

International comparison of the Life Science industry climate in Sweden

An analysis of the Life Science industry conditions in Sweden conducted by SwedenBIO during 2010 – 2011 based on the reports “Global Competitiveness Report”, “Innovation Union Scoreboard” and “Worldview Scorecard”.

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1. Summary

During 2010 SwedenBIO decided to conduct an analysis and benchmarking project of the Life Science industry in Sweden entitled “International comparison of the Life Science industry climate in Sweden”. The objective is to investigate on a yearly basis the Life Science industry conditions in Sweden to generate a baseline to be able to monitor the development of the industry and the progress of SwedenBIO’s work. A prerequisite for a member-driven non-profit industry association like SwedenBIO is to have appropriate benchmarking tools in combination with a baseline of the industry and its performance in an international perspective to be able to work in a stringent way. The outcome of this analysis and project will enable SwedenBIO to work towards the development of an improved and fully functional environment for the Life Science industry sector. In addition, the analysis and its results will form a fundamental basis for lobbying and public affairs.

The analysis is based on a synthesis of three comprehensive index reports “Worldview Scorecard 2010”, “Innovation Union Scoreboard 2010” and “Global Competitiveness Report 2010-2011”. The reason for choosing these three reports is that they cover in different aspects the three areas of biotechnology innovation, relative innovation power in Europe and the relative competitiveness of most countries in the world, respectively.

The conducted analysis clearly shows that Sweden has a strong innovation power and is an innovation-driven economy with conditions suitable for knowledge-intensive industry sectors such as the Life Science industry. Nevertheless, there are a number of indicators and structural changes that need to be taken into consideration, otherwise Sweden will have a declining Life Science industry for its SMEs. Below SwedenBIO has listed the most urgent areas of improvement for Sweden.

Leading indicators for Sweden to achieve continuous and innovative growth

- Improvement of citation index for scientific publications.
- More venture capital needed.
- Innovative SMEs need to collaborate to a larger extent.
- SMEs need to be better at taking products to the market and get revenue.
- Innovative companies must increase their market size in an international perspective.
- Stop the “brain drain” and have a policy for “brain gain” within the Life Science sector.

Structural changes for Sweden

- Political cooperation and ability to prioritize, including tax rates.
- Better education system, especially in mathematics and science.

To conclude, Sweden has a good input (innovations), but needs improved output from its innovative climate (growing and prosperous companies) to be able to achieve continuous growth and development of the Life Science industry. A good innovation climate in Sweden should result in a high growth of innovative companies and not a paradox-like situation with high input and low output. SwedenBIO will together with our almost 190 member companies focus on the above mentioned necessary changes to be able to shift the bias to fulfill our vision of facilitating the development of a world class environment for the Life Science industry in Sweden.

2. Description of the index reports

This study and analysis is based on the three index reports “Worldview Scorecard 2010”, “Innovation Union Scoreboard 2010” and “Global Competitiveness Report 2010-2011”. At present there is no stand-alone international Life Science index report that in a comprehensive manner covers the Life Science industry and its performance on a global level. Therefore SwedenBIO decided to use well renowned and respected index reports that directly and indirectly measure and monitor country-specific performance in the Life Science industry in an international perspective. A short description of the three chosen reports is listed below, including a schematic representation, which gives an overview of the coverage of the reports (Figure 1). In the Appendices (Section 5) a more comprehensive description of each one of the reports is given.

1. Worldview Scorecard (WS) – One of the best and most comprehensive international Life Science-focused reports, which systematically compares the biotechnology innovation. WS measures the relative biotechnology innovation power in many countries worldwide.

2. Innovation Union Scoreboard (IUS) – Among the most respected and in Sweden politically recognized report about EU member states innovation performance. IUS measures the relative innovation power of European countries.

3. Global Competitiveness Report (GCR) – The most extensive report about countries and their competitiveness. GCR measures the relative competitiveness of most countries in the world.

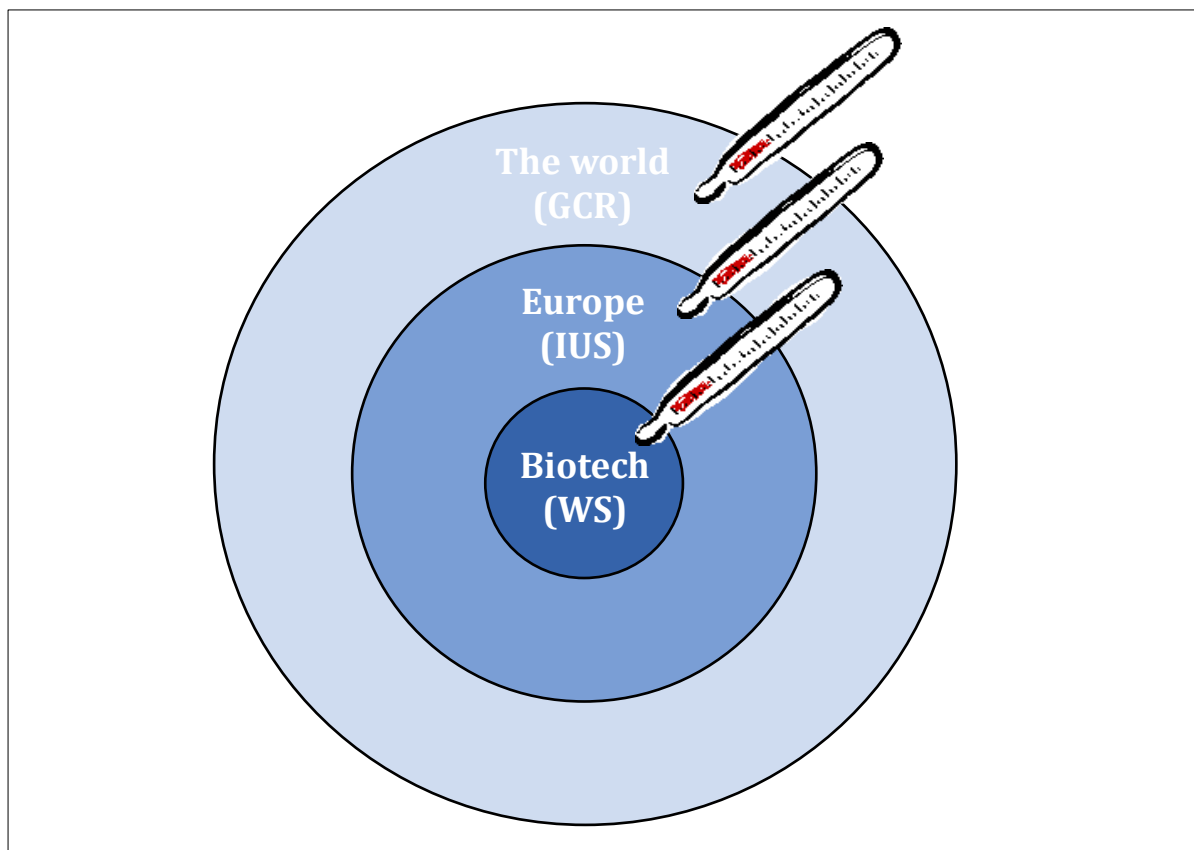


Figure 1. A schematic representation of the three index reports “Worldview Scorecard”, “Innovation Union Scoreboard” and “World Competitiveness Report”, respectively, which form the basis for this analysis and study.

3. Sweden's strengths

The overall environment in Sweden for the Life Science industry and other innovation-driven sectors is strong in an international perspective. All three index reports describe Sweden as a country with a sound base and several drivers for innovation. These factors and conditions are summarized in Figure 2. For Sweden to be an innovation nation with focus on knowledge-intensive industries, such the Life Science industry, it is important that these conditions will remain high and also be improved.

Sweden's strengths according to the three index reports

- **Business sophistication** – Excellent ethical behavior and sophisticated production processes.
- **Enterprise support** – An overall good financial environment.
- **Foundations** - Well suited overall environment for biotechnology companies.
- **Human resources, higher education and training** – Education high with strong focus.
- **Innovation** – Company spending on R&D and availability of scientists and engineers.
- **Institutions** – The world's most transparent and efficient public institutions.
- **Intellectual property (IP)** – Strong environment for IP.
- **Macroeconomic environment** – One of the most efficient governments in the world.
- **Technological readiness** – The world's strongest technological adoption.
- **Research systems** – High degree of international scientific co-publications.

Figure 2. A summary of Sweden's strengths being an innovation-driven economy.

The high ranking of Sweden, especially in innovation, is something that makes Sweden stand out. In this report and study however, SwedenBIO has decided to emphasize and focus on the areas that are important for the Life Science industry and where Sweden's performance can be significantly improved.

Looking at Sweden's strengths they mostly relate to input and not output. This is a common result seen in all three index reports. To some extent this result can be explained by that the three reports to a large extent analyze input factors. However, from the Life Science-related indicators and factors that SwedenBIO has decided to analyze from the reports, it can be seen that Sweden's strengths are mostly related to input. This result aligns with the present consensus that SwedenBIO perceives from our almost 190 member companies within the Life Science industry in Sweden. With a high input and a low output there is a given potential for improvement for Sweden to attain a strong development as an innovation nation, focusing on sectors such as the Life Science industry. The areas of improvement are further discussed in Section 4.

4. Sweden’s areas of improvement – the bias between input and output

Sweden is in all three index reports ranked very high and is considered to be among the innovation leaders in the world together with countries such as USA, Singapore, Switzerland, Denmark and Germany. However, when summarizing the results it is obvious that Sweden has a modest performance when looking on the output factors. In order for a country to continue to grow there has to be an output, i.e. productivity and a rate of return of investment, measured by growth.

This is exemplified by Sweden’s ranking on a European level when analyzing the convergence in innovation (Figure 3). When comparing to the other innovation leaders in Europe Sweden is just ahead of Denmark, but behind both Germany and Finland. In fact Sweden shows slower growth than average in EU, which is an alarming factor.

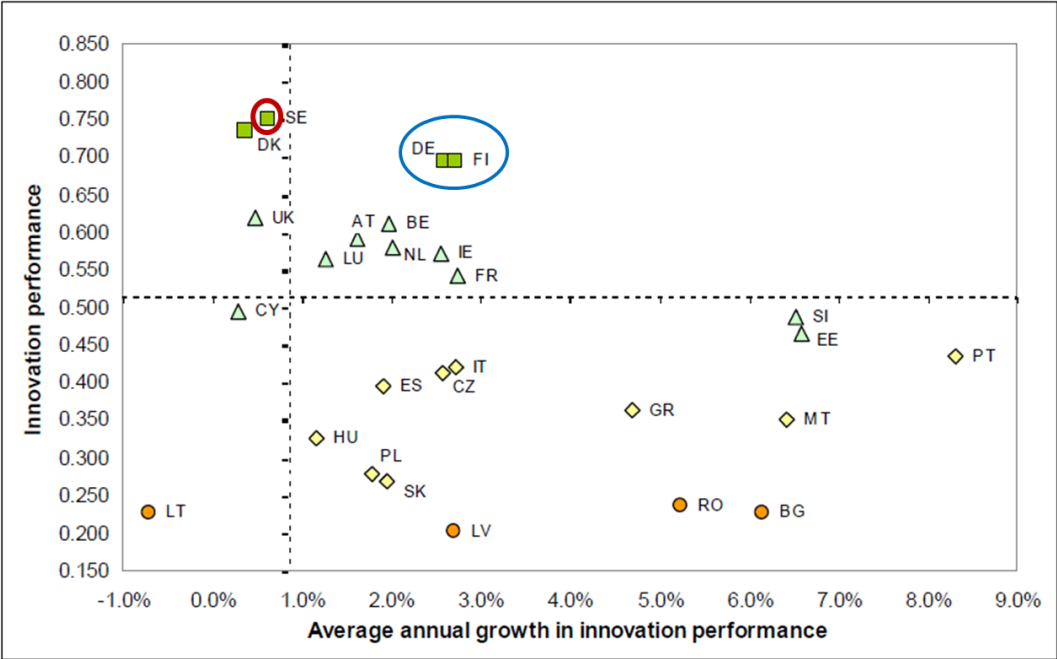


Figure 3. Convergence in innovation performance and average annual growth rates calculated over a five-year period of all 27 EU member states. Sweden (SE) is indicated by a red circle and Germany (DE) and Finland (FI) are marked with a blue circle. The dotted lines show the average performance and growth of 27 EU member states. From “Innovation Union Scoreboard 2010” (see Appendix 2 for additional details).

When comparing Sweden in the biotechnology industry segment with the present innovation leader USA, this bias between input and output can also be seen (Figure 4). As seen in the spider charts on the next page, Sweden’s performance when it comes to the indicator intensity, which measures significant output from the biotechnology industry, e.g. companies/capita and company revenue/GDP, is very low. In addition, the education/workforce indicator shows that Sweden has a brain drain of educated personnel in biotechnology industry, which is an alarming factor.

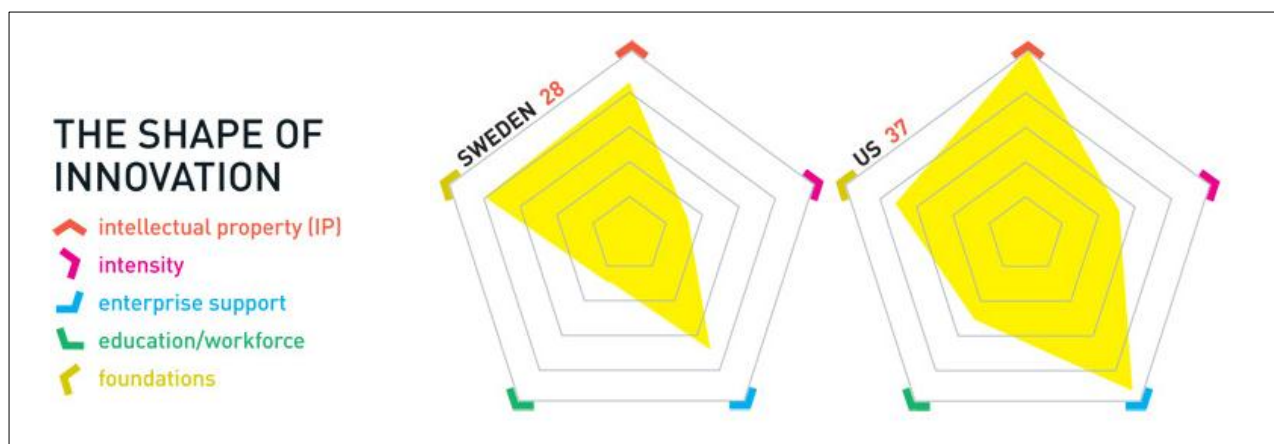


Figure 4. A schematic representation of Sweden’s performance in the biotechnology industry sector compared with USA, which are ranked as number 1. From “Worldview Scorecard 2010” (see Appendix 1 for additional details).

SwedenBIO finds that Sweden’s government and politicians rely on lagging indicators and input when analyzing the innovation-driven and knowledge-intensive industry sectors including the Life Science industry. Instead it should be a clear focus on leading indicators and output, which are fundamental for Sweden to achieve continuous and innovative growth. See below for a summary of Sweden’s areas of improvement to achieve continuous and innovative growth of the Life Science industry.

Sweden’s areas of improvement

- Improvement of citation index for scientific publications.
- More venture capital needed.
- Innovative SME:s need to collaborate to a larger extent.
- SME:s need to be better at taking products to the market and get revenue.
- Innovative companies must increase their market size in an international perspective.
- Stop the “brain drain” and have a policy for “brain gain” within the Life Science sector.
- Political cooperation and ability to prioritize, including tax rates.
- Better education system, especially in mathematics and science.

SwedenBIO’s view is that it is an absolute necessity that Sweden can prosper from its innovative climate resulting in a Life Science industry and companies with higher growth, increased revenue and the establishment of steady increase of midsize companies. To achieve this it should be emphasized that there is no “magic bullet” that can provide a short-time solution. But if the areas of improvement above will be prioritized, by e.g. a “National strategy for health” from the Swedish government, a prosperous Life Science industry in Sweden can be envisioned.

5. Appendices

The conducted analyses of the three index reports “Worldview Scorecard 2010”, “Innovation Union Scoreboard 2010” and “Global Competitiveness Report 2010-2011”, respectively, which form the basis for this study and report, are attached as Appendices in this section. A more detailed description of Sweden’s performance and subsequent ranking is given in combination with an overview of Sweden’s strengths and what needs to be improved for a successful Life Science industry in Sweden. The latest available version of each report has been analyzed, which ensures that conducted report is based on the most possible updated data.

Appendix 1 – Worldview Scorecard report 2010

Description of the report

The Worldview Scorecard (hereinafter jointly referred to as WS) is published annually by Scientific American. WS ranks countries according to their capacities to develop the biotechnology sector. The impact of public policies on the biotechnology is taken into account. Data comes only from public biotechnology companies. WS presents results from the five different categories of indicators shown in Figure 5.

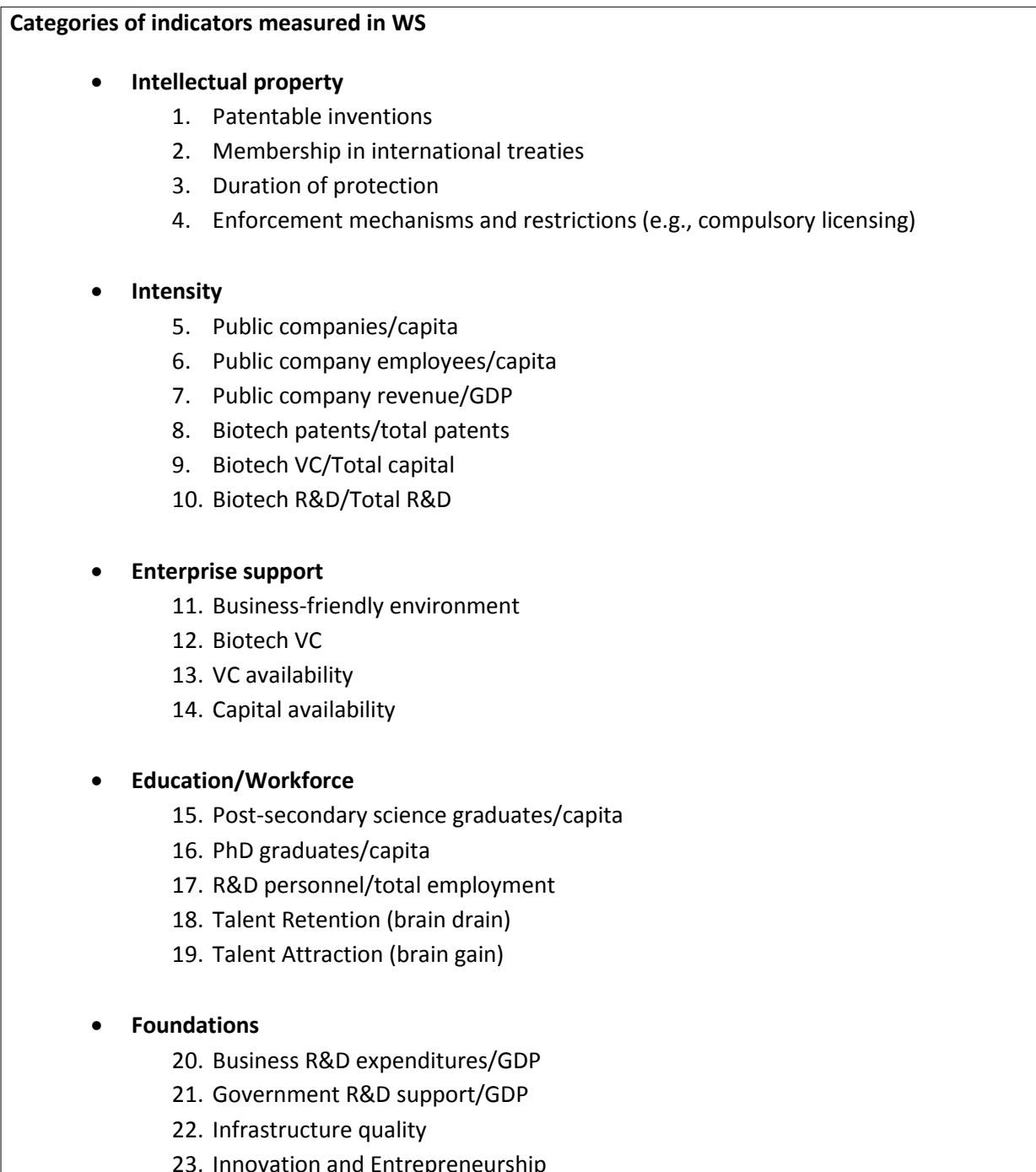


Figure 5. The categories of indicators measured in the Worldview Scorecard 2010 report.

The WS report uses a mixture of data from 2007 to 2009 (most from 2008). Hence the report does not cover the all the implications of the financial crisis. WS measures the public biotechnology sector, which means that non-public biotechnology companies are excluded and this is to some extent a limitation. In detail the report excludes pharmaceutical companies, medical-device companies and contract-research organizations. WS own definition of what is included in the report states "Companies whose primary commercial activity depends on the application of biological organisms, systems or processes, or on the provision of specialist services to facilitate the understanding thereof".

Ranking of Sweden according to WS

Sweden is ranked as number 4 overall (a scoring of 28/50) after USA (37/50), Singapore (31/50) and Canada (29/50), respectively. This can be seen in Figure 6 below where the spider graphs display "the shape of innovation" for the top 5 countries, which consists of intellectual property, intensity, enterprise support, education/workforce and foundations, respectively.

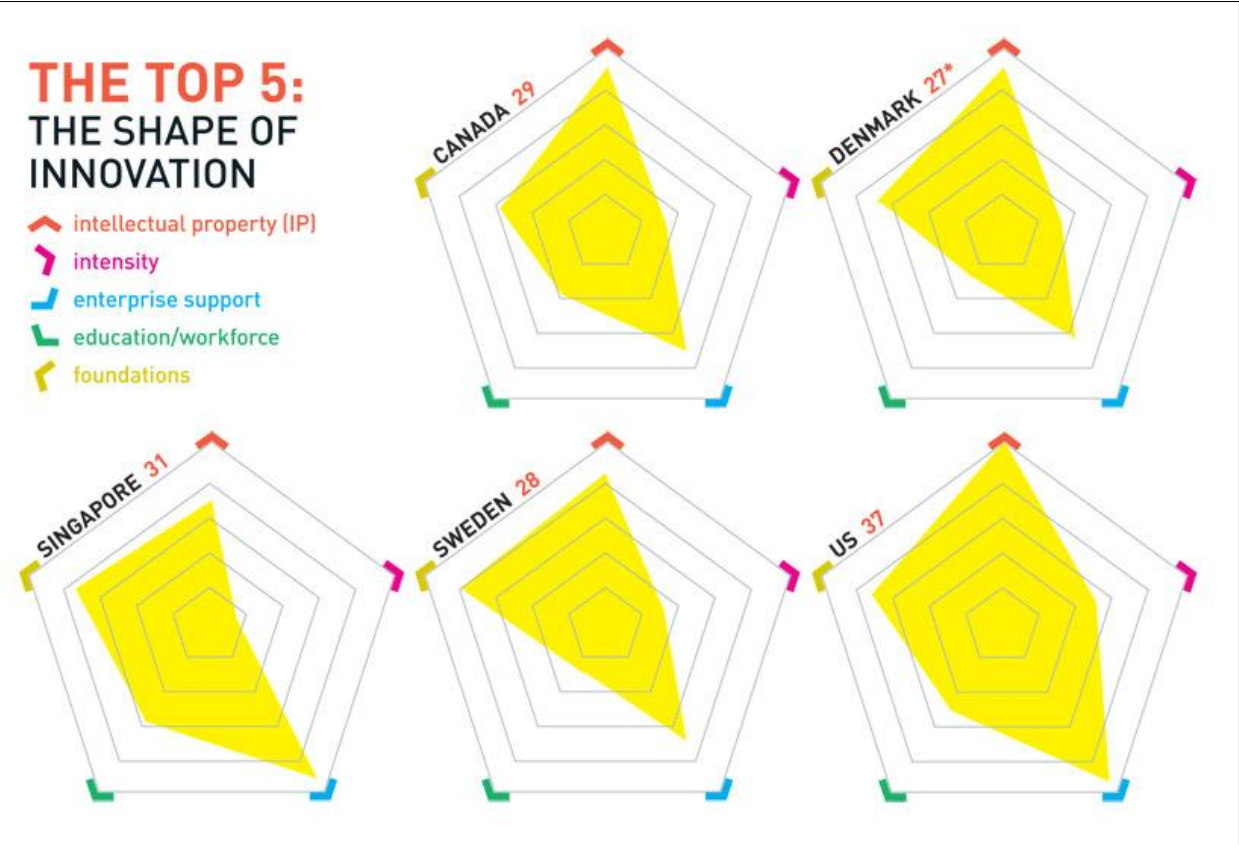


Figure 6. Sweden is ranked as number 4 in the WS report after USA, Singapore and Canada.

A more detailed description of Sweden's scoring according to WS is given below where specific values for each category indicator are listed below in Figure 7.

Sweden's ranking in WS

- **Intellectual property:**
Sweden Scored 8.46 sharing the 11th place with the UK. However 8.46 can also be considered a shared 3rd place, since it was the highest value after US (10) and nine other countries (9.05).
- **Intensity**
Sweden scored 3.03 resulting in 7th place. Iceland scored the highest value, 6.85.
- **Enterprise Support**
Sweden scored 6.54 resulting in 7th place. Singapore scored the highest value, 9.37.
- **Education Workforce**
Sweden scored 2.30 resulting in 17th place. Singapore scored the highest value, 5.94.
- **Foundations**
Sweden scored 8.04 resulting in 1st place

Figure 7. Sweden's ranking in the Worldview Scorecard 2010 report.

Reflections on Sweden's ranking according to WS

Sweden's overall ranking is number 4 in the WS report and one major contributing factor to this result is the fact that Sweden received the highest ranking in "Foundations". This category indicator measures how well suited the overall environment is in Sweden for biotechnology companies. Sweden puts a lot of money into R&D/GDP compared to other countries and has a well-developed research infrastructure. This category indicator also includes academia, which makes it to some extent difficult to see how this number affects SMEs.

When it comes to "Intellectual property", Sweden receives a moderate ranking of 11. The correlation between "IP protection activity" and successful SMEs in the biotechnology sector might very well be there, but it could also be a detrimental activity for an SME to file too many applications. To some extent some subcategories i.e. "patentable inventions" are related to "output", but others are not i.e. "membership in international treaties".

"Intensity" is a category that seems to be well thought through. It measures the intensity of the public biotechnology sector, such as public companies per capita and public company employees per capita. (see Figure 1 for what is included for this category indicator). For this category indicator Sweden is ranked as number 7. Since Iceland is winning this category questions can be raised

concerning the per capita subcategories. This category might bias for countries with low population although USA is ranked as number 2.

“Enterprise support” measures the overall financial environment in Sweden. The “Business-friendly environment” subcategory is survey-based, which provides a valuable correlation directly from the SMEs. The investment categories are not VC-based, which should increase the resolution of the investment needs. Overall Sweden is ranked as number 7 in this category indicator and this moderate ranking results correlates with the present financial climate in Sweden for the Life Science industry. This performance for Sweden and its biotech industry that is not sufficient. It aligns with the consensus for the Life Science industry in Sweden that there is an investment need for the industry.

In “Education Support” Sweden is ranked as number 17, which is a poor result. “Brain drain” and “Brain gain” is measured as well as important subcategories relating to education. This is a very alarming factor and Sweden needs to act on this immediately.

Comments to WS and areas of improvement

The report is clearly presented and easy to follow with well-chosen parameters. The obvious downside of this report is the limitation of measuring only the public biotechnology sector. This might not be all negative since it creates a useful contrast to the two other index reports (Innovation Scorecard and Global Competitiveness Report) evaluated in this analysis, which are both are very broad and does not have a Life Science focus. What would be really useful to know is how the Swedish companies included in the report have been selected. In our view, the inclusion criteria leave room for interpretation. It would also be interesting to see the result if privately held companies would be included in the WS report. The ideal measurement of the Life Science industry would include both public and private companies in all sectors (pharma, biotech , medtech and diagnostics) and also include CROs.

The results of the report do only to some extent measure output factors relevant to Life Science companies in Sweden. The input factors are well measured and one can conclude that Sweden’s strong result in “Foundations” gives Sweden a high overall ranking in the report. It is excellent that Sweden does well in infrastructure and public R&D spending. As a consequence of this great result you could have expected Sweden to do better in the other categories as well. Particularly, Sweden needs to improve the results under “Education and workforce”. This category reveals e.g. that there are lots of room for improvement in attracting foreign experts to Sweden.

Appendix 2 – Innovation Union Scoreboard report 2010

Description of the report

The Innovation Union Scoreboard (hereinafter jointly referred to as IUS) monitors the progress in innovation performance over time in order to inform policy discussions at national and EU level. The report compares the 27 EU member states (EU27) with three types of indicators, including eight dimensions (Figure 8). In addition, the report has tracked the innovation performance in Europe, including the non-EU member states, as well as done some comparisons with the BRIC-countries and USA and Japan. In this report SwedenBIO has decided to focus on the European countries.

Indicators measured in IUS among EU27

- **Enablers – drivers of innovation externally (outside the firm)**
 1. *Human resources* – availability of a high-skilled and educated workforce (3 indicators)
 2. *Open, excellent and attractive research systems* – international competitiveness of the science base (3 indicators)
 3. *Finance and support* – availability of finance and support of gov'ts (2 indicators)
- **Firm activities – drivers of innovation internally (at the firm)**
 4. *Firm investments* – R&D and non-R&D investments (2 indicators)
 5. *Linkages & entrepreneurship* – entrepreneurial efforts and collaboration efforts among firms and public sector (3 indicators)
 6. *Intellectual assets* – IPR generated (1 indicator)
- **Outputs – effect of firms' innovation activities**
 7. *Innovators* – number of firms that have innovations into market or internally (3 indicators)
 8. *Economic effects* – economic success measured in employment, exports and sales (5 indicators)

Figure 8. The indicators measured in the Innovation Union Scoreboard report among the 27 EU member states.

The report uses data from 2007 up to half of 2009, which means that it does not measure all the implications of the financial crisis. In addition, the scoreboard measures the overall innovation performance and does not reflect upon specific industries, which makes it impossible to measure the innovation performance of only the Life Science industry. In order to understand the impact of the report to the industry, there is a need to extrapolate the results from the scoreboard. SwedenBIO has in this report focused on areas that are of most relevance for the Life Science industry in Sweden.

Ranking of Sweden according to IUS

Sweden is the overall innovation leader in EU27 and ranked as number one, followed by Denmark, Finland and Germany (Figure 9). When non-EU member states are included, Sweden ranks second after Switzerland.

When the dimensions are analyzed individually, Sweden ranks high (ranging from 1 to 5) in the dimensions within the indicators “Enablers and Firm activities”. Sweden does not do so well when looking at the output indicators “Innovators” and “Economic Effects”, where Sweden is ranked number 10 and number 9, respectively.

The IUS also measures the innovation growth performance over the last five years, i.e. the absolute changes of the indicators. When comparing Sweden to the EU27 average Sweden falls below average in “Human resources”, “Linkages and Entrepreneurship” and “Economic Effects”. Sweden is average in “Open excellent and attractive research systems” and in “Finance and Support”. Sweden is above average in “Firm investments”, “Intellectual assets” and “Innovators”.

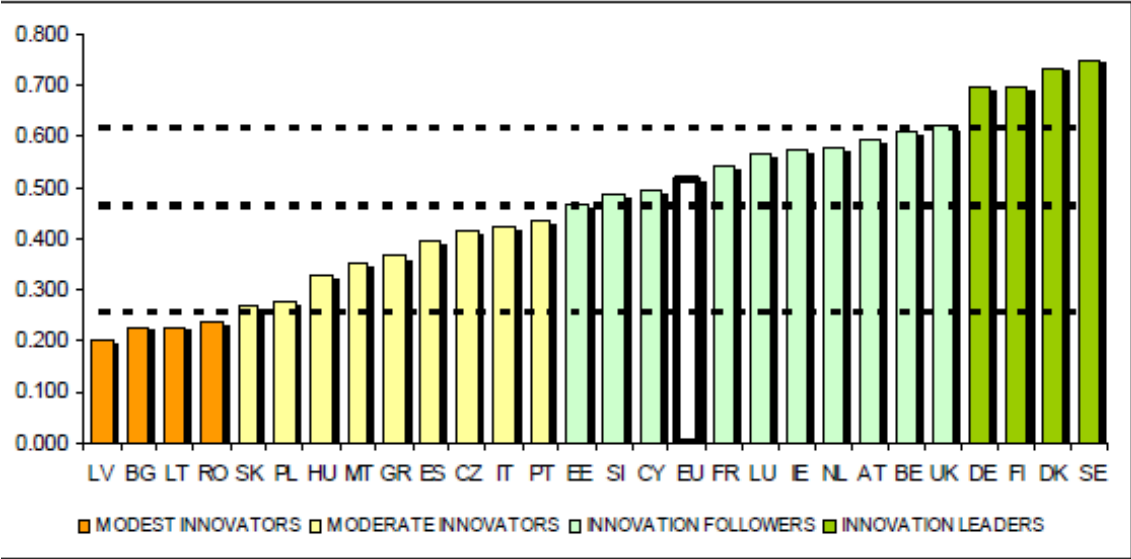


Figure 9. Sweden is the innovation leader in EU according to IUS.

Reflections on Sweden’s ranking according to IUS

Sweden has been among the innovation leaders for several years and shares a number of strengths with the other innovation leaders in EU. It is a prerequisite for an innovation-based economy to have a sound base and support of drivers of innovation, both external and internal. Sweden does very well and scores high in the dimensions that measure this.

However, in order for a country to continue to grow there has to be an output, i.e. productivity and a rate of return of investment, measured by growth. Sweden does not perform as well as other member states when the output dimensions are compared (Figure 10).

Sweden is below average in indicators such as “SMEs introducing marketing or organizational innovation as % of SMEs”, “Knowledge-intensive services export as % of total service export” and “Sales of new to market and new to firm innovations as % of turnover”.

Sweden ranks high when it comes to “License and patent revenues from abroad as % of GDP” and although Sweden is above average in “SMEs introducing product or process innovation as % of SMEs”, it is still far from Germany’s and Switzerland’s scores.

Output:	SE	No 1 (EU27)	No 1 (EU)
SMEs introducing product or process innovation as % of SMEs	0,655 (8/9)	0,981 (DE)	1,0 (CH)
SMEs introducing marketing or organisational innovation as % of SMEs	0,466 (15)*	1,0 (DE)	1,0 (DE)
High-growth innovative firms**	N/A	N/A	N/A
Employment in knowledge-intensive activities (manufacturing and services) as % of total employment	0,726 (6/7)	1,0 (LU)	1,0 (LU/CH)
Medium and high- tech product exports as % of total product exports	0,637 (10/11)	0,976 (MT)	0,976 (MT)
Knowledge-intensive services export as % of total service export	0,5 (10/12)*	1,0 (IE/LU)	1,0 (IE/LU)
Sales of new to market and new to firm innovations as % of turnover	0,303 (23/29)*	1,0 (GR)	1,0 (GR/CH)
License and patent revenues from abroad as % of GDP	0,881 (2/3)	1,0 (MT)	1,0 (MT/CH)

* Below average in EU27, ** new EU2020 headline indicator, will be completed within the next two years
SE= Sweden; DE= Germany; CH= Switzerland; LU= Luxembourg; MT= Malta; IE= Ireland; GR= Greece

Figure 10. *The eight indicators of “Output – effect of firms’ innovation activities”.*

When the innovation performance is converged it is clear that Sweden has a high innovation performance, but low average annual growth (Figure 11). When comparing to other innovation leaders Sweden is just ahead of Denmark, but behind both Germany and Finland, in fact Sweden shows slower growth than average in EU.

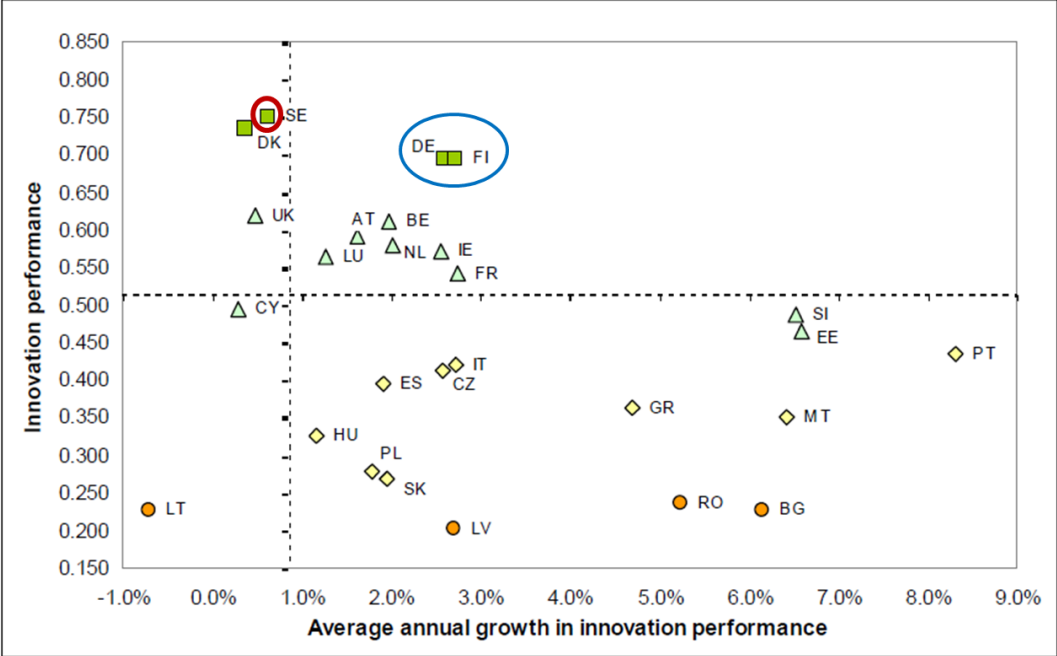


Figure 11. Convergence in innovation performance and average annual growth rates calculated over a five-year period of all 27 EU member states. Sweden (SE) is indicated by a red circle and Germany (DE) and Finland (FI) are marked with a blue circle. The dotted lines show the average performance and growth of 27 EU member states.

Comments to IUS and areas of improvement

It is very encouraging that Sweden is considered to be the innovation leader of the European Union and number two in Europe. The high ranking in innovation input is something that should be paid attention to and used in the promotion of Sweden as an innovative country. In this report however, we have decided to emphasize areas where Sweden is not performing its best, where there is plenty of room for improvement.

One way to look at Sweden’s results is to look at the spider graphs and compare Sweden’s web to the innovation leaders’ (Figures 12 and 13). Each country has its own specificities, but it is important that the national research and innovation systems have a balanced performance across all categories of indicators. Figure 6 clearly shows that Sweden is very strong in all indicators except the ones that measure output. The national policy should be focused to make the web more uniform, thus making Sweden a true innovation leader, one that generates growth and prosperity to its citizens.

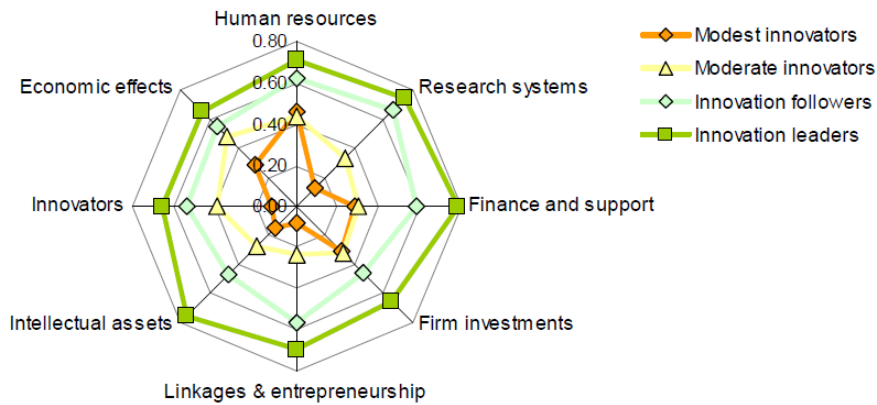


Figure 12. The Spider Graph, where the different types of innovators are depicted. A uniform “web” indicates a balance between the indicators.

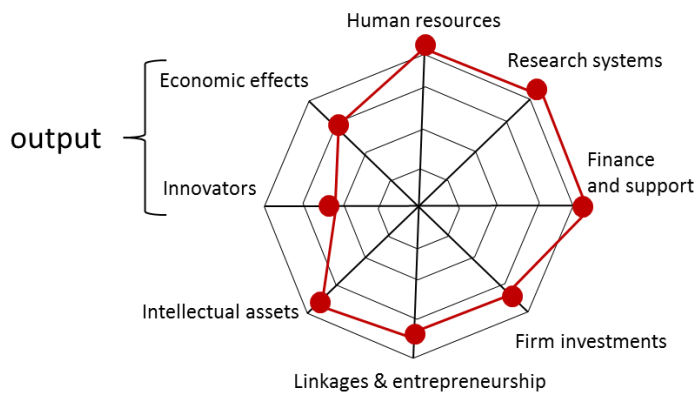


Figure 13. The Spider Web for Sweden shows that Sweden there is an imbalance in the “web” where the output is measured.

SwedenBIO thinks it is especially disturbing that Sweden is below average in indicators that measure export of knowledge-intensive services and sales of innovation. If Sweden is to prosper from its innovative climate, it is important to use the input as levers to gain higher growth, not to win the Innovation Union Scoreboard “Innovation leader trophy”.

Appendix 3 – Global Competitiveness Report 2010-2011

Description of the report

The Global Competitiveness Report (hereinafter jointly referred to as GCR) summarizes the overall national competitiveness of countries in the world. The GCR includes 139 countries measured by 12 pillars (Figure 14) and the pillars are comprised of 100 indicators. Based on these indicators, each country is given a Global Competitiveness Index (GCI), which measures the microeconomic and macroeconomic foundations of national competitiveness.

This report defines competitiveness “as a set of institutions, policies and factors that determine the level of productivity of a country”. The data sources are international organizations and national sources in combination with the World Economic Forum’s Executive Opinion Survey. The GCI also takes into account the stage of development of a country and gives the pillars more relevant for the particular stage of development more weight. Sweden has reached stage 3 and is an innovation-driven economy. Thus the pillars “Business sophistication” and “Innovation” are given more weight.

SwedenBIO has in this report, as in the IUS report, focused on areas and indicators that are of most relevance for the Life Science industry in Sweden.

The 12 pillars measured in GCR

- **Basic requirements**
 1. Institutions
 2. Infrastructure
 3. Macroeconomic environment
 4. Health and primary education

- **Efficiency enhancers**
 5. Higher education and training
 6. Goods market efficiency
 7. Labor market efficiency
 8. Financial market development
 9. Technological readiness
 10. Market size

- **Innovation and sophistication factors**
 11. Business sophistication
 12. Innovation

Figure 14. The 12 pillars that are overall indicators for Sweden’s performance in the GCR.

Ranking of Sweden according to GCR

Sweden ranks high, 2nd of 139 countries after Switzerland, followed by Singapore, US and Germany. Compared to the last report Sweden has moved up from being ranked as number 4. When looking into each pillar, Sweden ranks highest in “Institutions” (2/139), “Technological readiness” (1/139), “Innovation” (5/139) and “Higher educations and training” (2/139). The spider chart in Figure 15 shows that Sweden is a typical innovation-driven economy according to GCR.

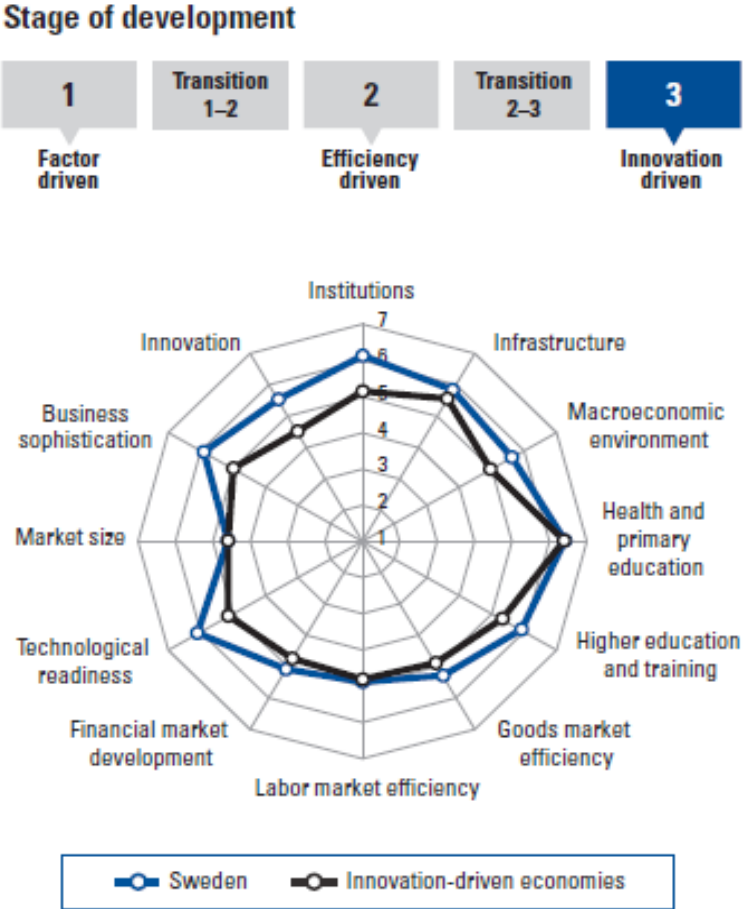


Figure 15. Overall picture of Sweden’s rankings in the twelve pillars. Sweden is innovation driven country (stage 3).

When Swedish executives were asked about the most problematic factors for doing business from a list of 15 factors, the top factors were restrictive labor regulations, tax rates, tax regulations and access to financing (Figure 16).

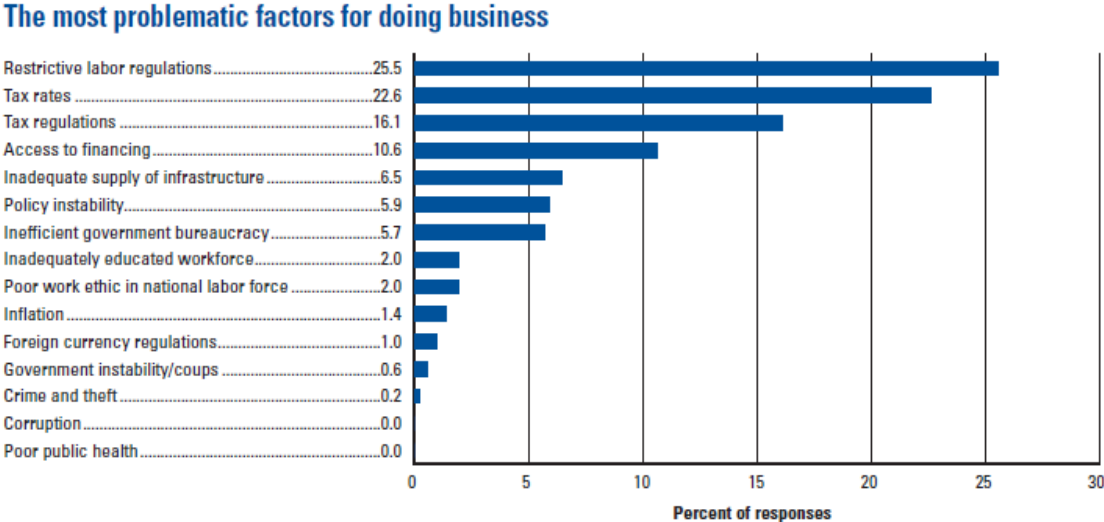


Figure 16. The Swedish answers from the Executive Opinion Survey. From a list of 15 factors respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5.

Reflections on Sweden’s ranking according to GCR

Sweden ranks high in this report in the areas “Institutions” and “Innovation”, which aligns with Sweden’s result in the two other reports Worldview Scorecard 2010 and Innovation Union Scoreboard 2010 analyzed in this study. Looking in more detail on the pillar “Innovation” and its indicators that affect the Life Science industry, Sweden ranks high in the “Capacity of innovation” (3/139), “Quality of scientific institutions” (5/139), as well as availability of “Scientists and engineers” (3/139). Sweden is ranked as number 1 in “Company spending on R&D”. The indicator ranking lowest in this pillar is the “Governments procurement of advanced technological products” (13/139).

Indicators affecting Life Science industry where Sweden has a low ranking are “Quality of Science and Math education” (20/139), “Market size, both domestic and foreign” (34/139) and “Extent and effect of taxation” (110/139). Also in the factor “Time required to start a business in Sweden” scores low (56/139).

Comments to GCR and areas of improvement

GCR is an excellent tool when looking at the overall economic competitiveness of Sweden. The report is very informative and it includes a large amount of indicators, taking in consideration the stage of development of each country. The report shows that Sweden has one of the world's most transparent and efficient public institutions and a government that is considered to be one of the most efficient in the world. A weakness of GCR is that it measures mostly input and not output. Sweden usually ranks high on input, i.e. "Institutions" and "Innovations". The one measure of output is market size, in which Sweden scores low.

Noteworthy, the quality in education of math and science is not scoring high when thinking of fulfilling the future need of competence within Life Science and its industry. The lack of a increasing markets both domestic and international is also alarming factor. For Life Science companies the taxation burden and the government's lack of breaking down the obstacles of starting, running and expanding a business in Sweden is something to be considered.