



Analysis of topics for cross-border cooperation

Output: A.T1.3.1 Analytical analyses & peer review of topics for cross-border cooperation

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Elaborated by: Pöchhacker Innovation Consulting GmbH



EUROPEAN UNION



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About S3 Couple Net

Project summary

Project identification

Programme priority	Sustainable networks and institutional cooperation
Programme priority specific objective	4a
DTP Project Code and Acronym	S3 Couple Net
Project title	Cross-border network for activating the S3 strategy of the South Bohemian Region and Upper Austria
eMS Project Number	ATCZ262
Name of the lead partner organisation	Jihočeský vědeckotechnický park, a.s.
Project duration	16 months
Start date	1. 9. 2021
End date	31. 12. 2022

Description of the project

The South Bohemian Region and Upper Austria have long supported the development of innovative entrepreneurship - whether through various support schemes, the development of a regional innovation ecosystem, cooperation with other institutions in the region or the implementation of measures in accordance with its S3 regional strategy. In both regions, these development documents for the coming period have recently been revised and updated (RIS3 Strategy of the South Bohemian Region 2021-2027 / Strategic economic & research programme for Upper Austria "#upperVISION2030").

It is a strategic approach to the economic development of the region in the field of research and innovation, which is a process of identifying opportunities and positive aspects of the region, which can benefit from specialization in a particular field of science or technology. The concept of smart specialization recommends regions or states to create the content and design of their innovation strategy so as to maximize the impact of regional policy together with other EU policies. It is based on the Commission Communication entitled "The

contribution of regional policy to smart growth in the context of the Europe 2020 strategy" of October 2010, which refers to these strategies as Smart Specialization Strategies. In principle, therefore, these strategies address the needs and innovation potential of both regions concerned (South Bohemian Region and Upper Austria). Attention is paid to the existing infrastructure (R & D & I, production and tertiary spheres), specific trends derived from the economic profile of the region and new technological directions (so-called megatrends), which are again based on innovation profiles of the area, but also on current economic challenges.

Thanks to the harmonized RIS3 methodology, it is possible to effectively analyze both documents, create a cross-border network of key actors and find common needs, complementary capacities, specific measures and activities. A unique opportunity is also the upcoming new programming period, which will be prepared by the preparation of potential projects and cooperation potentials of the network members.

On both sides of the border, this project is approached by partners who are directly responsible for the successful implementation of these regional strategies and at the same time represent entities with a region-wide scope. The main goal of the project is to activate an effective cross-border network of actors based on a detailed comparative analysis of S3 strategies in the South Bohemian Region and Upper Austria, which will prepare a set of measures for the development of cooperation in key areas for the regions.

Partners

<i>Name</i>	<i>Type</i>	<i>Country</i>
Jihočeský vědeckotechnický park, a.s.	Lead partner	Czech Republic, South Bohemia
Business Upper Austria - OÖ Wirtschaftsagentur GmbH	Project partner	Austria, Upper Austria

1. Introduction & Methodology

Based on the previous analyses and S3 priorities of the two regions, a thematic analysis of international trends, current EU priorities and programmes, especially with regard to the resilience of economic systems and measures of the Twin Transition – Green and Digital Transition, key economic policy fields of action etc., was done to develop proposals for potential cooperation topics and action fields for cross-border collaboration between the region Upper Austria and the South Bohemian Region.

The aim of this analysis of potential topics for cross-border collaboration was to identify and define common themes that could be pursued in concrete projects from 2023 onwards in the form of cross-border cooperation with the result of an indicative set of potential cooperation topics and fields.

The analysis was based on S3-priorities of Upper Austria and South Bohemian Region, analytical work and workshops carried out within S3CN project activities (eg start-up workshop September 2022) as well as a comprehensive analysis of framework conditions setting the scene for innovation priorities in the coming years: Megatrends and current events impacting innovation priorities, EU priorities (such as Twin Transition and Green Deal, Horizon Europe), UN Sustainable Development goals, the Interreg AT-CZ 2021-2027 and other relevant Inter-reg initiatives as well as national innovation strategies.

The proposed topics which were identified during the analytical work were presented in a cross-border stakeholder meeting in mid-November 2022 and peer reviewed, reflected and discussed with the participants in an interactive way.

2. Analysis of relevant focus topics for cross-border collaboration

2.1. *Determinants of potential focus topics*

To identify the potential focus topics for future cross-border collaboration and projects between Upper Austria and the South Bohemian Region, a comprehensive analysis of relevant framework conditions and external respectively superordinate determinants for strategic are-as of action was carried out. The results of this analysis are presented on the following pag-es, after a short retrospective on the S3 strategy focus and joint priorities of Upper Austria and the South Bohemian Region.

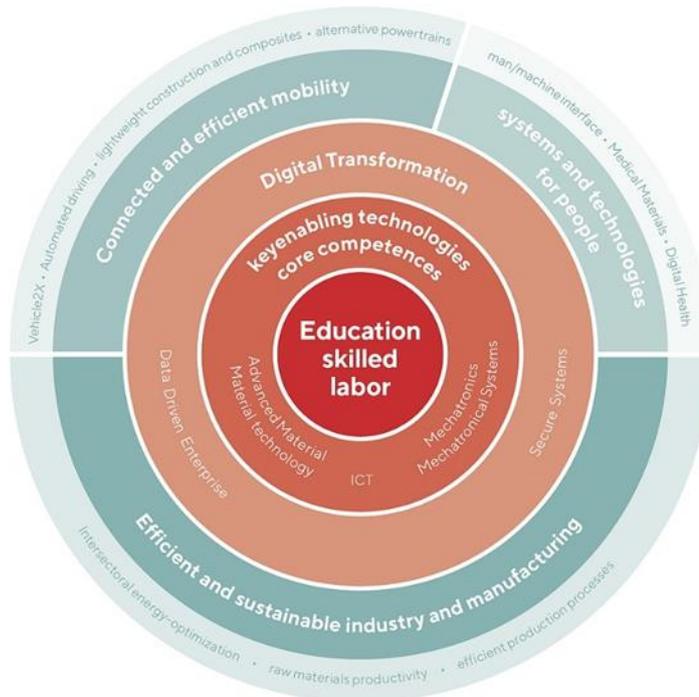
2.1.1. *S3 strategy focus of Upper Austria and South Bohemian region*

The potential for cross-border cooperation between Upper Austria and the South Bohemian Region is based on specified priorities regarding thematic areas of both smart specialisation strategies of the regions, which is the – strategic economic & research programme for Upper Austria #upperVISION2030 and the RIS3 strategy of the South Bohemian Region – and their overlaps and points of intersection. For a more detailed comparison of the priority fields of the strategies it may be referred to the corresponding document "Comparative analysis of S3 abstracts of the strategies of Upper Austria and the South Bohemian Region".

Even if the priority topics do not completely overlap, analyzing the thematic topics of the strategies of both regions shows a good and promising fit between priorities of Upper Austria and the South Bohemian Region. There are numerous overlaps respectively matches be-tween the thematic fields of the Upper Austrian smart specialisation strategy and those of the South Bohemia region. This applies, for example, to the topic of mobility, which is prominent-ly anchored in both strategies. Upper Austria focuses specifically on the topic of connected and efficient technology and topics such as drives and materials, while the strategy of the South Bohemia region defines the automotive sector as a priority field (based on regional strengths), but also transport and logistics.

Further matches between the priority areas of the two strategies relate in particular to the topic of the digital transformation: Digitalisation and Industry 4.0 as well as Artificial Intelli-gence, Internet of Things and Virtual and Augmented Reality are listed as priority areas in the South Bohemia strategy, while in Upper Austria "Digital Transformation" and the associated sub-items Data consistency and software tools, Digitalisation of business processes, New (digital) business models and Machine Learning / AI are listed as a key topic area. Another relevant topic that is included in both strategies is the circular economy.

Figure 1: Strategy focus and priorities of the Upper Austria –#upperVISION2030



Source: #upperVISION2030

Figure 2: Priority Topics of the RIS South Bohemian Region

Mechanical Engineering and Mechatronics	Electronics, Electrical Engineering and IT	Biotechnologies
Automotive	Textile and Clothing Industry	Circular Economy
Sustainable Food Production	Digitalisation and Industry 4.0 (Artificial Intelligence, VR/AR, IoT)	Smart Solutions in Energy
Social Entrepreneurship	Cultural and Creative Industries	Mechanical Engineering, Transport and Logistics, Construction

Source: Abstract of S3 strategies – South Bohemia

2.1.2. Megatrends, current events and their impact on innovation agendas

Major and long-lasting trends that have a profound impact on our society and lead to substantial changes – often also summarised under the term megatrends – are central determinants for innovation policy at international, national and regional level. These trends are long-term driving forces that are observable now and will most likely have significant influence on the future, therefore posing the need for new and innovative solutions.

The Competence Centre on Foresight of the European Commission determines 14 of such megatrends:¹

- Accelerating technological change and hyperconnectivity
- Aggravating resource scarcity
- Changing the nature of work
- Changing security paradigm and new challenges for defence and security
- Climate change and environmental degradation
- Continuing urbanisation
- Diversification of education and learning
- Widening inequalities
- Shift of economic power towards emerging economies in the East and South
- Growing consumption
- Increasing demographic imbalances
- Increasing influence of new governing systems
- Increasing significance of migration
- Shifting health challenges

The fact that such megatrends determine the innovation agendas of key political actors is demonstrated, among other things, by the EU, in whose current Horizon Europe framework programme the "Global Challenges", as the Commission puts it, are one of three pillars of the programme. The Clusters of Horizon Europe addressing such global challenges encompass topics such as health, digitization, climate, energy and mobility, food, bioeconomy, natural resources and environment.

However, there is not one universal list of megatrends, but there are developments for which there is a broad consensus that they will have a profound impact on our society. Global developments such as the digital transformation, climate change, demographic

¹ https://knowledge4policy.ec.europa.eu/foresight/tool/megatrends-hub_en

change, increasing scarcity of resources and urbanisation are setting key fields of action for economic and innovation policy, in particular: Solutions for decarbonising the economy, renewable energy technologies, circular economy and resource efficiency, greening buildings and cities, sustainable mobility and green transport or innovation in health and medicine.

At the same time current events and crises put up new or reinforce already existing challenges and develop long lasting impacts on society, policies and innovation systems. In the past few years through the COVID-19 crisis, directly followed by the war in Ukraine, we have seen global shocks with severe implications for businesses, economy as a whole as well as for the public, which are also penetrating policy and innovation agendas.

For instance, Covid-19 brought health even more in focus of innovation policies, this was reflected, among other things, in highly endowed funding programmes for research (eg with substantial funds for Horizon Europe). Also, the fastest growing fields of patenting during Covid-19 included health-related technologies (pharmaceuticals, biotechnologies, medical technologies) and digital technologies (e.g. digital communication, computer technologies). While already on the rise before 2020, the urgent needs created by the pandemic boosted innovation in these two fields.²

With COVID-19 crisis hardly recovered from, the next shock in form of the Russian war on Ukraine hit Europe and led to massive disruptions on energy markets and exploding prices for energy, in particular natural gas and oil. In response to this, the European Commission presented the REPowerEU plan to transform Europe's energy system and the crisis also resulted in the fact, that the green transition of the economy has now become part of the EU's security agenda. The International Energy Agency is convinced that "Energy markets and policies have changed as a result of Russia's invasion of Ukraine, not just for the time being, but for decades to come"³. In order to achieve the goal of independence from fossil fuels, innovative solutions for the transformation of the energy system are of course needed, whether in the field of renewable energy sources, more efficient and environmentally friendly production technologies or new forms of mobility. In any case, it is most certain that the war in Ukraine and the subsequent upheavals in the energy markets will be a major driver for innovation activities in the area of climate, energy and the Green Transition as a whole.

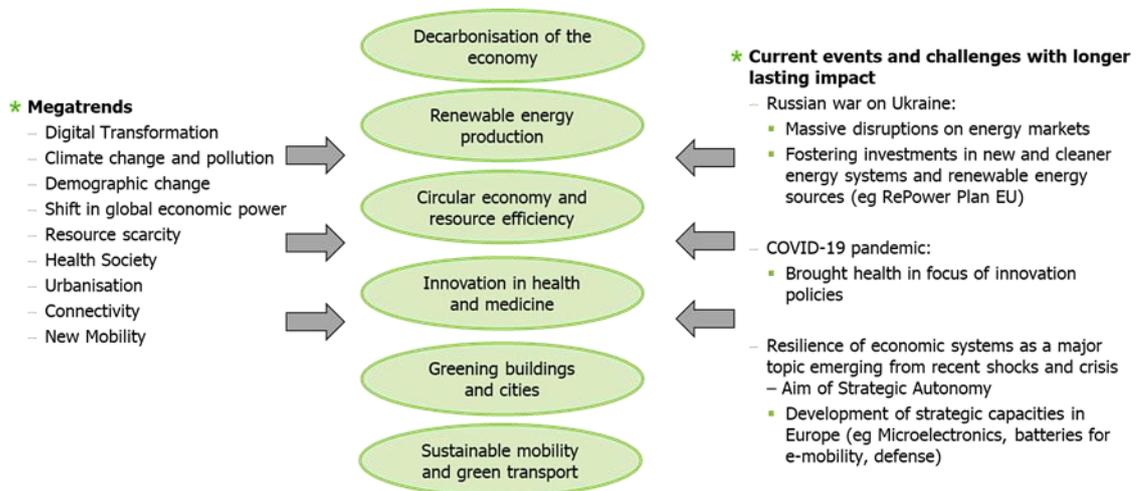
Furthermore, resilience of economic systems is a major topic emerging from recent shocks and crisis. For instance, this can be observed by the aim of more strategic autonomy of the EU and the development of strategic capacities and new value chains in Europe, like the so-called Important Projects of Common European Interest (IPCEI). In particular in the context of the twin digital and ecological transition, IPCEIs are expected to boost the EU's strategic autonomy in six key strategic dependencies: raw

² <https://cepr.org/voxeu/columns/innovation-response-covid-crisis-new-ebook>

³ <https://www.iea.org/reports/world-energy-outlook-2022>

materials, batteries, active pharmaceutical ingredients, hydrogen, semiconductors and cloud and edge technologies (European Commission, 2022).

Figure 3: Megatrends and current crisis shaping innovation agendas



Source: P-IC, own illustration

2.1.3. EU priorities, initiatives and programmes

The thematic and political priorities set by the EU are a central point of reference for setting a policy focus at the regional level, respectively within the S3CN project lying on the innovation system. These define the essential framework conditions for national and regional policymaking and in particular for the development of the innovation system and funding possibilities.

The European Commission has defined six priorities for the period 2019-2024, that are: 1) A European Green Deal, 2) A Europe fit for the digital age, 3) An economy that works for people, 4) A stronger Europe in the World, 5) Promoting our European way of life and 6) A new push for European democracy.⁴

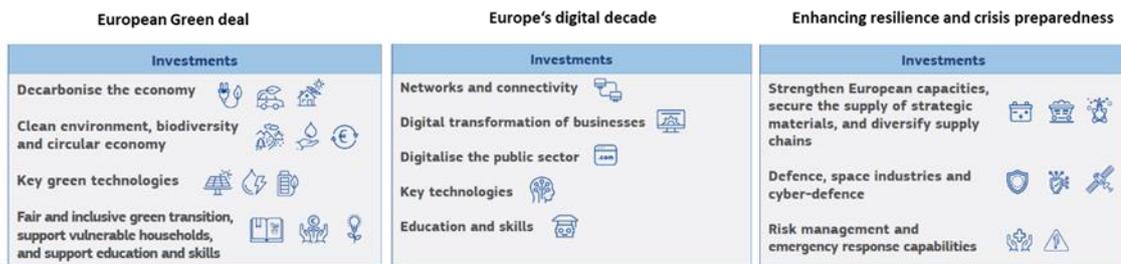
Regarding innovation systems and the focus and objectives of S3CN, of special interest are the two European long-term objectives of a fair green and digital transition of the European economy. Both the green and the digital transitions are political priorities of the European Commission and a central part of the growth model of the European Commission, which is also based on economic and social resilience. The key EU priorities that shall jointly contribute to the objective of fair and inclusive growth and competitive sustainability of the European Union are:⁵

⁴ https://ec.europa.eu/info/strategy/priorities-2019-2024_en

⁵⁵ https://ec.europa.eu/commission/presscorner/detail/en/fs_22_1485

- A European Green Deal: decarbonize the economy; clean environment, biodiversity and circular economy; key green technologies and fair and inclusive green transition, support vulnerable households, and support education and skills
- Europe's Digital Decade: networks and connectivity; digital transformation of businesses; digitalization of the public sector; key technologies; education and skills
- Resilience and crisis preparedness: Strengthen European capacities, secure the supply of strategic materials, and diversify supply chains; defence, space industries and cyber-defence; risk management and emergency response capabilities

Figure 4: The European Growth Model



Source: European Commission

Green Deal

The European Green Deal is perhaps the most ambitious project of the European Commission. One third of the € 1.8 trillion investments from the Next Generation EU Recovery Plan and the EU's seven-year budget will finance the European Green Deal. The European Commission adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.⁶ The European Green Deal addresses the following eight topics:⁷

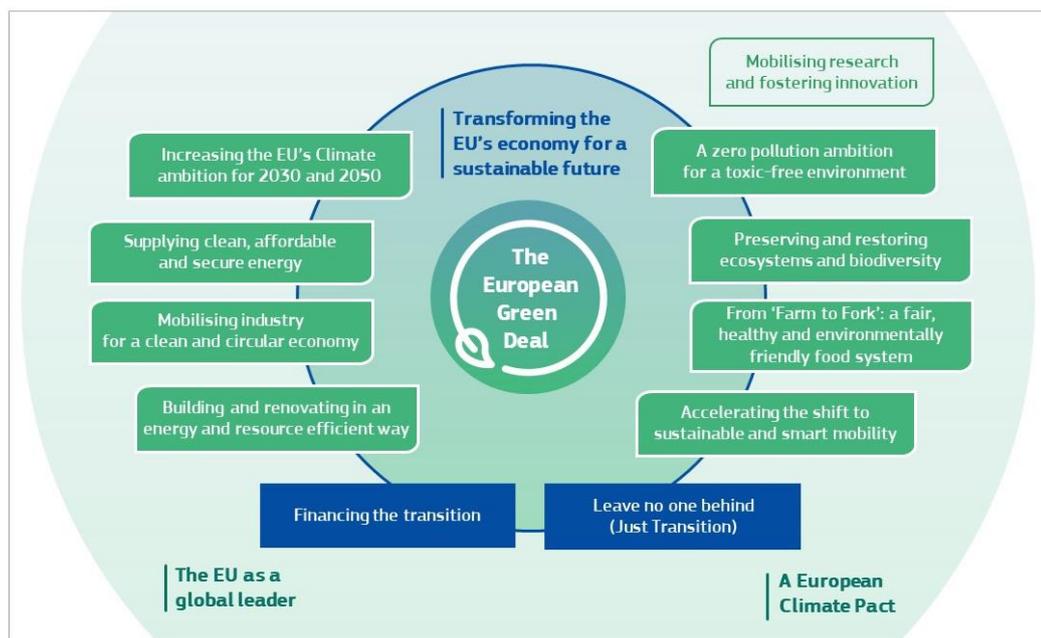
- Fresh air, clean water, healthy soil and biodiversity
- Renovated, energy efficient buildings
- Healthy and affordable food
- More public transport

⁶ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁷ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

- Cleaner energy and cutting-edge clean technological innovation
- Longer lasting products that can be repaired, recycled and re-used
- Future-proof jobs and skills training for the transition
- Globally competitive and resilient industry

Figure 5: The European Green Deal



Source: European Commission

Horizon Europe

Horizon Europe aims to strengthen the EU's science and technology base and the European Research Area (ERA) and to boost Europe's innovation capacity. As the key research and innovation funding programme of the EU, Horizon Europe is a major reference point for the identification of European priority fields, especially when it comes to innovation and research. Strategic and thematic fields of action can primarily be conducted from Horizon Europe's second pillar – **"Global challenges & European industrial competitiveness"**. These are (European Commission, 2021):

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society

- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Moreover, Horizon Europe defines **five mission areas** as new means of addressing major societal challenges: 1) Adaption to climate change, including societal transformation, 2) cancer, 3) healthy oceans, seas, coastal & inland waters, 4) climate-neutral & smart cities and 5) soil health & food.

Another important part of Horizon Europe, when it comes to identifying strategic thematic areas for action, is the new approach of European Partnerships in Horizon Europe. These are a new generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives with strong strategic orientation. The current candidates of European Partnerships in pillar II of Horizon Europe addressing global challenges and European industrial competitiveness give indications on a more detailed level for thematic action, as can be depicted in the figure below.

Figure 6: Overview of candidate European Partnerships

HORIZON EUROPE PILLAR II - Global challenges & European industrial competitiveness

CLUSTER 1: Health	CLUSTER 4: Digital, Industry & Space	CLUSTER 5: Climate, Energy & Mobility	CLUSTER 6: Food, Bioeconomy, Agriculture, ...
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen	Circular Bio-based Europe
Global Health Partnership	Smart Networks & Services	Clean Aviation	Rescuing Biodiversity to Safeguard Life on Earth
Transformation of health systems	High Performance Computing	Single European Sky ATM Research 3	Climate Neutral, Sustainable & Productive Blue Economy
Chemicals risk assessment	European Metrology (Art. 185)	Europe's Rail	Water4All
ERA for Health	AI-Data-Robotics	Connected and Automated Mobility (CCAM)	Animal Health & Welfare*
Rare diseases*	Photonics	Batteries	Accelerating Farming Systems Transitions*
One-Health Anti Microbial Resistance*	Made in Europe	Zero-emission waterborne transport	Agriculture of Data*
Personalised Medicine*	Clean steel – low-carbon steelmaking	Zero-emission road transport	Safe & Sustainable Food System*
Pandemic Preparedness* <i>Co-funded or co-programmed</i>	Processes4Planet	Built4People	
	Global competitive space systems**	Clean Energy Transition	
		Driving Urban Transitions	

 Institutionalised Partnerships (Art 185/7)
 Institutionalised Partnerships / EIT KICs
 Co-Programmed
 Co-Funded

* Calls with opening dates in 2023-24
 ** Calls with opening dates not before 2022

Source: EU-KOM

Some relevant partnerships that match the strategic focus areas of both regional smart specialization strategies of Upper Austria and the South Bohemian Region are in particular:

- Innovative Health Initiative and personalized medicine
- Key digital technologies and smart networks and services
- AI-Data-Robotics
- Sustainable processes in production
- Connected and Automated Mobility
- Zero-emission road transport
- Sustainable building solutions
- Clean Energy Transition
- Circular and bio-based solutions
- Protecting biodiversity
- Accelerating Farming Systems Transition and data-based agriculture
- Safe and sustainable food systems

Another source for the identification of topics for action following the priorities of the EU in fields of innovation are the European Knowledge and Innovation Communities of the European Institute of Innovation and Technology (EIT). The EIT is an integral part of Horizon Europe and a major EU initiative that drives innovation across Europe by bringing together organisations from business, education and research and find innovate solutions to pressing global challenges. There are ten EIT communities in individual and distinctive priority areas that are:⁸

- Sustainable energy innovations (EIT InnoEnergy)
- Innovation for climate action (EIT Climate-KIC)
- Digital innovation and transformation (EIT Digital)
- Sustainable and healthy food (EIT Food)
- Health (EIT Health)
- Raw materials and Circular Economy (EIT Raw Materials)
- Manufacturing Innovation (EIT Manufacturing)
- Urban Mobility (EIT Urban Mobility)

⁸ <https://eit.europa.eu/our-communities>

-
- Cultural and Creative Industries (EIT Culture and Creativity)
 - Interdisciplinary and multicultural collaboration (EIT Alumni)

2.1.4. UN Sustainable Development Goals

The 17 Sustainable Development Goals (SDGs) set by the United Nations in 2015 represent the global agenda and framework for major policy initiatives for the coming decade. Eg the European Union is strongly committed to the Global Agenda 2030 and its Sustainable Development Goals, which shall be applied in all external and internal policies (eg in Horizon Europe).

Adherence to the Agenda and the SDGs also provides regions and regional innovation systems with an important framework, for closer social and economic cooperation for further development and regions. Also, contributions to SDGs are increasingly important in innovation systems (eg funding criteria). Thus eg, the Upper Austrian smart specialization strategy #upperVISION2030 follows the SDGs and thus not only economic but also socio-political trends with a view to sustainability goals.

In case of the innovation systems of the regions of Upper Austria and the South Bohemian Region as well as with regard to the objective of the present analysis for identifying thematic action fields for innovation actions, the following SDGs were seen as most relevant for future thematic fields of cooperation projects between the two regions:⁹

- SDG 3: Good Health and well-being
- SDG 6: Clean Water and Sanitation
- SDG 7: Affordable and Clean Energy
- SDG 8: Decent Work and Economic Growth: Create job opportunities for youth
- SDG 9: Industry, Innovation and Infrastructure
- SDG 11: Sustainable Cities and Communities
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 15: Life on Land: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

⁹ SDGs such as Quality Education or Gender Equality for sure are important also with regard to the objectives of the cooperation between Upper Austria and South Bohemian region but considered as horizontal topics rather than actual thematic priority areas and should be pursued throughout the individual thematic areas.

Figure 7: The Sustainable Development Goals



Source: United Nations, Own illustration

2.1.5. Interreg

Interreg is one of the key instruments of the European Union (EU) supporting cooperation across borders through project funding. Its aim is to jointly tackle common challenges and find shared solutions. Naturally, as S3CN is part of the Interreg programme between Austria and Czech Republic, thematic priorities of the Interreg programme itself, the newly adopted Interreg Austria – Czech Republic 2021-2027, are important sources for defining thematic fields of future cooperation projects with innovation context between Upper Austria and the South Bohemian region.

The Interreg programme for the period 2021-2027 is designed to help advance seven key EU cross-border objectives:

- A more competitive and smarter Europe
- A greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe
- A more connected Europe
- A more social and inclusive Europe
- A Europe closer to citizens
- A better Cooperation governance
- A safer and more secure Europe

2.1.5.1. Austria – Czechia 2021-2027

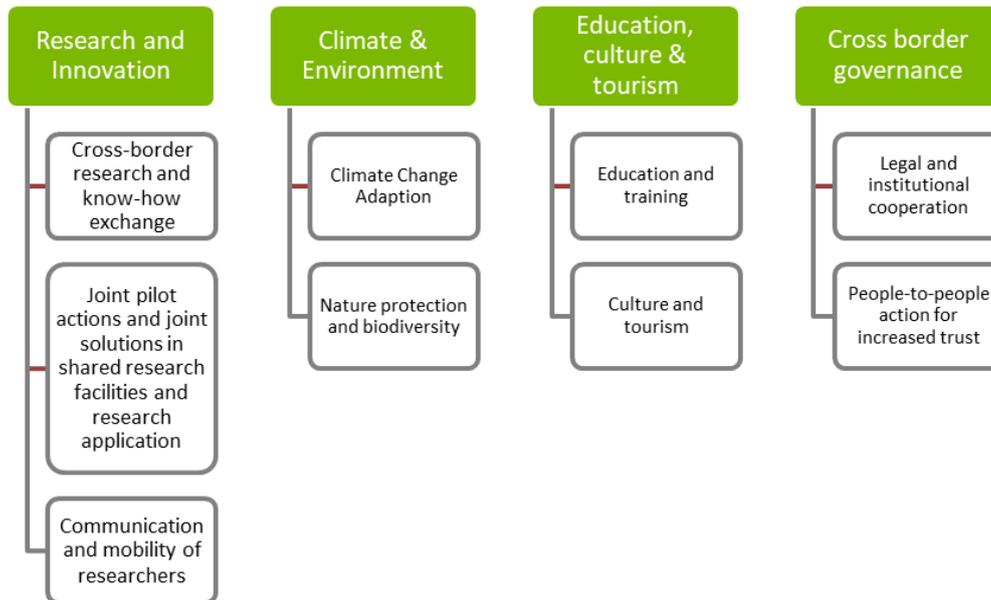
The INTERREG Austria – Czechia 2021-2027 programme was approved by decision of the European Commission on 16 June 2022. The new programme follows on from the Interreg V-A Austria – Czech Republic 2014-2020. A total of EUR 86,821,148 is available from the European Regional Development Fund for the co-financing of projects in the new period, in four priority areas 1) Research and Innovation, 2) Climate and environment, 3) Education, culture & tourism, 4) Cross-border Governance and their individual sub-areas.¹⁰

The potential for joint activities between innovation actors in Upper Austria and the South Bohemian Region is closely linked to the Czech-Austrian cross-border program, which offers for the period 2021 – 2027 financial support on topics related to S3 and priority axis 1 on research and innovation in the following scope:

- Cross-border research and exchange of know-how:
 1. Cooperation in research and innovation in areas of common interest
 2. Research and innovation based on the demand of local businesses, focusing on relevant sectors in the border area.
- Joint pilot actions and joint solutions in shared research facilities and research applications
 1. Investments in newly used / shared facilities
 2. Better connection between research institutions and SMEs
 3. Expanding the range of common services
- Communication and mobility of researchers
 1. Support for cross-border mobility of researchers
 2. Scientific communication (information, education)

¹⁰ <https://www.at-cz.eu/at/forderperiode-2021-2027>

Figure 8: Priority areas of Interreg AT – CZ 2021-2027



Source: <https://www.at-cz.eu/at/forderperiode-2021-2027> , P-IC own illustration

Of special importance for the present analysis are fields of interest, that are stated in the programme document for the “Cross-border research and know-how exchange”, which cover the following nine thematic topics:

- Circular economy
- Bioeconomy, biotechnology
- ICT and digital transformation
- Environmental branches
- Life sciences
- Creative industries
- Medicine
- Building and construction materials
- Introduction of eco innovation

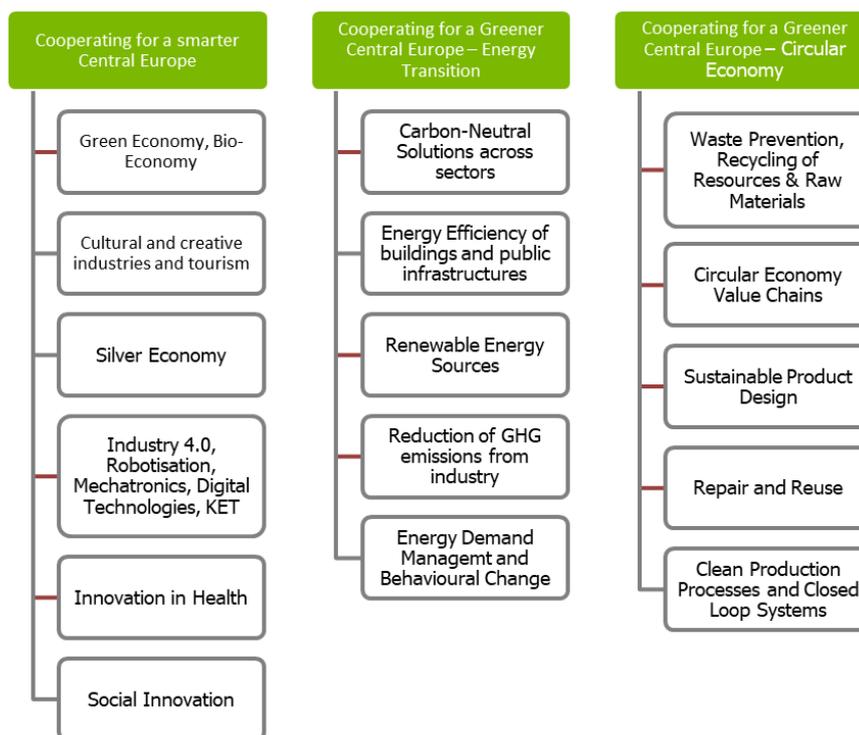
2.1.5.2. Interreg Central Europe

As both regions, Upper Austria and South Bohemia, are both also part of the Interreg Central Europe and for reasons of connectivity and potential links to other Interreg projects, the priority areas of Interreg Central Europe programme 2021-27 were analysed also. These show in particular emphasis on different innovation themes such as Industry 4.0, health or solutions for the silver society, which is

concerning demographic change, but also large emphasis on sustainability and greening the economy. Important topics in this field are eg. carbon-neutral technologies, energy efficiency of buildings, renewable energy sources, bio-economy, circular economy and clean production systems.¹¹ Also, the programme defines the following relevant horizontal topics of action:

- Technology and innovation transfer to SMEs
- Innovative schemes for financing innovation
- Interregional partnerships along value chains
- Skills for sectors of relevance for smart specialization
- Competences for innovation management in SMEs and Entrepreneurship
- Capacity building and institutional learning for Smart Specialisation

Figure 9: Relevant priorities and topics of Interreg Central Europe 2021-27



Source: <https://www.interreg-central.eu/>, P-IC own illustration

¹¹ <https://www.interreg-central.eu/Content.Node/discover/programme21-27.html>

2.1.6. National strategies

National Innovation strategies are another reference point to identify thematic areas for future cooperations. However, the Austrian Innovation Strategy does not define concrete thematic areas of action (or so to say vertical issues). However, on the other side of the border, the national RIS3 strategy of the Czech Republic does so: The National RIS3 Strategy covers the RIS3 strategy of all regions of the Czech Republic and defines the following vertical priority fields as domains of research and innovation specialization (as shown in the S3CN Document Abstract of S3 strategies – South Bohemia):

- Advanced materials, technologies, and systems,
- Digitalisation and automation of production technologies
- Sustainable transport
- Technologically advanced and safe transport
- Electronics and digital technologies
- Cultural and creative industries as a tool for accelerating the socio-economic development of the Czech Republic
- Advanced medicine and medicines
- Green technologies, the bioeconomy and sustainable food resources
- Smart residences

2.1.7. Results from previous activities in S3CN

Results of comparative analysis of S3 abstracts of the strategies of Upper Austria and the South Bohemian Region

In the document concerning the “Comparative analysis of S3 abstracts of the strategies of Upper Austria and the South Bohemian Region”, the authors see a clear “precondition for joint growth in areas such as mechanical engineering, automotive engineering and electrical engineering.” It also states a “prerequisite for joint growth in the field of digitization, smart solutions for the region, Industry 4.0 (including the creative industry).” (S3 Couple Net, 2022).

As a result, the authors also propose to contribute through activities linked to S3 to address societal challenges and global megatrends and societal challenges as well as the Sustainable Development Goals (SDGs). In this context only indicative fields of action are given, these are digitalisation, automation, or artificial intelligence, but also poverty and inequalities, energy resources and climate change. The authors also propose supporting trilateral cooperation on the regions of South Bohemia, Upper Austria and Bavaria. The potential points of contact and priorities of the Bavarian S3 strategy are ICT, efficient production technologies, mechatronics, automation and

robotics, biotechnology and systems biology, new and intelligent materials, nanotechnology and microtechnology.

Results of first Stakeholder Workshop 22.06.22

A SWOT analysis done during the cross-border workshop on June 2022 led to the following results and respectively implications for potential topics of cooperation from the Upper Austrian side of view: Upper Austria has strong R&D activities in the field of "Digital Transformation". In contrast, some SMEs are still struggling with digital transformation. In the field of "Systems and Technologies for people" the lack of companies which address this topic makes it difficult to push the topic forward in the region. But on the other hand, the medical faculty at JKU campus offers a chance for companies or even start-ups to choose to locate in Upper Austria. Concerning the action field "connected and efficient mobility" Upper Austria is strongly positioned, as companies in Upper Austria are capable to develop and implement technologies eg for sustainable solutions.

Results of a SWOT analysis for the South Bohemian Region were that South Bohemia has diversified manufacturing industry and strong agri-food complex in the field of agriculture, the food-processing industry, forestry, fishing, brewing. The presence of the faculties of the University of South Bohemia and research institutions with cutting-edge research in the area of life sciences and biology (Biology Center CAS) were also highlighted with an entrepreneurship sector on the other side that is more technical orientated (automotive, mechatronics, construction, etc.), leading to a low level of cooperation between the research and business sector.

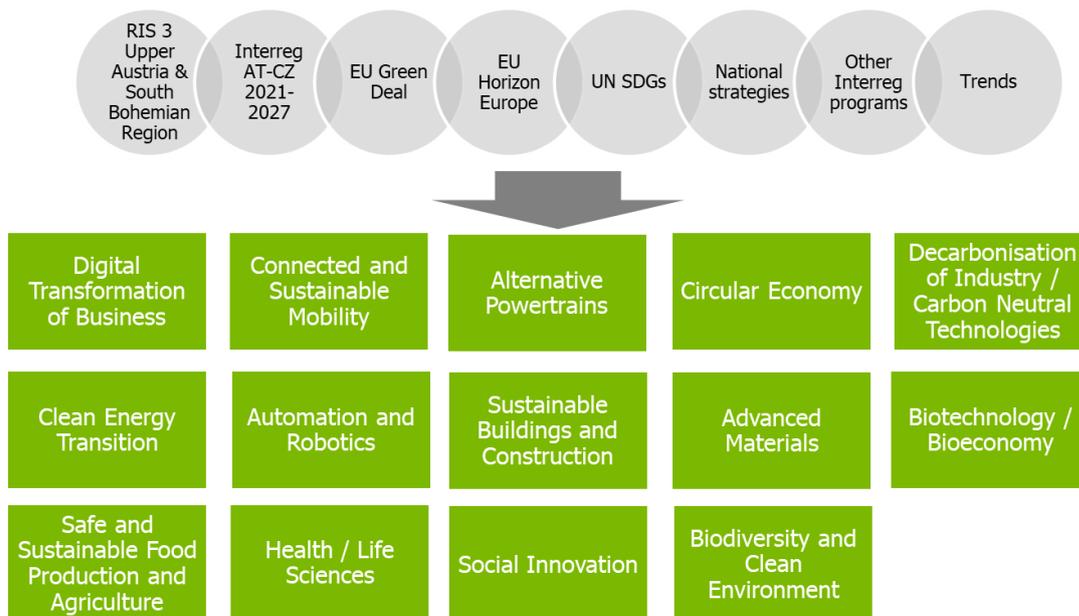
2.2. Conclusion: Potential topics for cooperation

The analysis of the strategic priorities of the smart specialisation strategies of the two regions Upper Austria and South Bohemia as well as the analysis of essential and determining overarching framework conditions, enables the identification of specific thematic fields for potential cooperation in the coming years between the regions Upper Austria and South Bohemia. On the one side, the specific priorities of the regional S3 strategies and overlaps resp. "matches" between common thematic priorities on both sides of the border and on the other side a "top-down" analysis of topics that are of most interest, respectively relevance for innovation systems and policies, as can be drawn from priorities of the European Commission, important programs and initiatives of the EU like Horizon Europe or the Green Deal, determine these thematic fields for future projects. So do global megatrends and current crises as COVID-19 or the Russian war on Ukraine, the Sustainable Development Goals of the United Nations or naturally the priorities of the new Interreg programme of Austria and Czechia for the period 2021-2027.

From the joint consideration of these different sources, 14 thematic fields for potential cooperation projects between Upper Austria and South Bohemia were identified. An important block is the green transition, to which several of the individual topics can be assigned: Decarbonisation of the industries, the circular economy, a clean energy

transition, sustainable mobility and alternative powertrains or biotechnologies resp. the bioeconomy as well as biodiversity and solutions for a clean environment. Sustainable buildings and construction and safe and sustainable food systems can be considered as important topics for both regions as well.

Figure 10: 14 topics for future cooperation between Upper Austria and the South Bohemian Region



Source: P-IC, own illustration

On the other side, the digital transition is another important block of separate thematic focus areas such as the digital transformation of business, connected mobility systems, automation and robotics in production or advanced materials. Social issues are also of relevance and show potential for future cooperation, such as projects in fields of health solutions and life sciences or social innovations.

Discussion of focus topics at the third cross-border Stakeholder Workshop 22.11.2022

The 14 potential focus topics for cross-border collaboration, which were identified during the analytical work as laid out in the previous document, were presented in a cross-border stakeholder meeting in mid-November 2022 and discussed with the participants in an interactive way.

After the results of the analysis and the identified 14 focus topics were presented to the participants, they were reflected on together in a workshop where participants were asked to prioritise the topics. This prioritization was to be done in form of the participants' assessment to understand which of the 14 focus topics were seen as having particularly promising potential for joint activities and cooperation between Upper Austria and the region of South Bohemia. Each participant was able to choose three topics which he or she thought would be the most relevant for joint activities.

As a result of this prioritisation, the topic “Digital Transformation of Business” got the most votes by the participants (eight votes), followed by “Safe and Sustainable Food Production and Agriculture” (five votes) and “Circular Economy” as well as “Decarbonisation of Industry / Carbon Neutral Technologies”, each with four votes. “Biotechnology and Bioeconomy” got three votes, “Sustainable Buildings and Construction”, “Automation and Robotics”, “Advanced Materials” and “Connected and Sustainable Mobility” each got two votes. The topics “Social Innovation”, “Biodiversity and Clean Environment” each got one vote, the other three topics were not voted for by the participants of the workshop.

The ranking of potential cooperation topics according to the workshop participants thus is as follows:

- 8 pts – Digital Transformation of Business
- 5 pts – Safe and Sustainable Food Production and Agriculture
- 4 pts – Circular Economy
- 4 pts – Decarbonisation of Industry / Carbon Neutral Technologies
- 3 pts – Biotechnology / Bioeconomy
- 2 pts – Sustainable Buildings and Construction
- 2 pts – Automation and Robotics
- 2 pts – Advanced Materials
- 2 pts – Connected and Sustainable Mobility
- 1 pts – Social Innovation
- 1 pts – Biodiversity and Clean Environment

Further recommendations of potential focus topics for cross-border collaboration were given by regional programme manager for the Interreg Austria-Czechia programme, Vanda Pánková, seeing the highest potential for the four focus topics “Circular Economy”, “Biotechnology/Bioeconomy”, “Advanced Materials” as well as “Biodiversity and Clean Environment”.

3. Potential activities for future cooperation

3.1. Results from previous activities in S3CN

Results of comparative analysis of S3 abstracts of the strategies of Upper Austria and the South Bohemian Region

In the comparative analysis of S3 abstracts of the strategies of Upper Austria and the South Bohemian Region, the authors provide proposals for activities to intensify and

support cooperation between actors of the innovation system in both regions (S3 Couple Net, 2022). These encompass:

- Continuation of meetings, exchange of information, management of online catalogues of research organisations, sharing of best practices and other forms of cooperation. Joint workshops, conferences, working groups and other forms of networking in the region
- Promotion of entrepreneurship, innovation and healthy competition in a cross-border dimension: The authors see an opportunity for cooperation concerning the support for the creation and further development of start-up or spin-off companies. This could, for example, be direct financial support from the regions concerned (or through venture capital) or through organisation of cross-border competitions focused on innovative business ideas and similar events such as cross-border hackathons, start-up camps, organised presentations of innovative business ideas and their cross-border sharing.
- Joint cross-border projects or joint participation in international consortia (eg established under Horizon Europe) addressing societal challenges and global megatrends.
- Further develop existing or emerging cooperation networks and projects: The cooperation networks launched in the latest programming period should be further developed. In the environment of these networks, the genesis of new business ideas, project ideas or research ideas could be supported through joint communication.

Results of first Stakeholder Workshop (June 22, 2022)

Potential cooperation topics and fields that were identified in the first cross-border stakeholder workshop in June 2022 were topics of qualification and skilled workers (both regions lack skilled workers), attractive conditions for start-ups including funding instruments and the organization of a start-up competition and organization of common events in Upper Austria and South Bohemia. Furthermore, cooperation concerning technology transfer and common activities, in order to support municipalities to become more sustainable in terms of e-mobility, alternative energy and develop technologies for sustainable municipalities were seen as potential activities.

Results of second Stakeholder Workshop (September 20, 2022)

In the second cross-border stakeholder workshop, which was dealing with potential cooperation activities for supporting start-ups, five potential activities for joint actions were identified:

- Developing a long-term strategy backed by politicians
- Organisation of cross-industry workshops to generate potential project ideas between South Bohemia and Upper Austria
- Create a cross border network of start-up mentors and facilitate best practice cross border sharing

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- Create a cross-border network of start-up investors

3.1.1. Potential activities to address focus topics

Based on the proposals for joint activities and potential cooperation projects previously elaborated in the course of S3CN and the analysis of strategic documents and programmes such as Interreg AT-CZ 2021-2027 and other European programmes, the following activities can be proposed to address the focus topics identified in chapter 2. The list is a first outline and can be seen as a kind of toolbox for cross-border joint activities in each of the 14 identified action fields.

- Support interregional access and connections to R&I facilities (esp. for SME) across borders – also raise awareness of capacities and actors through brochures, missions, arranging contacts with R&I actors
- Support pilot actions, innovation projects and partnerships along thematic value chains (eg Circular Economy) through cross-industry workshops to stimulate project ideas
- Facilitate interregional technology and innovation transfer towards SMEs (Cross-border Workshops, Conferences, Seminars)
- Cross border cooperation to facilitate entrepreneurship – joint start-up support measures (cross border competitions cross border hackathons, start-up camps, presentations of innovative business ideas)
- Best practice cross border sharing
- Support cross border mobility and scientific exchange of researchers (missions, workshops, conferences)
- Develop and strengthen cross-border cooperation networks in defined thematic fields
- Creation of cross border networks of start-up investors and/or mentors
- Services for business (eg information and consultation focus topics)
- Support cross-border innovation and R&D activities and projects
- Strengthen competences for innovation management in SMEs and Start-ups
- Joint capacity building and institutional learning of actors in the innovation system
- Adapt schemes for financing Innovation and start-ups

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