CLUSTRAT

Report on the national potential of [Austria]

EMERGING INDUSTRIES

- Active Aging
- Sustainable Development / Green Economy
- Sustainable / Intelligent Mobility

CROSS-CUTTING ISSUES

- Internationalization
- Technology & Knowledge Transfer
- Gender in Innovation, including diversity aspects

Date:	*[02.08.2013]*
Partner organisation:	*[PP02 Clusterland Upper Austria Ltd.]*
Contact Person:	*[Bernhard Schauer Bernhard.schauer@clusterland.at]*

Structure

1 Introduction (around 1 page)

Austria has nearly 8,5 Mio inhabitants (01-2013). In 2010 we had nearly 309.000 companies in the production and service sector (including industry, construction, trading and services), with ~2,7 Mio. employees, nearly 635 Bill € sales revenues were generated. When matching the results from the production with the service sector, we see that about 80% of the companies belong to the service sector. Measured by the gross value in 2010, ~40% came from the production sector and ~60% from the service sector.. The key industries are energy- & environment, automotive, plastics, ICT & infrastructure, health- & medical technology as well as the food sector. Austria's GDP per captita in 2012 was 36.430€, with an overall GDP of 307 Bill€ (2012). The total R&D expenditure in 2012 was 8,7 Bill€ (2,8% on GDP), 40,4% financed by public sector, 43,8% through companies and 15,2% by foreign companies. Nearly 16.000 trainees, mostly in technical oriented jobs, were trained from ~ 1.400 apprenticing companies. In the UNDP-report from 2013 on human development index Austria ranked on place 18 worldwide.

The first cluster was founded in 1991 in Styria, since then several cluster & network initiatives were founded in other federal states of Austria. Today there are 47 Cluster & network initiative in Austria's industrial strengths.

∑ 47	Branch	Country	Name
4	automotive	Lower Austria	e-mobil
	automotive	Upper Austria	Clusterland - Automobil Cluster
	automotive	Styria	AC Styria
	automotive	Vienna	rtca - rail technology cluster austria
3	design	Styria	CIS - Creative Industries Styria
	design	Vorarlberg	VAI - Vorarlberger Architektur Instiute
	design	Vorarlberg	werkraum Bregenzerwald
7	Energy & Environment	Lower Austria	ecoPLUS-bau.energie.umwelt cluster
	Energy & Environment	Upper Austria	Clusterland - Netzwerk Ressourcen & Energieeffizienz
	Energy & Environment	Upper Austria	Clusterland - Umwelttechnik Cluster
	Energy & Environment	Upper Austria	OEC - Ökoenergie Cluster
	Energy & Environment	Styria	ECO World Styria
	Energy & Environment	Vorarlberg	IG Passivhaus
	Energy & Environment	Vienna	E.C.E.X.A - Environmental Concepts Exchange Association-Austria
4	food	Lower Austria	ecoPLUS-lebensmittel cluster
	food	Upper Austria	WKO - Lebensmittel Cluster
	food	Styria	tech.for.taste.network
	food	Vienna	AAC - Austrian Agriculture Cluster
3	health	Upper Austria	Clusterland - Gesundheits Cluster
	health	Tyrol	Kompetznetzwerk Gesundheit Osttirol

	health	Vienna	LISA - Life Science Austria
2	human ressources	Upper Austria	Clusterland - Netzwerk Human Ressourcen
	human ressources	Styria	human.technology.styria
5	ICT	Burgenland	ict Burgenland
	ICT	Carinthia	SIC-Software Internet Cluster
	ICT	Upper Austria	Clusterland - IT-Cluster
	ICT	Salzburg	GIS - Geoinformation Cluster Salzburg
	ICT	Vienna	ATTC - Austrian Traffic Telematics Cluster
4	logistics	Lower Austria	ecoPLUS-logistik cluster
	logistics	Upper Austria	vnl - Verein Netzwerk Logistik
	logistics	Styria	vnl - Verein Netzwerk Logistik
	logistics	Vorarlberg	vnl - Verein Netzwerk Logistik
3	materials	Upper Austria	Netzwerk metall
	materials	Styria	Materials Cluster Styria
	materials	Vorarlberg	smart-textiles Plattform
4	mechatronics	Carinthia	Micro-Electronic-Cluster
	mechatronics	Lower Austria	ecoPLUS-mechatronik cluster
	mechatronics	Upper Austria	Clusterland - Mechatronik Cluster
	mechatronics	Tyrol	TechnoGate Tirol
4	plastics	Burgenland	Kunststoff-Cluster Burgenland
	plastics	Lower Austria	ecoPLUS-kunststoff cluster
	plastics	Upper Austria	Clusterland - Kunststoff Cluster
	plastics	Vorarlberg	[V] PACK - Verpackungsland Vorarlberg
4	wood/furniture	Upper Austria	Clusterland - Möbel-Holzbau Cluster
	wood/furniture	Salzburg	Holzcluster Salzburg
	wood/furniture	Styria	holzcluster Steiermark
	wood/furniture	Tyrol	pro:holz cluster

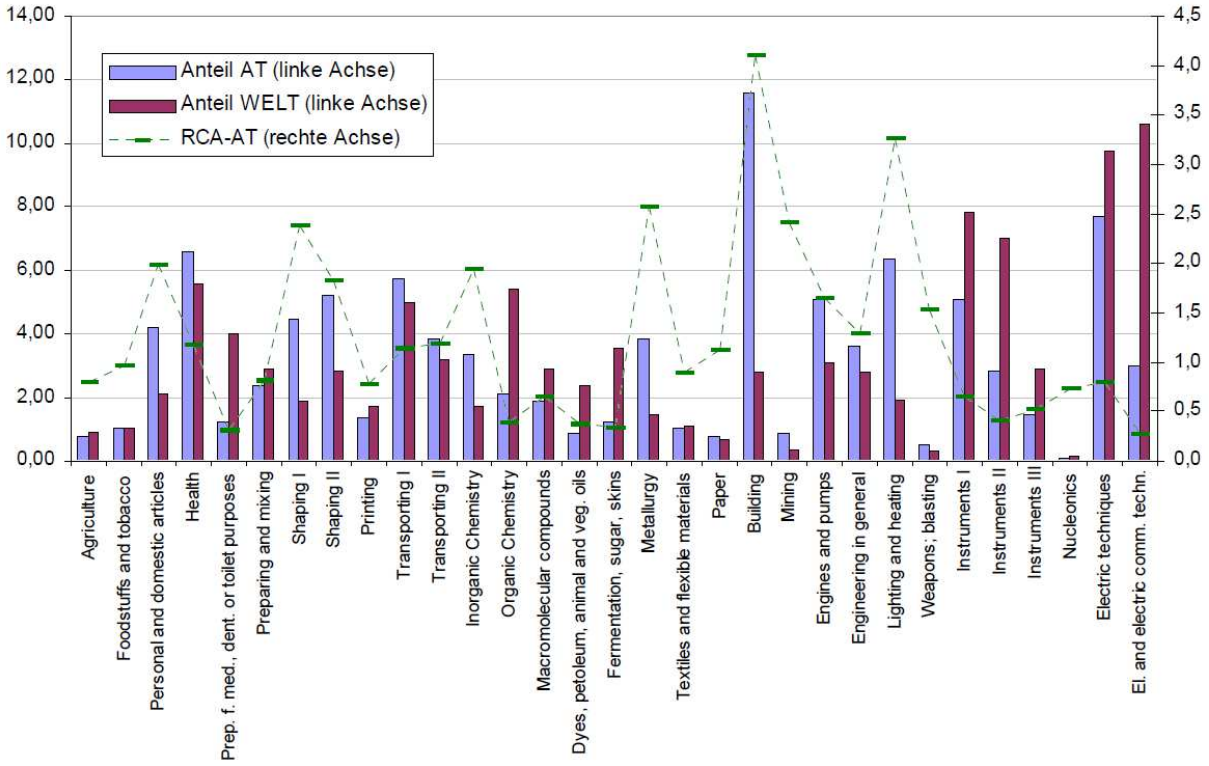
In Austria we have 12 scientific universities, 26 universities of applied science and 15 non-university research institutes. The Data on R&D spending and employment is shown on the table below:

Gross expenditures on R&D			
	2011	**2012**	**2013**
In total [Mio.EUR]	**8.187**	**8.708**	**8.962**
Financed by:			
Public sector	38,8%	40,4%	40,4%
Company sector	45,2%	43,8%	43,9%
Foreign companies	15,9%	15,2%	15,2%
Non-profit sector	0,6	0,5%	0,5%
Employees in R&D			
	2006	**2007**	**2009**
In Total (full time equivalent)	**49.377**	**53.252**	**56.438**
Higher education sector	25,7%	25,6%	26,7%
Company sector	69,1%	69,4%	67,9%
Innovation in the company sector			
	2004-06	**2006-08**	**2008-10**
Share of companies with product innovations	36%	31%	32%
Share of sales with product innovations	14%	11%	12%
Share of companies with process innovation	39%	32%	31%

Austrias patent applications in the years	**2010**	**2011**	**2012**
In Total [national patent applications]	3.560	3.242	3.263
Austrias share of EPO applications worldwide	0,9%	1%	0,9%

Austrias ranking worldwide	16	16	16

In the figure below Austria's technology profil from the European patent office is shown:



2 Emerging Industries (ca. 2-3 pages)

Active Ageing

There is currently no cluster in Austria that deals with topics of Active Ageing or closely related issues like Ambient Assisted Living. However, the Life Science Sector is very strong in Austria with 3 636 companies and 55 072 employees in Austria in 2009 according to Statistik Austria (not counting hospitals, doctors' offices and medical tourism). To build upon the strength of the Austrian Life Science Sector and further foster business activities connected to Life Science the Ministry of Economy founded in 2007 the umbrella brand "LISA" where the Austrian Life Science Clusters are partners: Medical Technology Cluster Upper Austria, Technopole/ecoplus Lower Austria, Human Technology Styria, Life Science Austria Vienna and the Life Science Cluster Tirol.

The topic of Ambient Assisted Living recently drew more attention both in the public discussion as well as the business community. The first major project started in 2010 in Linz where the region of Upper Austria, the City of Linz, the city's residential property company and BEKO Engineering and Informatik AG built 25 apartments with Ambient Assisted Living technologies. Ambient Assisted Living naturally involves actors from different sectors (e.g. architecture, engineering, IT, public authorities). In bringing those different actors together and coordinating cross-sectoral projects lies a business potential which can be used by cluster organizations.

Working at the intersection of public-private, connecting different sector and hence creating a potential for innovative solutions and new policy instruments addressing the aging of society was also a conclusion of a study "Health Ageing"[1] conducted by the Upper Austrian Medical Technology Cluster together with the think tank Academia Superior in 2012:

- The cooperation between public hospitals and private companies must be deepened to fully use the innovation potential from both sides. Clusters can serve as technology-transfer platform and facilitate projects between the two actors.

Further conclusions where clusters can serve as a facilitator were:

- The use of IT tools and systems in the medical sector has to be fostered (e-health)
- Telematic applications are getting more important with regard to Ambient Assisted Living and Active Aging

[1] http://www.gesundheits-cluster.at/files/Health_and_Ageing_-_Final.pdf

In conclusion, the greatest potential for clusters in the field of Active Aging lies in the cross-sectoral and cross-cutting nature of the challenge of an ageing society: Bringing actors from different sectors together and thus fostering cooperation.

Green Economy

The Austrian environmental technology industry is one of the most innovative in the world and is growing faster than the domestic economy. Building upon this strength, there are currently several clusters in Austria supporting SMEs in their innovation activities.

The employment growth was according to the latest figures from the "economic barometer Environmental Engineering, 2011" in 2010, up 5.3, the export rate 84.7 percent. The growth was well above the average for the entire manufacturing sector (net production value in 2010: plus 6.9 percent). Growth driver, as in other sectors, was the export of environmental technology. Currently there are about 200 000 people employed in the sector.

Austria's green economy is very broad, representing all major segments and has above average research intensity and a very high proportion of innovative companies (about 80%)

Supporting innovation in resource efficiency is a cross-cutting issue, as such which naturally affects different sectors (e.g. architecture, automotive, production technologies etc). However, there are two issues where potential for clusters are given:

A cross-sectoral and systemic approach to sparing use of natural resources is becoming increasingly important both nationally and internationally. Resources are scarce and expensive, the security of supply for some resources is already critical, and the negative environmental impacts of resource consumption are becoming increasingly clear. Resource efficiency, the use of innovative environmental technologies and eco-innovations are thus counted by many companies to the most important trends, technologies and future factors in the coming years and decades.

The potential for clusters in this sector lies in issues such as cradle-to-cradle design, resource efficiency or "urban mining" which is about reclaiming resources from products that have reached the end of their life cycle.

Sustainable/Intelligent Mobility

With end of the “oil era” in sight society has to radically adept to the changes and challenges ahead in the mobility sector. Radical technology change is needed and clusters can support their member companies to be ready for future challenges. In the automotive sector the transition from traditional engines to engines that use renewable energies poses a serious issue but also potential for car manufacturers. Hence, Clusterland Upper Austria is involved in a project that serves as a best practice in Austria: The Clean Motion Offensive (http://www.clean-motion.at/).

The Clean Motion Offensive (CMO) gives direction in the field of technological development for electric mobility in Upper Austria. CMO covers everything from developments in vehicle components, through the integration of these vehicles into the existing and future charging infrastructure, to their possible application models. Twelve Austrian companies have been cooperating in the project to help shape the future of mobility. The consortium tries to tackle the greatest challenges of electric vehicles, which are still cost and range but also availability of recharging facilities. The primary goal of the Clean Motion offensive, therefore, is to make electric mobility affordable and easy.

The CMO project serves as a best practice example for demand driven cluster potentials in the sector of sustainable mobility: Bringing different actors – from research facilities to companies as well as energy suppliers – together to tackle the upcoming challenges such as the shift to renewable fuels.

3 Cross-cutting Issues (ca. 2-3 pages)

Internationalization

The foreign trade is a very important factor for Austria's economy. From 1995 to 2012 Austria's export quote has increased rapidly from 34,8% up to 57,3% (EU27 ~44,7%). 68,1% of all produced goods in Austria were delivered to European countries and nearly 70,4% of imported goods came from European countries. Austria's most important trade partners in this case are Germany (exp:~37,%; imp:~30,6%), followed by Italy, Czech Republic and France.

Therefore Internationalization is a major factor to hold Austria's export economy rate, respectively to improve it constantly. Without improving internationalization activities nowadays, it will hardly be possible to be competitive in global economy as well as for future challenges.

The main cluster activities on internationalization for their members are, establishing and looking for international contacts, cooperation with other European regions, participation in EU-projects, attending soliciting journeys, technology presentations at potential following customers, and organizing business trips and factory tours.

The requirement to have an elaborated internationalization strategy is new to many cluster managers. The share of those having this done and implementing the IS is still low.

Beside our good export-partnerships, the new European acceding countries can be off great potential for Austria's economy – especially in south-east-Europe area.

Knowledge & Technology transfer

The global market for technology-transfer efforts is estimated with nearly 150Mill.€. Based on the decreasing half-life of knowledge, the importance of external commercialization of knowledge and technology transfer will increase. For supporting and coordinating knowledge & technology transfer in Austria different action can be found like technology transfer centres (one-stop-shops), technology parks, competence centers, non-university institutions with a strong focus on applied science, R&D funding programs with focus on company and science cooperation, and many more. Austria is a member in the enterprise Europe network (EEN), Europe's biggest technology and business service network.

Still a major problem is that there are many constraints in connection with knowledge & technology transfer in peoples mind. Knowledge and technology transfer only works through

cooperation. Therefore Clusters serve special activities to improve cooperation activities and confidence building between the clusters members (companies and research facilities). The most common ones are: organizing round table meetings involving companies interested in cooperation, regular specialized events, cooperation with R&D and educational institutions

Innovation & gender

Nearly 60% of Austria's enterprises, between 2008 and 2010, have either:

- launched new or measurable improved products
- implemented new or measurable improved processes in their company
- implemented organizational or marketing innovations

which focus on product or process innovations – so they can be called "innovation active".

32% of the companies had launched new or measurable improved products. These "product innovations" generated in 2010 nearly 12% of total turnover. 5,1% of these total turnovers were new products, 6,8% have been product innovations.

21% of the companies (two-thirds of product innovators) have launched market innovations and 7% even launched world debut innovations.

In 31% of the enterprises were process innovation implemented. To theses process innovations include methods for good-production or services, logistical procedures, delivery or distribution methods.

7 Mio € innovation expenditures represented 1,7% of total turnover. 69% of total innovation expenditure were for R&D activities, 19% for capital expenditure and material expenses.

51% of the "technology inventors" had cooperated with other companies or institutions.

The most common cluster activities to improve innovation in this field are: establishment of contacts between potential project partners, organizing round table meetings involving companies interested in cooperation, support during the grant application process, special cluster funding instruments and

Conclusions for pilot development

During the discussions in the policy dialogues as well as mentioned in interviews following pilot actions were identified:

Pilot action idea 1: meta/cross-clustering of existing European platforms / networks / communities with a similar thematic focus:

We want to connect our "light weight initiative", Austrian companies and research facilities in the field of light weight/smart materials, plastic, and mechatronics, with other existing communities in European countries.

Aim: is to interlink the "light weight communities" on European level, to improve a better know-how & technology transfer in Europe, followed by faster product innovations in this field through a stronger community.

Focused Partners: Germanys "light weight platform" as well as other communities in the field of "light weight" with participation interests.

Pilot action idea 2: corporate foreign exhibition visits with an opportunity for getting in contact with selected foreign specialists:

Our idea is to organize a b2b-matchmaking event during the world's leading trade faire for water, sewage, waste and raw materials management, to offer the possibility for direct company/research contacts. The offers and requests on competences, know-how or technologies of every participant will be collected and requests will be matched with available offers. And a company talk time schedule will be generated.

Aim: offer the possibility of an efficient partner search, matching the correct partners, offer b2b-talks

Focused Partner: other Clusters & networks with environmental & energy focus for planning, organizing, promoting and executing this activity