The assessment of industry growth potential

Smart Specialization Strategy. Export value benchmarking. RIS3 Slovenia case analysis.

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Introduction

Smart Specialization Strategy is on the policy agenda for 4 years. However, EU regions have yet to translate theoretical model of Smart Specialization into "acts of will". Transition from theoretical model into strategies and action plans requires new approaches and methods.

Selection of the priorities is one of the key issues in formulation of region's Smart Specialization Strategy. Understanding a growth potential of different sectors of economy leads to more effective discussion between stakeholders and better decisions of policy makers. The evidence of a growth potential can be found in comparison of export volume and value of the country in question and other, more developed countries. Company FIDEA has developed methodology for assessing growth potential based on export value benchmarking. The approach recommended and used by FIDEA provides solid base for decision making and provides base for more effective discussion with the stakeholders about priority choices, industry necessities and policy instruments.

This document has two parts. The first part is a background of Smart Specialization Strategy and the description of export value benchmarking methodology. Second part contains Slovenia export data analysis, based on described methodology. The export data from years 2010-2013 for Slovenia and reference countries are used for the analysis and benchmarking.

Smart Specialization Strategy

"In a nutshell, a smart specialization strategy is an economic transformation agenda based on:

- *choices,*
- *competitive advantages,*
- *critical mass,*
- *collaborative leadership,*
- *connectivity,*
- *common sense*

in order to focus the regions' development on their most specific assets". (EURADA, 2011)

Smart Specialization Strategy or RIS3 is an economic transformation strategy towards new growth models. The concept of RIS3 is still broadly defined, relatively new and still evolving. As EURADA puts it "*RIS3 is developed by academics, but translated into "act of will" it will be by regional stakeholders*. (EURADA, 2011).

Smart Specialization Strategy requires focusing public resources on few selected areas where significant results can be achieved. Selection should be based on existing assets and regional competitive advantages or in areas where such advantages can be built (Foray, Smart Specialisation and the new industrial policy agenda (presentation), 2013).

Smart Specialization Strategy most important result will be resource allocation process, not intentions or proposals that go into strategy. Resources in question are of public origin. So Smart Specialization Strategy creates several important challenges for policy makers to deal with. In this documents we will analyze these:

- Effective involvement of stakeholders and ensuring cooperative environment
- Guiding competitive bidding into evidence based discussion
- Incorporating entrepreneurial discovery into strategy formulation, adjustment and assessment

Evidence based selection of specialization areas is a critical item in the set of tools that is used in dealing with above mentioned challenges.

Strategy mix and context

Every strategy when implemented is a mix of deliberate, emergent and unrealized strategies. Strategy is formulated in a given context. Stability and foreseeability of the context sets in what proportion strategy will be composed by its deliberate and emergent parts. The emergent part of RIS3 strategy can exceed the deliberate part, because RIS3 is all about enabling, supporting and promoting innovation. As one of the creators of the concept, Dominique Foray puts it "Smart specialization is experimental by nature" (Foray, Smart Specialisation and the new industrial policy agenda (presentation), 2013)

As Mintzberg and Waters put it in other words *"Emergent strategy itself implies learning what works – taking one action at a time in a search for that viable pattern of consistency…Openness to emergent strategy enables management to act before everything is fully understood-to respond to an evolving reality rather than having focus on stable fantasy"*. (Mintzberg & Waters, 1985)

Latvia in its initial offering chose to build capacities in order to deal with broadly identified future challenges instead of guessing the future challenges in every detail and dealing with them now.

Evolving reality and changing context limits our possibilities to forecast future and rely on the deliberate strategy. If history is a good guide, we are limited to understand and forecast the future with a high degree of reliability.

Thus Smart Specialization Strategy can be described by large as a pattern of consistent and *Smart* decisions in choosing emergent *Specialization Strategy* using reliable information and effective participation of stakeholders. Deliberate specialization and related decisions then can be made only at such extent where external and internal context is expected to be stable over timeframe exceeding timeframe of impact of decisions.

For example, Latvia in its initial offering of RIS3 chose to focus on building innovation capacity in selected fields (still relatively broad) and select/verify/reassess industrial/technological challenges during implementation as a part of the emergent strategy.

Country size and export led growth

For small countries, export is the most important source of sustainable growth. The smaller the country the more important is export data as a source of information on potential of the development.

Small countries have small home markets, thus export share usually is bigger for smaller countries if all other variables are kept constant. Companies in small countries have to specialize globally in order to be competitive and get reasonable return on investment. From business perspective small country economies become more specialized than larger ones.

Specialization in return leads to higher share of international trade in the gross product.

Entrepreneurial discovery

Smart Specialization Strategy concept offers a powerful tool – integration of entrepreneurial discovery as a part of strategy formulation and implementation process.

By entrepreneurial activity, we understand that entrepreneurs are scanning the environment with the aim to find new product or service opportunities.

Entrepreneurial discovery is not a product of Smart Specialization Strategy or something started recently. Entrepreneurial discovery is a part of every entrepreneurial activity since the first entrepreneur was born. Entrepreneurial discovery as a part of public policy formulation and implementation is new way of thinking, introduced by authors of RIS3 concept.

Usage of the concept of entrepreneurial discovery allows policy makers to overcome information asymmetry between government and industry in regards of innovation.

Usage of entrepreneurial discovery recognizes innovation as an entrepreneurial activity and recognizes opportunity as a driving force of innovation.

Government has to work in two directions. First - focusing on few priorities based on existing assets and capacities by providing leadership. Second - implementing a system, which incorporates entrepreneurial discovery as a way of identification, verification and adjustment of priorities and policies providing strong engagement of stakeholders[1].

Effective involvement of stakeholders and ensuring cooperative environment

"As with any strategy rooted in a territory, success will self-evidently only come provided that all stakeholders agree a vision for the regional future and manage to pool their resources and know-how. " (EURADA, 2011)

Successful Smart Specialization Strategy is a "positive sum game" for region as a whole. In long and medium term such strategy should provide economic gains for every stakeholder. However, in short-term the beneficiaries of public funds perceives it as a "zero sum game", especially those who are heavily dependent on such public funding.

The cooperative attitude of stakeholders are important to ensure success. Conflicting perceptions create a particular problem for successful stakeholders' engagement in formulation and implementation of the strategy. Perception of a "zero sum game" is a source of competitive attitude instead of cooperative one.

Competitive attitude leads to competitive bidding from the industries or associations about their industry future prospects.

There is a limited set of options for small countries on how to deal with this problem: a) adjusting narrowness of selection, b) providing support for migration for the ones negatively affected by prioritization, c) trust building by using hard data when selecting priorities that can be easily verified by stakeholders. These options are interrelated.

[1] Engagement and enterpeneurial discovery creates risks for an "agency problem". Agency problem is a persistent challenge in every case of government support to business activity. However, increased and expected influence to policy desicions by businesses can be a source of ever increasing risks of agency problem.

Most importantly, the result of RIS3 is the public resource allocation to increase the productivity and returns on the resources. Sometimes it may be necessary to reallocate public funding from previous domains thus such relocation in turn requires reallocation of activities of stakeholders. For example, researchers, which depend directly or indirectly on public funding, have to reallocate their efforts or change institution in case if their field of research loses funding. In small countries, like Slovenia, due to its limited size there are few possibilities and higher costs of relocation to the regions where priorities are different[2]. For the citizens of a small country changing of the region also means changing the country, cultural and, very often, linguistic environment. Hence, we can expect discussion about priorities to be difficult.

Globalization

Structural effects of globalization should be taken into account when institutional analysis is done based on Triple-Helix model that focuses on local or regional development (Leydesdorff, 2012)

Competition in a high-tech industries differs from linear model. If the firms act in coordinated way when engaging simultaneously in mutually cooperative and competitive relationships they create positive sum environment (Carayannis, 1999).

Knowledge based, high-tech service sector is versatile and not geographically constrained. Such service sector tends to uncouple from geographical location. Line between service sector and production is not clear anymore as well, as more and more industries use off-the-shelf components, produced by mass producers in China only adding software, casing and marketing in order to create new product.

Value chains in non-service sectors spans the borders of nations as well, so do the knowledge and the business. Most industries and fields of science require cooperation and coordination of firm's activities across borders.

Knowledge already is global, specially the one that is coded. Global annihilation of costs for storage, retrieval and transfer of information have created situation where region of utilization of the coded knowledge in new products, services and applications is completely independent from the region of origination, except in situations where creator of knowledge and developer of product is the same entity[3].

People are much less mobile and more coupled to the geographical location.

2 The question is still open on whether particular sector or theme always benefits from attention or help from state, however, at the time of selection of specialization themes the stakeholders are especially sensitive to the choices and arguments made by the policy makers.

[3] However, this special case where originator and consumer of knowledge is the same entity is field of organization management. It's not a domain of public policy.

Knowledge is transferred between individuals like other forms of assets (money, capital, machinery), however knowledge transfer does not change the ownership. As (Carayannis, 1999) put it *"…unlike money and land, knowledge, once transferred, is held by both the donor and the recipient. Hence, knowledge is not transferred in a formal, linear sense; it is shared and also transformed while being transferred, becoming more valuable through incorporating the lessons learned during, after, and possibly even in anticipation of the knowledge transfer process."*

Knowledge transfer thus creates gains in both sides – recipient and donor, or firm and university. Such mutual learning process provides rationale for stimulating university – business cooperation and knowledge sharing as priority, without limiting it to the region or state boundaries. Hence, regional industry potential is limited to be effective recipient of knowledge generated by university. University must seek partners outside the region and engage in knowledge sharing activity. Regional benefit from such activity will be human capital and tacit knowledge brought from outside as a result of the knowledge transfer.

The knowledge transfer in both directions uncoupled from geographical region multiplies knowledge pool of the region by the knowledge created in transfer process in both parties. In such perspective, the coordination of demand (industry) and supply (academia) is limited to the human capital and other geographically coupled capabilities, such as the infrastructure.

Relationship between academia and industry

Smart Specialization Strategy includes negotiation of a new social contract between academia and society. Based on (Etzkowitz & Leydesdorff, 1997) we can distinguish two existing contract types:

- Linear model of innovation presumes only long-term contributions of academic knowledge to the economy.
- More recent model presumes both - long and short-term contributions. In this model, some of possible short-term contributions are contributions to firm formation and contract research on behalf of businesses as a large share of research activities at universities.

What changes to the contract should bring Smart Specialization is yet to be discussed, however it seems that new contract should pay more attention to the changes brought by globalization.

It should be further investigated in order to conclude at which stage the social contract is in Eastern European. The stage can vary from region, type of industry or cluster.

Many stakeholders mistake scientific research for innovation despite the fact that the most commercially successful, thus economically important innovations are marketing, not engineering or research challenges. Scientific activity and research is driven by curiosity and not by opportunity. Even more - inventions and new knowledge can be separated from innovation in time, space and even domain. For example, invention of laser and its commercial application is separated by tens of years, countries and fields. Given the very nature of scientific activities, huge information asymmetries between scientists and policy makers exist as well.

Knowledge is not the only product of scientific and research activity. Scientific and research activity leads to increased pool of talents, social capital in form of trust and networks and increased opportunities to specialize for talents in particular field, thus attracting more talents. Scientific and research activity plays important role in the education system.

Outcomes of R&D activities

Knowledge is only a part of R&D activity outcomes. Other outcomes/assets of regional R&D activities are summarized in Figure 1.

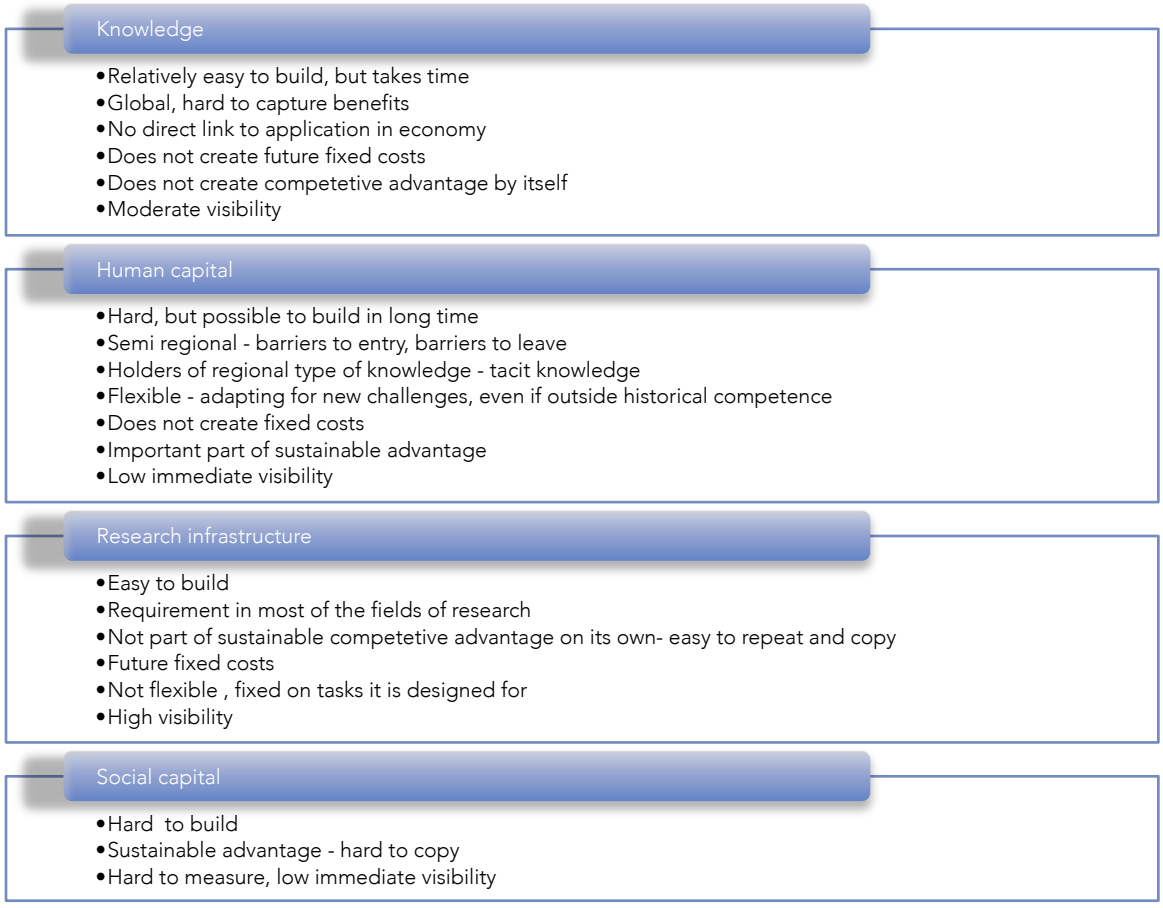

Figure 1. Types of assets as a result of R&D activities

Figure 1 captures some of characteristics of different asset classes that can be expected as an outcome of regional activities.

There is a conflict of interest between a short-term interest for visibility and a long-term impact. Policy makers short-term interest is visibility – infrastructure and direct knowledge creation – i.e. financing R&D activities is more visible, however building a human capital and social capital is more sustainable albeit less visible.

Focusing efforts on building human capital allows solving several problems:

- Government does not need to overcome the information asymmetry, instead it only provides necessary assets for the industry and science;
- It is more horizontal type of policy, and keeps more variety, at the same time focusing recourses on limited set of goals;
- It is less risky regarding choices. Future challenges can be solved by flexible pool of specialists, which are able to adapt to such challenges. Again, government can focus more efforts on where it is good at – governing, less on guessing future technologies, markets, trends etc. However, the development of human capital requires some understanding of possible future growth potential.

Industries and priorities

The selection of priorities leads to competitive bids on the potential of different industries, sectors, technologies and policies by their representatives.

Not everyone in this discussion is equal. A high-tech cluster has some advantage against others at the current stage of competitive bids. A high-tech cluster very often represents almost ideally scalable industries, thus opportunities in these industries usually are limited only by the size of the world market[4]. The opposite side of the scalability is a high level of risk. When the company is serving the world as the market, companies from the whole world are competitors as well. That is why high-tech sector bidding capabilities typically by factors exceeds delivering capabilities. Nevertheless, more successful bidders for opportunities are expected to come from a high-tech sector.

[4] Scalable industries are the industries where growth is not limited by physical factors. IT software applications are prime example. There are no real limits to sell as much user licenses as required by customers if software application turns to be a blockbuster.

Dominique Foray introduces the classification of the different sectors as: agro-food - sleeping giant, high tech cluster – excited goblins, low tech SMEs – hungry dwarfs and notes "*with wait and see policy, it is likely that the excited goblins will corner the whole funding (they have so many good projects!) while the current sectors are sleeping. But they need all to be part of the strategy (need for modernization, diversification and transition)*". (Foray, Smart Specialisation and the new industrial policy agenda (presentation), 2013). That creates a problem because traditional industries are larger employers than high-tech and innovation is the main driving force of sustainable growth in both.

Potential of high-tech sectors can be demonstrated by some potentially successful applications of technology or products. On contrary, a potential of traditional industries mostly is hidden in many different steps, small niche applications of technology or changes in products. Policy makers have to have tools for evaluation of potential and comparison between different sectors based on the same assumptions and data.

Human capital

Human capital is the most important truly regionally related asset that is required for innovation. Therefore, it should be the first focus to analyse, whether there is a necessary amount of talent in a particular priority and how to create it if required. R&D activities in selected priorities result in knowledge as well as in human capital. Retaining the human capital is the most important task.

Industry sectors should be able to provide better opportunities for specialists than other regions in order to retain talent in a particular field. That is one of the reasons why future growth potential of different industries should be assessed together with identification of technological and other needs.

The task on selecting the right R&D priorities concerning economic development is selection of such priorities, where industry sectors can create potentially highly productive workspaces.

Methodology

The consulting company FIDEA has developed and applied the methodology on assessing industry innovation potential based on benchmarking of export values to market leaders in particular product groups in EU.

The method compares unit value between country of interest and reference countries. The reference countries used in the study are – Finland, Austria, Sweden, Germany, France, Belgium, United Kingdom and Denmark. The goal is to assess potential of industries based on unit value increase (based on products mix and its value) among themselves, not to compare them to other countries, so more developed reference countries were chosen as the most convenient reference point. The Unit value is considered as a respectable proxy of productivity as well.

The reference country selection was based on following criteria:

- Countries that would have maximum productivity at current technological level. GDP per capita is a good proxy of productivity, so we were looking for countries with significantly higher GDP per capita
- Countries that are EU member states. The same markets available, possibilities and constraints.

Industries with high potential in traditional sectors are good indication where human capital can be employed, thus can be used to validate some focus on resources on developing human capital in knowledge fields in the industry or complementary to the challenges in the industry.

Four digit-harmonized indexes are used since products of 4-digit group are close enough to expect that producer can switch from lower value product to higher value product and it still can use most of existing production factors.

Benchmarking is widely used approach for businesses to identify weaknesses and investment potential. Benchmarking as an assessment methodology is used because it gives enough focused view on the potential of industries in order to focus attention on the most promising one. It is also less risky, because it does show what others achieve so most likely it may be achievable by a study region.

Limits of benchmarking stems from its strength:

- It does not answer to the question “how?” However, benchmarking does give indication “where?” and “how much?”, however,
- Benchmarking is hard to apply to the country-leader in unit value at the group of products. It is more applicable to followers than leaders.

Calculation steps

Data

Analysis is based on data that is retrieved from International Trade Database at EUROSTAT http://epp.eurostat.ec.europa.eu/newxtweb/, with dataset used "EU TRADE-30-BY HS2-HS4".

Data of years 2011, 2012, 2013 was requested for all countries – 8 reference countries and Slovenia.

There was a total export value (INTRA EU28+EXTRA EU28) calculated for total export volume in € for every country and every product in a four digit product group as well as the quantity of export.

Price is a division of volume by quantity.

Selection of reference countries

Price and volume leaders selected for every product group as union of sets of:

- 3 price leaders in every product group
- 3 volume leaders in every product group

Union of sets mean that if the same country belongs to both sets it is included only once so the minimum is three countries and maximum is six countries.

Exclusion of extremes

The price leader is excluded if the price leader's *zscore* [5] exceeds value of 1. Z-score above 1 is considered as an extreme difference from the group and thus anomaly. Extreme exclusion methodology is arbitrary chosen by authors. There are other methods to be used as well. However, extreme exclusion methodology does not impact top potential industry list.

Calculation of reference price

Weighted average price is calculated as

$$Price_{product\ group} = \frac{\sum Volume(€)_n}{\sum Quantity_n},$$

where n is data from selected set of countries in given 4-digit product group by price and volume as described in prior steps

Potential calculation

Potential is calculated as follows:

$$Gap_{coi} = (Price_{reference} - Price_{coi}) \times Quantity_{coi},$$

[5] Z-score is calculated as (x[n]-x.mean())/x.std(), where x.std() is a standard deviation.

where values with index "coi" belongs to *country of interest*, in this case – Slovenia and *reference* is value derived from prior steps.

Results

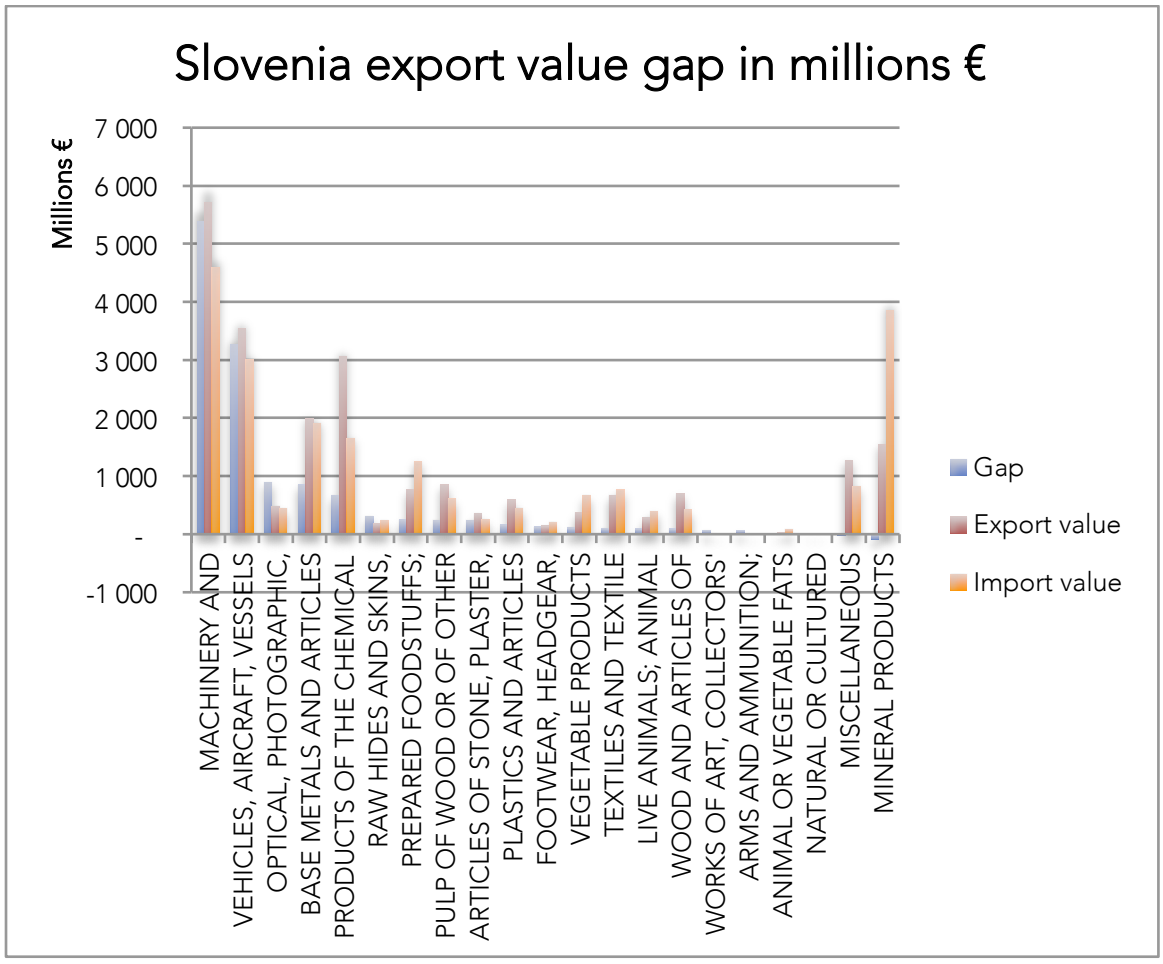

Figure 2. Value Gap grouped by Harmonized Data product sections

The analysis indicates that there is huge potential, more than 5.3 billion € in Machinery and Mechanical appliances segment, which is followed by Vehicles, aircraft etc. with potential of 3.5 billion €.

Partly the leading position can be explained by leading potential in current volume of trade. Existing quantities are multiplication of any value increase.

Next sectors with the highest export potential are engineering related as well, where four leading positions total 10 billion € of value potential based on methodology assumptions.

Interesting insight gives top of product level potential. All top groups by potential, but one are related to engineering or engineering related fields. 26 product positions out of 1228 give more than 80% (more than 8.2 billion €) of export potential and all are related to engineering.

TITLE	Gap millions €	Export m €
Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702), including station wagons and racing cars	2 696	2 218
Turbojets, turbopropellers and other gas turbines	495	22
Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters	487	306
Human blood; animal blood prepared for therapeutic, prophylactic or diagnostic uses; antisera, other blood fractions and immunological products, whether or not modified or obtained by means of biotechnological processes; vaccines, toxins, cultures of micro-organisms (excluding yeasts) and similar products	381	141
Optical fibres and optical fibre bundles; optical fibre cables other than those of heading 8544; sheets and plates of polarising material; lenses (including contact lenses), prisms, mirrors and other optical elements, of any material, unmounted, other than such elements of glass not optically worked	366	22
Transmission shafts (including cam shafts and crank shafts) and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws; gear boxes and other speed changers, including torque converters; flywheels and pulleys, including pulley blocks; clutches and shaft couplings (including universal joints)	319	129
Parts suitable for use solely or principally with the machinery of headings 8425 to 8430	243	263
Electric instantaneous or storage water heaters and immersion heaters; electric space-heating apparatus and soil-heating apparatus; electrothermic hairdressing apparatus (for example, hairdryers, hair curlers, curling tong heaters) and hand dryers; electric smoothing irons; other electrothermic appliances of a kind used for domestic purposes; electric heating resistors, other than those of heading 8545	210	368
Parts and accessories suitable for use solely or principally with the machines of headings 8456 to 8465, including work or tool holders, self-opening dieheads, dividing heads and other special attachments for machine tools; tool holders for any type of tool for working in the hand	202	49
Parts suitable for use solely or principally with the apparatus of headings 8525 to 8528	196	195
Parts and accessories of the motor vehicles of headings 8701 to 8705	193	598
Other articles of aluminium	191	127
Trunks, suitcases, vanity cases, executive-cases, briefcases, school satchels, spectacle cases, binocular cases, camera cases, musical instrument cases, gun cases, holsters and similar containers; travelling-bags, insulated food or beverages bags, toilet bags, rucksacks, handbags, shopping-bags, wallets, purses, map-cases, cigarette-cases, tobacco-pouches, tool bags, sports bags, bottle-cases, jewellery boxes, powder boxes, cutlery cases and similar containers, of leather or of composition leather, of sheeting of plastics, of textile materials, of vulcanised fibre or of paperboard, or wholly or mainly covered with such materials or with paper	173	23
Waters, including natural or artificial mineral waters and aerated waters, not containing added sugar or other sweetening matter nor flavoured; ice and snow	168	12
Electrical transformers, static converters (for example, rectifiers) and inductors	167	131

TITLE	Gap millions €	Expor t m €
Interchangeable tools for hand tools, whether or not power-operated, or for machine tools (for example, for pressing, stamping, punching, tapping, threading, drilling, boring, broaching, milling, turning or screw driving), including dies for drawing or extruding metal, and rock-drilling or earth-boring tools	165	116
Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat pumps other than air-conditioning machines of heading 8415	163	150
Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, including pressure-reducing valves and thermostatically controlled valves	158	154
Parts suitable for use solely or principally with the engines of heading 8407 or 8408	156	113
Automatic regulating or controlling instruments and apparatus	153	93
Pumps for liquids, whether or not fitted with a measuring device; liquid elevators	149	68
Electric accumulators, including separators therefor, whether or not rectangular (including square)	145	148
Millstones, grindstones, grinding wheels and the like, without frameworks, for grinding, sharpening, polishing, trueing or cutting, hand sharpening or polishing stones, and parts thereof, of natural stone, of agglomerated natural or artificial abrasives, or of ceramics, with or without parts of other materials	140	66
HYDROGEN, RARE GASES AND OTHER NON-METALS	132	9
Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scintigraphic apparatus, other electromedical apparatus and sight-testing instruments	107	75
Electric motors and generators (excluding generating sets)	104	191

Table 3. Top performers on potential in product groups

TITLE	Gap millions €	Export millions €
Seats (other than those of heading 9402), whether or not convertible into beds, and parts thereof	-123	587
Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70 % or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils	-90	760
Articles for interior furnishing, of all types of textile materials (excl. blankets and travelling rugs, bedlinen, table linen, toilet linen, kitchen linen, curtains, incl. drapes, interior blinds, curtain or bed valances, lampshades and articles of heading 9404)	-58	75
Flat-rolled products of stainless steel, of a width of >= 600 mm, hot-rolled or cold-rolled "cold-reduced"	-57	255
Nucleic acids and their salts, whether or not chemically defined; heterocyclic compounds (excl. with oxygen only or with nitrogen hetero-atom[s] only)	-54	57
Medicaments (excluding goods of heading 3002, 3005 or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses (including those in the form of transdermal administration systems) or in forms or packings for retail sale	-43	1 876

There are groups where Slovenia has a negative value gap, meaning that some industries by unit value exceeds top performers in European Union. These product groups may be special interest by policy makers, as those product groups are *highly productive*, thus volume increase would inevitably lead to better economic performance on a country level.

Especially interesting is product group "Medicaments", where the negative value gap is low, which indicates that it is one of top performers by value. On the other hand, this group is the second largest among top performers by export volume. This indicates that it could be the established specialization of Slovenia and extra attention should be given to keep it at the top.

Resume

Industries relying on mechanical engineering and related knowledge fields already provide more than half of exports by value and shows huge growth potential – more than 80% of total. This indicates that appropriate policy in these sectors could be a rational choice.

Medical and chemistry sectors show high unit value in export that indicates relatively high sophistication of the industry. Taking into account considerable export value concentrated in one product group it is reasonable to consider at least regular overview of the status of these industries.

One of product groups that have high export unit value is the fashion industry and it indicates potential in set of creative industries. Research shows that number of exporters significantly improves performance of every exporter. Long tail of product codes with high export unit value indicates that probably there is a space for improvement of employment.

Bibliography

Mintzberg , H., & Waters, A. J. (1985). Of Strategies, Deliberate and Emergent . *Strategic Management Journal , 6* (3), 257-272.

Carayannis, E. G. (1999). Winning by co-opeting in strategic Government-University-Industry R&D partnerships: The power of complex, dynamic knowledge networks. . *Journal of Technology Transfer , 24* (2/3).

Etzkowitz, H., & Leydesdorff, L. A. (1997). Universities and the Global Knowledge Economy: A Triple Helix of University - Industry - Government Relations. Continuum International Publishing Group.

EURADA. (2011). EURADA NEWS Nr.399-8.12.11, Agorada 201 scoping paper related S3- Smart Specialisation Strategy. European Association of Development Agencies. Bruxelles: Eurada.

Foray, D. (2013). Smart Specialisation and the new industrial policy agenda (presentation). Berlin: 2013 ERAC Mutual Learning Seminar.

Foray, D. (November 2009). Structuring a policy response to a "Grand Challenge". In Knowledge for Growth. Prospect for Science, Technology and Innovation. Brussels: Selected papers from Research Commissioner, Janez Potocnik's Expert Group.

Foray, D., David, P. A., & Hall, B. (2009). *Smart Specialisation – The Concept.* Bruxelles: "Knowledge for Growth" Expert Group.

Foray, D., John, G., Xabier Goenaga, B., Mikel, L., Philip, M., Kevin, M., u.c. (2012). *Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3).*

Leydesdorff, L. (2012). *The Triple Helix of University-Industry-Government Relations.* University of Amsterdam, Amsterdam School of Communication Research (ASCoR) , Amsterdam, .

