field of Digital Transformation, Industry 4.0 and Physical Internet in combination with Advanced Manufacturing, Logistics/SCM and ICT. FHV is an academic partner and provides/disseminates research results, suggestions, etc. about “how to implement a sustainable factory of the future. FHV is an University of Applied Sciences and mainly educate students and adults in Bachelor and Master programs.

DEX Innovation Centre:



DEX Innovation Centre (DEXIC) is a private non-profit innovation centre active in 4 main pillars: i) research & innovation support, ii) entrepreneurship & business support, iii) e-solutions and iv) innovation infrastructure. DEXIC works closely with public authorities, SMEs/start-ups and research centres and therefore has well developed access ways in the Czech Republic and its region.

Pannon Business Network Association:



PBN, founded in 2006, as a regional business development organization aims at strengthening the economic performance of small and medium sized businesses in the Western Hungarian Region. As a leading public economic development organization in the region, the network contributes to the quality of employment and the improvement of the competitiveness of enterprises with the cooperation and networking of the regional stakeholders. PBN’s technology transfer spin-off company, called AM-LAB, which has already gained the Digital Innovation Hub status, is a service centre specialized on the application and presentation of the most recent manufacturing technologies to develop smart end-user product in strong co-operation with our key customers.

PROJECT PARTNERS



Chamber of Commerce of Slovenia:

CCIS is a non-profit, non-governmental, independent business organisation representing the interest of its members. With over 160 years of tradition, it is the most influential business organisation in Slovenia. CCIS unites 26 branch associations, representing all important industry sectors of Slovenia, under its roof. CCIS has 13 regional offices in Slovenia. CCIS is composed of branch business associations, regional associations and professional departments. CCIS represents all important industry sectors of Slovenia.



Virtual Dimension Center:

The Virtual Dimension Center (VDC) is Germany's leading competence network for Virtual Engineering. Technology and service providers, users, research institutions and multipliers work together in the VDC network along the entire value chain of Virtual Engineering- namely in 3D simulation, 3D visualization, product lifecycle management (PLM), and Virtual Reality (VR).

PROJECT FIGURES



7

COUNTRIES



8

PARTNERS



1710571

MILLION ERDF



2085368

MILLION BUDGET



<https://www.interreg-central.eu/Content.Node/4STEPS.html>

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CENTRAL EUROPE



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