

Digital innovation hubs and demonstrators



A Policy Brief from the Policy Learning Platform on
SME competitiveness

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Summary

Digital innovation hubs and digital demonstrators/testbeds are part of the European competitiveness and innovation policies for at least a decade, also including further concepts such as learning factories or technology platforms. Those concepts have in common that they aim for accelerating the uptake of new technologies (e.g. artificial intelligence, blockchain, big data, virtual and augmented reality, etc.) in the processes, products, and services of European SMEs, helping them to be more innovative and more competitive on the global level.

With the new programming period 2021-2027, the overall concept of Digital Innovation Hubs is gaining even more momentum on the European level with a prominent place in the new industrial strategy for a sustainable and digital Europe. This is mirrored in national and regional policies, and quite obviously also in the activities of [Interreg Europe](#) projects.

This policy brief aims to provide an overview of the relevant good practices and policies brought forward by the projects and highlight some of their specificities, which might make them relevant for learning and uptake purposes in other regions.

Digital innovation hubs and demonstrators/testbeds

The digital transformation of SMEs is acknowledged as a factor of competitiveness for businesses and an engine for growth and welfare for the economy and the territories. It is commonly agreed upon that there is a need for action to foster the digital transformation of European businesses. Similarly, supporting the capacity of SMEs to engage in innovation processes is one of the priorities for enhancing the competitiveness of SMEs.

The policy brief on [Fostering the digital transformation of SMEs](#) provided an overview of good practices and policies from several [Interreg Europe](#) projects on how to foster the digital transformation of SMEs, with a focus on traditional sectors and SMEs with low digital maturity. The present policy brief looks into how to foster the innovation capacities of SMEs through the use of digital technologies.

There are several ways for policy makers to act towards this objective. They can mainly be categorised as follows:

- **Providing direct financial support** through dedicated programmes, including e.g., vouchers, grants for innovation and transformative projects or subsidised loans aiming at reducing the risk for significant digital investments.
- **Setting up support services**, including training, up-skilling and re-skilling on different aspects of the digital transformation and related innovation processes.
- **Creating supportive environments**, aiming at promoting a culture of innovation on a large scale, developing networks and clusters leveraging the innovation and uptake capacity of digital technologies of their members, and facilitating access to research and innovation infrastructures which are usually not accessible to single businesses.

Digital technologies are increasingly being integrated into the innovation activities of companies. Initiatives such as **Digital Innovation Hubs, learning factories and technology demonstrators or testbeds** aim to accelerate the uptake of new technologies in the processes, products, and services of European SMEs (e.g., artificial intelligence, blockchain, big data, virtual and augmented reality, etc.). They often combine a range of financial, soft (training, networking) and hard (access to infrastructures and technologies) support services. They will be at the core of this policy brief.

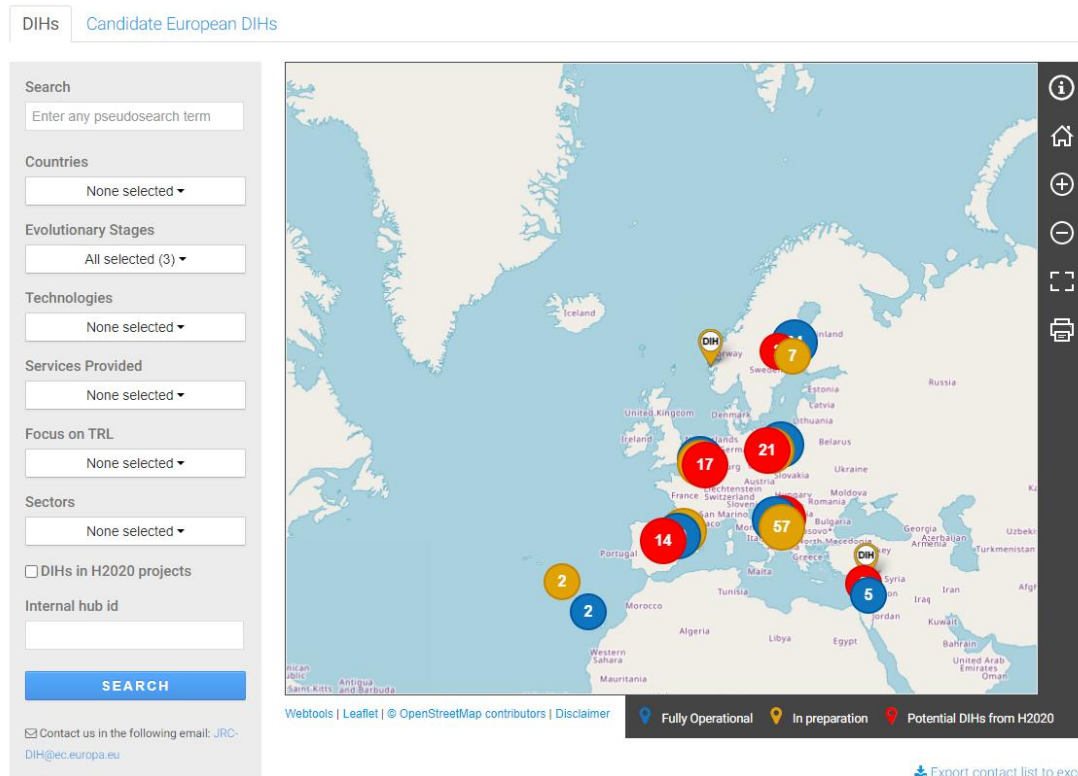
Digital innovation hubs and demonstrators/testbeds in European policies

This chapter provides an overview of EU policies and support schemes focusing on Digital Innovation Hubs and digital demonstrators and testbeds. For a wider overview of [EU policies and support schemes](#) fostering the digitalisation of SMEs, please consult our Policy brief on [Fostering the digital transformation of SMEs](#).

Digital Innovation Hubs

The concept of Digital Innovation Hubs (DIHs) is relatively recent in European policymaking. In 2016, the European Commission launched the Digitise European Industry, the first industry-related initiative of the Digital Single Market package. One of the most important pillars of the Digitise European Industry effort is the activity to develop a network of DIHs. DIHs were understood as “one-stop-shops that help companies to become more competitive concerning their business/production processes, products or services using digital technologies. They are based upon technology infrastructure (Competence Centre - CC) and provide access to the latest knowledge, expertise and technology to support their customers with piloting, testing and experimenting with digital innovations.” ([Source EC](#)) As a result of this initiative, a [catalogue of DIHs](#) was set up to provide a comprehensive picture of DIHs in the EU across varying competencies, structures and service offerings. The catalogue is hosted by the S3 platform from JRC, it is currently completed with the candidates for becoming European DIHs (see below) and it is expected to be updated regularly.

Digital Innovation Hubs



Source: [Catalogue of DIHs](#)

A further pillar of the European efforts to develop the network of DIHs was the “[Smart Factories in new EU Member States](#)” project, launched in 2017 to identify in the EU13 Member States (Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia) organisations capable of taking on the role of a DIH. 34 selected organisations received training, workshops and mentoring on business development skills and on sustainability activities, including identification of funding opportunities. The training and mentoring materials were designed to provide the current best practices for the establishment of a DIH and empower the organisations with the tools and techniques to define:

- The market demand for a regional DIH;
- The services that a DIH should provide to address this demand;
- The process for engaging with key stakeholders;
- The optimum operating model for a DIH, including the financial plan.

The training materials are still available in the project’s [online library](#).

I4MS, ICT Innovation for Manufacturing SMEs

Another key European initiative supporting manufacturing SMEs in the widespread use of information and communication technologies (ICT) in their business operations is [I4MS, ICT Innovation for Manufacturing SMEs](#), a programme launched back in 2013 and still active. While focusing initially on the creation of DIHs, [I4MS](#) has evolved over the years and launched a series of [Innovation Actions](#), which are partly still active – click here to access the [open calls](#), providing SMEs with technical support and cascade funding for the implementation of application experiments.

The current offer available from the website also encompasses a catalogue of training, events, access to open calls and an online [brokering system](#) for SMEs to access financial resources, training, and networking opportunities.

The new industrial strategy for a sustainable and digital Europe

On 10 March 2020, the European Commission published its new industrial strategy [Making Europe's businesses future-ready: A new industrial strategy for a globally competitive, green and digital Europe](#)

The strategy displays a comprehensive set of actions addressing three key priorities:

1. maintaining European industry's global competitiveness and a level playing field, at home and globally,
2. making Europe climate-neutral by 2050 and
3. shaping Europe's digital future.

Moreover, the new European industrial policy includes a [dedicated strategy](#) for SMEs “**for a sustainable and digital Europe**”. The SME Strategy announces a series of measures fostering the sustainable and digital transitions of European SMEs:

- **Sustainability Advisors** will be appointed within the existing Enterprise Europe Network to help SMEs with environmental and social challenges and improve access to skills.
- Up to 240 **Digital Innovation Hubs** will advise SMEs on how to integrate digital innovations into their products, business models and processes.
- The new [European Innovation Council](#) (EIC) will make available €300 million to encourage **breakthrough innovations** delivering [Green Deal](#) objectives.

European Digital Innovation Hubs (EDIHs)

Following the adoption of the [Digital Europe Programme](#) work programme, the first restricted call for EDIHs opened on November 17th, 2021, to enable selected EDIHs to start their operations towards September 2022. The [European Digital Innovation Hubs](#) are expected to function as one-stop shops that help companies dynamically respond to digital challenges and become more competitive. They are intended to assist companies in improving their business and production processes as well as products or services by using digital technologies. The EDIHs will also provide necessary soft-support measures that focus on the mindset change rather than technology - such activities include training, technical expertise and advice, and skills development programmes.

The EDIHs will not only function locally but will play an important role in pan-European networking and learning. The Digital Europe Programme will increase the capacities of the selected hubs to cover activities with a clear European added value, based on networking and promoting the transfer of expertise. They will capitalise on the European policy efforts of the past decade described here above. Moreover, it should be highlighted that many of the networks having applied for becoming EDIHs have a connection with the [EEN – Enterprise Europe Network](#), aiming to help companies innovate and grow internationally.

EDIHs and Industry 5.0

The need for a new industrial paradigm, beyond Industry 4.0, has become more and more necessary over the years in relation to increasingly complex and pressing economic and societal challenges, such as:

- Climate change and the collapse of biodiversity,
- Resource scarcity,
- Global shocks such as the COVID-19 pandemic and more recently the war in Ukraine.

[Industry 5.0](#) tries to provide such an answer and “provides a vision of industry that aims beyond efficiency and productivity as the sole goals and reinforces the role and the contribution of industry to society.” ([European Commission](#)). It complements the existing "Industry 4.0" approach by specifically putting research and innovation at the service of the **transition to a sustainable, human-centric and resilient European industry**. An industrial system building on the Industry 5.0 paradigm will ideally be:

- Responsible at the value chain and ecosystem level, rather than focusing on the optimisation of single businesses.
- Regenerative and circular by design, rather than building on consumption.
- Self-sustaining and adaptive, less fragile, rather than dependent on the import of strategic raw materials and energy.
- Decentralised, rather than fully globalised, especially – but not only - in the food sector.
- **Digitalised with purpose, rather than prioritising digital business models accelerating traditional consumption patterns.**

Although a new concept, the content of the Industry 5.0 approach is strongly building on and integrating existing European policies such as:

- adopting a human-centric approach to digital technologies including artificial intelligence ([Proposal for AI regulation](#)),
- up-skilling and re-skilling European workers, particularly digital skills ([Skills Agenda](#) and [Digital Education Action plan](#)),
- modern, resource-efficient and sustainable industries and transition to a circular economy ([Green Deal](#)),

- a globally competitive and world-leading industry, speeding up investment in research and innovation ([Industrial Strategy](#)).

It is expected that EDIHs will play a role in the regions to foster the acceptance and uptake of the Industry 5.0 model, for instance with respect to the use of trustworthy Artificial Intelligence applications, improved cyber security practices and skills development. In January 2020, the Policy Learning Platform organised a peer review on this topic hosted by Austria Wirtschaftsservice Gesellschaft mbH (see box below):

Establishing trustworthy artificial intelligence in Austrian companies

The Austria Wirtschaftsservice Gesellschaft mbH (AWS) is the promotional bank of the Austrian federal government. It aims to support innovative projects from companies through loans, grants and guarantees, especially when other funding is not available. In addition, they also offer support through coaching and services. The AWS received funds from the National Foundation of Research, Technology and Development to operate a new program: fostering the trustworthy use of artificial intelligence (AI) in companies. While the European Union had provided guidelines on its ethical use, it was still in its early days. The AWS ran into questions such as:

- How will artificial intelligence work in different sectors?
- Do the provided guidelines help or hinder the use of artificial intelligence?

In order to build on the existing knowledge and to bring those guidelines to practical use, the following objectives were set for the Peer Review:

- Validate the approach chosen by AWS to implement ethical guidelines for the use of AI in the selection of projects to be funded by the new programme.
- Develop workable guidelines for the ethical and trustworthy use of AI by businesses.
- Build the necessary bridge between the European and national high-level policies.

Discover the insights and recommendations of the peer review in the [follow-up report](#).

Digital testbeds

The European Commission supports digital testbeds since the last programming period 2014 -2020. Some of those initiatives are continued beyond the initial project funding. Some of the most relevant examples are:

[Interoperable Europe](#)

Interoperable Europe is the initiative of the European Commission for a reinforced interoperability policy in the public sector. It is committed to introducing a new cooperative Interoperability policy for Europe that will transform the public administrations and help them in their digital transformation. The initiative is supported by the Digital Europe programme. It continues and expands the mission of the now completed [ISA²](#) programme.

[FIWARE and the FIWARE Accelerator Programme](#)

[FIWARE](#) is an open-source cloud platform with a collaborative and mature ecosystem of developers, innovation Hubs, accelerators, cities and more than 1000 SMEs and startups, curated by the FIWARE Foundation. The FIWARE Community members have access to a vast catalogue of business and technology benefits.

The European Commission supported the [FIWARE Accelerator Programme](#) as part of the Digital Agenda 2020 and reached out to over 1.000 SMEs and startups, helping to develop innovative web-based products and services.

The FIWARE accelerator community is also represented in the [Interreg Europe](#) database of good practices with the [FIWARE Digital Innovation HUB for Business Acceleration – FiiHUB](#), a business and

innovation support centre in Macaronesia, involving the Azores, Madeira, the Canary Islands and Cape Verde. FiiHUB supports SMEs and entrepreneurs to adopt and develop digital technologies and offers multiple services such as access to Open-Source technologies, business development support, training and workshops, incubation and acceleration, networking and collaboration opportunities. FiiHUB involves triple-helix stakeholders from different countries. The initiative is extremely interesting for its interregional and cross-border dimensions as it involves distant islands from different countries. The initiative could inspire Interreg projects and policymakers that aim to create such business and innovation centres in interregional and cross-border settings.

FIWARE Digital Innovation HUB for Business Acceleration - FiiHUB



The main challenge for companies, cities or territories willing to be more competitive in the current digital economy is the lack of internal resources to access disruptive technologies, tools, and solutions. Although regional SMEs know the importance of innovation, creating new markets, and staying relevant, they don't know how to turn ideas into ready-to-use smart solutions, how to create new products and services and consequently, make a meaningful impact in the market or society.

FiiHUB reaches its objectives in different ways: it offers easy access to Open Source technologies, business development support, and community building that enable local digital businesses to thrive at a regional and a global level. FiiHUB is devoted to instructing and educating, helping and advising local communities, matching the demands of their local market, and creating new demands. FiiHUB is implemented thanks to the Interreg Mac program (an ETC program), with 85% ERDF funds.

The main stakeholders are regional public institutions, science and technology centers, universities, and chambers of commerce and industry from the Canary Islands, Azores, Madeira, and Cape Verde.

The main beneficiaries are local businesses (SMEs) and entrepreneurs from the region, who need support to grow in regional, national and international markets, to engage in innovation processes using FIWARE technologies.



Find out more about the practice [here](#)

End-to-end digitalised production test beds

The [end-to-end digitalised production testbeds](#) initiative has been launched jointly by four EIT Knowledge and Innovation Communities (KIC): [EIT Manufacturing](#), [EIT RawMaterials](#), [EIT Food](#) and [EIT Digital](#). Focusing on production environments, those testbeds aim for mirroring real-life manufacturing sites, depicting either specific processes or scaled-down process chains. They enable interaction with machinery and equipment and bring digitisation to life by making processes tangible and

accessible. They target start-ups, scale-ups, research and technology organisations (RTOs), universities as well as industry partners to collaborate and test their ground-breaking products and digital services, involving technologies such as Artificial Intelligence, virtual and/or augmented reality functionality, blockchain integration, 5G connectivity, integration of additive manufacturing processes.

An overview of the already selected testbeds can be found [here](#).

Digital Innovation Hubs in Interreg Europe

For the present brief, the term **Digital Innovation Hub (DIH)** is used to define one-stop-shops that help companies to become more competitive with regard to their business/production processes, products or services using digital technologies. They are mostly based on technology infrastructure (e.g., a competence centre) and provide access to the latest knowledge, expertise, and technology to support their customers with piloting, testing, and experimenting with digital innovations. DIHs also provide business and financing support to implement these innovations, if needed across the value chain. As proximity is considered crucial, they act as a first regional point of contact, a doorway, and strengthen the innovation ecosystem.

A DIH is generally a regional multi-partner cooperation (including organizations like RTOs, universities, industry associations, chambers of commerce, incubator/accelerators, regional development agencies and even governments) and can also have strong linkages with service providers outside the region supporting companies in accessing their services. Interreg Europe projects have identified several examples of DIHs, set up in different national or local contexts.

The first one is the [Austrian Digital Innovation Hubs](#) initiative, which has a similar setup as the [European Digital Innovation Hubs](#) and was structured as a way to prepare strong Austrian applications for the EDIHs call for proposals by mobilising the relevant stakeholders in the regions at an early stage. The focus of the hubs on technologies such as artificial intelligence, cyber security, data science, blockchain and 3D printing ensures their ability to meet growing industrial needs for integrating those technologies into new products, services and processes.

Digital Innovation Hubs (DIH) in Austria



In order to support SMEs with digitization, several digital innovation hubs (DIH) were created in Austria. Each serves as a network of existing facilities (so-called "digital centers") that use their expertise and infrastructure to facilitate the digital transformation process of SMEs. The national DIH programme pursues the following goals with new interventions or by linking to existing measures:

- Mobilizing Austrian SMEs to actively participate in digital change to leverage productivity, innovation, and value creation potential and to strengthen competitiveness
- Providing institutionalized access for SMEs to expertise and know-how on digitization as well as knowledge transfer to companies via further training measures
- Supporting digitization innovations in SMEs through access to infrastructure, opening new business models, collaborative R&D and development of prototypes for digitization applications
- Improving the integration of Austrian experts in European networks



Find out more about the practice [here](#).

A key success factor of the DIH programme is the collaboration with the federal provinces (regions). They know the needs of the SMEs in the region and work closely with the regional higher education &

research institutions. As a consequence, the applications for EDIHs are well coordinated and tailored to the needs of the region.

A similar approach combining national and European schemes is the one from the [Latvian Digital Innovation Hub](#):

Latvian Digital Innovation Hub – EDIH Latvia

DIH is managed to help local companies to acquire digital skills, new technology, innovation and business solutions, as well as to improve the overall digitization level of Latvian SMEs.

Several support concepts are implemented:

- Corporate Hackathons – several-days or several-weeks event to solve the business challenges of sectoral companies, to get closer to know and understand the different business sectors, to look for ways in which technology can address the various challenges of industry producers, to build sustainable teams that continue to work after hackathon, thereby ensuring future cooperation between IT and other industries.
- Digital Workshops –helps to carry out an analysis of the existing business by filling out business canvases and creating a high-quality roadmap for digitisation of business processes with the help of innovation and emerging technology and solutions experts, so that the business can grow and grow effectively in the future.
- Digi-meetups - a two-sector information exchange and networking event where the industry outlines the current situation and major challenges, and IT companies present their solutions, followed by the exchange of contacts and networking.
- Sofa Experts – visiting a specific industry company, where the company presents business models, production facilities, processes and current challenges, and a public discussion of of potential solutions for this company by representatives of several IT companies.

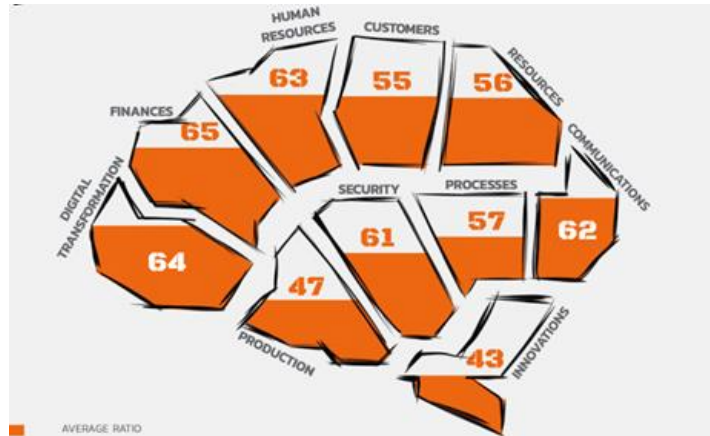
Find out more about the practice [here](#) and [here](#).



A specificity of the support offer provided by this DIH is the strong business-oriented and peer learning approach. The DIH aims for answering specific needs or challenges of businesses, mostly at a sectoral level, and builds on the experiences of businesses to motivate other businesses to engage in digital innovation processes. This is possible due to the strong implication of the Latvian IT Cluster in the management of the DIH. A further interesting feature of this initiative is the ambition to bring together IT sector representatives with other sectors to generate interdisciplinary activities.

Finally, the Latvian DIH offers access to one of the most comprehensive **online self-assessment digital maturity tests** - [Smart Latvia & Digital Maturity Test \(DigiBEST\)](#), which has been widely used already by Latvian companies and is **available in English** for any business support organisation. The comprehensive and well-designed tool covers 10 business dimensions:

1. Digital transformation and competition
2. Financial data management
3. Human resources environment
4. Customer relationship management
5. Resource management
6. Communication and customer relations
7. Digitalization of processes
8. Security policy and practices
9. Digitalization in production
10. Innovation and growth perspectives



Source: LIKTA – Latvian Information and Communications Technology Association

A further example of a national DIH is the [Digital Innovation Hub Slovenia](#):

Digital Innovation Hub Slovenia

DIH Slovenia is an Industry Digital Transformation one-stop-shop serving Slovenia and beyond. It creates awareness and provides services to grow digital competencies, share digital experience and case studies at the local and national level. It also aims to become a key stakeholder at national level for fostering entrepreneurship by opening public administration data and by contributing to policy design.



Its objective is to become a single-entry point for digitization and digital transformation, in particular through the following activities:

- Creating a digital ecosystem
- Providing direct support to SMEs (mentoring)
- Overcoming the barriers to digital transformation
- Raising the digital economy index in Slovenia
- Increasing the number of companies involved in global value chains
- Raising the competitiveness of the Slovenian economy.



DIH Slovenia provides, connects, and supports knowledge, business, technology expertise, technologies, experimental and pilot environments, best practices, methodologies, and other activities necessary to fully enable the Slovene industry to build digital competencies, innovation models and processes.

Find out more about the practice [here](#).

The description of the practices well illustrates the importance of integrating business models and global value chain perspectives in the support practice of DIHs.

Also coming from Slovenia, the [Digital Innovation Hub DIH.Healthday.si](#) is a very good example of how to set up a well-functioning **sectoral community** - in this case for the health-tech ecosystem. Previously fragmented, actors of the health sector in Slovenia were brought together by the Digital innovation hub.Healthday.si (DIH.HealthDay.Si). The purpose was to achieve a higher impact on Slovenian health high-tech SMEs while also influencing the digitalisation of the Slovenian healthcare system. The hub organizes networking activities, disseminates information, and provides training. In just a few years it has grown into a community of 800+ dynamic individuals from the ICT sector and has provided real results by linking startups with strategic partners and investors.

Digital Innovation Hub DIH.Healthday.si



DIH.Healthday.si is an ecosystem of health high-tech SMEs and organisations that works towards the digitalisation of the Slovenian healthcare system.

Its ultimate goal is to influence the digitalisation of the Slovenian healthcare system. The founding partners are the Slovenian leading digital health solution providers. In the last 5 years, it has connected all relevant stakeholders in the country, consisting today of more than 30 partners from different backgrounds and sectors: healthcare solution-providing industry, healthcare institutions, patient alliances and individual end-users, universities, insurance companies (private&public), private investors, businesses, and media. DIH.Healthday.si is to support the members, predominantly start-up SMEs, to enter the national and international healthcare markets. It is also to support the local health and social care communities to implement digital solutions. DIH.Healthday.si does it by networking, distributing relevant information, exchange of experiences, educating people in companies on international business development and certification processes, so helping the members to reach their professional goals. It introduces supportive initiatives for SMEs(e.g.5D2020) and forms bodies (e.g.Think-Tank) that steer the development.



HEALTHDAY.SI

Find out more about the practice [here](#).

The sectoral approach of the practice can be especially relevant when considering markets and global chains – here the health high-tech sector – which require specific knowledge and market entry strategies.

Finally, DIHs in a rural setting are also interesting cases, such as the [Multi-fund development of digital hubs/co-working spaces in rural areas](#), in Ireland. The practice builds on the potential of physical digital infrastructures and co-working spaces to be a lever of economic regeneration for towns and villages located in rural areas.

Multi-fund development of digital hubs/co-working spaces in rural areas regional



Policymakers are using a multi-fund approach to develop digital hubs/co-working spaces to address the lack of digital infrastructure and co-working facilities in the Region. Policymakers are combining WiFi4EU funds, with matched funding from the Department of Rural and Community Development to establish Wi-Fi in public spaces e.g., community centres. At the same time, the government are rolling out high-speed broadband to designated Broadband Connection Points (BCPs) in areas where there are no plans for commercial development. For example, BCPs have been designated in 9 locations in County Longford which will then use LEADER Programme funds to develop digital hubs/co-working spaces. This GP addresses the lack of digital infrastructure, co-working spaces and skilled workforce leaving the Region. According to the 2016 Census, almost 24,000 people leave the Region every day for work/ education. The GP reaches its objective by retaining people and capital in the Region by offering free Wi-Fi in community centres. County Councils have accessed WiFi4EU funding, gaining up to 4 vouchers to the value of €60,000 and received matched funding from the Department of Rural and Community Development to install Wi-Fi. Where BCP are established the LEADER programme is used to fit out community centres after connectivity is in place. The main beneficiaries are individuals in the community, start-up companies and SMEs seeking affordable office/learning spaces in their locality.

Find out more about the practice [here](#).

Demonstrators and testbeds in Interreg Europe

The term **demonstrator** is used here as a generic denomination for all kinds of technology platforms for innovation and co-creation. They mostly provide access to physical environments, including cutting-edge high-tech equipment and infrastructures with information and communication technologies, and much more equipment according to their focus (production machines, 3D printers, etc.). They have a range of activities, such as:

- **Inspiration:** Demonstration of latest trends and developments, bringing together different players, bi-directional inspiration through co-creation;
- **Knowledge:** Training, bundling of interdisciplinary competencies from different application areas;
- **Technology:** Providing access to the newest technology, without having to buy it;
- **Network:** Matchmaking of technology providers and technology users and initiating new cooperations.

Demonstrators and testbeds, which are quite often integrated to DIHs, for instance as part of the consortium, or even as part of the core offer of a given DIH. Quite often, such demonstrators are part of – or are closely connected to – research, respectively higher education and research organisations. Therefore, they also have a strong role in educating and training the next generation of engineers and developers, as well as initiating collaborative research and applied research projects with businesses in their local or wider environment.

We call **testbeds** the initiatives or infrastructures which provide businesses, as part of their core services, the opportunity for **testing and validating products and services in real-life scenarios**. Such environments can be similar to laboratories, but also larger areas within cities or Internet-based digital infrastructures. When testbeds involve users, they are often called “living labs”. Living labs refer to user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real-life communities and settings. In practice, living labs place the citizen at the centre of innovation and have thus shown an ability to better mould the opportunities offered by new ICT concepts and solutions to specific needs and aspirations of local contexts, cultures, and creative potentials.

The [Interreg Europe](#) projects provide several examples of demonstrators and testbeds focusing on digital technologies, often I4.0 industrial technologies. The first one displayed below is the [Regional Manufacturing Digital Innovation Hub IoT-Compass](#), and more specifically its [Industrial Internet Laboratory](#), located at the SeAMK Seinäjoki School of Technology (Finland).

Regional Manufacturing Digital Innovation Hub IoT-Compass Industrial Internet Laboratory at SeAMK



The mission of the IoT-Compass Hub is to support the exploitation of IoT, Cyber Physical Systems and Digital manufacturing in SMEs to increase their productivity.

IoT-Compass Hub forms a demonstration, piloting and development environment for manufacturing industries using the existing IoT and Cyber Physical Factory – infrastructures. It develops activities for supporting the SMEs and MidCaps in creating their know-how and getting new talents. The hub forms a networking community and neutral forum where manufacturing companies, technology providers, ICT-companies, universities, Research Technology Organisations and expert service providers can meet and start new activities.



IoT-Compass provides the following services to companies:

- Digital Maturity Assessment: companies receive help to take advantage of digital manufacturing and industrial internet in their business and product development. IoT-Compass Hub offers mentoring for the development work.
- IoT Pilots: companies can suggest their own themes to be piloted in the Industrial Internet Laboratory. Companies can also use laboratory environment for testing purposes in their own projects.
- Digital Factory Academy: in the **Industrial Internet Laboratory at SeAMK School of Technology**, companies get to learn more of digital manufacturing and industrial internet. Companies can utilize laboratory in their own development work with the guidance of specialists.

The Industrial Internet laboratory was developed to make the opportunities of the Industrial Internet and digitalization available to the students and the manufacturing sector. It is an innovative learning environment for students, and a source of expertise for companies to explore their digitalization opportunities.



The environment is a small scale, continuous 24/7 production system. In the learning environment, students learn to operate machinery and use digital design programs to develop models and design production processes.

Funded with ERDF, the Lab has since generated other development projects from various funding programs. In the ongoing ERDF funded IoT-Compass Hub the laboratory has also

networked internationally and is a DIH with the EUDI network.

Find out more about the practice [here](#). and [here](#).

[IoT-Compass](#) is a university-based digital innovation hub which facilitates university-business cooperation. At the hub, companies can pilot their project ideas as well as receive mentoring and thematical training sessions in the fields of IoT, Cyber Physical Systems and Digital manufacturing. The hub is a part of the Seinäjoki University of Applied Sciences but is noteworthy funded by large companies. The hub also functions as an ecosystem that helps to connect the manufacturing industry and ICT companies that can provide digitalization services.

The [Industrial Internet Laboratory](#) at Seinäjoki University of Applied Sciences is an example of university leadership in regional economic development. The Industrial Internet Laboratory offers diverse services to Finnish SMEs in the manufacturing sector to adopt digital technologies and the Industrial Internet of Things (IIoT). Indeed, SMEs in the manufacturing sector often face challenges when adopting and implementing Industry 4.0 technologies. The Industrial Internet Laboratory supported the creation of the Digital Innovation Hub, IoT-Compass Hub. The good practice highlights the importance of university leadership in supporting regional economic transformation such as with industry 4.0 technologies. University leaders could learn from this good practice how to have access to European Regional Development Fund (ERDF) and promote regional industrial transformation by supporting the diffusion of Industry 4.0 technologies.

Another striking example, equally focussing on I4.0 technologies, is the [Innovation Campus Lemgo](#) (Germany) and its [Smart Factory OWL](#)

Innovation Campus Lemgo



At the Innovation Campus Lemgo, the complete innovation chain of the digital economy is concentrated in one place: from vocational orientation and training, further education and academic studies to research, development, handicrafts, entrepreneurship and company settlement. This results in innovative solutions for current and future challenges in the fields of digitalisation and intelligent technical systems in the clusters of automation/production technology, food technology, energy systems, and health, as well as for vocational and academic training.

The overall project serves the future viability of the whole region – and the competitiveness of SMEs. In the triad of education - research - economy, the campus stakeholders are responding to the current and future challenges of demography, digitization, and rural depopulation. Concerning digital innovation, the ICL forms the ideal eco-system for SMEs and business starters to increase B2B e-commerce.

Back in 2018, the Innovation Campus Lemgo association was founded to promote sustainable professionalisation. Stakeholders such as the Kreis Lippe (district of Lippe), the City of Lemgo, the TH OWL - University of Applied Sciences and Arts, the Fraunhofer IOSB-INA, the Regional Craftsmen's Association, the Regional Chamber of Commerce and Industry and others engaged as founding members.

Smart Factory OWL



The SmartFactoryOWL is the real lab for industry 4.0 in Ostwestfalen-Lippe and offers companies and research institutions extensive possibilities and services for co-creation.

The joint institution of the Fraunhofer IOSB-INA and the OWL University of Applied Sciences in Lemgo follows the three pillars: research, qualification and transfer of technologies of the digital industry. In these three fields, SmartFactoryOWL provides answers to many questions and inspiration for the companies' development, demonstrating it in a worldwide unique Industry 4.0 infrastructure: research, production and seminar areas, technologies to be experienced first-hand, and processes optimisation.

Find out more about the practice [here](#).

The Innovation Campus Lemgo is at the heart of the innovation ecosystem of the OWL (OstWestfalen-Lippe) and contributed significantly to promoting it as a pilot region for Industry 4.0 technologies in Germany and beyond. It is especially a **remarkable example of how regional triple-helix stakeholders working jointly in a suitable environment can generate a strong drive toward innovation**. It also underlines the positive effects on the local economy that can be generated by research organisations willing to cooperate with industry (figures from the end of 2021 – source Innovation Campus Lemgo):

- 500 new jobs on the campus,
- 500 additional students at the TH OWL University,
- 500 further vocational students,
- 50 companies relocating on the campus.

The Innovation Campus model has a **high transferability potential**, as demonstrated e.g. by the policy changes induced in the framework of the [Future Ecom](#) project.

Policy changes – New policy instrument ‘Digital Innovation Hubs’ in Lithuania ([Future Ecom](#))

The [Lithuanian Innovation Centre](#) is the body in charge of implementing the innovation policy at national level. Thanks to its participation in the Interreg Europe project [Future Ecom](#), it triggered a comprehensive review of the existing DIHs in Lithuania and introduced a dedicated measure on “Digital Innovation Hubs” within the Structural Funds Operational Programme, priority axis no3 SMEs competitiveness. A call was launched in 2020 to create the much-needed infrastructure and services for local businesses. The Lithuanian Innovation Centre remains involved in the monitoring of the performance of the selected DIHs. The key success factors that allowed this significant impact on the way Structural Funds are invested in Lithuania can be summarised in the following three actions:

- Interacting locally with businesses to identify their needs of various digital services,
- Bringing together the relevant stakeholders, in the form of an expert group,
- Presenting the good practices [Innovation Campus Lemgo](#) (Germany) and its [Smart Factory OWL](#), to key stakeholders, i.e. the Ministry of Economy and Innovation, the Ministry of Education, Science and Sports and the Lithuanian Confederation of Industrialists.

Where higher education and research capacities are scarce, local public authorities can play an important role in investing in digital hubs initiatives. Cities and regions lagging behind in terms of digital technologies uptake in the business community can take inspiration from the [Ventspils Digital Centre \(VDC\)](#) in Latvia. .

Ventspils Digital Centre (VDC)



Ventspils Digital Centre (VDC) is an institution of Ventspils City Council (Latvia) working in close cooperation with other support organisations. It has established a knowledge centre equipped with IT support tools to support the modernisation and digitalisation of SMEs.

Its main activities for businesses focus on:

- Training for improving digital competencies, from basic to complex skills, such as CAD, Adobe and others;
- Offering businesses the possibility to use the VDC optical data transfer network, which includes a range of services: optical internet, IP telephony, etc.;
- Running more than 300 free wireless Internet access points across the city;
- Organising the competition of the ICT Pilot projects Programme, where businesses can receive up to EUR 15 000 for developing different ICT solutions.



and networking.

Find out more about the practice [here](#).

With the support of the municipality, VDC has developed speaking garbage containers, interactive floor games for teaching programming, oxygen sensors for education institutions, etc. VDC also organises “Digi-meetups”, a two-sector information exchange and networking event, where the industry outlines its major challenges, and IT companies present their solutions, followed by exchanges of contacts

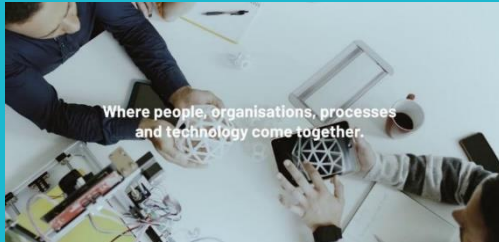
The Ventspils Digital Centre is one of the business support organizations in the Ventspils business support ecosystem that focuses on digitalization and digital competencies. The centre has contributed to the digitalization of the local businesses through an incubation program for ICT pilots and training on digital literacy that has increased the skills and technological competencies of Ventspils citizens. In addition, the centre provides WiFi, server space, cloud and other support to SMEs. **The existence of such support centres is needed in regions that might be lagging in digitalization as it is one of the main drivers of innovation and economic growth across sectors and the global economy.**

Finally, we conclude this series of good practices with a new digital testbed, the [Gävle Innovation Arena](#) (Sweden), which is both a physical setting in the city centre of Gävle and an online pool of data accessible to the community of participants to the initiative.

Gävle Innovation Arena



The [Gävle Innovation Arena](#) is a 3*3 km physical area in the city centre of Gävle, but also a data lake (a storage repository that holds a vast amount of raw data in its native format until it is needed), including around 100 layers of data (from the municipality, the Swedish Land Survey, the University of Gävle and co-labs/companies) which are continuously growing. Co-labs of the Arena have access to the information/data and can use it to test/develop new services and products. If this is done in an open way, i.e., sharing the results, it is free – if it isn't, there is a fee. Nevertheless, the data lake is open to anyone (after approval as a co-lab) for cooperation and development.



innovations.

Find out more about the practice [here](#).

The co-labs contribute with different components in terms of resources, perspectives and functionality. They create an inspiring, productive and collaborative environment to promote, create and produce research solutions and

Gävle Innovation Arena is a digital initiative part of Future Position X, a non-profit network organization in Gävle, Sweden, that aims to become a leading Geospatial Information Cluster. Gävle Innovation Arena works as a digital testbed and a digital space of experimentation to respond to smart city challenges. The good practice can inspire policymakers who aim to promote open digital testbeds in a smart city context.

The concepts of demonstrators and testbeds are being used in policy developments within projects, such as e.g. in the [40Ready](#) project. Both Tuscany (Italy) and Wallonia (Belgium) have included such initiatives in their recently published [Action plans](#):

- Wallonia – Action 1 – Opening regional Demonstrator 4.0 to SMEs
- Tuscany - Action 2 - Open territorial laboratories 4.0

Both actions aim for enabling better access to regional Industry 4.0 equipment and infrastructures for regional SMEs.

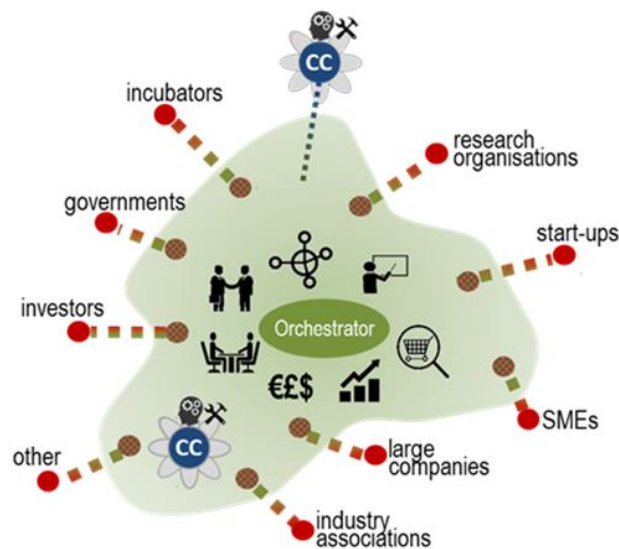
Looking ahead

When it comes to innovation support as part of the larger aim to improve the competitiveness of businesses in general and SMEs in particular, we have learned from the interaction with [Interreg Europe](#) project partners that:

- Innovation is not only for businesses that want to grow fast: **businesses need to innovate to remain competitive** in their markets and not run out of business.
- Access to technology shall not be considered an isolated issue in terms of innovation support. Most businesses do also need support in terms of business modelling, service innovation design, and innovation management skills. There is a need for a convergence of innovation support services.
- Businesses do also have challenges in bringing their products more rapidly onto the market. Support services that can help them **test the market readiness of their products**, like living labs, are very valuable in this respect.
- Challenge- or **demand-led innovation initiatives are powerful policy instruments**, which can be used by policy makers, to stimulate innovation by providing a much-needed road to market. This is for instance especially relevant in complex markets such as health solutions, which require a long development time for new products.

Considering the above, multiple stakeholder joint initiatives are required to provide adequate innovation support. Innovation hubs are a possible answer to the needs identified and bring together different actors and support mechanisms in one place, be it virtual or physical. Innovation hubs can cover the whole support chain, from access to research to access to the market.

This is where DIHs and demonstrators/testbeds come into play to promote innovation combined with the use of digital technologies. They combine part or all of the above characteristics and have increasingly proven to be a useful tool to reach out to SMEs, acting as orchestrators for whole support ecosystems.



Example of stakeholders for a digital innovation hub (Source EC)

In addition, the combination of a sectoral and value-chain-driven approach – e.g. Mobility, Health, Energy, etc. – to DIHs and demonstrators has the potential to deliver an even stronger impact on

business innovation practices. And this is also where transnational collaboration among policy makers and DIHs can contribute to significantly leverage the impact of business support delivery.

How can the Policy Learning Platform support?

The [Interreg Europe Policy Learning Platform](#) can help regional policymakers to better design SME policies by facilitating the exchange of experience from different regional and institutional contexts and showcasing success stories via the [Policy Learning Platform good practice database](#). In addition to the good practice database, the Policy Learning Platform can provide a forum for direct discussions among partners from different projects – either in thematic workshops, peer review learning, or in webinars and online discussions, and provide expert advice through our on-demand [policy helpdesk service](#).

SOURCES OF FURTHER INFORMATION

Some of the above-mentioned aspects have been addressed in part in previous activities of the [Interreg Europe](#) Policy Learning Platform or will be tackled in future activities. Here is a list of useful materials:

- **Other Policy Learning Platform resources**

Policy briefs on

- [Operational approaches to efficient business support delivery](#)
- [Vouchers for the competitiveness of SMEs](#)
- [Internationalisation of SMEs](#)
- [Industry 4.0](#)
- [Fostering the digital transformation of SMEs](#)

Stories and articles on

- [Fostering market uptake for innovative digital products and services](#)
- [Smart societies: how interregional cooperation boosts the digitalisation of a rural area](#)
- [Improving access to digital skills for SMEs](#)
- [Digital ecosystems and digital transformation](#)
- [Industry 5.0](#)

Event learnings

- [Workshop learnings – Innovation capacities of SMEs](#)
- [E-workshop recording SMEs digitalisation](#)
- [E-workshop recording: Industry 4.0](#)
- [Workshop learning - Mastering the digital transformation of business support](#)
- [Webinar recording: Digital Innovation Ecosystems](#)
- [Webinar recording on building resilient economies](#)
- [Webinar recording on how to turn the theory of industry 5.0 into practice](#)

Virtual study visit

- [the Swiss Smart Factory, watch how the Switzerland Innovation Park embraces Industry 4.0 with its “Digitalisation Parkour”](#)

- **European policies and programmes**

- [‘Digital Compass: The European Way for the Digital Decade’](#)
- [Funding for Digital in the 2021-2027 Multiannual Financial Framework](#)
- [Digital Europe Programme](#)
- [Connecting Europe Facility - Digital](#)
- [InvestEU](#)
- [Creative Europe MEDIA](#)
- [EU4Health](#)
- [Recovery and Resilience Facility](#)

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#digitalisation
#digitaltransformation



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