ECOS4IN SWOT ANALYSIS – UPPER AUSTRIA

Deliverable D.T2.2.1

Version 1
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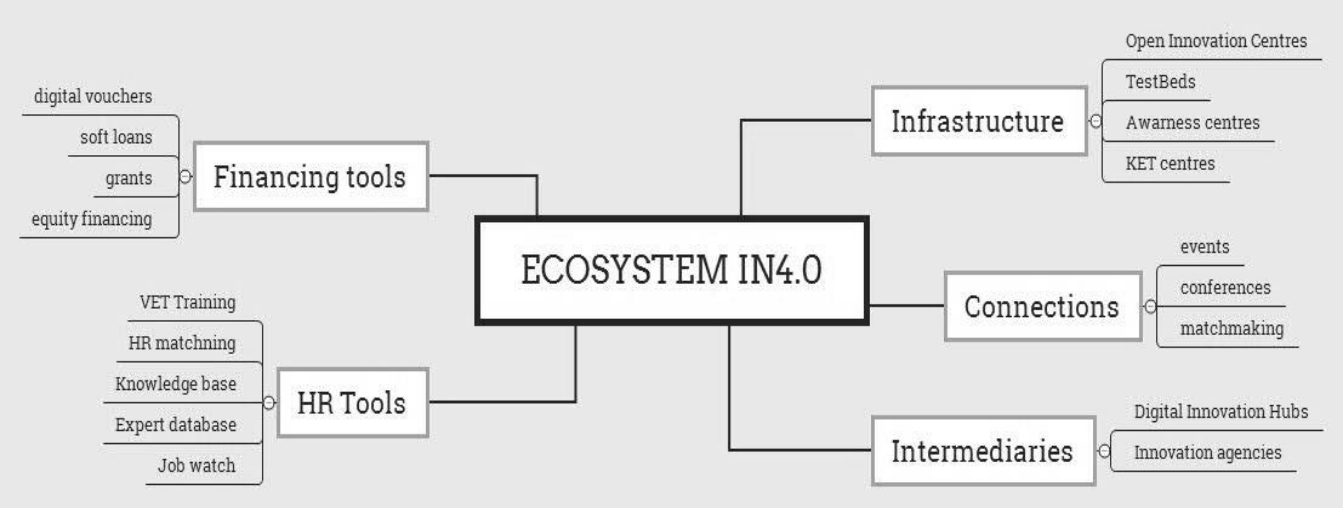
1. Reason

Each partner region will perform SWOT analysis, Deliverable T 2.2.1., delivery date 04/2020.

Analysis will provide mode detailed information how the partner regions currently handed with Industry 4.0 transformation.

2. SWOT Structure

There is first simple ecosystem model. Deeper description will be available soon.



Please prepare SWOT analysis for each mind map branches, see templates below.

3. Upper Austria

3.1. Infrastructure

Strengths	Weaknesses
Upper Austria is an economically strong industrial region with fields of strength in the automotive, plastics, mechatronics, information technology and software development, medical technology, food or even furniture and wood processing industries. Over the years, many scientific institutions such as the Johannes Kepler University and the Upper Austrian University of Applied Sciences have also developed from this strong economic environment and have also further expanded competences in the Industry 4.0 environment. Examples in the Industry 4.0 context are the Open Innovation Center and the Industry 4.0 pilot factory at the JKU, competence centers such as the Linz Center of Mechatronics and the Excellence Center for Smart Production at the Upper Austrian University of Applied Sciences, as well as research institutions such as Profactor and Pro2Future. CONCLUSION: Upper Austria has a strong infrastructure	The greatest weaknesses in Upper Austria are decentralisation and very heterogeneous ownership structures. These lead to the fact that there is no uniform, superordinate strategy and consequently synergies are only used to a limited extent. This is also accompanied by a partial lack of organisational and technical networking of institutions and facilities. This also leads to the fact that the existing infrastructure is little known, especially in an international environment. But it is essential that, when implementing new research infrastructure or flagship projects, they should be thought and implemented across federal states and regions. CONCLUSION: there is no overarching strategy for the best possible, synergetic use of the existing infrastructure
Opportunities	**Threats**
Often these institutions are limited exclusively to cooperation with large companies. This is critical insofar as around 80% of the companies in Upper Austria are SMEs. The institutions thus address a very high threshold target group, topics are not tangible for small and medium-sized companies and are therefore not brought into application. In this respect, the transfer of scientific results to SMEs, trade and craft enterprises represents a great opportunity and great potential. CONCLUSION: Making infrastructure accessible for SMEs and ensuring the transfer of knowledge	Many facilities in Upper Austria have basically good offers for companies. However, they often lack the appropriate business model to ensure sustainable, operative success. There is a danger that facilities simply do not operate economically. Threats also arise from the still incomplete expansion of broadband Internet or critical infrastructure. This would require further investment. CONCLUSION: Missing business models endanger the long-term existence

3.2. Connections – networks

Strengths	Weaknesses
Upper Austria provides e.g. within the Cluster initiatives a large and proved portfolio of events, both fore awareness building and professionals. Examples are round tables for exchange of experience, conferences, supplier innovation days, workshops and trainings. The aim of all those formats is not only sharing know-how throughout the region, but also to enforce collaboration projects between the companies. In addition, many other institutions (universities, grand garage, technical college, research institutions, chamber of commerce, ...) as well as companies themselves organize a variety of events. CONCLUSION: there is a wide range of events in Upper Austria. These support the transfer of know-how as well as the development of sustainable personal contacts.	The biggest weakness also in this area is the lack of coordination between the various providers. Although there is often bilateral cooperation, very often there are also duplications, so that customers (company representatives) often lose the overview. In addition, too little attention is paid to target group-specific requirements, many activities are therefore very general, sometimes superficial, so that information from them cannot be used by participants. Too little attention is also paid to the degree of maturity of companies or sectors. CONCLUSION: Too little coordination and insufficient consideration of the needs of the actual target groups
Opportunities	**Threats**
In addition to more intensive coordination at the regional level, there is also a great opportunity in practically designed formats. Companies must be given the opportunity to try out and test Industry 4.0 technologies. This is intended to reduce any inhibition thresholds (psychological barrier), especially for SMEs, and to increase openness to new technologies. Examples in Upper Austria include robotics workshops, AI user seminars, plant tours, Open Labs, ... CONCLUSION: more practical and application-oriented formats	Sustainability and perseverance: those two are necessary to be able to continually work on issues related to I4.0., also in the work of clusters and other organizations, mainly to ultimately derive/transfer those topics to companies. This work is often dependent on political decisions. The threat there lies in the possible instability of politics, where one topic may be “hot” over a certain period, but then other, politically more interesting topics come up. Sustainability and perseverance may not be guaranteed in the long run. CONCLUSION: Focus on keywords is not enough, staying power is needed

3.3. Intermediaries

Strengths	Weaknesses
Upper Austria has a very broad but closely interlinked innovation network. Clusters play an essential role here. RIS (Regional Innovation Scoreboard) data shows that 68 % of Upper Austrian SMEs have had cooperation agreements in innovation activities with other enterprises or institutions or developed a new product or process in-house or with other firms in 2019. This fact can be accredited to a big part to the work of the Upper Austrian Cluster initiatives, where the motto is "Innovation through cooperation" and the goal is to convince companies and research institutions in industry sectors to jointly tackle new challenges and projects and increasingly try to support cross sector networking beyond the cluster boundaries. Clusters were also involved in initiating the Upper Austrian Platform Industry 4.0. It was founded in order to establish a kind of "think thank", to work on where Upper Austria needs to develop further, where the focus should be, which infrastructure is needed etc. This platform was merged with the national Platform I4.0 in 2018. The platform unites all relevant stakeholders, i.e. representatives of the Federation of Austrian Industries, research and politics, which creates a lively and intensive exchange of information and opinions on national level. This has led to a large number of coordinated projects, which have emerged in a short period of time which have set an example or served as flagship for Upper Austria and have led to the fact that there is now a corresponding research infrastructure in Upper Austria. CONCLUSION: Clusters and platforms foster innovation in I4.0	The clusters in Upper Austria as well as various platforms in the I4.0 area often have a regional or national focus. There is a lack of networking at an international, global level or this is currently only insufficiently used. Although many intermediaries are involved in EU-level projects or platforms such as the Vanguard initiative, strategic and coordinated use should be sought. Additionally, it is crucial that the needs of the companies are considered in the research, otherwise research does not meet the needs and nothing in common with the operational context and everyday life of companies. The intermediaries have to be aware of this threat and build the connection (and translators) between research and industry. CONCLUSION: Networking at international level is weak
Opportunities	**Threats**
Based on the existing regional and national structures, a great opportunity can be found in the increasing international networking with similar platforms on I4.0 / Advanced Manufacturing. This should not be limited to Europe alone, but should be limited to really relevant hotspots around the world. It is also important that representatives of the Triple Helix from business, science and intermediaries use this in a coordinated manner. Innovation through cooperation: opportunity to support companies in their networking with each other, networking with research facilities etc. and to implement innovation projects on technological and organisational level in the context of I4.0. CONCLUSION: Networking on a global level as an opportunity	Risks in the field of intermediaries arise in Upper Austria on the one hand due to complicated ownership structures, which often make coordinated cooperation difficult even at regional level, as different interests collide. On the other hand, there is also the danger that technological trends and developments are missed out due to a lack of global networking and that, particularly as a high-tech region, one falls behind other regions. CONCLUSION: Complicated ownership structures and a lack of international networking negatively affect the work of intermediaries

3.4. Knowledge agents

Strengths	Weaknesses
Upper Austria has corresponding industry 4.0 competence at the Johannes Kepler University, the Upper Austrian University of Applied Sciences and various research institutions. In terms of content, a wide range of topics relating to I4.0 are being worked on and taught. There is also good cooperation between these institutions and business, with mainly large companies taking up the offers. CONCLUSION: there are many knowledge agents	The greatest weakness in this context in Upper Austria is the fact that universities and universities of applied sciences are only to be found in middle of international rankings. There are few flagships and thematic areas in basic research that are really internationally recognised. The institutions are not really able to set trends and take the lead on front-end issues. Often Upper Austria is first follower. Reasons can be found in structural disadvantages. CONCLUSION: International significance is only partially fulfilled
Opportunities	**Threats**
In order to be a trendsetter in various I4.0 areas in terms of content, a consistent focus on key topics is required. This also means that topics are no longer dealt with by every institution. CONCLUSION: Excellence through specialisation	Particularly in times of increasing digitalisation, knowledge agents are often not in a position to handle the transfer of knowledge, for example in the field of teaching, completely via web tools. The lack of use of digital media is therefore a danger of falling behind other regions. CONCLUSION: Lack of digital connectivity in teaching

3.5. HR tools

Strengths	Weaknesses
In addition to the scientific institutions already mentioned above, there are many other providers who offer a wide range of training formats. Success factors also in the context of I4.0 are, for example, higher technical colleges and the entire apprenticeship system. In addition to academic training, graduates of these formats often form the backbone of domestic companies. Mechatronics as a key enabling technology for I4.0 is represented everywhere.	Despite the wide range of training opportunities in Upper Austria, the greatest weakness and challenge lies in getting enough young people interested in technical education and trainings. There is simply a lack of skilled workers who can cope with the challenges of an increasingly digitalised industry. CONCLUSION: Awareness rising for young people is necessary

In addition, clusters for example offer qualifications in the area of I4.0. The InnoPeer AVM project and the I4.0 qualification network should be highlighted here. InnoPeer AVM: It is an Interreg Central Europe Project and can be described as peer-to-peer network of innovation agencies and business schools developing a novel transnational qualification programme on Advanced Manufacturing for the needs of Central European SMEs. The qualification programme is a very good offer for small and medium sized enterprises, which get trained in technological questions, for questions around HR management and also for the topic business development. This qualification programme, which was developed in the project, will be offered as standard training within the Mechatronics Cluster in the future. Network Digital Competence enables the qualification for companies in tailor made trainings for their employees. CONCLUSION: Diverse educational opportunities are particularly important	
Opportunities	Threats
Opportunities lie above all in the renewal of the content of training plans and the consideration of I4.0 aspects. This also requires investment in infrastructure. I4.0 know-how must not be restricted to classical technical oriented professions. Therefore, is still a lot of potential in the provision of digital skills for many other sectors. CONCLUSION: Consideration of I4.0 aspects in all training areas and sectors	The general lack of skilled workers is the greatest threat to the further digitisation of the industry. Without skilled workers, the increasingly complex systems and machines for a production of the future are no longer feasible. CONCLUSION: Lack of skilled workers is existing

3.6. Financial tools

Strengths	Weaknesses
In general, Austria has a very broad and good funding system, which is used intensively by scientific institutions, companies and intermediaries. In comparison to other countries, Upper Austria also has an advantage in this respect, as a relatively large amount of funding is provided by the public sector. The spectrum is diverse - from specific long-term programmes such as the funding of innovative cooperation projects in the cluster initiatives to topic-specific calls for proposals derived from the various strategic programmes such as uppervision2030. #upperVISION2030: The new strategic programme of Upper Austria (started 2020) has a huge focus in the priority of “Digital Transformation”. Calls and measures have yet to be defined, resp. brought to action. Companies get support as well e.g. in Research & Innovation @Business Upper Austria: This department deals with the topic of	The willingness to invest in innovation is often not there. Risk capital, venture capital is not available to the same extent as in other regions and countries. Support programmes often provide only relatively small funding budgets. Oversubscribed tenders and calls often result in many projects with small project volumes. CONCLUSION: Risk Capital is missing

research and financing. Whenever companies or research institutions want to implement an innovative project, they are advised on regional, national and European level to identify the appropriate financing and funding instruments. CONCLUSION: Excellent funding system on national level	
Opportunities	Threats
Representatives of Upper Austria should participate much more in international tenders. This will make larger-scale funding projects possible, accompanied by stronger international networking. Conclusion: more international focus	Funding programmes are very important for initiating research projects. If this support option were to be discontinued, the R&D quota would fall rapidly. This would be negative, especially for a dynamic thematic field such as I4.0. CONCLUSION: Breakdown of funding programmes would led to a decrease of the R&D quota