

NATIONAL SWOT ANALYSIS ON ECO- INNOVATION – AUSTRIA



WP3	Strategy for eco-knowledge
ACTIVITY 3.2	Analysing the environment for ecoinnovation in partner countries
DELIVERABLE 3.2.4	National SWOT analysis on Eco-innovation

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1. SWOT analysis: National (governmental) perspective

Internal factors	
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<p>STRENGTHS</p> <ul style="list-style-type: none"> • What are your countries strengths? • What do you do better than others? • What unique capabilities and resources do you possess? • What do others perceive as your national strengths? <p>Environmental awareness and environmentally-friendly behaviour is well established in Austria. Waste separation and eco-farming have a long tradition, receiving strong support and acceptance among the population. Consumers are willing to spend more money on agricultural products from eco-farming.</p> <p>Energy production from renewables receives support and funding. Austria makes use of its naturally high potential of hydroelectric power generation.</p> <p>Financial support by the government for R&D and innovation activity is (very) high in Austria. Innovative companies thus have an advantage in being able to receive financial support for their ideas. Austria's business structure consists of small (family) businesses, whereby innovative small firms tend to focus on a niche and sometimes become global leaders in a particular niche.</p> <p>Austria not only invests a lot of money into R&D, but also has a high patent output. This is an important basis for being able to come forth with product and process innovations and being able to successfully market them.</p> <p>Secondary schools with an engineering focus (HTL; <i>Höhere Technische Lehranstalten</i>) offer five-year programmes for grades 9 to 13, i.e. for fourteen to nineteen-year-olds. This is a particular strength of Austria's education system that helps provide well-trained human capital in the STEM fields (science, technology, engineering, mathematics). Eco-innovation can benefit from the provision of HTL graduates. Programmes aiming specifically at eco-innovation programmes could be initiated.</p>	<p>WEAKNESSES</p> <ul style="list-style-type: none"> • What are your countries weaknesses? • What do innovation leaders do better than you? • What can you improve given the current situation? • What do others perceive as your countries weaknesses? <p>The throw-away-mentality still prevails in society. Awareness for environmental issues, resource saving and eco-friendly behaviour are largely ignored when it comes to making personal concessions.</p> <p>The Austrian economy is characterised by a traditional business structure with a focus on the medium-tech and low-tech segment. The high-tech sector is smaller than in the countries that are innovation leaders. This weakness can only be resolved gradually, requiring well-trained human resources as well as sufficient research and innovation input. A stronger focus on STEM subjects in academia might facilitate growth of Austria's high-tech sector.</p> <p>The comparatively high drop-out rate among university students indicates limited motivation/ job perspectives; and insufficient match of education investments with actual market needs.</p> <p>Whereas Austria has a high R&D intensity (R&D expenditure as a share of GDP), the funding of basic research is less generous. The restrictive granting of university tenure has made university careers less attractive. Innovative ideas barely mature given the permanent need/pressure for grant application. Basic research funding has become very competitive, forcing even high-level scientists (PhD) to move to jobs unrelated to their expertise and talents. For the same reasons, (foreign) top-scientists are hard to attract, losing the opportunity to create dense and highly visible research networks between institutes and laboratories. The government should consider improving the conditions for university research, particularly in the STEM fields. Funding agencies focus on either "fundamental" or "applied" research. Funding programmes that request</p>

	<p>partners from both university and industry (e.g. “FFG Innovationscheck”) support knowledge transfer and should therefore be expanded.</p> <p>Companies and their employees bear a high tax burden on labour in the form of taxes and social security contributions. The tax wedge on labour is significantly above the EU average, hampering entrepreneurial activity in general. Alleviating the labour tax burden – general or for entrepreneurs and/or eco-innovators seems advisable.</p> <p>Venture capital funding is still in its infancy, thus limiting growth potential of young, innovative firms. Of the little venture capital being invested, a large share derives from the public sector. Whether recently initiated measures to stimulate private venture capital financing bear fruits will have to be seen.</p>
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External factors	
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<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> • What trends or conditions may positively impact your country? • What opportunities are available to your country? <p>A high R&D intensity (R&D expenditure as a share of GDP) and strong patenting activity are two important prerequisites for becoming an innovation leader. Austria is doing well with respect to both criteria and has reduced the gap to the leading countries.</p> <p>Austria has a strong human capital resource base (Austria is ranked 16th in the world by the most recent Global Competitiveness Report of the World Economic Forum with regards to “Higher Education and Training”).</p> <p>The generous research tax premium on R&D is beneficial for securing innovative business locations in Austria. It also makes Austria more attractive as a location for internationally active, research-intensive firms that are looking for locations for R&D activities (including off-shoring R&D to Austria). The research tax premium on R&D is not only helpful for making innovative activity more attractive for large firms, but also for SMEs and young firms.</p>	<p>THREATS</p> <ul style="list-style-type: none"> • What trends or conditions may negatively impact your country? • What are your competitors doing that may impact your country? • Does your country have solid financial support? <p>The lack of funding for basic research might hinder the development of radical innovation. A focus on innovative activities that are closer to the market are very useful for raising the probability that product and process innovations are marketable, but radical innovations require basic research. By resting on laurels or doing “business-as-usual” Austria risks/accepts to be outperformed by countries with stronger flexibility and awareness for hidden values (e.g. waste up-cycling).</p> <p>While investing comparatively strongly into R&D in general, Austria– unlike other countries- gives insufficient emphasis on eco-issues. (good innovation not paralleled by eco-innovation index values).</p> <p>The small business structure allows innovations in niches, but larger firms are needed for clusters, networks or hubs, i.e. as a nucleus and anchor for large-scale or larger-scale innovation activities. Large firms and a network of firms in a particular field can catalize innovation development, and</p>

<p>Exports of medium and high technology products as a share of total product exports are well-above the EU average. This shows that opportunities for dipping into foreign markets are used and offers opportunities for achieving (even more) global visibility.</p> <p>Austria belongs to leading countries in environmental technology, whose products and services also gain importance at the domestic market. During the last decade, investments through KLIEN – Klima- und Energiefonds, – have proven very effective in boosting e.g. e-mobility, e-storage, housing retrofitting, photovoltaics. Given the worldwide demand for the reduction of environmental pollutants and monitoring thereof, Austrian technology providers face a potentially large market.</p> <p>Austrians have a high demand for prefabricated houses. This has led to a number of innovations in this field. Low energy houses and passive houses can make an important contribution to the greenhouse emissions balance.</p>	<p>at the same time enhance visibility for attracting talented human resources and customers.</p> <p>Being an attractive location for large firms and multinationals is essential for becoming an innovation leader; the research tax premium is an important building block in this context. Attractive employment opportunities and conditions for high-skilled labour (especially for STEM graduates) is another important factor.</p> <p>The high taxation of labour is problematic for the creation and growth of innovative enterprises. It can cause or aggravate brain drain of researchers and entrepreneurial talents. It is also a burden with respect to being an attractive location for innovative multinationals.</p> <p>Young, innovative businesses are not finding the perfect “soil” for growth. The excessive taxation of labour is certainly an important obstacle, but further obstacles exist, e.g. the amount of venture capital funding is far below the EU average in Austria. As a result, the share of employment in fast-growing enterprises is far below the EU average.</p> <p>Austria has to make sure that its universities are able to provide first-class education (especially in the STEM field). This will probably require higher funding and measures for attracting qualified students and professor as well as ways to deliver more quality (maybe at the cost of accepting fewer, but truly talented students).</p>
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2. SWOT analysis: National business perspective

Internal factors	
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<p>STRENGTHS</p> <ul style="list-style-type: none"> • What are your identified strengths of companies operating on the national level? • What do you do better than others? • What unique capabilities and resources do you possess? • What do others perceive as your companies strengths? <p>There are numerous SMEs engaged in green technologies, each exploiting viable market niches (Branchenverzeichnis Umwelttechnik 2017). Provincial governments provide financial support, e.g. EcoBusinessPlan Vienna.</p> <p>As success strategy, companies engage strategic partners (prominent, well-connected, existent clientele). Companies with natural devotion to environmental protection, beyond the business model, reach and convince more customers (e.g. Kreisel Electrics GmbH covers its own energy demand through renewable energies).</p> <p>Innovative products made in Austria (unlike e.g. China) have high international reputation and are associated with quality, durability, good working conditions etc.</p> <p>Companies continuously scrutinize investment-intensive innovation development, meaning that the actually implemented innovations exhibit high potential for increasing the quality of life.</p>	<p>WEAKNESSES</p> <ul style="list-style-type: none"> • What are the weaknesses of companies operating on the national level? • What do innovation leaders do better than? • What can be improved given the current situation? • What do others perceive as your companies weaknesses? <p>Companies offering eco-innovative alternatives to existent products have to compete against well-established rivals. This weakness can be overcome, if established companies implement changes from within, i.e. move to green production.</p> <p>Especially large, established companies lacking a particular eco-affinity should open themselves for substantial internal change, as well as for spontaneous cooperative projects with universities. Both companies and universities should lay reservations aside, cut down on bureaucratic hurdles and adapt a “let’s just try”-mentality.</p> <p>Cashflow uncertainty hinders development and implementation of eco-innovative products/services.</p> <p>Start-ups are typically unexperienced with bureaucratic and legislative issues, but cannot afford experts for efficient resolution. Often, company leadership pursues the seemingly risk-free, traditional strategy (product portfolio) with known marketability, rather than starting production of something with vague market prospects.</p>

External factors	
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<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> • What trends or conditions may positively impact your national companies? • What opportunities are available to your national companies? <p>Companies can expect a growing clientele due to an overall “eco”-trend in society.</p> <p>Consumer behaviour can substantially affect environment protection initiatives and give incentives to providers of eco-innovative products and services. Reciprocally, consumers will prefer eco-products over conventional products if the latter are taxed more heavily.</p> <p>Climate change and the need for smart waste recycling offers new business models to flexible companies in diverse sectors (e.g. agriculture, tourism, biotech).</p> <p>Austria can expand exporting green technology, as the demand is potentially high.</p> <p>Companies that focus on providing systems solutions rather than on implementing business volume have the highest growth potential.</p> <p>Potential synergies can arise from the growing number of eco-companies, e.g. concerted marketing activities, shared material suppliers.</p> <p>With its high life quality of life and good working conditions Austria can attract scientists and educated staff from abroad (though this means brain drain for most other Danube region countries).</p>	<p>THREATS</p> <ul style="list-style-type: none"> • What trends or conditions may negatively impact your national companies? • What are your competitors doing that may impact your national companies? • Do you have solid financial support? <p>Due to high labour costs (especially risk-averse and/or financially limited) companies hesitate to employ more staff/ hire costly experts. Missing the critical time point for HR reinforcement can mean losing out in the global market.</p> <p>A major threat, loss of key staff, should be resolved through constant know-how transfer from internal experts to less-experienced staff. Attractive working conditions ensure staff loyalty.</p> <p>Start-ups lack solid financial support and have to establish a network of vital contacts/partners from scratch.</p> <p>Austria’s R&D infrastructure and human resources form a solid ground for the development of innovations. Innovative, fragile “siblings” (start-ups, emerging products, services) only thrive if carefully integrated into a growing innovation landscape.</p> <p>Concentrating efforts and investments in metropolitan areas (esp. Vienna) leaves other regions and potentially arising eco-companies behind; a threat to be encountered through decentralization and regional cluster formation.</p>