REGIONAL ACTION PLAN UPPER AUSTRIA

D.T3.1.5 – Regional Action Plan to transform the regional industrial specialization in PF in S3 driving force

Version 1
05 2022

Introduction

The information provided in this document is based primarily on discussions with S3 managers of the region of Upper Austria, as well as on research on literature provided by them. The provided documents, which are also publicly available, were analyzed for overlaps with the topic of precision farming and form the basis of this regional action plan.

As stated at the "Smart Specialization Platform" of the European Commission (https://s3platform.jrc.ec.europa.eu/region-page-test/-/regions/AT31), the Upper Austrian S3 thematic platforms are divided into the 4 main areas

- Bioeconomy – Innovative use of non-food biomass

- Safe and sustainable mobility

- Sport

- High performance production through 3D-printing

The S3 priorities for Upper Austria are

- Industrial production processes

- Energy

- Health and ageing society

- Food and nutrition

- Mobility and logistics

Even if the core task of the Interreg Central Europe project "Transform 4.0", which is precision farming, is not exactly represented in the S3 priorities, some overlaps can be found in several topics. Therefore, more detailed information about Upper Austria´s S3 strategies, which are summarized in the "#upperVISION2030 business and research strategy", are analyzed in this document.

In order to stand out in the face of global competition and make Upper Austria future-proof over the long term, it is necessary to project a uniform image of the future that can be flexibly adapted to new trends and developments. The business and research strategy #upperVISION2030 opens a new chapter for Upper Austria as is veers away from a rigid program towards a strategy that develops

year on year. The new strategy process allows to act more flexibly. The framework it defines also offers the long-term orientation necessary.

Sustainable Development Goals

Megatrends such as globalization, climate and demographic change, digital transformation and new mobility are challenging regions to drive economic growth and make the transition to a carbon-free economy. The impacts of these megatrends on people and society are highly context-specific and require location-based actions.

The 17 Sustainable Development Goals (SDGs), set by the United Nations in 2015, represent the global agenda for the next decade. The big goal is to end poverty, achieve climate neutrality and ensure prosperity for all.

In order to reach the sustainable development goals cities and regions have a major role. Beyond the individual goals set by regions the Agenda 2030 provides another valuable framework for society and business to work more closely together for the development of cities and regions around the world.

The economic and research strategy #upperVISION2030 seeks not only economic but also socio-political trends with a view to sustainability goals and creates synergies with the UN Agenda 2030.

The programme

A location, a region, needs a shared strategy. #upperVISION2030 is far from being the first strategy for business and research policy in Upper Austria - on the contrary: Upper Austria launched our first strategic programme more than 20 years ago. The pace of development has increased dramatically over the past two decades. When the term "evolution" is no longer sufficient to describe the force of change, then it is referred to as disruption. How can an entire region with its innumerable protagonists equip itself for an era in which today's boom sectors have already evaporated by tomorrow? How do you manage to not jump on every bandwagon and still keep ahead?" #upperVISION2030 is the well thought out, shared response. On the one hand it is a stringent process to ensure both long-term orientation and sufficient flexibility. And it is also a clear concept in terms of content designed to meet the great challenges of our time so that the existing strengths of Upper Austria as a location are used in the best possible way. The central focus is on people and their skills with a view to social and technological developments.

Fit for the digital age

The economic and social benefits of the digital transformation have been successfully implemented in business and industry - our main focus is on people. By 2030 Upper Austria will be a dynamic and cosmopolitan model region for digital humanism - an era that is now emerging as a result of the cooperation between all political, economic and scientific forces.

Fit for sustainable solutions

In 2030 Upper Austria will be perceived as an industrial region that acts sustainably and that people want to live in. The responsible use and reuse of resources is an essential element here. Upper Austrian businesses and industries are an essential part of the solution to future challenges and can therefore continue to maintain their position among the top players on a global playing field.

Fit for human-centred technology

Artificial intelligence and robotics will be implemented in all areas of life in 2030 wherever they are needed. The underlying technologies have been made comprehensible to the general public leading to a high level of acceptance in daily use.

Fit for new mobility

Upper Austria has successfully mastered the structural change in the mobility sector in 2030. Thanks to their expertise, Upper Austrian companies continue to be sought-after partners internationally and successful providers of mobility solutions and components.

The strategic framework

In order for Upper Austria to remain a location for business, industry and research and to maintain its international competitiveness, the objective must be to promote the development of products, services and technologies and to generate more founding, researching, technology-oriented and exporting companies in Upper Austria.

The strategic framework focuses on smart specialisation and the rapid transfer of research results into business applications in order to place Upper Austria at the forefront of technological developments. In doing so, it builds on the existing strengths of the economy and support Upper Austria's leading companies in expanding their technological lead. Through early recognition of disruptive technologies and the rapid identification of areas of application, development of new business models to create future-proof jobs can be accelerated.

Positioning Upper Austria as a modern technology location increases its attractiveness and visibility for skilled and talented employees in the face of international competition. The strategy builds on existing regional and national networks and continue to drive internationalisation forward. In order to overcome system and sector boundaries, bridges between disciplines that have so far been separate need to be built. The objective is to think more in interdisciplinary approaches in order to make maximum use of the competences and expertise available in Upper Austria. Using the latest digital technologies to redesign value chains and ensure regional value chains by encouraging cross-sector cooperation. Development priorities are set in areas where it is possible to make promising use of the strengths.

At the centre of #upperVISION2030 are people who are skilled and educated and represent a key location factor for Upper Austria. They form the basis for stable growth. For this reason it must be ensured the availability of suitably qualified employees for business, industry and research in Upper Austria over the long term. In addition, there are key technologies and core competences that make Upper Austria independent of a particular industry or subject area.

In order to meet future challenges, the existing core competencies and key technologies - especially in the fields of mechatronics, materials, and information and communication technology - are being continuously developed and expanded. In the third circle, the digital transformation stands as an enabler for all business sectors. Finally, the three content-related fields of "Systems & technologies for people", "Efficient and sustainable industry & production" and "Connected and efficient mobility" follow with their respective thematic focuses.

Digital transformation

Digital transformation has had an influence on virtually every area of life. It represents the basis for the further development of the latest technologies and sets the course for Upper Austrian business and industry. Digitisation prompts the rethinking of existing value chains and can change entire business models. Companies are finding that data-based decisions and servitisation are becoming more and more important and the use of new technologies in data-driven companies also has an impact on existing organisational structures. A basic prerequisite for the networking of machines and processes is that users accept the new technologies. Issues such as data security and having control of one's own data are therefore becoming increasingly relevant.

Objectives

- Use data to generate knowledge and create value by raising the innovation potential of new technologies, such as Big Data, Artificial Intelligence etc. in priority areas of action and transferring new technologies into applications

- Achieve a pioneering position in the field of human-centred AI and set quality standards in the classification of AI systems in terms of security and reliability in the way they are used

Leading Upper Austria strengthened by the digital transformation means

- To make businesses aware of the necessity for digital transformation.

- To rethink existing business models and make decisions based on trusted data using new tools and technologies.

- To focus on creating and using secure and correct software and hardware systems.

Efficient and sustainable industry and manufacturing

As the leader in the Austrian ranking, Upper Austria is responsible for a quarter of the total industrial production in our country. Industry and manufacturing in Upper Austria are characterised by a strong business base with many companies that are active internationally. The key to further strengthening the industry and maintaining its high level of value creation lies in the ongoing development of regional production through the use of new technologies. By promoting circular economies we can reduce material consumption and further increase the productivity of raw materials. Because Upper Austria is dependent on importing up to two thirds of its energy, innovations in systems for the storage and distribution of energy will be a decisive success factor for a competitive industry.

Objectives

- Maintain and expand the technological lead of companies in the region in order to continue to successfully place innovative products and services on national and international markets

- Increase the efficiency of Upper Austrian business and industry and position Upper Austria as a region for "Responsible Technologies & Management

Efficient and sustainable industry and manufacturing in Upper Austria means

- To develop technological processes that increase flexibility in terms of the use of raw materials, enable the cascading or coupled use of raw and residual materials and generate additional added value as a result.

- To increase the efficiency and sustainability of processes and production methods by implementing new technologies, such as Big Data, Artificial Intelligence, Data Driven Modelling & Simulation etc. with respect to Responsible Technologies and bring these new technologies to practical applications.

- To take into consideration the reuse of components or their recyclability in terms of a holistic product life cycle by promoting recycling-compatible product design.

- To focus on the issues of storage, distribution and efficient consumption of energy and on coupling power, heat, transport and industry by using new technologies and system innovations.

- To see reliable supply, affordability and environmental compatibility as key factors for a competitive reduction in the consumption of fossil fuels.

Systems and technologies for people

Demographic change is shifting the age structure of the Upper Austrian population. While the proportion of younger people is falling, the number of older people is increasing. The lack of skilled workers caused by this development is a strongly limiting factor for the further development of the region. Systems and technologies that allow people to remain actively involved in familiar surroundings for longer can counteract this effect. The interdisciplinary research and work field of medical technology has undergone strong development in Upper Austria over recent years. The human/machine interface, especially in the area of production and manufacturing, and related topics such as the level of acceptance of supporting systems and new technologies by potential users will become even more important in the future.

Objectives

- Position Upper Austria as an international competence region for applications at the human/machine interface, especially in the fields of automation and robotics

- Transfer key Upper Austrian technologies and core competences from production to medical technology, especially in the areas of digital health and medical materials

Systems and technologies for people in Upper Austria means

- To focus the activities on the human/machine interface and create networked, semi-autonomous as well as autonomous systems that enable people to remain actively involved in familiar surroundings for longer.

- To increasingly think in terms of interdisciplinary and holistic approaches in order to benefit from existing competencies and technologies.

Financial perspective – regional calls

In Austria, the Austrian Research Promotion Agency (FFG) is the national funding agency for industrial research and development. The FFG Funding Service is the central contact point for enquiries about FFG funding and advisory services. The FFG Funding Service offers information and tailored advice on:

- National and international funding opportunities („where does my project fit")

- Services, such as advisory and training measures, networking and partner search services

- Information on possibilities for international cooperation in research, development and innovation

In the FFG funding guide, the following topics are listed:

- Digitization & broadband

- Energy transition

- Europe & International

- Society & Security

- Wood: research & knowledge transfer

- Innovative & competitive companies

- Climate-neutral cities

- Cooperation & research infrastructure

- Circular economy

- Live sciences & health

- People, qualification & gender

- Mobility transition

- Production & materials

- Quantum: research & technology

- Space & aviation

- Bottom-up

- Further research areas

Intersections with the core task of the Interreg Central Europe project "Transfarm 4.0", which is precision farming, can be found in several of those topics for the country of Austria.

Specific regional calls for Upper Austria can be found in the domains of circular economy, digital transformation, and digital health.

Regional Call - Circular Economy

Objective

Upper Austria will be perceived as a livable and sustainably operating industrial region in 2030.

Description

The significant increase in global consumption of natural resources and the volume of waste linked to it are among the greatest challenges of the 21st century. The implementation of the EU's climate and environmental goals requires a new industrial policy based on the circular economy.

Especially in those industries where the circular potential is high, such as plastics, information technology, electronics, mobility, construction, furniture, food and textile industries and many more, the circular principle can be adopted with the help of a holistic approach and supported by research and innovation. In many of these industries and sectors, the potential has not yet been fully exploited.

Efficient and sustainable industry and production are the main fields of action of the new economic and research strategy #upperVISION2030 in Upper Austria. In order to secure Upper Austria as a business, industry and research location and maintain its international competitiveness, our goal must be to drive forward the development of products, services and technologies. The responsible use and reuse of resources are a basic prerequisite for this.

Business and industry in Upper Austria are an essential part of the solution. They are rising to the challenges and will therefore be able to position themselves among the global leaders in the future as well.

Regional Call - Digital Transformation

Objective

In 2030, Upper Austria will be a dynamic and cosmopolitan model region of the new digital humanism that is emerging as a result, thanks to the cooperation of all political, economic and scientific forces.

Description

In order to meet the future challenges facing Upper Austria as a business and research location, existing core competencies and key technologies - especially in the areas of information and communications technology - will be continuously developed and expanded. By combining existing technologies and competencies, new knowledge is to be generated.

The digital transformation has an impact on almost all areas of life. It represents the basis for the further development of the latest technologies and thus sets the course for Upper Austria's economy and industry.

Digitalization is rethinking existing value chains, which can change entire business models. Data-based decisions and service economy are becoming increasingly important in companies, and the use of new technologies in data-driven companies is also having an impact on existing organizational forms. A basic prerequisite for the networking of machines and processes is the acceptance of the new technologies by the user. Topics such as data security and control over one's own data are therefore becoming increasingly relevant.

Regional Call - Digital Health

Objective

Upper Austria is positioning itself as a competence region for applications at the human/machine interface.

Description

In order to secure Upper Austria as a business, industrial and research location and maintain its international competitiveness, our goal must be to drive forward the development of products, services and technologies and to generate more start-up, research, technology-savvy and exporting companies in Upper Austria.

We are focusing on Smart Specialization and the rapid transfer of research results into commercial applications, in order to lead Upper Austria to the forefront of technological advancements. Through the early recognition of disruptive technologies and the rapid identification of fields of application, we are pushing the development of new business models, positioning Upper Austria as a modern technology location and thus increasing the attractiveness and visibility of the location, particularly in the field of medical technology.

The digital transformation has an impact on almost all areas of life. It represents the basis for the further development of the latest technologies and thus sets the course for Upper Austria's economy, industry and healthcare.

The latest digital technologies, artificial intelligence and supporting systems are being put to good use in all areas of life, especially in the healthcare sector. The underlying technologies have been made understandable to the general public and lead to a high acceptance in daily use. The human being is in the center of attention.

The interdisciplinary research and work area of medical technology has already developed strongly in Upper Austria in recent years. Digitalization is also rethinking existing value chains in the healthcare sector, which can change entire business models. Data-based decisions are becoming increasingly important, and the use of new technologies in a data-driven environment is also having an impact on existing processes and organizational forms.

Beneficiaries and stakeholders perspective

Upper Austrian location partners

Taking steps and developing measures that benefit the region as a whole, the Upper Austrian location partners are now involved even more than before in the processes for implementing business and research strategy. #upperVISION2030 is a strategic framework designed to support location partners in their year on year planning of business action measures. Annual dialogue rooms guarantee coordinated action without restricting each organisation's freedom to act on their own.

Location partners and accompanying organizations

- Wirtscharftskammer Oberösterreich

- Business Upper Austria – OÖ Wirtschaftsagentur GmbH

- Industriellenvereiniugung Oberösterreich

- Fachhochschulen Oberösterreich

- Johannes Kepler Universität Linz

- Arbeiterkammer Oberösterreich

- Industrie 4.0 Österreich

- Upper Austrian Research GmbH

- Rat für Forschung und Technologie für Oberösterreich

- Trigon Entwicklungsberatung

- Fraunhofer

- Johanneum Research

- Oberösterreichische Zukunftsakademie

Internal processes perspective

Building the process

Developing new methods and future-proofing the existing ones - these are the guiding principles behind the process for the new #upperVISION2030 strategy. Coupled with a new approach focusing on key topics that are important for the future, the Upper Austrian business and research strategy #upperVISION2030 was developed by building on the experience gained from the strategic business and research program Innovative Upper Austria 2020.

The integration of external experts enriched the internal view of the location partners on Upper Austria during the strategy development process. That is how Fraunhofer ISI was able to integrate international expertise into the process, as well as national expertise through the Industry 4.0 platform and regional expertise through the Upper Austrian Future Academy. Thanks to their expert knowledge, current trends and drivers were able to be identified and integrated into the process. The corresponding strategies "Upper Austrian Jobs 2030", "Energy Leading Region Upper Austria 2050" and "Tourism Strategy 2022" were also taken into account.
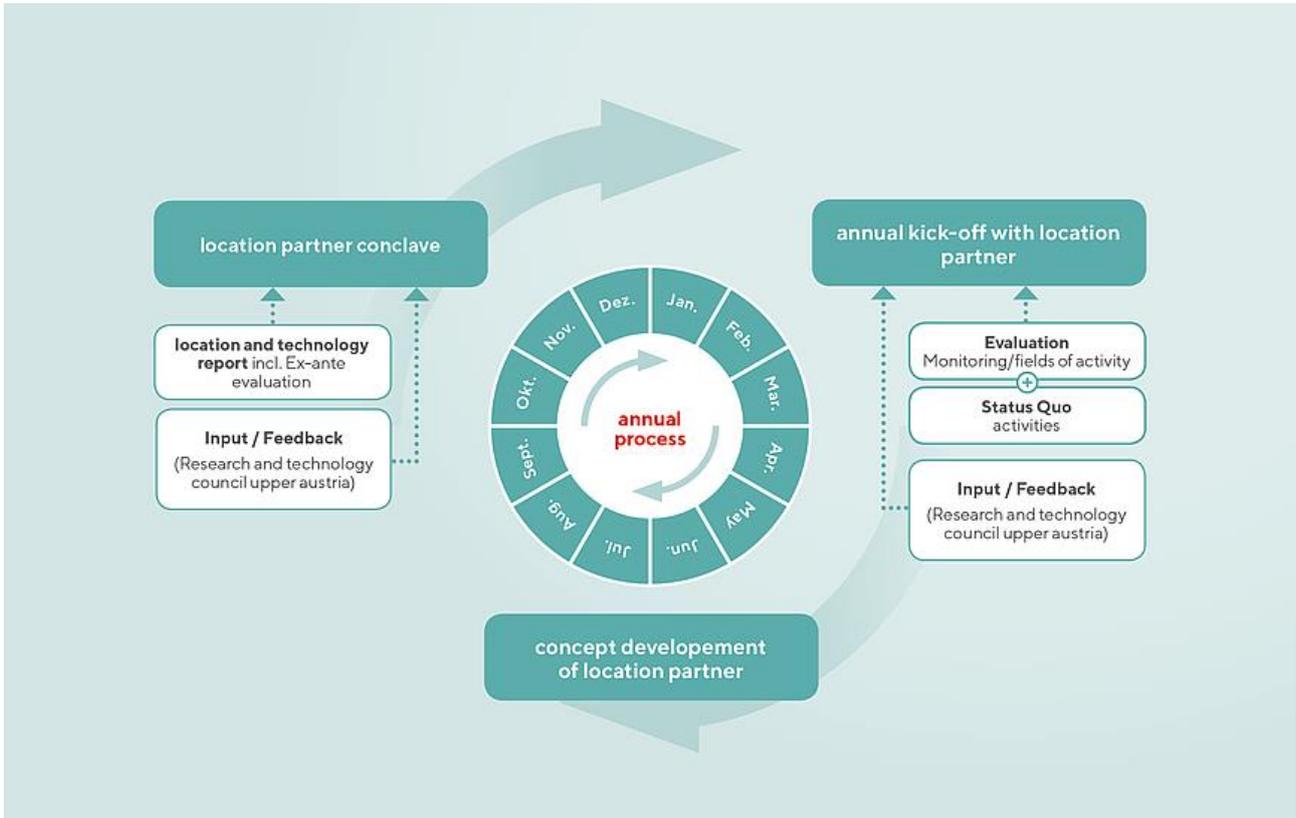
 The combination of an external, expert-driven strategy development integrated into the Upper Austrian business and research landscape represented by location partners - the employees chamber (AKOÖ), Business Upper Austria, technical universities (FH OÖ), industry chamber (IV OÖ), JKU university in Linz, Upper Austrian Research and the chamber of commerce (WKOÖ) - made it possible to look beyond the borders of Upper Austria.

Monitoring

Strategic control of the programme is carried out during an annual review. To this end, the implementation and impact of the measures are evaluated on the basis of each objective in each field of action using defined indicators. The key figures obtained provide information about development in each field of action and show if controlling interventions are needed in milestone planning.

Transfarm4.0

location partner conclave

location and technology **report** incl. Ex-ante evaluation

Input / Feedback
(Research and technology council upper austria)

annual process

Dez. Jan. Feb. Mar. Apr. May Jun. Jul. Aug. Sept. Okt. Nov.

annual kick-off with location partner

Evaluation
Monitoring/fields of activity
+
Status Quo
activities

Input / Feedback
(Research and technology council upper austria)

concept developement of location partner

Learning and growth perspective

Workplace Upper Austria 2030

Workplace Upper Austria 2030 is the strategic framework program underlying labor market policy in Upper Austria. Since 2012, this strategy has been the long-term framework for action in Upper Austria's labor market policy. The goals of the program are to secure skilled workers for the Upper Austrian economy in the long term and to avoid unemployment as best as possible with the aim of achieving full employment.

The most important core points for securing skilled workers are the three strategic goals:

- Strategic goal A: Qualification in line with demand Existing and demanded qualifications on the labor market are optimally balanced and the Upper Austrian education and training system provides qualifications in line with demand.

- Strategic Goal B: Activation for high labor force participation The potential of Upper Austria's employable workforce is utilized in the best possible manner - a high level of Upper Austrian labor force participation is decisive

- Strategic Goal C: Attraction and retention of skilled workers Ensuring the stability or slight growth of Upper Austria's employable population.

Some of the most important activities are:

- „Recruiting international High Potentials" project

- Career platform

- Student projects

- International house

More information about the workplace Upper Austria 2030 can be found at www.arbeitsplatz-oberoesterreich.at/en/

Conclusions

Upper Austria's #upperVISION2030 business and research strategy is integrated into the location partners' objectives system. The interaction of the individual protagonists ensures close coordination with corresponding strategies. A major contribution of the location partners is to see the region as a whole and actively shape the strategy process. Each location partner needs the freedom to act on its own. Nevertheless, transparency, coordinated measures and the use of synergies in the central fields of action are essential for the successful implementation of the business and research strategy. Within the framework of the control model, the interaction of all the protagonists involved is to be ensured.

Connections between Transfarm 4.0 and smart specialization in PF in Upper Austria

In general, Upper Austria has a strong focus on agriculture, since approximately 90 percent of its surface area is used for agriculture and forestry. The diverse landscape structure results in different production focuses like cropping farms, pork production and vegetable cultivation in the centre, strong cattle and milk farming in the west and north of the province as well as alpine farming in the south. Hence, in Upper Austria

there are several institutions that conduct research and development in the field of precision agriculture.

As learned in the Transfarm 4.0 project, the topics of the pilot actions meet very well with the fields of activities of Upper Austrian companies. For example, the topic of *ISOBUS* (pilot action 1) is applied in many products of Upper Austrian agricultural machinery manufacturers. Furthermore, also the topics of *remote and proximal sensing* (pilot action 2) and *big and smart data management* (pilot action 3) are well related to Upper Austrians S3 priorities, as they meet the topic of the call for digital transformation. Furthermore, the topic of digitization is a core issue at many higher education institutions in Upper Austria.

In general, we found that Upper Austria has a very well elaborated strategy with its "#upperVISION2030 business and research strategy". If we were allowed to make a recommendation, we would want the topic of precision agriculture to be visible in the strategy as well, especially since several companies and institutions in Upper Austria conduct research and development in this field.