S3 Couple Net

Abstract of S3 strategies – Upper Austria

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Content

Main objective

The main objective of this document is to create an abstract of the regional RIS3 strategy of the Upper Austria Region, which bears a unified structure as a mirror document on the South Bohemian side so that an effective comparative analysis of both documents can be carried out.

When designing the methodology for this comparison, emphasis was placed on a thorough study of both strategies in order not to leave out any important aspects and at the same time to prepare a meaningful and clear abstract.

Elaboration of S3 strategies' abstracts following given structure to perform crossborder comparsion as for the basis of A.T1.12.

Chapter 1: The process

Objective: *To describe the process of S3 strategy development*

1.1 The length of strategy development, length of program Framework

At the beginning of 2018, initial ideas were collected, and a rough schedule was developed. At the beginning of February 2020, the Kick-off event of #upperVISION2030 took place und was introduced. The development process took about two years. Furthermore, the strategy was developed for a 10-year framework.

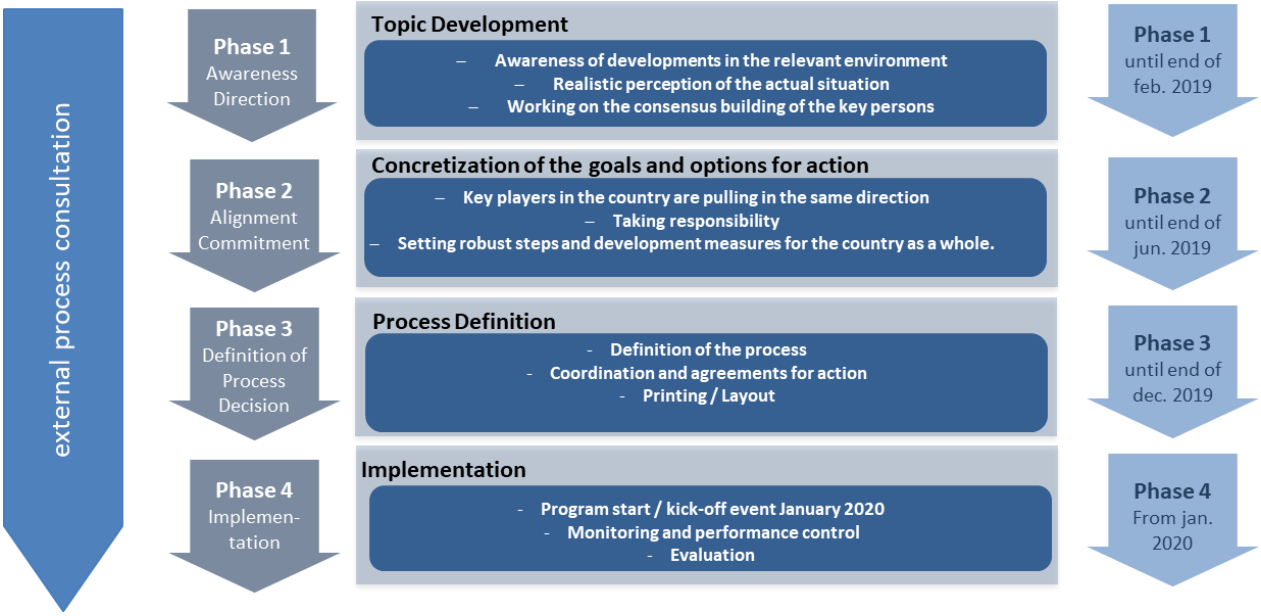
Length of strategy development	Length of program framework
2 years	10 years (2020 – 2030)

1.2 The structure of the entities involved and their role

External experts and Upper Austrian stakeholders were involved in the development process.

External experts

In total, 4 external experts accompanied the process and strategy development. The main consultant, namely Trigon Development Consultants Ltd., developed a concept for a rolling strategy process.



Phase 1 – Topic Development

In the first phase of topic development, the experts Fraunhofer Institute for Systems and Innovation Research ISI/Germany, NAPFI (National Platform Industry 4.0 Austria) and the Upper Austrian Future Academy (in German: Zukunftsakademie OÖ) were involved and responsible for identifying relevant topics for Upper Austria and the strategic program. Together with these experts, various strategic documents were analyzed and important topics and players were identified. A great number of relevant topics for Upper Austria have emerged from this analysis. A scenario-analysis-workshop was introduced to reduce the large number of topics to a few topics. Coupled with an analysis of the environment and the prioritization of the location partners, four action fields were finally defined:

- Digital Transformation
- Efficient and sustainable Industry and Manufacturing
- Systems and Technologies for People
- Connected and efficient Mobility

Phase 2 - Concretization of the goals and options for action

In phase 2, the focus was particularly on gaining the commitment of the location partners. The location partners are:

- Johannes Kepler University – JKU
- University of Applied Sciences – FH OÖ
- Upper Austrian Research – UAR
- The Federation of Upper Austrian Industries (IV – Industriellenvereinigung OÖ)
- Upper Austrian Chamber of Commerce (WKOÖ – Wirtschaftskammer OÖ)
- Upper Austrian Chamber of Labor (AKOÖ - Arbeiterkammer OÖ)
- Business Upper Austria

The location partners are represented at different levels:

- Steering group (CEOs, rectors of our stakeholders): Establishes commitment regarding their concepts; final coordination and decision-making authority on the defined milestones and agreements
- Operational Group: nominated persons from our stakeholders. The operational group develops strategic topics/concepts for each action field; representatives of the steering group members
- Reflection Group: Reflection of the topics, recommendations, and additional input (departments and institutions of our local partners, etc.)
- Strategic Group: establish commitment to the program (heads, politicians, etc.)

In the Phase 2, the topics identified in the first phase are broken down to the operational level in the individual institutions of the location partners in a top-down process. During this time, the institutions develop activities and projects for the four action fields (mentioned above).

The activities and projects are forwarded to the office for #upperVISION2030, which happens in a bottom-up process. The office for #UV2030 is in the Policy & Location Strategy department at Business Upper Austria. The process is designed in such a way that the interfaces between the participating institutions can be well coordinated. To ensure this, annual meetings are organized between March and September to give the location partners the possibility to share their activities and projects.

Phase 3 – Process Definition

The most relevant content in phase 3 was to ensure transparency regarding the planned activities, openness for the process and for sharing the activities and projects of each location partner. Finally also to be align, which means that each key player is aware of the process and ready to move in the same direction.

Important events, which took place during this phase:

- joint strategy session with steering group in order to agree on the process and activities of the location partners
- decision of the regional parliament regarding budget
- print program book 2020

Phase 4 – Implementation

Important events, which took place in phase 4:

- Kick-off event January 29, 2020
- Monitoring by Joanneum Research Forschungsgesellschaft Ltd., Graz/AT

External Consultant (established the whole process phase 1-4)	Trigon
External Consultant (involved in phase 2 finding and developing the relevant action fields for Upper Austria)	Fraunhofer (from an international perspective) NAPFI (from a national perspective) The Upper Austrian Future Academy (from a regional perspective)
Location Partners (Level of Strategy Group)	Heads of following organizations: • Upper Austrian Chamber of Commerce • Upper Austrian Chamber of Labor • The Federation of Upper Austrian Industries • Political office (responsible for economic resort, Markus Achleitner current regional minister for economy)
Location Partners (Level of Steering Group)	Rectors, CEO's, directors, etc. Establishes commitment regarding their concepts, final coordination and

	decision-making authority on the defined milestones and agreements • Johannes Kepler University – JKU • University of Applied Sciences – FH OÖ • Upper Austrian Research – UAR • The Federation of Upper Austrian Industries (IV – Industriellenvereinigung OÖ) • Upper Austrian Chamber of Commerce (WKOÖ – Wirtschaftskammer OÖ) • Upper Austrian Chamber of Labor (AKOÖ - Arbeiterkammer OÖ) • Business Upper Austria – the Upper Austrian government's location agency
Location Partners (Level of Operational Group)	Nominated persons from our stakeholders. The operational group develops strategic topics/concepts for each action field; representatives of the steering group members Johannes Kepler University – JKU • University of Applied Sciences – FH OÖ • Upper Austrian Research – UAR • The Federation of Upper Austrian Industries (IV – Industriellenvereinigung OÖ) • Upper Austrian Chamber of Commerce (WKOÖ – Wirtschaftskammer OÖ) • Upper Austrian Chamber of Labor (AKOÖ - Arbeiterkammer OÖ) • Business Upper Austria - Upper Austrian government's location agency
Reflection Group	Topic-related • Single institutes of universities • Single departments of Upper Austrian Chamber of Commerce • Etc. • Council for Research and Technology Upper Austria
Project Coordination	Coordination of the content of the process, coordination and managing the operational program development: Operational responsibility; coordination and control in the context of content-related program development • Office of the Upper Austrian Government – Department Economy and Research

	• Political Office of the Regional State Ministry for Economy • Office #upperVISION2030 (located at Business Upper Austria/department for Policy and Location Strategy

1.3 The role of regional government

The Upper Austrian government is client and funder. On behalf of the regional government Business Upper Austria develops, implements, coordinate and monitors the strategic program. Furthermore, the regional government was also involved in the development process. Single persons from the regional government of Upper Austria participated in scenario analysis workshop and environment analysis workshop. In addition, the Department Manager of the Department for Economy and Research which belongs to the Office of the Upper Austrian Government is member of the project coordination.

1.4 Preparation process – working groups, other structures / platforms, what analytical work / documents were carried out, etc.

The main analytical work was done in phase 1 – Topic development. At the beginning an analysis of the current situation was introduced. Existing analytical documents were collected, and a great number of topics have been resulted from the situation analysis. This was done by the external consultant Fraunhofer ISI. Based on these documents the scenario analysis workshop and environment analysis workshop were prepared.

Following organizations were involved in the scenario analysis workshop as well as in the environment analysis workshop:

- The Federation of Upper Austrian Industries
- University of Applied Sciences Upper Austria
- Johannes Kepler University
- The Upper Austrian Future Academy
- Upper Austrian Research
- Council for Research and Technology Upper Austria
- Upper Austrian Chamber of Commerce
- Upper Austrian Chamber of Labor
- National Platform Industry 4.0 Austria
- Regional Government of Upper Austria
- Business Upper Austria - Upper Austrian government's location agency
- Fraunhofer ISI (consultant)

These workshops resulted in two working papers:

- Scenario Analysis

- Environment Analysis

Chapter 2: The content

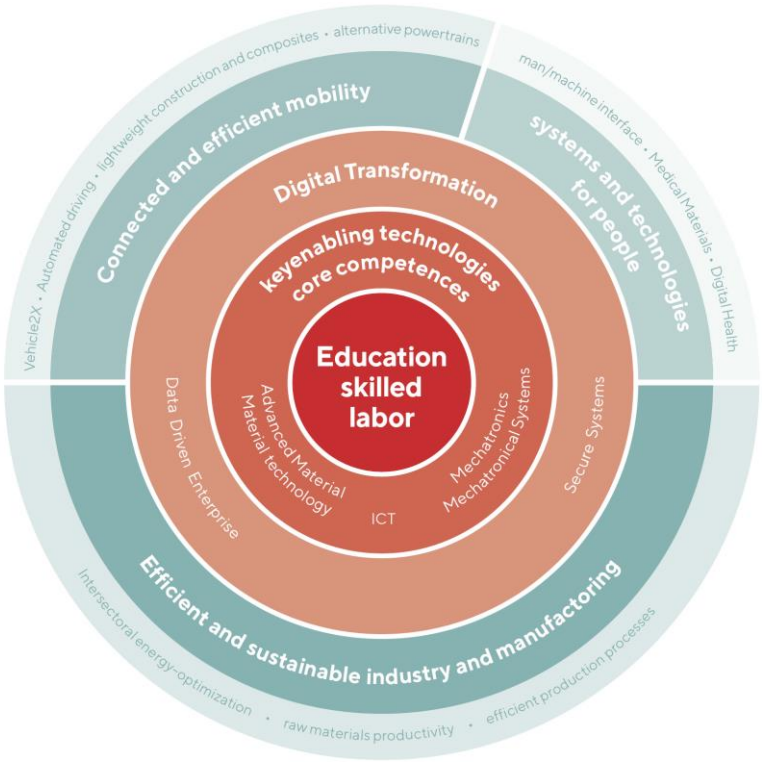
Objective: To describe the S3 strategy content in detail

2.1 What horizontal and vertical themes it contains and what are the connections between the two regions

For Upper Austria to remain a location for business, industry, and research and to maintain its international competitiveness, the objective is to promote the development of products, services and technologies and to generate more founding, researching, technology-oriented and exporting companies in Upper Austria. Upper Austria focuses on smart specialization and the rapid transfer of research results into business applications to place Upper Austria at the forefront of technological developments.

There are no specific horizontal and vertical themes defined in the frame of #UV2030.

The Strategic Framework at a Glance:



However, on the one hand, there are horizontal themes, which are especially those topics which are relevant to all action fields.

Horizontal Themes:

- Education, Skilled Labor, Specialists
- Key enabling Technologies and Core Competences

- Sustainable Solutions
- Digitization / Digital Transformation stands as an enabler for all business sectors and finds its application in horizontal themes as well as in the vertical ones.

And on the other hand – according out point of view - there are three content related vertical themes defined as our action fields.

Vertical Themes:

- Action Field: Efficient and sustainable Industry and Manufacturing
- Action Field: Systems and Technologies for People
- Action Field: Connected and Efficient Mobility
- Digitization / Digital Transformation stands as an enabler for all business sectors and finds its application in horizontal themes as well as in the vertical ones.

Furthermore, each field has its key topics, which are adapted regularly in the annual process (see Chapter 5). Key topics are relevant topics for Upper Austrian business and economy. However, key topics can also be emerging topics, which will have a greater impact in the future on Upper Austrian companies.

<u>Action Field: Efficient and sustainable Industry and Manufacturing</u>

Resource efficiency / cascaded use

- Secondary / tertiary material availability for new applications in terms of decarbonization
- Collection systems in qualitative recovery
- Cross-material material flows
- LCA
- Recycling-friendly product design

Carbon Management in Industry

- Transformation of energy systems / new energy sources
- Upscaling / industrialization of existing technologies
- Interconnection of existing technologies and processes

<u>Action Field: Systems and Technologies for People</u>

- Human & Machine Interface and Digital Health
- Usability & Acceptance
    - AI & emotional intelligence
    - Design for Artificial Intelligence (in medicine),
    - cognitive and physical assistance in production (robotics and automation, exoskeletons)
    - Safety, Credibility, Explainability
    - Transfer, Regulatory Affairs
    - Digital Health Twin

- Smart Home Technologies

Action Field: Connected and Efficient Mobility

Product and process sustainability:

- CO_2 certification, LCA
- Design for recycling

Application-oriented drive technologies:

- Technology-open solutions of different drive and vehicle concepts
- Modular strategies and modular vehicle concepts

Materials & lightweight construction:

- Hybrid lightweight construction: sustainable, affordable, intelligent
- Smart materials and component functionalization

Standards:

- AI trustworthiness
- legal and ethical aspects
- Co-design of industry standards in new technology areas

Digitization / Digital Transformation

Data consistency and supporting software tools

- Data continuity / transparency / consistency / quality
- Security
- Usability / User Interface / UX

Digitization of business processes (internal/external along value chains)

- Solution design / digital process understanding
- Development of methodological competence / establishment of systems thinking
- Modeling / simulation / digital twin

New business models

- Hybridization of the service portfolios
- Digital sales / digital customer

Machine Learning / AI

- Pattern recognition and pattern analysis
- Data analysis/interpretation

2.2 How are the vertical thematic priorities (domains of specialization) defined and what are the links between the two regions

Action Field: Efficient and Sustainable Industry and Manufacturing

Upper Austria's industrial production sector is the largest in Austria, which means that Upper Austria has a leading position in industrial production. Thus, industry and the manufacturing sector is very important to Upper Austria. The companies which are located in Upper Austria are well known as well as having an international reputation. Another important point is that value creation is very high and supported by innovative and new technologies which are developed and used by the Upper Austrian companies. By having the whole value chain in Upper Austria, we can benefit from a circular economy. Closing loops can reduce the need for materials and increase raw material productivity and life cycle.

What does this mean to Upper Austria?

- We develop technological processes that increase flexibility in terms of usage of raw materials, enable cascading or coupled usage of raw and residual materials and generate additional value as a result.
- We increase efficiency and sustainability of processes and production methods by implementing new technologies, such as Big Data, Artificial Intelligence, Data Driven Modelling & Simulation etc. with regard to responsible technologies and bring these new technologies into practice.

Objectives:

- Maintain and expand the technological lead of companies in the region in order to continue successfully placing innovative products and services on national and international markets
- Increase the efficiency of Upper Austrian industry and position Upper Austria as a region for "Responsible Technologies & Management"

Action Field: Systems and Technologies for People

Demographic change is shifting the age structure of Upper Austria's population. While the proportion of younger people is falling, the number of older people is increasing. The lack of skilled workers due to this development is a strongly limiting factor for the further development of the region. Systems and technologies that allow people to remain active in their familiar environment for longer can counteract this.

The interdisciplinary research and work area 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.

What does this mean to Upper Austria?

- We focus our activities on the human/machine interface and create networked, semi-autonomous and autonomous systems that enable people to actively participate in their familiar environment for longer.
- We are increasingly thinking in terms of interdisciplinary and holistic approaches in order to benefit from existing competencies and technologies.

Objectives:

- International positioning of Upper Austria as a competence region for applications at the human/machine interface, especially in the fields of areas of automation and robotics.
- Transfer of Upper Austrian key technologies and core competences from the production to medical technology, in particular in the areas of Digital Health and Medical Materials.

Action Field: Connected and Efficient Mobility

Currently, around 43 percent of all employees in Austria work in the automotive industry. The export ratio in this sector is 82 percent. The structural change in the mobility sector has a significant impact on the Upper Austrian economy and location. For an export-oriented federal state like Upper Austria, further developments in the automotive sector are essential to maintain economic stability and secure many jobs in the region. Structural change is driving a number of new technologies and system innovations. Developments in the powertrain sector toward alternative power-drives will lead to serious shifts in value chains. New, innovative mobility services and digitized vehicle systems will gain in importance in the future.

What does this mean to Upper Austria?

- We see structural change in the mobility sector as an opportunity and are proactively dealing with new demands on Upper Austrian suppliers.
- We focus on developing new mobility services and connect a wide variety of transport modes to support the transfer of knowledge and technologies from different fields.

Objectives:

- Taking advantage of the structural change in the Upper Austrian supplier industry and maintain position in existing and new business fields
- Positioning Upper Austria as an attractive region for mobility and logistics solutions through the use of the latest technologies and system innovations from business and research.

2.3 How the horizontal objectives and measures are defined and what are the links between the two regions

- Education, Skilled Labor, Specialists
  At the center 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, we must ensure the availability of suitably qualified employees for business, industry and research in Upper Austria over the long term.
- Key enabling Technologies and Core Competences
  In addition, there are key technologies and core competences that make Upper Austria independent of a particular industry or subject area. 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.
- Sustainable Solutions
  Sustainable development addresses all areas of life. Sustainable solutions support to face present challenges and to solve recent issues without harming future generations. The demand for renewable energy, clean water, food, etc. is influenced by the growing world population and environmental changes. Sustainable developments play an important role because it contributes to sustainable solutions and sustainable business models. Thus, effective, and efficient research and development is a prerequisite for innovations which approach sustainable solutions.
- Digital Transformation – see point 4.
  Digital Transformation is also a key enabling factor which has an impact on all areas. Especially in business it is a key component and integrated in business strategy – it's a critical success factor. Technologies combined with people, processes and activities make it possible for companies to meet new customer needs and drive growth and innovation. For more information see point 4.

2.4 What are the ojectives included in the strategy and measures for the field of digital transformation (plus connectors)

Digitization / Digital Transformation

Digital transformation influences all areas, such as education, work processes and development of new technologies. Digitization changes existing value chains and this results in new business models. Especially in companies the data-based decisions and servitizations are becoming more important. Applying digitization is merely one important point, however it is more important to consider the staff who has to work with it. Regarding digitization not only technical issues have to be addressed, but also ethical themes and user acceptance have to be considered.

What does this mean to Upper Austria?

- We make businesses aware of the necessity for digital transformation.
- We rethink existing business models and make decisions based on trusted data using new tools and technologies.
- We focus on creating and using secure and correct software and hardware systems.

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-centered AI and set quality standards in the classification of AI systems in terms of security and reliability in the way they are used.

Chapter 3: Regional context

Objective: To describe the establishment of the S3 strategy within the framework of strategic documents at the regional level and to describe the historical context

3.1 What is the role of the RIS3 strategy in the region

Upper Austria launched its first strategic program more than 20 years ago. It was called "Upper Austria 2000+" (1998 – 2004) and responded to economic crisis in 1980/90s with the foundation of a central economic agency (nowadays Business Upper Austria) and a strong focus on technology, professional qualification, and location marketing.

The 2nd strategic program already used a participative stakeholder process (including 250 experts) for its elaboration process. This program "Innovative Upper Austria 2010" (2005-2010) focused on research and development, professional qualification, setting up clusters and networks.

The follow-up of this program was "Innovative Upper Austria 2010+" (2011-2013) with similar focus areas but a research and development emphasis on Mechatronics, ICT, Life Sciences, Innovative Materials, Logistics, Renewable Energy.

"Innovative Upper Austria 2020" (2014 – 2020) was in line with the funding period of European Union and created with awareness of the smart specialization approach. It focused on 4 core strategies and 5 fields of activities.

Unlike its predecessors, some of which were highly dependent on political timeframes or European funding periods and thematically very rigid, this time the approach chosen for #upperVISION2030 was to set a framework for actions to be flexible and agile in annual priorities.

3.2 What is its significance and use

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.

<u>The vision by the end of 2030:</u>

The economic and social benefits of digital transformation have been successfully implemented in business and industry – as mentioned before, the focus is on people. In 2030, Upper Austria is a dynamic and model region for digital transformation which is driven by the

cooperation of all political, economic, and scientific forces. Furthermore, Upper Austria will be perceived as a livable and sustainably operating industrial region by the end of 2030. The responsible use and reuse of resources contributes to that. The Upper Austrian economy and industry are an essential part of the solution to future challenges and can therefore continue to position themselves in the top position among the global leaders. In addition, artificial intelligence and assistive robots will be used in all areas of life by 2030. The technologies behind them have been made comprehensible to the general public and are leading to a high level of acceptance in everyday use. Finally, Upper Austria has successfully overcome the structural change in the field of mobility in 2030. Due to their competencies, Upper Austrian companies continue to be internationally popular partners and successful suppliers of mobility solutions and components.

Vision 2030:

- ✓ **Fit for Digital Age**
- ✓ **Fit for Sustainable Solutions**
- ✓ **Fit for Human-Centered Technology**
- ✓ **Fit for New Mobility**

The importance of the strategic topics involved for announcing specific support calls

The operational process contains a part, which is named the strategic analysis process. The analysis process is topic-dependent and changes annually. Often, the strategic process results in topics that require more attention. E.g., this need may result in a topic for a regional call.

Chapter 4: National context

Objective: To describe the importance and use of the S3 strategy in the framework of strategic documents at the national level

4.1 The levels at which the S3 strategies are developed and their interconnection at the national level

In Austria there is a national smart specialization strategy which is referred to in the operational program and partnership agreement with EC. This is the strategy of the Federal Government for Research, Technology and Innovation "RTI Strategy 2030".
Upper Austria's smart specialization strategies - the predecessor and the current one - are oriented along European and national strategies but with the strong focus on the regional strength and needs.

4.2 Funding of the RIS3 strategy

Drawing from EU resources

There are no drawings from the EU resources in terms of development, coordination of implementation, monitoring and regional calls.
But for support or co-financing of project submissions to national or European funding programs (calls) the projects must be in line with #upperVISION2030. Vice versa this means that EU resource are indirectly drawn for implementation of the regional research and innovation strategy.
In regard of the operational program for investment, growth and jobs (2014-2020) project submission have to be inline the current regional strategy.
The same is expected for the upcoming new program 2021-2027.

Drawing on national resources

See point 2.

The importance of the strategic topics involved for announcing specific support calls

Topics of #upperVision2030 are not of relevance for announcement of national calls.
National calls are announced on basis of federal thematic priorities.

Chapter 5: Implementation

Objective: To describe the implementation process of the S3 strategy

5.1 What are the specific steps implemented in the region to fulfill the content of the S3 strategy

As mentioned before – the implementation process is an annual and rolling process. The following graphic illustrates the operational process.

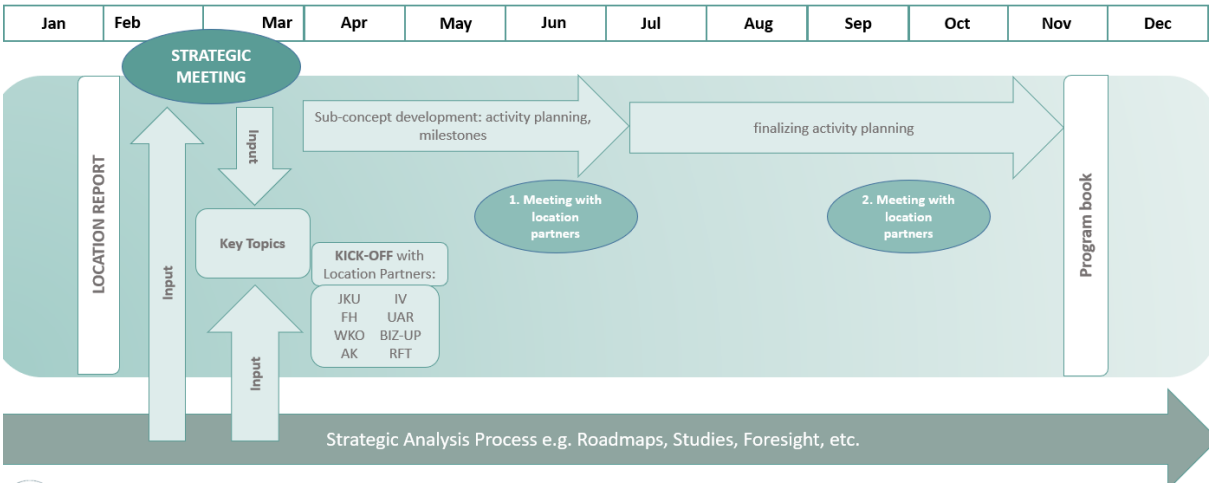


Figure 1: Operational Process of #UV2030

Since it is a rolling process, it is difficult to describe the beginning and the end of the process. But it usually starts with identifying key topics. For this purpose, various discussions are held to collect key topics within the action fields. Key topics can be understood as topics, which are relevant for the Upper Austrian economy and business. The main reason for identifying key topics is that it serves as a basis for the sub-concept development of the location partners and gives them a strategic direction. As mentioned, key topics arise on the one hand from discussions with e.g. Upper Austrian companies and on the other hand from the strategic analysis process. For example, last year we did a study on the structural change of the Upper Austrian automotive industry. A great number of key topics emerged from the study for the action field “Connected and Efficient Mobility”. This year we develop a Technology Roadmap for Sustainable Plastics Solutions. The topics from the Roadmap will especially influence the action field “Efficient and Sustainable Industry and Production.

In a next step the collection of key topics will be discussed in the project coordination. Then, the topics will be reflected in depth in the strategic meeting with the location partners (Level of Strategy Group). Lastly, the approved topics will be presented the location partners (Level of Operational Group). After this phase the sub-concept development starts. This means, that our location partners start their own individual processes in their organizations to develop a

first draft of the activities. In the first meeting with the location partners (Level of Operational Group) all activities are presented in front of all location partners to ensure transparency. They also have the possibility to exchange on their activities and if possible, even work together to develop activities. During this process the monitoring process starts with Joanneum Research, the external consultant who is responsible for the monitoring of #upperVISION2030.

After the first meeting the location partners (Level of Operational Group) go back to their organizations to finalize their activities and come back together in a second and final meeting to present their final activities for the next year. At the same time the creation of the program book starts. The activities and measures for the coming year are made visible in the program book. The preparation of the program book is usually completed at the end of the year. After the program book is created, the internal monitoring process starts. One important point to note here: the activities which are developed in the frame of #upperVISION2030 can be found in the annual program of each location partner. For example, the activities of the Johannes Kepler University, which are formulated and developed in the frame of #UV2030, can be also found in the annual program of the JKU.

The internal monitoring report contains figures and statistics to the activities of our location partners. We count how many activities are completed, how many are running and how many are not started yet. Furthermore, it contains relevant indicators from economy and research. The internal monitoring report and the location report which includes the monitoring of #upperVISION2030 are finalized usually by the end of February.

The process equally closes and starts again with the strategic meeting, where all deliverables, such as the program book, location report and internal monitoring report are presented. Based on these deliverables the location partners (Level of Strategy Group) give input on the key topics.

5.2 What structures are established for implementation and what are their roles

Location partners (Level of Strategic Group): they review the deliverables (program book, location report and internal monitoring report) and then give report on the key topics which impacts the activity planning.

Location partners (Level of Operational Group): they are involved in the phase of sub-concept development and in the phase of finalizing the sub-concepts.

For the strategic analysis process, additional working groups are formed but they depend on the topic and are often flexible, that means group members can be replaced by others.

5.3 What funds and from what sources are spent on the implementation of the S3 strategy (regular X one-off, regional X external, etc.)

#upperVISION2030 is a strategy to which the research, development and innovation (support) activities shall be aligned. Realization of the strategy and implementation of measures are (co-)funded either by regional funds or performed by means of national or European funded projects which are in line with the regional strategy.

5.4 How the development of implementation is monitored (if any)

Strategic control of the program 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.

The monitoring process is supported by Joanneum Research Forschungsgesellschaft Ltd., Graz/AT.

Performance indicators:

Action Field: Efficient and sustainable Industry and Manufacturing

- Number of EPO patent applications on the subject of "automation/robotics" with Upper Austrian participation per 1 million inhabitants
- Number of EPO patent applications on the topic of "sustainable industry" with Upper Austrian participation per 1 million inhabitants
- Gross value added of material goods production per hour worked
- Sectoral final energy consumption in companies in relation to production value in companies
- Share of environmentally oriented gross value added of the share of environmentally oriented value added in manufacturing in total value added [...]
- Share of employees in the industry environment automation, mechatronics, robotics as a proportion of all employed persons
- CO2 emissions of Upper Austrian industry
- The share of energy consumption from renewable energy sources of the energy consumption in companies

Action Field: Systems and Technologies for People

- Number of EPO patent applications on the topics "Digital Health", "Medical Materials" with Upper Austrian participation per 1 million inhabitants
- Share of employees in the Systems and Technologies for People sector as a percentage of all employees

Action Field: Connected and Efficient Mobility

- Share of employees in the automotive sector as a percentage of all employees
- Number of EPO patent applications on the topic of "Connected and Efficient Mobility" with Upper Austrian participation per 1 million inhabitants
- Share of export sales in the automotive sector as a percentage of all export sales

Enabler: Digitization / Digital Transformation

- Proportion of employees in the ICT sector as a percentage of all employees
- Number of EPO patent applications on the topic of "Digital Transformation" and "Artificial Intelligence" with Upper Austrian participation per 1 million inhabitants
- Development of knowledge-intensive start-ups in the ICT sector
- Proportion of Upper Austrian start-ups that submitted high-quality business plans in competitions