

Slovenia as a business location

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Study



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Contents

1	The IW Location Index.....	5
2	Slovenia in international comparison	9
2.1	Overall assessment	9
2.2	Governance.....	12
2.3	Infrastructure.....	14
2.4	Knowledge	16
2.5	Resources.....	18
2.6	Costs.....	20
2.7	Market	22
3	Slovenia and its neighbours.....	25
4	Annex	33

Figures

Figure 1-1: World map with country results	7
Figure 1-2: Index scores and gross domestic product per capita (GDP p.c.).....	8
Figure 2-1: Ranking results in the subject area Governance.....	13
Figure 2-2: Ranking results in the subject area Infrastructure.....	15
Figure 2-3: Ranking results in the subject area Knowledge	17
Figure 2-4: Ranking results in the subject area Resources.....	19
Figure 2-5: Ranking results in the subject area Costs	21
Figure 2-6: Ranking results in the subject area Market	23
Figure 4-1: Composition of the IW Location Index.....	34

Tables

Table 1-1: General Results.....	6
Table 2-1: Country scores.....	11

1 The IW Location Index

Structure and components of the IW Location Index

The attractiveness of a location for companies is based on a number of different characteristics known as location factors. The shape of these location factors - especially when comparing different locations - has a significant influence on whether a company chooses to settle or invest in a certain location. For this decision, it is important to identify the specific requirements that companies have for a location and to compare the quality of the location conditions internationally.

The IW Location Index was defined to

- ▶ identify important framework conditions industrial companies need in order to be successful in international competition;
- ▶ to measure how good the location conditions are in certain countries and to compare them with relevant competitor countries.

The quality of Slovenia as a business location and of competing countries is determined using 57 indicators. These indicators are grouped into 14 subgroups, which in turn are assigned to the following six subject areas:

- ▶ Governance: The general governance structure, the regulatory environment and an assessment of the bureaucracy are assigned to the area of governance as evaluation criteria.
- ▶ Infrastructure: In addition to Internet access and broadband supply, the general infrastructure and the performance of the logistics systems are evaluated in this area. Road infrastructure is included in the assessment of the general infrastructure and is therefore not shown explicitly. Indicators on seaports and air transport reflect international connectivity.
- ▶ Knowledge: The innovation environment, the education system, future skilled workforce and industrial relations are evaluated here.
- ▶ Resources: In this area the production and reserves of raw materials, energy supply and energy efficiency, and the capital market are evaluated.
- ▶ Costs: taxes, labour costs, energy, interest and export costs are assessed here.
- ▶ Market: evaluation criteria in this area include components such as economic complexity, market size, the nature of the value chains and the openness of the markets.

For a differentiated analysis of the strengths and weaknesses of the individual countries in the respective location factors, a separate sub-ranking is created for each of the above-mentioned subject areas.

The subject areas are condensed into an index of industrial location conditions. The study follows the study design of other editions of the IW Location Index (cf. vbw, 2022; Bähr, Bardt, 2021; Bähr, Millack, 2018; IW, IW Consult, 2013). For an interesting comparison of the Slovenian results a number of neighbouring states as well as the average assessment of groups of EU Member States and Germany are chosen.

General results

In the overall assessment, the group of industrial countries perform on average significantly better than the group of emerging countries. The former achieves an average total score of 117.1 index points in comparison to 84.8 index points only for the group of emerging countries. The general pattern in the assessment of the subject areas is, that industrial countries on average outperform emerging countries in the areas of Governance (127.7 vs. 73.5 index points), Infrastructure (132.0 vs. 72.1 index points), Knowledge (117.8 vs. 83.0 index points), Resources (106.5 vs. 94.5 index points), and Market (113.5 vs. 90.2 index points). Emerging countries show an advantage in the area of Costs, where they reach 110.4 index points in comparison to 91.5 index points for the Industrial countries.

Table 1-1: General Results

Overall scores; Index (100 = mean score)

Country Group	Total	Governance	Infrastructure	Knowledge	Resources	Costs	Market
Industrial countries	117.1	127.7	132.0	117.8	106.5	91.5	113.5
Emerging countries	84.8	73.5	72.1	83.0	94.5	110.4	90.2
EU-14	114.2	123.9	132.8	117.1	97.6	86.0	113.8
EU-11	94.3	95.8	83.2	98.3	93.6	118.9	89.5

Source: own calculations

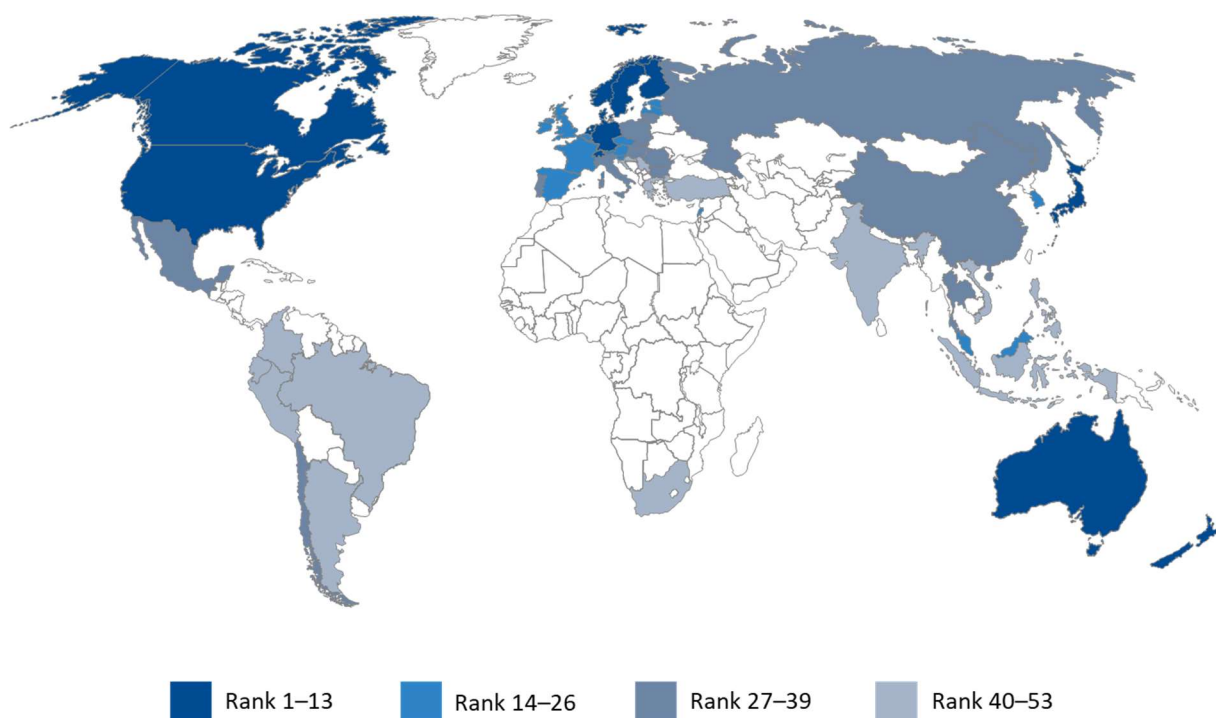
Among the 20 countries on the top of the overall ranking, 18 belong to the group of industrial countries, only two are emerging countries (Malaysia, rank 18; Estonia, rank 20). This observation holds similarly for the subject areas of Governance (Estonia, rank 10; Lithuania, rank 17) and Infrastructure (China, rank 20). The difference is less clear in the areas of Knowledge or Market. In the former, five of the best performing countries are emerging economies, four of them – Estonia (rank 13), Czechia (rank 17), Slovenia (rank 19), and Lithuania (rank 20) – from Europe. Three Asian emerging economies – Malaysia (rank 2), China (rank 19), and Vietnam (rank 20) – are among the top 20 countries in the subject area Market. Because emerging economies are often rich in natural resources, seven of the top 20 countries in the subject area Resources belong to this group. The top 20 in the Costs subranking are dominated by emerging countries. With Canada (rank 11), Luxemburg (rank 13), Portugal (rank 17),

and Korea (rank 19) only four Industrial countries belong to the group with the most favourable conditions in this area.

Figure 1-1 depicts the ranking results of the 53 included countries. It shows very clearly that the upper part of the ranking is dominated by OECD-countries from (Western) Europe and North America rounded off with Japan, Australia, and New Zealand.

Figure 1-1: World map with country results

Ranking in IW Location Index



Source: own illustration

The advantage of industrial countries compared to emerging countries is also visible within Europe. The Western European group of industrial countries (labelled EU-14 in the remainder) – i.e., the 14 EU Member states that made up the European Union between 1995 and 2004 (without Great Britain) – outperform the “new” EU Member States (labelled EU-11 in the remainder) that joined the EU in 2004 and 2007 plus Croatia, respectively.

The average total score of the EU-14 countries is 114.2, similar to the average of all Industrial countries. The average total score of the EU-11 countries is 94.3 markedly better than the average score of all emerging countries, but still well below the average (Table 1-1).

In terms of the individual subject areas, the EU-14 countries achieve very similar ratings to the average for industrialized countries in the areas of Governance, Infrastructure, Knowledge and Market. The performance in the subject areas Resources and Costs are worse. The advantage of European emerging countries in comparison to non-European countries arises from the areas of Governance,

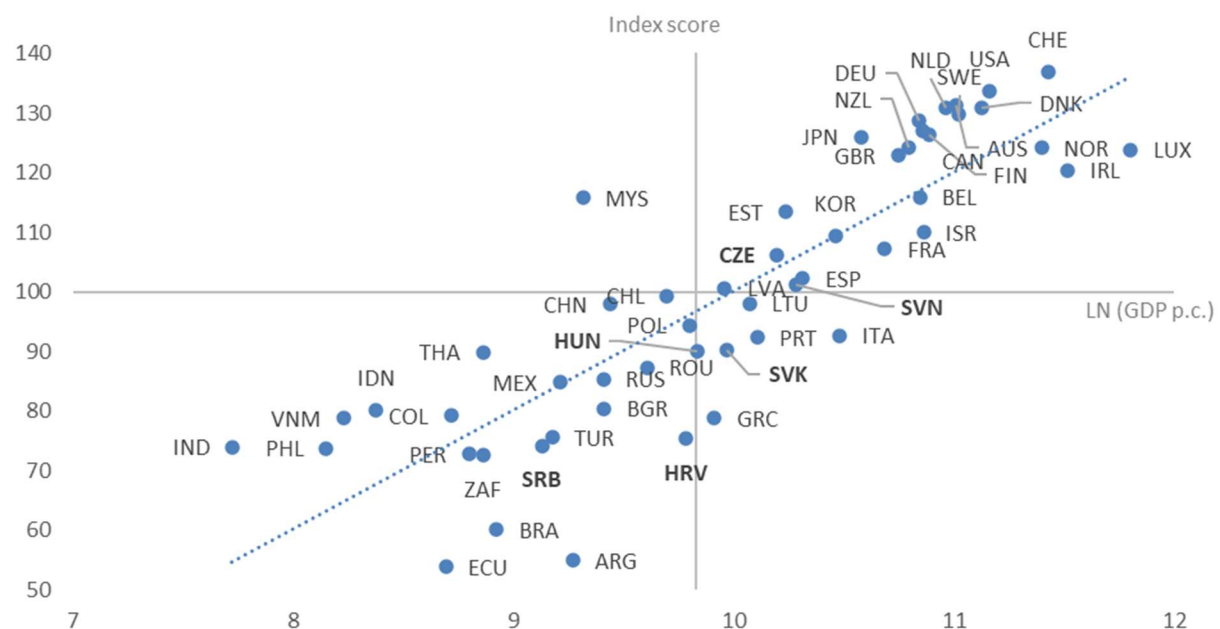
Infrastructure, and Knowledge. The below average ratings of EU-11 and EU-14 countries concerning Resources reflects the poor endowment and usage of natural resources in Europe more generally. Cost performance is in the EU-11 countries better than in all other country groups.

Figure 1-2 illustrates the economic significance of the rating in the IW Location Index. Higher index scores correlate strongly with higher per capita income or productivity (expressed here as gross domestic product per capita). High-income countries generally have better locational conditions. Better locational conditions enable higher productivity, e.g., because hidden costs due to a lack of rule of law and corruption do not arise for companies or because government bureaucracy and regulatory activity are less burdensome. A higher level of education, a better developed and more efficient infrastructure or favourable market conditions also attract investment on the one hand and promote the economic activity of local companies on the other. On the flip side of the coin, countries with higher incomes can more easily finance favourable locational factors, such as sound infrastructure or an efficient education system.

Slovenia and its neighbours in focus of this study perform in the middle of both distributions, that of index scores and that of income per capita. Czechia (22,798 Euro p.c.; 106.2 index points) and Slovenia (24,898 Euro p.c.; 101.1 index points) are above the average of the 53 included countries. The other four countries – Hungary, Slovakia, Croatia, and Serbia – score under these averages in both dimensions.

Figure 1-2: Index scores and gross domestic product per capita (GDP p.c.)

Index score 0-200, with mean = 100



Source: own illustration. LN (GDP p.c.) is the natural logarithm of GDP p.c., with 7 = 1.097 US-\$; 8 = 2.981 US-\$; 9 = 8.103 US-\$; 10 = 22.026 US-\$; 11 = 59.874 US-\$; 12 = 162.755 US-\$.

2 Slovenia in international comparison

There are a number of general results from the international comparison of the locational properties of Slovenia and its neighbouring states.

- ▶ Slovenia and Czechia are among the best locations in middle eastern Europe and achieve a similar ranking (25th and 23rd, respectively) in the IW Location Index. Nevertheless, the structure of relative strengths and weaknesses differ.
 - ▷ Governance and Knowledge are considered to be strengths of both countries in international comparison, and compared to the EU-11 average.
 - ▷ For Slovenia also Infrastructure and Costs turn out to be advantageous as locational properties. Resources and Market contribute negatively to the rating.
 - ▷ For Czechia, Market, Resources, and Costs are identified as strengths, while infrastructure seems to be a weakness.
 - ▷ Both countries are ahead of the average of their country grouping in the overall assessment and in most subject areas.
- ▶ Slovakia and Hungary follow Slovenia and Czechia with some distance in the ranking (rank 33 and 34).
- ▶ The performance of the new EU-Member state Croatia and the candidate country Serbia is worse (rank 45 and 46) and below the international average.

2.1 Overall assessment

Slovenia

Regarding the overall assessment of the quality of location factors, Slovenia ranks 25th out of 53 countries. This represents a solid placement in the middle of the ranking. This rank corresponds to a total score of 101.1. points, which is slightly above the average of 100.

Slovenia's performance in the individual subject areas of the index provides an indication of the location's relative strengths and weaknesses in an international comparison. The comparison reveals Slovenia as a location with relatively low costs. A sound knowledge base of the economy and the infrastructure are also strengths of the country. Governance is rated slightly above average. Resources (natural resources and strength of the capital market) and Market are subject areas with ratings below average.

Compared to the EU-11, Slovenia's overall assessment is clearly above average (101.1 vs. 94.3 index points). Distinct advantages are visible in the subject areas of Governance (101.4 vs. 95.8 index points), Infrastructure (104.9 vs. 83.2 index points), and Knowledge (113.2 vs. 98.3 index points). Also, the Market conditions in Slovenia are rated better than in the EU-11 (94.4 vs. 89.5 index points). The Costs rating is almost the same as in the EU-11 (119.0 vs. 118.9 index points). Only in the area of Resources the EU-11 score is with 93.6 index points better than Slovenia's (87.2 index points).

Croatia

Croatia ranks 45th out of 53 countries. The total score is 75.3, which is substantially below average. The country shows a competitive advantage in the subject area Costs (129.1 index points) only. The remaining subject areas are with scores of 67.5 (Market) to 83.8 (Infrastructure) all well below average.

Czechia

Czechia ranks 23rd, two places ahead of Slovenia. Its index score is 106.2. Its main advantages in comparison to Slovenia are in the fields of Governance (108.1 index points), Market (106.5 index points) and Resources (102.4 index points). In the area of Knowledge, both countries achieve similar scores (114.6 and 113.2 respectively), while Slovenia performs better in the areas of Infrastructure (Czechia 93.6 index points, Slovenia 104.6 index points) and Costs (Czechia 107.9 index points, Slovenia 119.0 index points).

Hungary

With 90.0 index points the country is in 34th place. Costs is the only area, in which Hungary achieves a result above average (rank 9, 118.9 index points). The scores for Resources (93.4 index points), Market (92.4 index points) and Knowledge (91.1 index points) are better than the total score. Governance (83.2 index points) and infrastructure (78.6 index points) are weaknesses of the country.

Serbia

Similar to Croatia, Serbia is found at the bottom of the ranking. Its overall performance (74.2 index points) is worse than Croatia's. Governance (66.2 index points), Infrastructure (51.3 index points) and Resources (70.2 index points) are pronounced weaknesses. Market (75.2 index points) and Knowledge (89.7 index points) perform slightly better. Only the evaluation of Costs (107.9 index points) is above average.

Slovakia

The overall assessment of Slovakia's location factors is similar to Hungary's. Slovakia achieves an index score of 90.3 and ranks 33rd. Relative strengths lie in the areas of Costs (Rank 26, 105.3 index points), Resources (Rank 27, 100.9 index points) and Knowledge (Rank 28, 93.8 index points). In the subject area Governance, Slovakia ranks 31st with 82.1 index points. Its Market conditions are evaluated with 91.9 index points and rank 37. Infrastructure is the weakest area with only 71.0 index points and rank 39.

Germany

For comparison, Germany ranks 7th in the overall assessment with 128.6 index points. Market (Rank 1, 136.8 index points), Infrastructure (Rank 4, 151.5 index points), Knowledge (Rank 8, 131.5 index points), Resources (Rank 9, 115.5 index points), and Governance (Rank 15, 131.0 index points) are strengths in the assessment. Costs on the other hand is pronounced weakness of the location. Rank 48 and only 71.6 index points are a clear result.

Table 2-1: Country scores

Overall scores; Index (100 = mean score)

	Total	Total Rank	Governance	Infrastructure	Knowledge	Resources	Costs	Market
Slovenia	101.1	25	101.4	104.9	113.2	87.2	119.0	94.4
Croatia	75.3	45	71.7	83.8	70.8	72.8	129.1	67.5
Czechia	106.2	23	108.1	93.6	114.6	102.4	107.9	106.5
Hungary	90.0	34	83.2	78.6	91.1	93.4	118.6	92.4
Serbia	74.2	46	66.2	51.3	89.7	70.2	107.9	75.2
Slovakia	90.3	33	82.1	71.0	93.8	100.9	105.3	91.9
EU-14	114.1	n.a.	123.9	132.8	117.1	97.6	86.0	113.8
EU-11	94.3	n.a.	95.8	83.2	98.3	93.6	118.9	89.5
Germany	128.6	7	131.0	151.5	131.5	115.5	71.6	136.8

Source: own calculations

2.2 Governance

Slovenia

Concerning Governance, Slovenia achieves with 101.4 index points on rank 29 a rating close to the average of all 53 countries in the IW Location Index. This result is noticeably better than the average score of the EU-11 (95.8 index points), but it remains a wide gap to the ratings of the EU-14 (127.7 index points) or of Germany (131.0 index points). New Zealand (164.6 index points), Denmark (158.1 index points), and Switzerland (155.0 index points) are the top performers in this subject area.

Regarding the subcategories in the Governance area, the rating of the general regulatory framework in Slovenia is above average (107.7 index points). This is due to positive evaluations of government efficiency and rule of law, while the assessment of economic freedom is below average. The remaining two subcategories regulation and bureaucracy are rated below average. Regulation (85.0 index points) is also rated below the EU-11 average (110.7 index points). For bureaucracy the EU-11 rating is about the same (Slovenia: 93.4 index points; EU-11: 94.1 index points). In Slovenia, overall regulation and labour market regulation are seen as tighter than in the average of countries, while regulatory quality is about average. Regarding bureaucracy, business freedom, regulation of business, and time requirement for paying taxes are rated below average, while the requirements for starting a business and the number of tax payments have a positive impact on the rating.

Croatia

Croatia's rating on Governance is well below average (71.7 index points), which puts it on rank 36. All of the three subcategories are below average. Economic and business freedom, business regulation and corruption control belong to the pronounced weaknesses of the country. Only labour market regulation is close to average.

Czechia

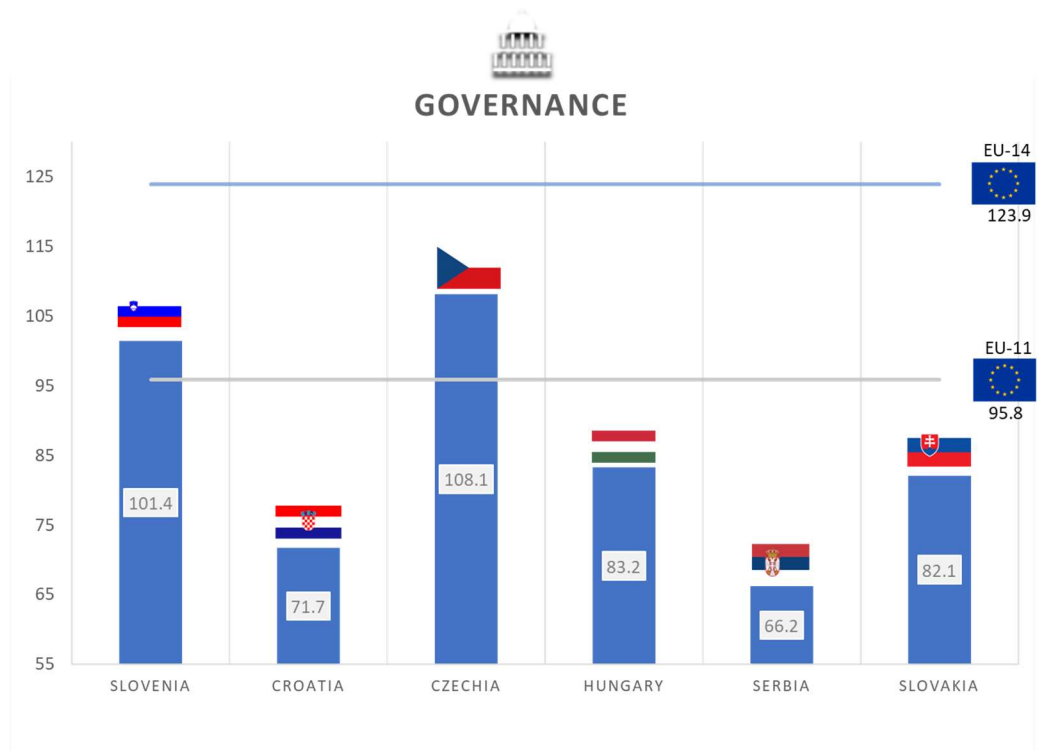
Czechia's rating of 108.1 index points (rank 25) in the subject area Governance is the best among the compared EU-11 countries in this report. Compared to Slovenia, the general regulatory framework is rated better (115.9 index points). The assessment of regulation (i.e., regulatory policies) ranks in the top ten in this subcategory (144.8 index points). Only the subcategory bureaucracy is below average. Looking at single indicators, especially labour market regulation, overall regulation and regulatory quality are rated above average. Also, government efficiency, economic and business freedom and the rule of law are highly evaluated. Control of corruption is about average, while business regulation and the ease of starting a business are well below average.

Hungary

Hungary ranks 30th with 83.2 index points in the subject area of Governance. It achieves only below average scores in all the three subcategories general regulatory framework, regulation, and bureaucracy. Regarding individual indicators only labour market regulation and the conditions for starting a business are rated better than the respective averages. Lack of corruption control and burdensome business regulation stand out as weaknesses of the country in this area.

Figure 2-1: Ranking results in the subject area Governance

Scores in the subject area; Index (100 = mean score)



Source: own calculations

Serbia

Serbia's rating in the subject area Governance is wide below average. With 66.2 index points it ranks 40th, which compares to countries like China (rank 38, 68.4 index points), Indonesia (rank 41, 64.5 index points) or Columbia (rank 42, 63.9 index points). In all three subcategories, Serbia's ratings are well below average. The general regulatory framework (55.8 index points) is hampered by lack of government efficiency, rule of law and corruption control. Economic freedom is rated better but still well below average. The evaluation of regulation is slightly better, as labour market regulation is not very tight and overall regulation is rated nearly average. In contrast, the quality of regulation is rated as poor as the other governmental framework conditions. In the subcategory bureaucracy, only the ease of starting a business is rated above average, while business freedom, business regulation, and paying taxes are viewed as burdensome for companies.

Slovakia

Slovakia's Governance rating (82.1 index points) is worse than its overall assessment. The general regulatory framework (82.5 index points) and the bureaucracy (76.1 index points) are below total average and below the average of the EU-11 countries. Regulation (109.4 index points) on the other hand is above average. Government efficiency, rule of law, and corruption control as well as economic and

business freedom and the ease of starting a business are seen as weaknesses of the location. Labour market and overall regulation on the other hand are strengths in this area.

Germany

The subject area Governance belongs to the strengths of Germany as a business location. General regulatory framework and regulation score are strongly above average, bureaucracy is also well above the average score. Government efficiency, rule of law, and corruption control are well developed in international comparison. Labour market regulation and overall regulation are not regarded as burdensome in an international perspective. Economic and business freedom are not quite as strong, but only two of the indicators in this area are only little better than the international average: the conditions for starting a new business and the time effort to fulfil tax requirements.

2.3 Infrastructure

Slovenia

Slovenia ranks 25th with 104.9 index points in the Infrastructure pillar of the IW Location Index. This result is better than the total average of all 53 countries and substantially better than the EU-11 score of 83.2 index points. Still, there is a gap to the 132.8 index points of the EU-14 countries. In both sub-categories – general infrastructure and air and ship transport – Slovenia scores better than the average of the EU-11 countries.

The Netherlands (160.9 index points), Sweden (153.7 index points), and Japan (153.3 index points) are the top performers in this subject area.

Slovenia achieves scores above average in life expectancy as a measure of the general quality of the infrastructure. Also, the measures for internet access and broadband coverage are well above the international average, although it is often non-European emerging economies that score considerably worse in this area. The development of the logistics system is below average in international comparison, but it is better than in the neighbouring countries, Croatia, Serbia, Hungary, or Slovakia. Ports contribute positively to the assessment, while air connections are below average.

Croatia

Infrastructure is the subject area with the second-best rating for Croatia (after Costs). It achieves 83.8 index points and ranks 34th. While ICT-infrastructure is still below the EU-11 average, a relatively high life expectancy indicates a relatively well-developed overall infrastructure. Access to ports and their quality are at least no disadvantage in international comparison.

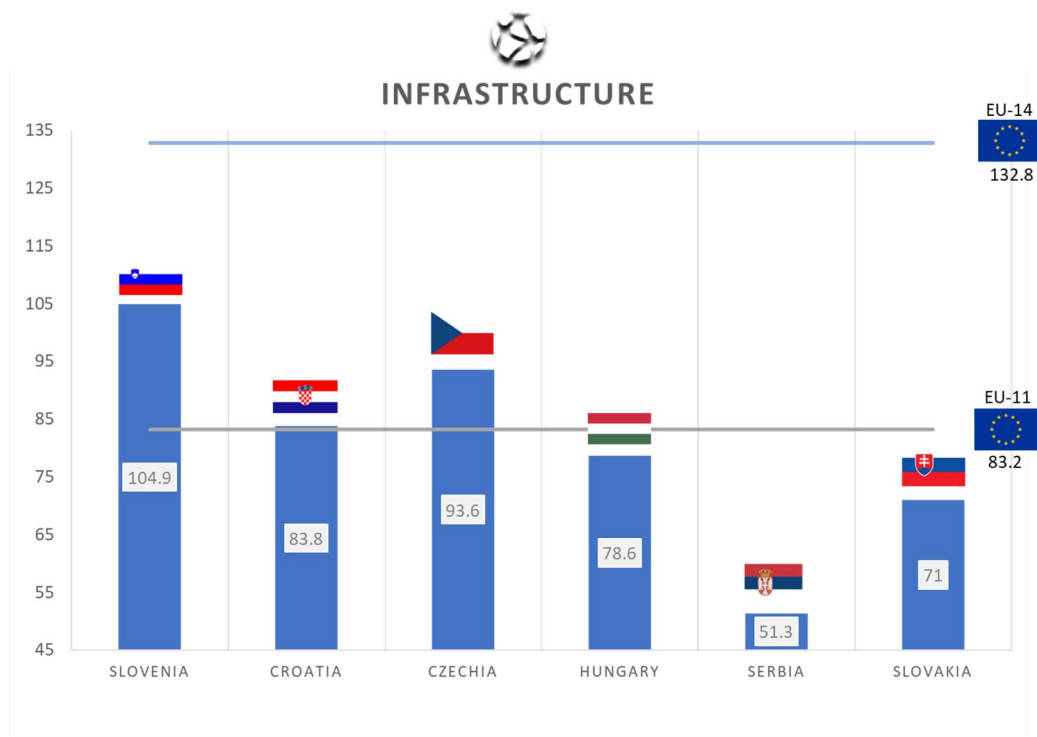
Czechia

In Czechia, Infrastructure is the subject area with the lowest rating. 93.6 index points, while still being well above the EU-11 average, result in rank 30. While general infrastructure is rated above average, air and ship transport are weaknesses. As a landlocked country, Czechia's potential to improve in this

area is limited and depends on policies of neighbouring countries. Logistic systems, life expectancy, and broadband coverage contribute positively to the assessment.

Figure 2-2: Ranking results in the subject area Infrastructure

Scores in the subject area; Index (100 = mean score)



Source: own calculations

Hungary

Hungary ranks 36th in the ranking for the subject area Infrastructure. 78.6 index points are the weakest assessment of all subject areas in the IW Location index. Like Slovakia, the weak performance in the sub-category air and ship transport is only partially compensated by higher score for general infrastructure. Weak access to high quality ship transport is partially due to being a landlocked country. But relatively low life expectancy is a sign for a weak overall civil infrastructure. Logistics performance is below international average. Broadband coverage and internet access are the only indicators above average in the subject area.

Serbia

Infrastructure is the biggest weakness of Serbia in the assessment of the IW Location Index. With only 51.3 index points Serbia ranks 49th, just before Indonesia, India, Peru, and the Philippines. Among the individual indicators, only the broadband coverage achieves a slightly better than average rating. Especially, logistics systems and access to high quality ports are pronounced weaknesses of the country.

Slovakia

Slovakia achieves rank 39 in the Infrastructure sub-ranking. 71.0 index points are clearly below EU-11 average. General infrastructure and air and ship transport sub-categories are both below average. For landlocked Slovakia, ship transport is not entirely depending on national decisions, but conditions are still worse than for other landlocked countries. Logistic performance is well below average, as well as life expectancy. Only broadband coverage and internet access are better than average in the international comparison of 53 countries.

Germany

Infrastructure is a pronounced advantage for Germany in an international comparison. The country ranks 4th in the sub-ranking with a score of 151.0 index points. Especially the logistic performance is a strength, but almost all individual indicators in the subject area are clearly above average. Only air transport is close to average, but this is partially a corona-effect in 2020.

2.4 Knowledge

Slovenia

In the subject area of Knowledge Slovenia achieves the second-best sub-rating in the assessment. With 113.2 index points it ranks 19th. This score is clearly better than the EU-11 average (98.3 index points) and close to the EU-14 rating of 117.1 index points. Switzerland (159.3 index points), Japan (147.6 index points), and Denmark (144.1 index points) are the top performers in this subject area.

There are three sub-categories in this subject area. Slovenia scores clearly above average in human capital (129.9 index points) and R&D environment (120.2 index points), while industrial relations are rated below average (89.8 index points).

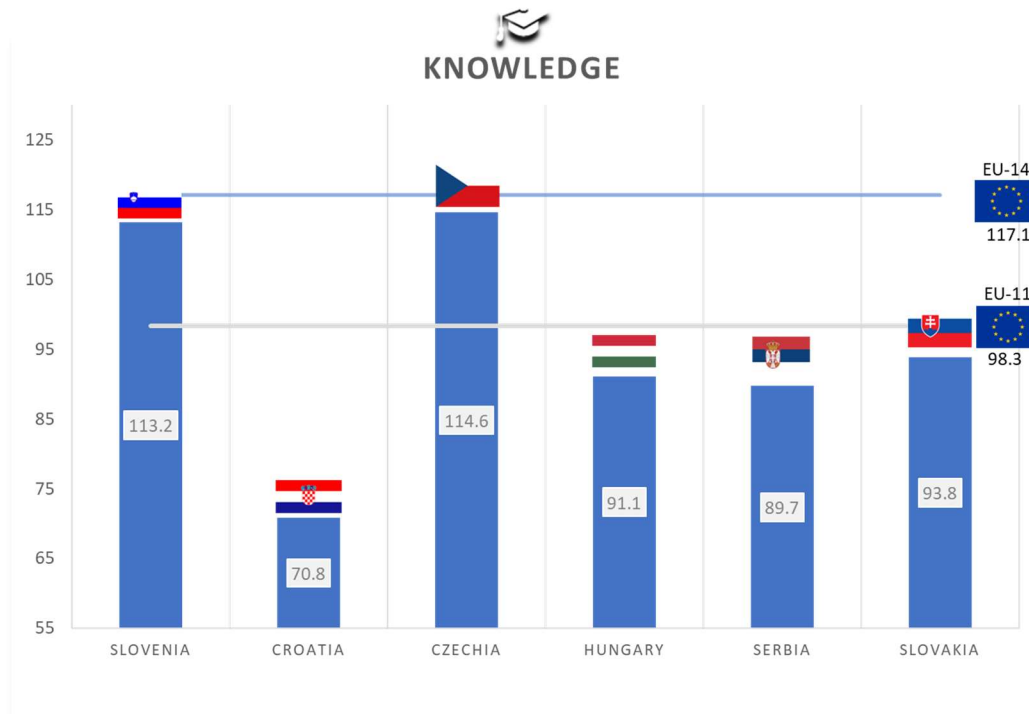
The human capital endowment in Slovenia is considered as high, as the country has above average results in a broad range of education indicators, such as average schoolyears, primary and secondary education. The share of persons with tertiary education is below average. Considering R&D environment, the share of graduates in Science, Technology, Engineering and Mathematics (STEM) is relatively high and the R&D spending as a share of GDP and R&D spending by manufacturing firms is above average, as well as publications in scientific journals. Industrial relations are measured by one indicator based on survey results. They are considered to be more conflictual than in the average of all countries compared.

Croatia

The assessment of Knowledge belongs to the weaknesses in the country's rating. 70.8 index points are low in international comparison and relative to the EU-11 benchmark. The country ranks 44th. Similar to the neighbouring states, general schooling statistics are better than the international average. This holds also for the share of STEM graduates. Nevertheless, productivity, R&D spending, and patenting activities are below average. Industrial relations seem to be strained.

Figure 2-3: Ranking results in the subject area Knowledge

Scores in the subject area; Index (100 = mean score)



Source: own calculations

Czechia

Czechia's rating in the subject area Knowledge is with 114.6 index points slightly better than that of Slovenia. Czechia ranks 17th. Human capital (139.0 index points) in Czechia has a similar structure as in Slovenia: strong in enrolment, primary and secondary education, but below average in tertiary education. The combined score of these indicators is better than in Slovenia. R&D environment (105.7 index points) and industrial relations (99.5 index points) are better than the respective EU-11 averages.

Hungary

Hungary ranks 31st in the subject area Knowledge (91.1 index points). Human capital endowment is above average because of the results of general schooling statistics. But the R&D-environment is poor in international comparison. The share of STEM graduates is below international average, and so are R&D spending, productivity, and patenting activities.

Serbia

Serbia achieves with 89.7 index points rank 34. Knowledge is Serbia's second-best subject area and the gap to the EU-11 average is smallest. Serbia shows above average results in human capital, stemming

mainly from high shares of persons with completed primary and secondary education. The share of persons with tertiary education is below average. The rating for the R&D environment is below average, because only the share of STEM-graduates and R&D spending by firms perform strongly. Also, industrial relations are considered as conflictual.

Slovakia

For Slovakia, Knowledge contributes positively to the overall ranking. 93.8 index points put the country on rank 28 in this subject area. General schooling statistics have a positive impact on this result. R&D-environment and industrial relations contribute negatively on the rating. Similar to the other countries in focus, R&D spending, productivity, and patenting activities are below average, as well as the share of STEM graduates.

Germany

For Germany, Knowledge is one of the strengths of the economy. With 131.5 index points it ranks 8th in the international comparison. A strong knowledge base is necessary to compensate for other weaknesses, especially in Costs. In Germany, all three subcategories of the subject area are rated above average, while R&D spending, both generally and spending by the manufacturing sector, STEM share in graduates and productivity stand out.

2.5 Resources

Slovenia

In the area of Resources, Slovenia ranks 42nd with 87.2 index points. This is also below the averages of the EU-11 and the EU-14 countries (93.6 and 97.6 index points, respectively). While natural resources and energy (93.8 index points) contribute positively to Slovenia's result, the assessment of the capital market is poor (75.5 index points). The World Bank's assessment of the possibilities for getting credit for companies is the cause for the rating, while the country rating is slightly above average. Slovenia's endowment with natural resources is under the average, but energy efficiency is slightly above average, and the reliability of the power system is a clear strength of the country. It ranks 10th in this individual indicator.

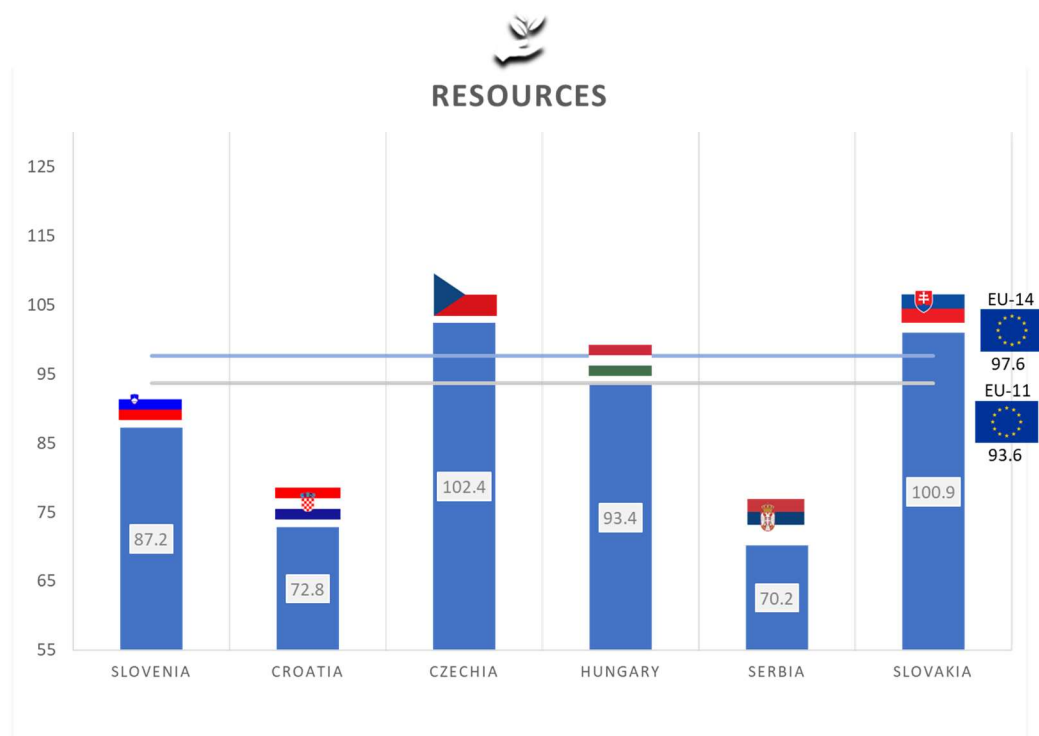
Australia (163.2 index points), the USA (139.3 index points) and Russia (126.9 index points) are the Top-3-performers in the subject area of Resources. All three countries benefit from their rich endowment in natural resources. Australia and the USA also have excellent ratings for their capital markets.

Croatia

Croatia achieves 72.8 index points in the subject area of Resources and ranks 49th. The economy suffers from high distribution losses in the power system, but energy efficiency is above average. Its endowment with natural resources is noticeably below average. Also, the assessment of the capital market is poor.

Figure 2-4: Ranking results in the subject area Resources

Scores in the subject area; Index (100 = mean score)



Source: own calculations

Czechia

With 102.4 index points, Czechia ranks 26th in the subject area of Resources. Its endowment with natural resources is below average and the economy's energy efficiency is low. The power transmission system sees only small losses, which is a strength of the country. Also, the assessment of the capital market is above average.

Hungary

With 93.4 index points, Hungary performs slightly better than the EU-11 average in the field of Resources and ranks 38th. The best individual indicator is the World Bank's assessment of the legal framework for getting credit by companies. This compensates the poor country rating in the assessment of the capital market. The endowment with natural resources is below average. Losses in the power transmission system are relatively high, while energy efficiency of the economy is average.

Serbia

Serbia ranks 50th in this area. The assessment of the capital market is poor because of a poor country rating. Also, the endowment with natural resources is weak. For Serbia, the assessment of the energy

system also shows weaknesses, as the energy efficiency of the economy is low, as is the reliability of power distribution.

Slovakia

Slovakia's result in the subject area of Resources is about average (100.9 index points) and puts the country on rank 27 out of 53. The assessment of the capital market contributes positively to the result. Also, the transmission losses in the power system are only small. Energy efficiency and the endowment with natural resources are below average.

Germany

Germany ranks 9th in the subject area of Resources (115.5 index points). Strengths of the country are the capital market, the energy efficiency, and the reliability of the power transmission system. The endowment with natural resources is limited.

2.6 Costs

Slovenia

In the subject area of Costs, different kinds of costs, such as labour cost, interest, energy prices, trade cost and taxes are compared. Slovenia ranks among the top ten on rank eight with 119.0 index points. Emerging countries generally fare better in this category. The EU-14 average here is 86.0 index points, while the EU-11 score 118.9 index points. Romania (140.2 index points), Thailand (135.9 index points), Bulgaria (135.1 index points) are the top performers in this subject area. In Slovenia, labour costs are rated as average among the 53 countries. Interest rates, trade costs and taxes are comparatively low, while energy costs are above average.

Croatia

For Croatia, the subject area Costs is the biggest advantage. It ranks 5th with 129.1 index points. Labour costs, taxes and trade costs are low. Disadvantages are relatively high interest rates and energy prices.

Czechia

Czechia achieves the same rating in index points as Serbia (107.9) and ranks 21st in this subject area. After trade costs interest rates are the second biggest advantage on the cost side in Czechia. Labour costs are also below average. Taxes and energy costs are higher than the average.

Hungary

Hungary is ranked 9th just behind Slovenia in this subject area. With 118.6 index points it achieves a similar result as Slovenia. After trade costs, labour costs are the second-biggest advantage in

international comparison and are also cheaper than in Slovenia. Interest rates, trade costs and taxes are better than the average, but no advantage compared to Slovenia. Energy costs are higher than the international average.

Figure 2-5: Ranking results in the subject area Costs

Scores in the subject area; Index (100 = mean score)



Source: own calculations

Serbia

Serbia ranks 20th in the subject area of Costs with 107.9 index points. Its biggest advantage here are cheap labour costs. Trade costs and taxes also contribute positively to the rating. In both categories, the country still ranks behind Slovenia. Disadvantages on the cost side are relatively high interest rates and energy prices.

Slovakia

Slovakia achieves 105.3 index points and ranks 26th in the subject area of Costs. Advantages are labour costs, interest rates and trade costs. Taxes and energy costs are above average.

Germany

As most of the industrialised countries Germany faces a cost problem in international competition. With 71.6 index points it ranks 48th out of 53 countries. Taxes and energy costs are high, labour costs are among the highest in international comparison, even if they are partially compensated with high productivity. Some relief for companies comes from low interest rates and trade costs.

2.7 Market

Slovenia

In the subject area Market, not only the market size is of importance. Also, the way companies cope with their value chains and the openness of the economy is part of the rating. With 94.4 index points Slovenia ranks 34th in this area. While the rating is below the total international average, it is better than the average of the EU-11 countries and all the countries in direct comparison besides Czechia. Germany (136.8 index points), Malaysia (135.7 index points), and Luxemburg (131.6 index points) are the top 3 performers in this area, followed by the USA (129.5 index points).

Slovenia's main strength is its openness. Trade share, tariff rate and globalisation index are all better than the international average. The assessment of orientation to market and customers is below international average, but better than the EU-11 average. The economic complexity is high and population growth at average. Assessment of buyer sophistication and market size are below average. The assessment of the value chain is below average. The picture of the individual indicators is mixed here. The industry-service-network, that represents the amount of joint value added of industry and services, is well developed and product diversification is only slightly below average. But there are relatively little business clusters and the impact of industrial production on the economy as a whole is limited.

Croatia

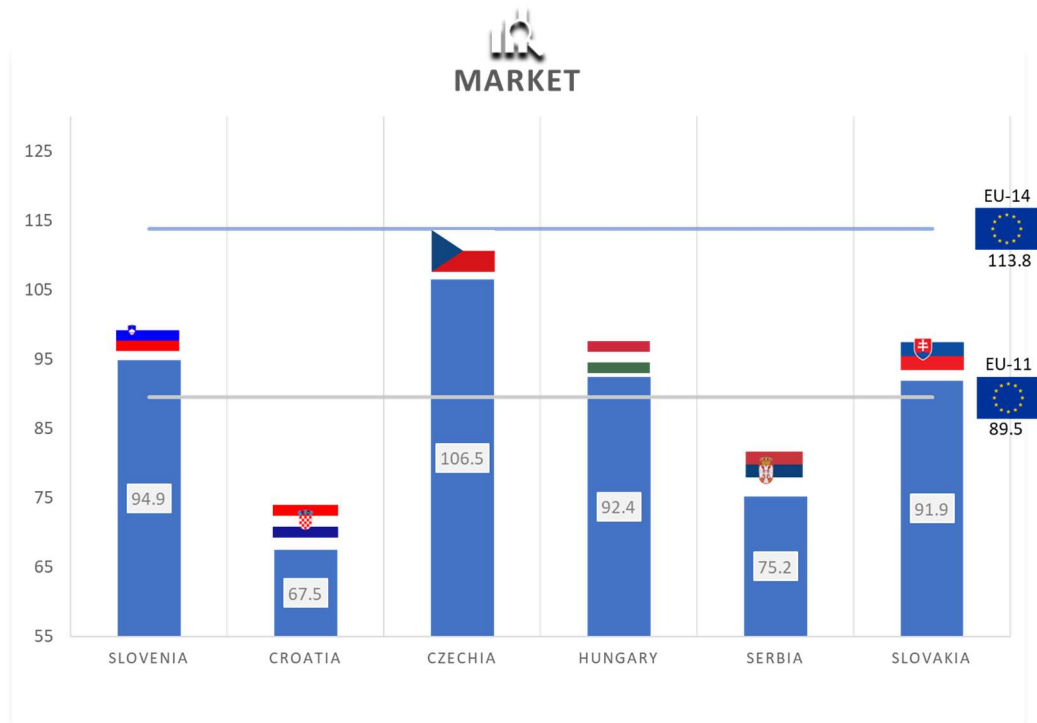
With 67.5 index points and rank 52, the area Market is Croatia's weakest point in the international comparison. While openness is above average, market and customer orientation and value chains are rated well below the international average and the average of the EU-11. Globalisation and tariff rate are considered to be above the international average. Product diversification is the only other individual indicator with an above average rating. Severe weaknesses are the development of business clusters, the buyer sophistication and the population growth.

Czechia

With 106.5 index points, Czechia ranks 22nd in the area Market. Openness and value chains are rated well above the international average. Orientation to markets and customers is below the total average but better than the EU-11 average. Concerning individual indicators, the industry-service-network, economic complexity and the trade share are distinct strengths of the Czech economy. Buyer sophistication, business clusters and population growth are among the weaknesses.

Figure 2-6: Ranking results in the subject area Market

Scores in the subject area; Index (100 = mean score)



Source: own calculations

Hungary

With 92.4 index points, Hungary ranks 36th, just before Slovakia, in the area Market. Openness is above the international, and the EU-11 averages. Orientations towards market and customers is below total, but above EU-11 average. Value chains are rated below average, both in total, and in EU-11 perspective. Trade share, economic complexity, and the Globalisation index score are the strongest individual indicators. Buyer sophistication, population growth and the development of business clusters are the weaknesses.

Serbia

Serbia achieves 75.2 index points and ranks 48th in the area Market. Openness is the only category with a rating slightly above the average, because of low tariff rates and a relatively high trade share. Orientation to markets and customers is very low, and the assessment of value chains is below average.

Slovakia

Slovakia achieves 91.9 index points and ranks 37th in the area Market. Openness is a strength of the economy. Orientation towards market and customers is below international average, but slightly better than the EU-11 average. Value chains are below international, and EU-11 averages. Trade share,

industry-service-network, and economic complexity contribute positively to the rating. Buyer sophistication, diversification, and the industry's impact on the economy are to be considered as weaknesses of the location.

Germany

Germany is the top performing country in the area Market (136.8 index points). While openness is rated well above the international average, the strengths are the orientation towards markets and customers, and the value chains. The development of business clusters, economic complexity and the score of the Globalisation index are distinct strengths. Population growth and the trade share are below average.

3 Slovenia and its neighbours

Conclusion from the results of the IW-Location-Index and main economic statistics

Compared to the other five countries in focus, Slovenia is the smallest in terms of population (2.1 million) and absolute gross domestic product (GDP; 52.5 billion Euro). Nevertheless, its wealth per capita is the highest (24,898 Euro per capita). This corresponds to the observation that higher scores in the IW Location Index are associated with higher per capita incomes. Czechia is the other of the six countries in focus with a higher-than-average index score. It has an per capita GDP of 22,798 Euro, which is close to that of Slovenia. At the same time, Czechia is the biggest of the six countries, with a population of 10.5 million and a GDP of 239.5 billion Euro.

In terms of population – Hungary (9.7 million), Serbia (6.8 million), Slovakia (5.4 million), Croatia (3.9 million) – and GDP – Hungary (154,6 billion Euro), Slovakia (99.0 billion Euro), Croatia (58.6 billion Euro), Serbia (53.6 billion Euro) – lie between Slovenia and Czechia. The ranking of GDP per capita follows roughly the ranking in the IW Location Index with Slovakia (18,183 Euro per capita; 90.3 index points) leading Hungary (15,919 Euro per capita; 90.0 index points), Croatia (15,033 Euro per capita; 75.3 index points), and Serbia (7,846 Euro per capita; 74.2 index points).

Another explanation for the differences in per capita incomes between these countries lies in the different shares of manufacturing in GDP. As a rule, higher productivity levels can be observed in the manufacturing industries compared to other industries. In a comparison between otherwise similar countries, differences in industrial shares are then easily transferred to differences in the respective per capita incomes. For the six countries in comparison this is the case. Czechia has the highest share of manufacturing in GDP (24.1 per cent), followed by Slovenia (23.4 per cent). Serbia (16.0 per cent) and Croatia (14.5 per cent) have considerably smaller shares of manufacturing.

High export shares can be interpreted as a sign of international competitiveness of a country, referred to as ability to sell its products internationally. A direct comparison of export shares is still hampered by a certain bias from the size of the country. Smaller countries often have higher foreign trade shares in GDP, simply because the scope for internal business relations is smaller. Given this caveat, it is obvious that Slovakia, Slovenia, Hungary, and Czechia have much higher trade shares than Croatia and Serbia. This observation corresponds to the higher income per capita and the higher shares of manufacturing, since the ability to sell products internationally increases the ability to earn on international markets and manufacturing goods are more often internationally traded than services.

Trade shares and foreign direct investment are also a sign of a country's integration and network in the global economy. Countries benefit from international integration because it increases the market potential for their companies. Networking along value chains increases knowledge and the ability to produce competitive products. Foreign direct investment offers the opportunity for knowledge transfer from abroad and higher productivity.

From this point of view, there is room for improvement for Slovenia. It seems that Slovenia cannot fully leverage the locational advantage measured by the IW Location Index into advantages in foreign trade and attracting foreign direct investment. Especially regarding networking with Germany, some of the other countries compared show a clear lead.

Concerning trade shares, Slovenia shows a much lower connection to Germany, both in terms of import and export shares than Hungary, Czechia, and Slovakia. Slovenia exports only 18.0 per cent of goods traded to Germany, while these shares are at 32.7 per cent in Czechia, 27.9 per cent in Hungary, and 22.6 per cent in Slovakia. The picture for imports is similar. Part of the explanation could be the high interconnectedness of the automotive industries in Germany, Czechia, Slovakia, and Hungary.

For Slovenia, on the other hand, closer trade links with Switzerland and Italy are visible. Slovenia has also stronger trade relations to Germany than Croatia and Serbia, where exports to Germany are 12.8 and 12.9 per cent of goods traded, respectively. For Croatia and Serbia, Italy represents the second most important export destination.

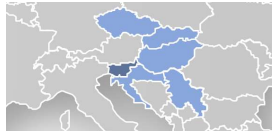
Looking at foreign direct investment, Slovenia attracts relatively little investment from abroad, compared to all the other five countries. The share of foreign direct investment stocks in Slovenia is only 37.9 per cent of GDP in 2020.¹ The shares in the other countries are significantly higher at 61.1 per cent (Slovakia) to 94.0 per cent (Serbia). In Czechia, the country with a similar score in the IW Location Index, the share of foreign direct investment stocks in GDP is close to 80 per cent. Given the solid locational factors in Slovenia, the country should be able to attract more investments from abroad.

The share of foreign direct investment from Germany is lower in Slovenia than in the other countries compared. They amount to 5.5 percent of GDP in 2020. The range in the other countries is 6.6 per cent (Serbia) to 15.5 per cent (Hungary). Given the different shares of total foreign direct investment, the picture for the German share in foreign direct investment is similar to the picture given by the trade statistics. In Slovenia the share of German foreign direct investment in total foreign direct is at 14.4 per cent, which is higher than in Serbia (7.0 per cent) and Croatia (11.3 per cent), but lower than in Hungary (23.5 per cent), Slovakia (17.0 per cent), and Czechia (16.7 per cent). This shows again that economic networks with Germany are stronger in Hungary, Slovakia, and Czechia than in Slovenia.

¹ In the years 2019 and 2021 this share was 33.5 per cent. This also reflects the economic downturn during the corona crisis. As the latest numbers on foreign direct investment stocks from Germany are for 2020, this year was chosen to enable comparisons.

Country profiles

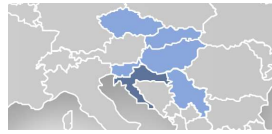
SLOVENIA



Main economic statistics			
Population ¹⁾	2,108	Gross Domestic Product (GDP) ²⁾	52,486
GDP per capita ³⁾	24,898	Manufacturing share ⁴⁾	23.4
Exports ⁴⁾	83.6	Imports ⁴⁾	77.3
Exports to Germany ⁵⁾	18.0	Imports from Germany ⁵⁾	14.0
Foreign Direct Investment (FDI) ⁶⁾	37.9	German FDI ⁷⁾	5.5
IW Location Index			
Total Score	101.1		
Governance	101.4	Infrastructure	104.9
Knowledge	113.2	Resources	87.2
Costs	119.0	Market	94.4

1) 2021, in 1,000, World Bank; 2) 2021, in 1,000 Euro, World Bank; 3) 2021, in Euro, World Bank; 4) 2021, per cent of GDP, World Bank; 5) 2020, per cent of total trade, OECD; 6) 2020; per cent of GDP, UNCTAD; 7) 2020; per cent of GDP; Deutsche Bundesbank, Eurostat

CROATIA



Main economic statistics

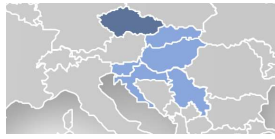
Population ¹⁾	3,899	Gross Domestic Product (GDP) ²⁾	58,612
GDP per capita ³⁾	15,033	Manufacturing share ⁴⁾	14.5
Exports ⁴⁾	51.3	Imports ⁴⁾	52.7
Exports to Germany ⁵⁾	12.8	Imports from Germany ⁵⁾	15.3
Foreign Direct Investment (FDI) ⁶⁾	67.2	German FDI ⁷⁾	7.6

IW Location Index

Total Score	75.3		
Governance	71.7	Infrastructure	83.8
Knowledge	70.8	Resources	72.8
Costs	129.1	Market	67.5

1) 2021, in 1,000, World Bank; 2) 2021, in 1,000 Euro, World Bank; 3) 2021, in Euro, World Bank; 4) 2021, per cent of GDP, World Bank; 5) 2020, per cent of total trade, OECD; 6) 2020; per cent of GDP, UNCTAD; 7) 2020; per cent of GDP; Deutsche Bundesbank, Eurostat

CZECHIA



Main economic statistics

Population ¹⁾	10,506	Gross Domestic Product (GDP) ²⁾	239,511
GDP per capita ³⁾	22,798	Manufacturing share ⁴⁾	24.1
Exports ⁴⁾	72.7	Imports ⁴⁾	69.8
Exports to Germany ⁵⁾	32.7	Imports from Germany ⁵⁾	23.3
Foreign Direct Investment (FDI) ⁶⁾	79.6	German FDI ⁷⁾	13.3

IW Location Index

Total Score	106.2		
Governance	108.1	Infrastructure	93.6
Knowledge	114.6	Resources	102.4
Costs	107.9	Market	106.5

1) 2021, in 1,000, World Bank; 2) 2021, in 1,000 Euro, World Bank; 3) 2021, in Euro, World Bank; 4) 2021, per cent of GDP, World Bank; 5) 2020, per cent of total trade, OECD; 6) 2020; per cent of GDP, UNCTAD; 7) 2020; per cent of GDP; Deutsche Bundesbank, Eurostat

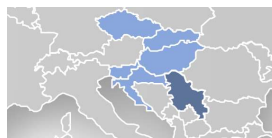
HUNGARY**Main economic statistics**

Population ¹⁾	9,710	Gross Domestic Product (GDP) ²⁾	154,571
GDP per capita ³⁾	15,919	Manufacturing share ⁴⁾	20.7
Exports ⁴⁾	81.5	Imports ⁴⁾	81.2
Exports to Germany ⁵⁾	27.9	Imports from Germany ⁵⁾	24.6
Foreign Direct Investment (FDI) ⁶⁾	65.9	German FDI ⁷⁾	15.5

IW Location Index

Total Score	90.0		
Governance	83.2	Infrastructure	78.6
Knowledge	91.1	Resources	93.4
Costs	118.6	Market	92.4

1) 2021, in 1,000, World Bank; 2) 2021, in 1,000 Euro, World Bank; 3) 2021, in Euro, World Bank; 4) 2021, per cent of GDP, World Bank; 5) 2020, per cent of total trade, OECD; 6) 2020; per cent of GDP, UNCTAD; 7) 2020; per cent of GDP; Deutsche Bundesbank, Eurostat

SERBIA**Main economic statistics**

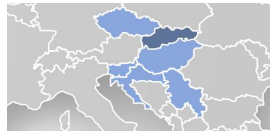
Population ¹⁾	6,834	Gross Domestic Product (GDP) ²⁾	53,620
GDP per capita ³⁾	7,846	Manufacturing share ⁴⁾	16.0
Exports ⁴⁾	54.5	Imports ⁴⁾	62.3
Exports to Germany ⁵⁾	12.9	Imports from Germany ⁵⁾	13.6
Foreign Direct Investment (FDI) ⁶⁾	94.0	German FDI ⁷⁾	6.6

IW Location Index

Total Score	74.2		
Governance	66.2	Infrastructure	51.3
Knowledge	89.7	Resources	70.2
Costs	107.9	Market	75.2

1) 2021, in 1,000, World Bank; 2) 2021, in 1,000 Euro, World Bank; 3) 2021, in Euro, World Bank; 4) 2021, per cent of GDP, World Bank; 5) 2020, per cent of total trade, OECD; 6) 2020; per cent of GDP, UNCTAD; 7) 2020; per cent of GDP; Deutsche Bundesbank, Eurostat

SLOVAKIA



Main economic statistics

Population ¹⁾	5,447	Gross Domestic Product (GDP) ²⁾	99,048
GDP per capita ³⁾	18,183	Manufacturing share ⁴⁾	19.6
Exports ⁴⁾	93.8	Imports ⁴⁾	94.0
Exports to Germany ⁵⁾	22.6	Imports from Germany ⁵⁾	18.7
Foreign Direct Investment (FDI) ⁶⁾	61.1	German FDI ⁷⁾	10.4

IW Location Index

Total Score	90.3		
Governance	82.1	Infrastructure	71.0
Knowledge	93.8	Resources	100.9
Costs	105.3	Market	91.9

1) 2021, in 1,000, World Bank; 2) 2021, in 1,000 Euro, World Bank; 3) 2021, in Euro, World Bank; 4) 2021, per cent of GDP, World Bank; 5) 2020, per cent of total trade, OECD; 6) 2020; per cent of GDP, UNCTAD; 7) 2020; per cent of GDP; Deutsche Bundesbank, Eurostat

4 Annex

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Composition of the IW Location Index

The IW Location Index is made up of six subject areas. These subject areas consist of 14 indicator groupings, which in turn are represented by a total of 57 individual indicators. Figure 4-1 illustrates this composition.

The indicators are selected according to the following criteria:

- ▶ Substantiation of content: the selected indicators are theoretically justified and contribute to explaining the industrial competitiveness of economies.
- ▶ Empirical relevance: as far as possible, the index is formed only from indicators that have a significant impact on the level or development of a country's industrial share in an empirical test.
- ▶ Data quality: As a rule, the data are taken from publicly available sources and are as up to date as possible. The study refers to the base year 2020. Individual data gaps are filled by estimates. Due to missing data, proxy variables must be used to describe some topics.
- ▶ Data sources: Statistics or survey data from reputable institutions (Eurostat, PricewaterhouseCoopers - PwC, OECD, Statistical Offices, World Bank, World Economic Forum - WEF) are used.







- **Weights:** The weights were determined at the level of the 14 indicator groupings as part of a survey of German industrial companies, which assessed the relevance of the individual topics for location decisions.

Countries are selected as EU Member states (excluding Malta and Cyprus) and a selection of international competing countries. The selection of those countries is based on the trade data of manufacturing goods. Pure trade hubs such as Hong Kong or Singapore as well as oil-exporting countries were excluded from the analysis, to focus on countries with a strong manufacturing base.

The indicators in the Location Index are normalised, so that for every single indicator the mean of all observation is 100. The total score in the Location Index is a weighted aggregation of all indicators. For the total score as well as for each indicator or grouping of indicators, such as the subject areas, the mean is 100. Scores below 100 therefore show a weak performance, while scores above 100 represent an above average performance.

Figure 4-1: Composition of the IW Location Index

Index scheme, subject areas, subcategories, selected indicators

Overall index of location quality						
6 subject areas	 Governance	 Infrastructure	 Knowledge	 Resources	 Costs	 Market
14 subcategories	Regulatory framework	Infrastructure	Human capital	Energy/raw materials	Costs	Market and customers
	Regulation	Air/ship	R&D environment	Capital market		Value chain
	Bureaucracy		Labour relations			Openness
57 individual indicators, for example	Efficient government	Broadband internet	Educational levels, STEM graduates	Resources, raw materials	Labour costs	Economic complexity
	Corruption control	Infrastructure indicators	Young professionals	Energy efficiency	Interest costs	Population growth
	Economic freedom	Air and sea transport	Research staff	Credit availability	Trading costs	Joint value creation
	Labour market regulation	Life expectancy	Innovations, patent application		Taxes	

Source: own illustration

Lists of Indicators

Governance

Indicator	Source	Sign	Weight
Efficient Government	World Bank	Positive	2.94
Economic Freedom	Heritage Foundation	Positive	2.94
Rule of Law	World Bank	Positive	2.94
Corruption Control	World Bank	Positive	2.94
Labour Market Regulation	Fraser Institute	Positive	0.41
Regulation	Fraser Institute	Positive	0.41
Quality of Regulation	World Bank	Positive	0.41
Business Freedom	Heritage Foundation	Positive	1.62
Starting a business	Fraser Institute	Positive	1.62
Regulation of businesses	Fraser Institute	Positive	1.62
Number of tax payments	PricewaterhouseCoopers	Negative	0.81
Time required for tax payments	PricewaterhouseCoopers	Negative	0.81

Infrastructure

Indicator	Source	Sign	Weight
Broadband connections per 100 inhabitants	World Bank / ITU	Positive	1.42
Share of Population with internet access	World Bank / ITU	Positive	1.42
Logistics Performance Index	World Bank	Positive	4.74
Survival to age of 65, women	World Bank	Positive	0.95
Survival to age of 65, men	World Bank	Positive	0.95
Quality of port infrastructure	World Economic Forum / World Bank	Positive	2.26
Departures in aviation	World Bank	Positive	1.13

Knowledge

Indicator	Source	Sign	Weight
Average years of schooling	Barro/Lee	Positive	1.22
Share of population without schooling	Barro/Lee	Negative	1.22
Share of population with secondary education	Barro/Lee	Positive	1.22
Share of population with tertiary education	Barro/Lee	Positive	1.22
Share of population with completed secondary education	Barro/Lee	Positive	1.22
Population growth weighed by education level	IW Köln based on World Bank	Positive	1.22
Productivity	IW Köln	Positive	1.12
Share of STEM-Graduates	OECD	Positive	1.12
R&D-Expenditure in per cent of GDP	OECD	Positive	1.12
Share of manufacturing in R&D-Expenditure	OECD	Positive	1.12
Patent applications per 1,000 inhabitants	World Bank	Positive	1.12
Articles in scientific Journals per 1,000 inhabitants	World Bank	Positive	1.12
Protection of intellectual property	Fraser Institute	Positive	1.12
Cooperation in labour-employer relations	World Economic Forum	Positive	7.52

Ressources

Indicator	Source	Sign	Weight
Power losses in transmission (per cent of production)	World Bank / IEA	Negative	2.78
Energy consumption in relation to GDP in purchasing power parities	World Bank / IEA	Negative	2.78
Raw minerals production	IW Köln	Positive	2.78
Raw minerals reserves	IW Köln	Positive	2.78
Income from natural resource rents	World Bank	Positive	2.78
Legal index	World Bank	Positive	3.96
Country rating	Standard & Poor's	Positive	3.96

Costs

Indicator	Source	Sign	Weight
Labour cost per hour	IW Köln	Negative	1.45
Long term interest rate	International Monetary Fund	Negative	0.64
Index of trade cost	World Bank	Positive	0.64
Pump price of Diesel per litre	World Bank / IEA	Negative	0.64
Tax rate on profits (Indicator 1)	World Bank	Negative	0.73
Tax rate on profits (Indicator 2)	PricewaterhouseCoopers	Negative	0.73

Market

Indicator	Source	Sign	Weight
Index of economic complexity	Observatory of Economic Complexity	Positive	1.88
Buyer sophistication	World Economic Forum	Positive	1.88
Market size	World Bank	Positive	1.88
Population growth	World Bank	Positive	1.88
State of cluster development	World Economic Forum	Positive	1.52
Index of diversification	IW Köln based on UN-Comtrade-data	Negative	1.52
Compound share of manufacturing and services	IW Köln based on OECD-input-output-data (ICIO)	Positive	1.52
IOT-multiplicator of manufacturing sector	IW Köln based on OECD-input-output-data (ICIO)	Positive	1.52
(Exports + Imports) / GDP	World Bank	Positive	1.58
Tariff rate	World Bank	Negative	1.58
KOF-Globalisation Index	ETH Zurich	Positive	1.58

Own illustration based on IW Köln/IW Consult (2012)

