Interreg
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European Regional Development Fund
I-CON

Food sector related knowledge integration

Regional sector related knowledge diagnosis report

SUMMARY

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WHO WE ARE

Partners from seven central European countries join their forces to improve entrepreneurial competences and skills in remote areas through food innovation potentials, led by the Pomurje Technology Park (Slovenia).

Slovenia

- Pomurje Technology Park
- Chamber of Agricultural and Food Enterprises

Austria

- Business Upper Austria

Hungary

- Campden BRI Hungary Ltd
- South Transdanubian Regional Innovation Agency

Italy

- CNA National Confederation of Crafts and Small and Medium Sized businesses - Regional Association of Emilia Romagna
- Industry Association Service & Training of Treviso and Pordenone

Germany

- University of Hohenheim

Poland

- Polish Chamber of Food Industry and Packaging

Slovakia

- Slovak Chamber of Commerce and Industry

Who funds us

Our project is funded by the Interreg CENTRAL EUROPE Programme that encourages cooperation on shared challenges in central Europe.

With 246 million Euro of funding from the European Regional Development Fund, the programme supports institutions to work together beyond borders to improve cities and regions in Austria, Croatia, Czech Republic, Germany, Hungary, Italy, Poland, Slovakia and Slovenia.

INTRODUCTION

According to the FoodDrinkEurope statistics the food and drink industry is a major contributor to Europe's economy and is way ahead of other manufacturing sectors. The industry maintains the characteristics of a stable and resilient sector. Therefore bringing innovations in this sector is of major necessity and brings many advantages. The EU food and drink industry generated a turnover of €1,089 billion (2014) and a value added of €212 billion (2013). Other big advantage of this sector is that it offers a wide variety of food and drink products to all consumers. In this article we merged all regional sector related knowledge diagnosis so we can see how similar countries all positioned in Central Europe have different advantages that we can all learn from.

Slovenia, Hungary, Poland and Slovakia are all facing declining employment opportunities in traditional industries as a result of structural change. This emphasis the need to take steps to stimulate economic activity with employment generating potential in regions that are facing difficulties in maintaining a critical mass of facilities to support economic development.

Analysis shows that the food sector together with other value-chain related sectors represent one of the most important, potential fields to leverage improvement of socio-economic situation in remote areas.

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REGIONAL SECTOR RELATED KNOWLEDGE DIAGNOSIS REPORT

The Agrifood System of Emilia-Romagna Region

Strategies and Schemes

Emilia-Romagna represents one of the best examples in Europe of industrial districts development and its peculiar industrial organization has led to the definition of the 'Emilian model' (Brusco, 1982). In the economic literature the key features of this model are the following: (i) a variety of players (SMEs, organized in industrial districts and cooperatives); (ii) a socially inclusive environment; (iii) local institutions which are aware of business needs.

Evidence of this evolution of the Emilian model is e.g. the increasing relations between regional universities and the business sector.

Firms' increasing awareness towards innovation and their growing interaction with the academic system, is one of the main features of Emilia-Romagna. However, there is a highly unexpressed innovation potential in its industrial base.

The Emilia-Romagna Regional Operational Programme is the planning document defining the strategy and operations of use of Community funds allocated to the Region by the European Regional Development Fund (ERDF). Job creation, competitiveness among enterprises and economic growth are just some of the targets set by the Europe 2020 strategy. For the 2014-2020 period, nearly one third of the EU budget (352 billion €) is implemented through three main funds, which constitute the EU Structural & Investment Funds. Programming periods have a duration of seven years. he 2014-2020 ERDF Operational Programme contributes to implement **the Regional strategy for smart specialization of Emilia-Romagna**. Research and innovation structurally connect businesses and the regional production system with the human capital and the extensive knowledge system.

2014 2020 European Regional Development Fund

Food Sector Trends

Emilia-Romagna is a leading region in Europe in terms of entrepreneurship, innovation and economic dynamism. Regional GDP per capita is one of the highest in Italy and well above the EU average. In Emilia-Romagna the business sector is largely based on SMEs. There are **over 420,000 active enterprises**, with an average size of approximately 4 employees and 90% of companies have fewer than 10 employees. Emilia Romagna is among the 10 main European Regions for numbers of workers and firm devoted to the Food and Drinking Industry.

The bio-industry also extends in Emilia Romagna, supported by some of the Regional Gov. initiatives. The area is the fifth largest in Italy concerning the number of organic farms, sales of organic food generated +19% of turnover in the first four months of 2016.

The industry specializing in the processing of products plays a considerable role in agro-food but the cluster also involves other important sectors such as agricultural machinery, one of the region’s best performing industries as well as food packaging.

In 2014 exports from the agro-food value-chain in the region amounted to around 6.6 billion Euros, 17.1% of the national total. The various agro-food sectors represent 12.5% of total exports from Emilia-Romagna. The main feature is represented by agricultural and food products of class PDO (protected designation of origin), PGI (protected geographical indication) and TSG (traditional speciality guaranteed). These "quality products" are an asset for the economic development of Emilia-Romagna.

6.6

Billion Euros

17.1% national total

Innovation Support Ecosystem

In Emilia Romagna, many actors are engaged in supporting players on the field of food innovation and mechatronics and design. Thus clusters, research centers and technological parks can be found. Leading factors for this are:

- Internationally famous high quality brands
- Export figures of 6.6 billion Euros in 2014 with an increase of 25% with respect to the 2008 values. - Laboratories and regional research centres which are organized in a thematic Agro-food Platform
- The Regional Rural Development programme supports agriculture and provided finance of 1.2 billion Euros in the period from 2007-2014
- The EFSA, the European Food Safety Authority, has its headquarters in Parma

MIUR - through Directorial Decree No. 257/Ric of 30 May 2012 -has promoted the creation and development of **National Technology Clusters** to generate permanent dialogue platforms between public-private aggregations and companies in line with the priorities set out by the European Research Framework Programme "Horizon 2020." Now they represent intermediary infrastructures for encouraging cooperation between public-private research in innovation and technology development.

At present the regional strategy for innovation is developed around two dimensions: development of the High Technology Network and stimulation of demand for innovation. These two dimensions are integrated by some measures addressing the upgrading of the regional industrial system and other actions addressing human capital development, innovation awareness and mentoring, etc.

One of the greatest achievements of regional policy in Emilia-Romagna is that, thanks to the High Technology Network, the competencies of the research system are now clustered in thematic areas and the research system is much more visible and easier to contact for firms interested in developing new technologies.

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REGIONAL SECTOR RELATED KNOWLEDGE DIAGNOSIS REPORT

South Transdanubia (Hungary)

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Strategies and Schemes

South Transdanubia belongs to the less developed, modest innovator regions of Hungary. The main characteristics of the economy of the region are (i) relatively low share of manufacturing industries, (ii) low amounts and share of foreign direct investments, and (iii) small number of innovative enterprises.

The smart specialization strategy was developed and is implemented at the national and the county levels, no regional specialization strategies are approved and available.

Out of the six sectoral priorities defined in the National Smart Specialisation Strategy of Hungary as important for all counties, two are directly related to food sector innovations:

(i) Advanced technologies in the vehicle and other machine industries: covering several segments of the machine industry R+D+I targeting (amongst others) agricultural and food processing machinery;

(ii) Healthy local food: aiming at sustainable production and consumption with special regards to food-safety (shortening the food-chain, preserving biological value, developing local brands) with focus of R+D+I on producing high quality food with high added value, food for healthy diet, Hungarian specialities.

The calls for EU co-financed grant options for food industrial SMEs are published by three ministries: Deputy State Secretariat for Agricultural and Rural Development of the Ministry of Agriculture, Hungarian Prime Minister's Office and Ministry of National Economy. Innovation related calls – both from national and international funds – are announced and managed by the National Research, Development and Innovation Office. The "combined facilities (grant combined with loan)" and repayable grants are managed by the Hungarian Development Bank.

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Food Sector Trends

In the rank of NUTS2 regions of Hungary regarding the GDP per capita, South Transdanubia is the 5th among the 7 regions. The total food and beverage import of Hungary was 3.5 billion EUR in 2013 and 3.6 billion EUR in 2014. The exports of food industrial products were some 6.0 billion EUR both in 2013 and 2014. The food and beverage industry is traditionally one of the most important sectors of the Hungarian economy. In the South Transdanubian region, 18% of the staff of the manufacturing industrial companies is employed in the food and beverage industry (both in 2014 and 2015). However, the food industry here is considered weak because the majority of companies use out-of-date technologies and produce less processed products. The biggest challenge in the region is to find properly qualified skilled workers, and sometimes even non-skilled workers. The reason for this is the inappropriate education system and its quality, and also the skills of pupils should be improved. The larger enterprises are working in the dairy, fruit juice processing, meat and wine industries. The number of production enterprises in the bakery and farinaceous product manufacturing segment (239 in 2015) is the highest driven by the increasing domestic demand for specialties. The number of meat processing companies is increasing again and also remained competitive also on the international markets, due to the global trend of increased meat consumption.

Companies active in the Hungarian dairy industry have to face higher quality production standards and strong competition since the accession of the country into the EU in 2004, which was coupled with a significant decrease in the consumption of milk and milk products.

South Transdanubia is a region with long wine making history and traditions. The largest number of beverage manufacturing companies in the region operate in the wine making sector. In the past few years, the Hungarian wine industry registered a decrease in the area with vineyards and also in the production volumes due to the strong competition from imported products.

In order to increase the competitiveness and the export of domestic food and beverage products, including wine, the Hungarian government opened 14 trading houses in 2014, mainly in the countries from Southeast Asia, North Africa and CIS. Another task of the Hungarian Investment and Trade Agency is to adopt measures for the promotion of Hungarian wine sales in foreign retail chains.

Innovation Support Ecosystem

South Transdanubia is a modest innovator region of Hungary where innovation is financed with a high share of the central budget. There was a substantial amount of EU co-funded support provided to innovation (77,7 M EUR) allocated to more than 350 beneficiaries of RTDI related funding in the programming period 2007-2013), but the outcome of this support was below expectations.

A significant challenge in innovation within South Transdanubia is the small number of large innovation-intensive foreign-owned enterprises operating here. Among the major innovation stakeholders of the South Transdanubian region there are the two universities, the University of Pécs (specialised in medical sciences and health industry, ICT and environmental sciences) and the University of Kaposvár (specialised in agricultural and food sciences) and several regional knowledge clusters (e.g. South West Hungarian Engineering Cluster, South Transdanubian Regional Food Innovation Cluster).

The key players also include university affiliated research centres, e.g. Medipolisz, the Biosciences Centre (Szentágothai János Research Centre), the Environmental Sciences Centre, the Information Technology Centre, or the Research Institute for Viticulture and Wine Making, and the South Transdanubian Regional Food Science Competence Centre.

South Transdanubia

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REGIONAL SECTOR RELATED KNOWLEDGE DIAGNOSIS REPORT

Poland

PL

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Strategies and Schemes

In Poland, most attractive source of financing ideas is European funds. At present there are 6 operational programs:

- Infrastructure and Environment
- Intelligent Development
- Digital Poland
- Technical Support
- Eastern Poland
- Knowledge Education Development

In the SME sector, the vast majority of calls for proposals are announced in the programs "Intelligent Development" and "Knowledge Education Development". Additionally, each province has a Regional Operational Program. Transnational programs like Horizon 2020 and Interreg are also part of the strategy in Poland.

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Food Sector Trends

Key to the development of the agri-food sector in Poland was the accession to the EU. In 2013, sold production of the sector accounted for 13.2 % of Polish GDP. Poland is the largest agri-food producer in Central and Eastern Europe and 7th in whole Europe. The sector was recognized by the Polish government as a priority for the Polish economy.

Among the largest companies in the agri-food sector in terms of value of sold production, three groups of companies may be clearly distinguished. These are producers of meat and meat products, representatives of the dairy industry and producers of spirits.

The labour productivity in the food processing sector is increasing rapidly and the sector is developing dynamically. In the last 15 years, an aligned and relatively high rate of growth in the value of sold production expressed in current prices, averaging 6.6 % per year, was observed. The most developed branch of the agri-food sector is the meat industry, accounting for 28 % of the value of sales, followed by the dairy industry (15 %) and beverage industry (10 %).

Currently, Poland is leader in the EU in the production of apples, triticale and black currant. Poland is the biggest exporter of apples in the EU and its blackcurrant production accounts for 50 % of the world production. Poland ranks second in the EU in terms of production of rye, champignons, potatoes and blueberries. Besides this, Poland also contributes to the food production in the EU with a huge variety of other raw products.

The income by agri-food exports in 2015 was estimated to reach a value of approx. 22.5 billion €, import expenditures were estimated to remain at approx. 15.0 billion €. The most important recipient of Polish agri-food products has been Germany for many years. In 2014, Germany's share in the Polish agri-food export amounted 22.7 %. The top-sold food products included fish and fish products (mainly smoked fish), meat and giblets (mainly poultry), bread, pastry and biscuits, canola seeds, tobacco products, fruit juices (mainly apple), milk and sour cream, as well as chocolate and chocolate products and frozen fruits (mainly strawberries and raspberries).

The most important agri-food product suppliers for Poland are especially EU-15 states. Imported products also originated mainly from Germany, just like exported products. Pork, chocolate and chocolate products, animal fodder, bakery products, biscuits and waffles, pork livestock, cheese, coffee and sugar syrups are the main imported food products from Germany.

PL

Innovation Support Ecosystem

The Innovation Support Ecosystem in Poland is mainly divided by the type of the organization, i.e. clusters, research centers, technology parks, etc. together with their offers.

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REGIONAL SECTOR RELATED KNOWLEDGE DIAGNOSIS REPORT

Slovak Republic SCCI

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Strategies and Schemes

The food industry in Slovakia has a long tradition, but is also not competitive in many production sectors. This is because often the raw materials for domestic production are more expensive than they are able to get from selling the finished product in domestic and international markets.

Slovakia permanently lags behind in innovation activities and transfer of technologies. There is also still a low level of cooperation between institutions of research and industry representatives.

As a member of the European Union, Slovakia has to develop a coherent research and innovation strategy for Smart Specialization for Multiannual Financial Framework 2014-2020. The vision of this strategy will be accomplished through four strategic objectives:

- Deepen the integration and development of key major industries will increase local value
- Increased research contribution to the economic growth via global and local excellence
- Creating a dynamic, open and inclusive innovative society to increase the standard of living
- Improving the quality of human resources for an innovative Slovakia

The Ministry of Agriculture and Rural Development cooperates with other institutions to strengthen the competitiveness of the Slovak food industry on the domestic market and to increase the export.

Strategic goals are to increase the efficiency and productivity of the food industry, as well as the importance of the food industry in employment and rural development.

Increase standard living

Food Sector Trends

The food industry is seen as a strategic industry which ensures food sovereignty and independence of Slovakia, while respecting the requirements for environmental protection and principles of sustainable development.

There is a high competition in this sector. Thus, it is important to be efficient, stay up-to-date with nutritional trends and consumer taste. It is important for food manufacturers to understand the opportunities and challenges.

The 2008 economic crisis has had significant impacts on consumer purchasing power. In addition, changes in household composition, more singles, trend towards an ageing population, increased interest in new health issues (food intolerances, allergies, food-related diseases, overweight and obesity) and increased environmental awareness have had an impact on the grocery retail market in Europe and also in Slovakia, with the growth of specific product categories (fresh products, organic food, vegan and raw food, gluten-free products, etc.).

Opportunities for Slovak producers to compete their competitors are:

- developing healthier options of food products,
- updating new packaging designs,
- including more detailed and specific labelling,
- exploring vegan and/or vegetarian product innovations.

Innovation Support Ecosystem

The Food Cluster with its seat in Nitra, was established on the 25th of April 2014. It is an important ecosystem for innovation support. Founding members are: Association of Trade and Tourism in Slovakia, Food Chamber of Slovakia, Slovak University of Agriculture, Slovak Nutrition Institute and other subjects from the same sector. The Food Cluster has to represent interests of members and support cooperation between producers and trade organisations. Additionally, the Cluster has to support members, provide PR, communication, education and consulting services, as well as design, innovation and financial services.

Objectives of Food Cluster:

- to increase consumption of domestic products,
- to increase the share of domestic products,
- to make new job positions and increase purchasing power,
- opportunity to solve problems in logistic of small suppliers,
- to improve competitiveness of members and their capability to export and innovate,
- impact on landscape and environment,
- traceability - consistent electronic identification of products

Besides the Cluster, the company Al maps is helpful in regards of innovation. They developed intelligent map applications to enhance customer data by spatial dimension and visualize them using interactive forms. Drones with advanced sensors and imaging capabilities are giving farmers and winegrowers new ways to increase yield and reduce crop damage.

Another important factor is Grant Tesco 2016, which was launched by Foundation Tesco to support farmers and small food producers e.g. through educational activities. Other aims of the grant are to expand employment and help with marketing and business strategies. Target groups are farmers and small food producers.

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REGIONAL SECTOR RELATED KNOWLEDGE DIAGNOSIS REPORT

Slovenia

SI

SI

Strategies and Schemes

The common denominator of Slovenia is the “I feel Slovenia” brand, which summarizes the vision, mission, values, personality, benefits and research advantages of Slovenia. Strategic objectives in Slovenia for the innovation strategy for Smart Specialization for Multiannual Financial Framework are:

- To develop and position Slovenia as an attractive ecological country of innovation, focused on the development of medium- and high-tech and comprehensive solutions in clearly and strategically defined niche areas where Slovenia has capacities and competences to compete on the global market.
- To establish state of the art, responsive, dynamic, strategically-guided, inclusive and globally connected research, innovative and entrepreneurial eco-system.

Pillars of Slovene S3:

- pillar refers to the entrepreneurial and innovation ecosystem which should be horizontal, whereas its mission is to generate and promote new ideas to be developed through an entrepreneurial initiative by thus ensuring entrepreneurial growth and development.

- pillar refers to value chains and networks where niche products and services are being identified and where critical mass is created for the global breakthrough on the basis of connecting excellent competences and potentials, which engages various stakeholders, disciplines and areas in the global context.
- The main focus for the Smart Specialization strategy are:
- Knowledge transfer and application
- Entrepreneurship, creativity and talent
- Internationalization

The main funds to enable all the before mentioned aims are EU structural funds and investment funds. They are available through the Ministry of Economic Development and Technology and between 2014 -2020 they amount 885 000 000 €.

2014 EU structural funds and investment funds 2020

SI

Food Sector Trends

In 2014, 1971 food production enterprises with revenues of 1.9 billion € and almost 13.000 employed workers were present in Slovenia. In the SME environment, the highest number of food and drinks production enterprises is in the micro enterprise segment. However, medium enterprises in both categories employ the most workers and generate the highest value of revenues.

The production of food in Slovenia is continuously increasing, while the production of drinks is continually decreasing.

When it comes to the food sector Slovenia does not demonstrate overall comparative advantages, however, certain segments demonstrate a positive trend which shows that there is potential in this area. “Manufacture of dairy products” (C10.5) demonstrates revealed comparative advantages, while “Manufacture of other food products” (C10.8) and “Manufacture of prepared animal feeds” (C10.9) record positive growth in value added per employee and exports during the period 2008-2012.

SI

Innovation Support Ecosystem

Figure 1: Programme structure of Pillar I

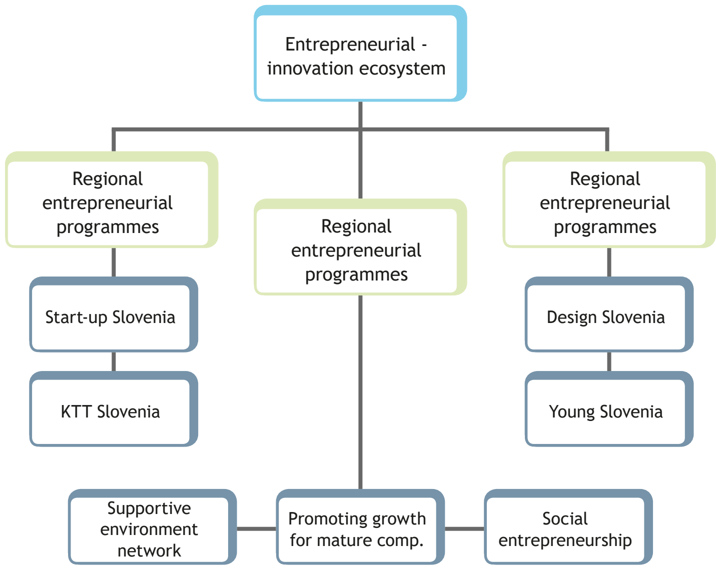

Figure 1 summarizes the innovation support ecosystem in Slovenia. An Innovation ecosystem is given and regional entrepreneurial programmes are ensured by Pillar I. In promoting entrepreneurship at the regional level, the function of supportive (entrepreneurial and innovative) environment is to grant adequate support to entrepreneurs, the existing and future ones, from the registration of a company to later phases.

The main value added of the supportive environment network is the provision of regional coverage for:

- Promotion of entrepreneurship (adjusted according to a target group and the potential of the area),
- Development and management of the entrepreneurial infrastructure,
- Provision of information to entrepreneurs and
- Basic entrepreneurial consultancy.

There are 3 ministries, directly involved in innovation supporting system in Slovenia: Ministry of Economic Development and Technology with The Slovenian Intellectual Property Office (SIPO) taking part of it, Ministry of Agriculture and the Environment and Ministry of Education, Science, Culture and Sport. Beside ministries, innovation policy mediators are being identified, like regional institutions (Technology Park Pomurje, Regional Development Agency of the Ljubljana Urban region), Slovenian universities (University of Ljubljana (UL), University of Maribor (UM) and University of Primorska (UP)).

In Slovenia there are also some other research centres and institutes, taking part in the innovation supporting system (Emona RCP, Nutrition Research & Development Department, Institut "Jožef Stefan" and National Institute of Biology). For the purpose of innovation supporting environment analysis, industry organizations are considered as innovation-supporting mediators (CCIS-Chamber of Agricultural and Food Enterprises).

A main weakness of the innovation supporting system is that there are unsuitable researchers' profiles coming from educational institutions from the point of view of the food sector. Lack of coordination within the system as well as lack of information about possible collaboration and joint activities, seem to be the two main weaknesses. This prevents the system to take opportunities like development in the innovation area being run jointly with other industry sectors. Another important weakness of the system is the lack of knowledge transfer from knowledge centres to the food sector.

CONCLUSION

According to FoodDrinkEurope main drivers of innovation can be divided into 15 trends, grouped along five axes, corresponding to general consumer expectations: pleasure, health, physical, convenience and ethics. Pleasure is still by far the leading axis. Leaders in innovation in 2015 are ready-made meals, dairy in the second place and soft drinks in third.

The main goal of project I-CON is to design and implement a sustainable transnational action plan to generate competitive advantages for SMEs and proactive hints for intermediaries and institutional representative levels. Five regions represented in this document (Italy, Hungary, Poland, Slovakia and Slovenia) will bring knowledge and collaboration to improve entrepreneurial competences and skills in remote areas through food innovation potentials.

This document outputs knowledge of each sector and presents first steps towards creating joint transnational food mentor scheme and food crowd design platform usability.

TAKING
COOPERATION
FORWARD

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About the authors

The I-CON project partnership was made upon knowledge and experiences from past and current initiatives dealing with innovation and cross-sector topics, with emphasis on food sector. Special thanks to the staff members of the partner organizations.

Pomurje TECHNOLOGY PARK

Gospodarska zbornica Slovenije
Zbornica kmetijskih in živilskih podjetij

business upper austria

Campden BRI
food and drink innovation

South Transdanubian RIA

CNA Emilia Romagna

UNIS&F
UNINDUSTRIA SERVIZI & FORMAZIONE TREVISO E PORDENONE

KIG PSiO

UNIVERSITY OF HOHENHEIM

Slovak Chamber of Commerce and Industry