RIGHT

RIGHT SKILLS FOR THE RIGHT FUTURE

Regional Report Blue – Province Antwerp

[Subheading]

CVO Vitant (former CVO Provincie Antwerpen) in collaboration with Province of Antwerp

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0. Introduction

Part 1 provides a qualitative understanding of the region's innovation ecosystem (RIE) with regards to its Smart Specialization Strategies (S3) or an equivalent regional strategy. This analysis is based on a socio-economic and R&D profile mapping and a SWOT analysis. The RIE is an adaptation of a methodology and tool used by The eDigiregion Project. In the RIGHT Project, the benchmarking tools are used for mapping the own regional ecosystems and later through this common tool to compare the findings of the different partners in the project. To support and strengthen work in this part, a panel of experts from policy within the departments of the province of Antwerp was involved in the mapping.

Part 2 maps the innovation capacity and needs of SMEs from the blue energy sector. The questions are adapted from a systemic study on cluster developments, Future of Cluster Developments, in which an analysis model was developed (Manickam, 2018). Part 2 involves face-to-face interviews with 6 SMEs from the blue energy sector. The outputs of these interviews are summarized into one template (see Appendix). In part 2, common themes and issues are extracted from the interviews and are analysed.

Part 3 involves the analysis of the Job Forecasting and Skills Gaps mapping using the JOES templates provided in the Appendices. 2 iconic SMEs in the blue energy sector were chosen, one from the 'old' and one from the 'new' type of business in the chosen sector.

Part 4 is the Conclusions section. Highlights of each of the 3 analyses are described.

Part 5 discusses the conclusions in the light of regional strategies (S3) and policies in order to identify possible future directions for the sector and possibly the region as a whole. It gives inputs for new strategy and policy for Skills Education and SME innovation.

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1. Analysis of Regional Innovation Ecosystems

Analysis of part 1A - socio-economic and R&D profile mapping

The province of Antwerp is, according to Belgian standards, a large urban area, which is densely populated. It consists of 3 sub-regions: Antwerpen, Mechelen and Kempen.

The province of Antwerp is very accessible

- by private transport (motorways and secondary roads) and public transport (trains, buses, trams);
- by boat/ship (seaport Antwerp) and plane (airport Deurne);
- by broadband and other ICT infrastructure.

When looking at age distribution of people living in the province of Antwerp, we see that the largest category is situated between 46 and 65 years old, followed by the category between 26 and 45 years. 42% of the population of the province of Antwerp is in employment; people are working foremost in the tertiary (49.5%) and quaternary (28%) sector, 43% of the employed people are higher educated (graduate, bachelor, master, PHD).

21.4% of the population of the province of Antwerp is (for almost 98% full-time) in education: 52.3% in elementary education, 32% in secondary education and 15.7% in higher education. In secondary and vocational education, there is a drop-out rate of 5%. The province of Antwerp has a lot of elementary and secondary schools, and a number of graduate schools, institutes of technology and a university. However, not all fields of study are offered, there is for example no civil engineering at the university, which has its consequences for the race/hunt for high educated technical profiles in the companies of the port area.

Concerning industry, the province of Antwerp has a mainly SME landscape. The 25 MNEs are primarily situated in manufacturing – heavy engineering (16%), ICT (16%) and services – creative industry (16%). SMEs mostly represent services – creative industry (21,1%), wholesale and retail/repair cars (19,2%) and manufacturing – light engineering (11,7%).

The province of Antwerp is a rather prosperous region; the expenditures on R&D (gross expenditures and business expenditures) are higher than the EU standard. These expenditures increased over the last years.

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Analysis of part 1B – SWOT analysis

Technological orientation and regional attractiveness

The region of Antwerp has a quite large industrial, technological and innovative potential; large centers of knowledge, sectors and sector funds are present which provide in training offers and education. Antwerp is centrally located in Europe, has a port, large companies and a lot of SMEs. Also long term thinking is involved.

Issues that need to be addressed, have to do with

- slow and inert legislation/administration;
- investments in research and innovation to keep up on technological world level;
- lack of technical profiles, which results in staff problems and race/hunt for technical staff;
- mobility and accessibility of port due to traffic, road works and road block etc.

Challenges (which also offer an answer to existing weaknesses) involve

- how to get companies to rethink their staff policy (recruitment and retention); instead of only hiring the staff who has the right diploma, it is possible to hire other (technical) profiles and to pay attention to
    - life long learning
    - competences/skills acquired elsewhere (outside formal education)
    - internal training
- how to get STEM-pupils (STEM is a new study field which includes educations in Science – Technology – Engineering – Mathematics, created by the government to encourage the inflow in technical and technological professions) to choose for a technical profession → increase job attraction
- filling the gap between education and labor market – need of tuning of technical competences in education in terms of needs of the labor market
- investments (extra financial resources/stimuli) in technology and innovation to stay competitive for the future and to keep the region and port attractive (also as sustainable enterprise grounds)
- bigger focus on automation of business processes, tailored to the customer – which will has its consequences for the staff → take care of their well being
- taking into account the diversity of the personnel.

Threats have to do with

- SME's which threaten to disappear due to
    - lack of financial resources
    - lack of networks
    - competition for the right skills (with larger companies/sectors that can offer better wages, advantages, etc.)
- Competition for the right technical skills, on a regional and international level, which has its consequences for employment and outsourcing.
- Inertness of education in switch to 'right' technological and technical skills requested by the labor market, 'right' soft skills and 'right' attitudes
- Mobility and accessibility of the port area

- Port area and companies are still 'conservative' in hiring of people (stick to diploma's, certain profiles ↔ diversity).

Policy and Triple Helix

A lot of Flemish institutions and incubators are found in the region that give support, stimulate, guide and provide incentives, frameworks, knowledge and financing.

These positive elements are limited by rigid regulations and/or lacking European legislation, the fragmentation of knowledge and coordination, the slowness of governments and education in filling the technological gaps, the reliability of research results (research ordered by policy/paid by industry, which may lead to cherry picking of results, framing of problems, etc.).

Potentials for innovation are offered by technological progress and innovation in industry, practical research with visible results on civil society (and raising of social awareness), stimulation for cooperation and cocreation by the government, focus on long term interests.

Constraints that are to be addressed have to do with the fact that research is driven by money/industry/policy and thus is focused on short term interests.

Entrepreneurial environment

In the region are many starter services, business counters, consultants, incubators, entrepreneurial centers and organizations (public or private) that provide help, assistance, training and educational opportunities and basic financial resources.

But the financial support and long term support for start-ups and growth are clearly insufficient. Education/training is seen as time consuming instead of valuable.

A potential to explore is the encouraging of meeting places, networks where information, knowledge, experiences and success stories can be shared, where interprofessional collaboration, connection and creativity are stimulated, where additional practical entrepreneurial training is offered.

Challenges are situated in the search for the right information (information is there, but is difficult/time consuming to find), the competitiveness of the market (other companies, finding staff) and the high expectations that go together with entrepreneurship.

Innovation ecosystem

In the region, there are many centers, institutes, organizations, incubators, mechanisms that focus on general innovation and provide financing for research and innovation.

This multitude in institutions and mechanisms inevitably leads to fragmentation and competing interests. Other weaknesses involve the dominance of the large (multinational) companies in the engagement with research and innovation, which, as a treat, may lead to (large) company-driven research at the expense of strategic basic and long term research.

Opportunities can be created in

- The expansion of Technical Transfer Offices (TTO);
- Regional research funding, sponsorship;
- The stimulation of R&D in SMEs;
- the development of creative workshops, scholarships, testing grounds.

Clusters and networks – blue sector

There is a strong involvement of knowledge institutions, sectors, (large) companies and the government leading to some large international clusters (for example (petro)chemical sector), fitted legislation, many investments, product variety, knowledge and competence development and a high level of cooperation.

Weaknesses (and thus threats) have to do with

- complexity and competition;
- shortage of qualified staff;
- complex multilevel governance;
- drivenness by large companies and business interests with short term vision.

Potential for innovation is seen in

- the use of multiculturality;
- the development of R&D in SMEs;
- the connection between education and labor market;
- the tailoring of jobs;
- the alignment of legislations and international treaties.

Regional Technological Development (RTD)/Innovation Funding

In the region, a lot of funding instruments, possibilities of funds, premiums, financing accompanied by information and support, are available.

While a lot of information and funding is available, this information is not transparent, is unclear and difficult and time consuming to find. Knowledge, support, time and money is needed to submit an application, which is negative for SMEs and smaller companies.

In order to avoid this, a clear communication to the wider public, a clear navigation through the information, support and advice is needed.

Threats are encountered in the multigovernance and sometimes short term thinking of the government, the different tax regulations.

Smart specializations

For the province of Antwerp, the smart specializations are: **Specialized manufacturing solutions** (Advanced production technologies and additive manufacturing), **Sustainable Chemistry** (agricultural

and industrial applications of biotechnology and sustainable chemistry, pharmaceutical applications of biotechnology) **Value-added logistics** (Specialized industrial value chains and logistical services), **Personalized cure and care** (personalized medical and social care), **creative industries** and **Eco renovation of buildings.**

In the future, regional focus will be on **sustainable living** (cradle to cradle, waste management and sustainable production and sustainable energy) – this is also confirmed by the SMEs that were interviewed in function of innovation capacity and needs.

2. Analysis of Innovation Capacities and Needs of SMEs

The 6 SMEs in the Blue Energy Sector are involved in Waste Management; Quality control of liquid loadings; Maintenance of wind turbines; Soil cleaning and recycling; Dredging, marine engineering and environmental remediation and Providing technical services to industry.

5 of the 6 SMEs are originally founded and located in the port, which has its advantages (presence of industries, sectors, companies, partners, sea) and its disadvantages (traffic jams, road problems, limited space to grow, competition). 1 SME is located in the city of Antwerp (presence of industry, companies, clients) and also has to cope with traffic (and parking) problems.

All the SMEs have a local scope, all have an additional regional scope and 3 of 6 SMEs have an additional international scope (4 SMEs have a future international scope). They are all involved in Process and Service innovation; 4 are involved in Product innovation.

The blue energy innovations are mainly focused on sustainability, technological innovations, logistic optimization, use of new and renewable energy (sources).

Inside the company, mainly the Managing Board, a team of pioneers and the Engineering department are involved in energy innovations; outside the company, mostly External partnerships and external Firms and Companies are concerned.

The biggest challenges for the SMEs have to do with

- staff and competition – how to recruit and retain a technical staff ('a lot of job hopping'), which is suitable qualified, together with a fierce competition over these technicians with the oil and petrochemical sector/MNEs/larger companies, which offer better wages, advantages, better work conditions;
- logistic problems, due to the geographic location in the port (which has its advantages for the traffic by sea) or city of Antwerp (which has its advantages because of its central location and location near the port) – a lot of traffic problems are caused by roadworks, roadblocks and traffic jams.

In order to find a solution to these challenges, the SMEs are inventive and invest in

- buildings, construction, partnerships, licenses;
- ways to avoid traffic problems;
- their staff
    - training/education
    - well-being (work-life balance);
    - investing in recruiting suited and skilled technical staff.

In order to overcome the competition with larger players, some SMEs will go through a transition and move away from the original core business to explore new/specialized markets (for example move from dredging to environmental remediation, move from soil cleaning to wastewater cleaning); others will be innovative in circular economy and the use of renewable energy or will look for 'special' approaches to attract and keep clients (clients intimacy, client driven projects).

Concerning the leverage of innovative potential, the SMEs consider to exploit new ventures, especially in the direction of new markets and new partners. The interviewed SMEs realize their vulnerability in the market (because of the size of the company) and thus consider exploring new products and new technologies – 3 SMEs explicitly mention their desire to be a pioneer in innovation, in order to be competitive.

The SMEs all subscribe the growing importance of digital communication and knowledge sharing, although the latter works on a rather unstructured basis, especially in the smaller SMEs.

3. Analysis of Job Forecasting and Skills Gaps of iconic SMEs [Part 3]

For the 2 JOE interviews, we contacted 1 small 'older' SME and 1 bigger 'newer' (founded 3 years ago) SME.

When we compare JOE results, we see that the challenge for the future lies in the recruitment and the retention of the technical profiles, and not of the management profiles or the profiles linked to administration.

The level of education and the field of study of the technical staff seem sufficient (though specialized skills and knowledge are needed and specialized training is provided internally). There is primarily the problem of

- inflow of suitably technically skilled personnel with a work ethos and a heart for the company and the work
- retention of qualified people, which is strengthened by
    - specialized and personalized internal training and guidance
    - measurements taken for the enhancement of the physical and emotional well-being of employees

4. Discussion of the findings and conclusions

The province of Antwerp and especially the port region is an industrious, attractive and active region, with a lot of SMEs and technological and innovative potential. Large centers of knowledge, sectors and sector funds are present which provide in training offers and education. In terms of policy, a lot of Flemish institutions and incubators are found in the region that give support, stimulate, guide and provide incentives, frameworks, knowledge and financing. As for the entrepreneurial environment, many starter services, business counters, consultants, incubators, entrepreneurial centers and organizations (public or private) are present in the region and provide help, assistance, training and educational opportunities and basic financial resources. The same goes for the innovation ecosystem: there are many centers, institutes, organizations, incubators, mechanisms that focus on general innovation and provide financing for research and innovation.

The above mechanisms are undoubtedly positive and stimulating for technical and entrepreneurial skills and innovation, but are limited by rigid regulations and/or lacking European legislation, the fragmentation of knowledge/information and coordination, the slowness of administration, governments and education in filling the technological gaps, the reliability of research results (research ordered by policy/paid by industry). These measures should be more effective, efficient and practical, so that it could also benefit the SMEs (now, mostly the larger companies and MNE benefit from the advantages and mechanisms mentioned).

SMEs which are successful and innovative, have found a solution for in the competition with larger players, by

- moving away from the original core business to explore new/specialized markets
- exploring circular economy and the use of renewable energy
- exploring new markets and partners
- developing new services, processes and products
- looking for 'special' approaches to attract and keep clients (clients intimacy, client driven projects)

In order to keep the port area of Antwerp competitive and innovative, measures should be taken to

- promote technical and technological jobs
- promote working in the port area
- fill the competence/skills gap between education and labor market
- offer advantages/support to SMEs in order to
    - keep up with innovation and increase their innovative character
    - be able to recruit, retain and train/specialize their technical staff
    - be competitive and be/become a pioneer

5. Inputs for new strategy and policy for Skills Education and SME innovation

It is striking to see that the SWOT-analysis done by experts of the province of Antwerp and their stakeholders and the findings of the SMEs resonate with current Smart Specialization Strategies, both in the region and the blue sector of the port of Antwerp.

Both experts and SMEs recognize the importance of recruiting and retaining technical and technological skilled staff (and not the level or study field, which is confirmed by the results of the JOEs), and therefore stress the importance of

- technical and technological education and training
- training on the work floor
    - basic education
    - specialized training, just in time
- filling the competence/skills gap between education and labor market

In order for SMEs to keep their innovative character or to be stimulated to go for/grow in innovation, they need to be supported (inform about incentives, benefits, trainings; guide by for example applications, find information/people/organizations, share knowledge in network and platforms, create opportunities to collaborate etc.)

It is recommended that

- Policies/companies stimulate/promote the port area as an exciting, dynamic, innovating area
- Policies/companies stimulate/promote technical fields of education and working in technological environments, by
    - focusing on the innovative, dynamic, problem solving character of technical profiles, instead of on the nature of the education (not high education, and so not good; doing 'dirty' jobs)
    - making the learning and working in technological environments and in the port attractive
- Policy/governments rethink their administration/communication/data gathering in order to
    - work more structured, efficient, coordinated
    - offer help and opportunities to the SMEs.