

# Chapter 9

## Slovenia

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### HIGHLIGHTS

- The Republic of Slovenia is a nation state in southern Central Europe. It has a population of 2.06 million. It is a parliamentary republic and a member of the United Nations, the European Union and NATO.
- The main research and innovation actors in Slovenia are the Ministry of Higher Education, Science and Technology and the Ministry of Economic Development and Technology. The Competitiveness Council runs all coordination.
- The Slovenian GDP per capita places the country considerably above the average of the Adriatic Region.
- Number of SCImago scientific journal articles is, in relative terms, higher for Slovenia than both the Regional mean and the EU-28 mean.
- Most forms of organizational innovation in Slovenia are below the average reported for the Adriatic Region. The only answer that was significantly higher in Slovenia was how many different roles employees perform.
- Most of the innovation support in Slovenia came from the central government (32%).
- Knowledge hiding occurs very often in Slovene respondent companies (5.95) in comparison with the Adriatic Region (2.31).
- Cultural intelligence levels in Slovenia (3.13) are not as high as in the Adriatic Region (4.54).

## 9.1 GENERAL OVERVIEW

Slovenia is a small EU country (its geographical size is 20,273 km<sup>2</sup>) and it is situated in Southern Central Europe; it borders Italy to the west, Austria to the north, Croatia to the south and southeast and Hungary to the northeast. The Adriatic Sea is on the southwest of the country. Slovenia's official language is Slovenian. Its capital is Ljubljana. The territory is mostly mountainous (alps are spread through the northern part), although it also conjoins the Dinaric Alps and the Pannonian Plain on its territory. On the southwest of the country, the Karst Plateau has significant underground watercourses, limestone and gorges. Over half of Slovenia is covered by forest and it is one of the most water-rich countries in the EU with high river density. Biological diversity is also very significant. The Slovenian coastline is 46.6 km long and it lies by the Adriatic Sea between Italy and Croatia. The climate type is mainly continental with Slovene Littoral having a sub-Mediterranean climate and the northwestern part having an alpine climate. The human settlement of Slovenia is dispersed and uneven. The population of Slovenia is 2.6 million, which represents 0.4% of the total EU population (Wikipedia, 2015; Europa.eu, 2015).

Slovenia is a republic having a parliamentary democracy based on a multi-party system and headed by the President (elected for five years by popular vote). The Government of Slovenia is the executive and administrative authority ruled by the Prime Minister and Council of Ministers. These ministers are elected by the National Assembly. Legislative authority is based on the parliament, which is comprised of 90 representatives who are elected by popular vote every four years. After separation from the former Yugoslavia, the Liberal Democracy of Slovenia played a significant role in the transition to the capitalist market economy and ruled from 1992 – 2004. In 2004, Slovenia joined the EU. From January to June 2008, Slovenia was at the head of the Presidency of the Council of the EU. In the following period, Slovenia faced huge banks' loan-deposit ratios issues resulting in over-borrowing from foreign institutions and the over-crediting of customers. After the onset of the financial crisis of 2007-2010 and the European sovereign-debt crisis, Slovenia implemented several reforms to boost economic recovery. Slovenia currently has eight members in the European Parliament and the Commissioner (responsible for Transport) in the European Commission. In the European Economic and Social Committee, Slovenia has seven representatives. Similarly, seven Slovenian members represent Slovenia in the Committee of the Regions (Wikipedia, 2015; Europa.eu, 2015).

Slovenia has one of the highest GDP per capita in Central Europe. It adopted the euro as its official currency on 1 January 2007. In the same year, the processes of joining the OECD started, which resulted in Slovenia being accepted to the OECD in 2012. However, Slovenia faced serious crisis due to the long-delayed privatisation

of Slovenia's largely state-owned and indebted banking sector, which almost led to need for EU-IMF financial assistance. The banking crisis received its epilogue by the European Commission allowing Slovenia to recapitalise lenders and transfer their nonperforming assets into a so-called 'bad bank'. After 2013, Slovenia gained a fair portion of bond investments, which were greatly sought due to the relatively high Slovenian debt. In 2014, the Government launched a program of state assets sales in order to attract foreign investors and increase confidence in the Slovenian economy (Slovenia: country overview, 2015).

Slovenia has faced some issues recently specifically regarding the social environment. In 2012, there was a referendum for the renewal of family law in terms of same-sex relationships, but the negative outcome was a step back in assuring the equal human rights of exposed groups. Another matter is that approx. 14% of the population live below the at-risk-of-poverty threshold (net monthly income being less than EUR 600) (Stat, 2015). According to the material deprivation indicator, many people cannot afford basic necessities, are late paying bills and cannot handle unexpected expenses. The main reasons for this are the lack of jobs and low incomes of those who have jobs. The unemployment rate has also been increasing in past years and the amount of active workers has been diminished significantly. In addition, the Slovenian Independent Commission for the Prevention of Corruption investigation pointed to existing corruption of high-ranking politicians. A lot of corruption, and the dishonest behaviour of the main people in the economic and political elite, combined with the decreasing quality of life for the common people, have led to several public meetings and protests. One of the main issues that remains unresolved concerns the people who were unlawfully removed from the Slovenian Registry of Permanent Residents and who are now no longer recognised as Slovenian (or any other nationality) citizens (Amnesty International, 2015; Social Watch, 2015).

#### 9.1.1 OVERVIEW OF THE ECONOMIC SITUATION IN THE COUNTRY

Slovenia is facing macroeconomic inequities that require crucial policy actions and monitoring. The rebalancing process has recently been finished and specific policy actions, better-quality export performance, economic growth and development of the environment have reduced risks in comparison to 2014 (predominantly external sustainability). Financial stability and economic growth are at high stake due to weak corporate governance, a high level of state ownership, a high corporate influence and a growing public debt (European Economy, 2015). In Slovenia's economy, the most important sectors in 2014 were industry (27.1 %), wholesale and retail trade, transport, accommodation and food services (20.4 %) and public administration, defence,

education, human health and social work activities (17.0 %). Slovenia's main export and import partners in 2014 were Germany, Italy and Austria (Europa.eu, 2015).

Slovenian GDP in 2014 amounted to EUR 45.17 billion in total and EUR 21,927 per capita (2015). Slovenia's GDP values from 2006 to 2014 are shown in Table 3.

In 2015, the unemployment rate varied from the lowest rate being 6.3% and the highest rate being 15.5% of the population. The number of unemployed persons varied from 107,412 to 137,257. In 2007, just before the crisis, the youth unemployment rate was a record low (9.2%) but afterwards it started to increase and is currently settled at 14.5%. (, 2015). Comparing Slovenia before the crisis with the time after, its industrial output grew by 41% (from EUR 22.6 to 31.9 billion) in the last ten years; however, due to the crisis, the number of employees in these companies decreased by 14%. The reason for the increase in industrial output lies in improved the productivity and performance of Slovenian industrial companies, which can also be seen from the amount of Slovenian exports, which increased from EUR 11.2 billion in 2003 to EUR 21.6 billion in 2013. In the terms of economic freedom, Slovenia has, according to the Heritage Foundation's report on economic freedom, advanced significantly in the last decade. The standard of living has also increased over the last ten years. Currently, Slovenia is placed as 21st in the United Nation's Human Development Index (Ten Years After, 2015).

In 2014, the at-risk-of-poverty rate in Slovenia equalled 14.5% of the population, which signifies that about 290,000 people were living below the at-risk-of poverty threshold (Stat, 2015).

### 9.1.2 OVERVIEW OF THE RESEARCH AND INNOVATION ACTORS AND ACTIVITIES IN THE COUNTRY

According to the research, the Slovenian innovation system, or 'The system of performance indicators for the Innovation Union', can be classified as follows with a below average performance. It has a competitive advantage in human resources, but it is weak in terms of company investments and intellectual property. The average share of companies' budget intended for innovation is also small. This situation is also a consequence of the global economic crisis, which, among others, pointed out that GDP growth depends on low-tech industry and traditional services, which limits the competitiveness of the Slovenian economy. The crisis also influenced diminished demand from foreign countries, which traditionally was one of the main factors of Slovenian economic development. Several documents exist in the field, the most important of which are listed below (Inovacijski sistemi, 2015):

- Research and Development Act;
- Slovenia's Development Strategy;
- National Research Development Programme;
- The Framework of Economic and Social Reforms for Increasing the Welfare in Slovenia;
- The National Development Programme;
- National Strategic Reference Framework;
- Slovenian Research and Innovation Strategy.

In Slovenia, many institutions support the implementation of R&D and innovation policies, such as technological parks and centres, incubators, clusters, technology networks, technology platforms, centres of excellence and business information units (e.g., the Center for Small Business, Euro-info Center, regional and local development agencies, etc.). All these institutions strive to assure support for ensuring the best possible regional and national innovation system. Regarding their basic business, it is possible to classify them into the following categories (NSIS, 2015):

- Executive and financial Government agencies;
- Support institutions: technological centres, technological platforms, centres of excellence and clusters;
- Institutions to support technologies, innovations and entrepreneurship: technological parks, entrepreneurship and university incubators, offices for technology transfer, VEM-points and regional and local development agencies;
- Financial intermediaries: venture capital funds, business angels associations, etc.;
- Interest groups: Chamber of Commerce and Industry, etc.

Various decision-making bodies which tackle the field on research and innovations in Slovenia (Inovacijski sistemi, 2015) include:

- **The Ministry of Higher Education, Science and Technology** (MHEST) is responsible for developing guidelines and policies through the preparation of programs and resolutions for research, development, innovation, innovation strategy, etc. Its main tasks in the field of innovation are horizontal support of R&D projects for SMEs, technological programs, and infrastructure for R&D, HR development and the promotion of Slovenian cooperation in international projects such as EUREKA. Two important bodies within MHEST are the Directorate of Science and Technology and the Council for Science and Technology, which have signifi-

cant influence on research, development and innovation in Slovenia. The implementation of specific measures is mostly delegated to the Slovenian Research Agency (ARRS) and SPIRIT (Public Agency for Entrepreneurship, Internationalization, Foreign Investments and Technology). ARRS carries out professional, developmental and operational tasks related to the implementation of the adopted National Research and Development Programme and other promotional tasks related to the acceleration of R&D in Slovenia. SPIRIT TIA performs professional, developmental and executive tasks for the promotion of technological development and innovation, in line with the adopted National Research and Development program and other national programs in the field of technology development and innovation.

- **The Ministry of Economic Development and Technology (MEDT)** prepares policy and implements measures to promote entrepreneurship, development of SMEs and endorses technological development and innovation (by supporting technology centres and university incubators, voucher programs in the context of the Public Agency for Entrepreneurship and Foreign Investments (JAPTI), financial assistance to SMEs under the Slovenian Enterprise Fund (SPS), support for the internationalization of enterprises, etc.). At the implementation stage of programmes, MEDT cooperates with JAPTI, the Slovenian Entrepreneurship Fund and the Public Agency for Technological Development.
- **The Government Office for Development and European Cohesion Policy's** main objective is to coordinate and monitor the implementation of Slovenia's development strategy, economic and social reforms, and the Resolution on National Development Projects for the period 2007-2023. It also coordinates the development of programs to achieve the objectives of the Europe 2020 strategy and Strategy for Growth and Jobs in Slovenia. In cooperation with the competent ministries and government offices, it plans and coordinates the position of the Republic of Slovenia on cooperation with the OECD, directs the program framework for the functioning of the Slovenian Export and Development Bank (SID Bank), carries out tasks related to the instruments of pre-accession assistance of the European Union and other forms of assistance, takes part in international development cooperation and performs other tasks under the regulations and decisions of the government.
- **The Government Office for Local Self-Government and Regional Policy** coordinates activities for the implementation of the Law on the Promotion of Balanced Regional Development and regional development policy and performs general management tasks. It helps to direct regional initiatives and national development programs, guides policies development and monitors the implementation of the program of work of the regional operators, provides profes-

sional support for the operation of the Structural Policy Council, Sustainable Development and the Business Development Council for Slovenes around the world, and carries out tasks in the field of interregional international development cooperation (especially cross-border development integration and the establishment of Euro regions and business and scientific research cooperation with Slovenians around the world). In addition, it is responsible for regional policy, which aims to be present in the entire country, and is particularly active in priority areas; namely, the regions with the lowest level of development in municipalities with special developmental problems in border areas and areas inhabited by the Italian and Hungarian national communities and the Roma ethnic community. The office realises the vision of regional development, which is consistent with the development of balanced economic, social and environmental aspects in all Slovenian regions.

- **The Slovenian Research Agency** implements the funding of public research organisations through several programmes, from the funding of research programmes, basic and applied research projects, infrastructure funding for the national research institutes, targeted research projects, the programme for young researchers, international cooperation programmes, funding of science information services and research infrastructure, etc. (NSIS, 2015). Another source of funding are EU-funded projects programmes and projects, which are similar to all EU countries: building roads, subsidising researchers and protecting the environment.

Gross domestic expenditure on R&D (GERD) is an important indicator that includes expenditure on research and development by business enterprises, higher education institutions, as well as government and private non-profit organisations. Recent data show that Slovenia invested EUR 890 million, or 2.39% of its GDP on research and development (R&D) in 2014, which is above the EU-28 average (2.03%) (Eurostat, 2015).

### 9.1.3 RECENT CHANGES IN R&D AND INNOVATION SYSTEM IN THE COUNTRY

Slovenia has put a lot of effort into fostering R&D and its innovation systems. Recent developments in research and innovation policy and systems comprise the following (Erawatch, 2015):

- National economic and political context: at the beginning of 2012 the government changed the organisational structure for R&D and innovation. Thus, it ex-

panded the duties of specific ministries and gave more authority to individual relevant public authorities.

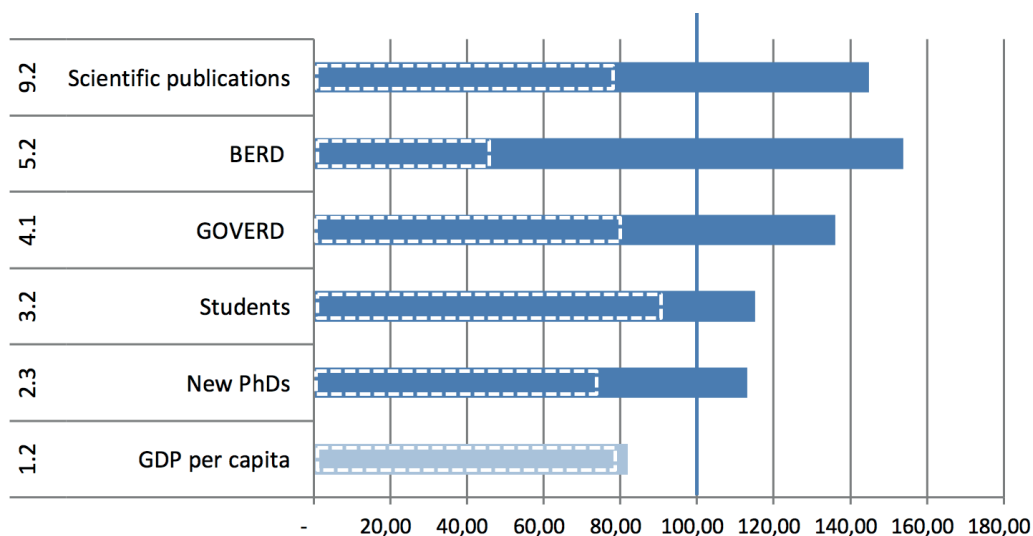
- Funding trends: governmental budget appropriations, or outlays for research and development (GBAORD), have been decreasing in recent years resulting in many public research organisations, as well as public higher education institutions, facing serious financing difficulties.
- New policy measures: budget limitations have caused certain changes in policy measures and, consequently, the government increased the R&D tax subsidy. Still, there were some new calls issued, such as the formation of the Creative Nucleus and Research Voucher Scheme.
- Recent policy documents: in 2012, political parties in Slovenia signed the Coalition Agreement in order to assure the increase in R&D tax subsidy for enterprises, systematic assistance to the creative industries through institutional support, the promotion of entrepreneurship and innovation in educational processes, the improvement of the quality of Slovenian science on a global scale, link and strengthen the integration of scientific and research work, and increase public funds in financing scientific and research work, etc. Other important documents issued by MEDT are the Slovenian Development Strategy and Slovenian Industrial Policy, which aim to improve the competitive capability of Slovenian industry.
- Research and innovation system changes: the government merged the Public Agency for Entrepreneurship and Foreign Investment (PREFIX), the Slovenian Tourism Organisation (SOT) and the Technology Agency (TIA) and established a new agency, SPIRIT, for supporting and promoting internationalisation, entrepreneurship, technology development and tourism.
- Regional and/or National Research and Innovation Strategies on Smart Specialisation (RIS3): several relevant institutions have prepared strategic documents, which form the backbone of Slovenia's programme for the Cohesion and Structural Funds.



## 9.2 MACRO-LEVEL ANALYSIS OF INNOVATION ENABLERS AND INHIBITORS

In this section, the most relevant macro-indicators of innovation in the country are presented<sup>1</sup>. These indicators concern six categories of the national innovation system: the economic situation of the country, figures regarding human resources as well as the education system, the innovation investments made by both the public and private sectors and the scientific output. The indicators are synthetically represented in Figure 9.1 and described after that. In the figure, 100 represents the EU average, while the dotted part of the histograms shows the Adriatic Region average.

**Figure 9.1 – Slovenian Innovation System, selected indicators**



<sup>1</sup> A more detailed picture about the country innovation profile can be found at: <http://www.adriaticinnovationmap.eu/country-profile/>.

**The economic data** include the general economic figures of the country, such as GDP per capita, total exports, unemployment rate, current account deficit, etc. In the analysis for Slovenia we have included the GDP per capita and compared it to the Adriatic Region mean, as well as the EU-28 mean. The Slovenian GDP per capita places the country considerably above the average of the Adriatic Region, while the Region itself is positioned lower than the EU-28 average GDP per capita.

**The human factor** plays a critical role in innovation, as the competitive advantage built on human resources is not easily imitable. In order to assess and compare human resources in Slovenia with the Regional average and EU-28 average, we have included the total number of new PhD graduates (as a percentage of the active population) in the analysis. With regards to the total number of new PhD graduates, Slovenia has a slightly higher share than the Regional average, but is roughly equal to the EU-28 mean.

**Education** plays a central role in building the country's innovation capacity. The indicator of the total number of students (tertiary education participation) shows that Slovenia is slightly higher than the Regional mean and equals the EU-28 mean.

**The public sector** is the part of the economy that consists of state-owned institutions, including nationalised industries and services provided by local authorities. The commitment of the public sector to the generation of new ideas is measured by government expenditure on R&D. Slovenia's Government's expenditure on R&D, relative to GDP, is almost double the Regional mean and is also higher than the EU-28 mean.

**The private sector** represents an engine of economic growth and job creation, as commercial enterprises constantly incorporate new technologies in their businesses due to market pressures and an imperative to stay competitive. To measure this, we have used business expenditure on R&D in the country (measured as percentage of GDP). Business expenditure on R&D is much higher than the Regional mean (three times higher) and the EU-28 mean (50% higher).

**The scientific output** of a country is closely related to its innovation capacity; at the same time, it can be used as an indicator of a country's innovation performance. To measure this, the number of SCImago scientific journal articles (per million active population), has been used. The number of SCImago scientific journal articles is, in relative terms, higher for Slovenia than both the Regional and EU-28 mean.

### 9.3 MESO-LEVEL ANALYSIS OF INNOVATION ENABLERS AND INHIBITORS

The survey of innovative micro, small and medium companies was conducted between September and October 2014. The questionnaire, which was implemented through the online survey platform Lime Survey, was sent to a sample of 1,705 SMEs that were also the target of the longitudinal survey of high-tech companies in previous years. A total of 241 partial responses were received. Ninety-two were completed in a satisfactory manner (at the level of 70%), making the response rate equal to 5.4%.

The prevailing industry in the sample was information and communication technology with 32.6% share of all respondents. This was followed by services activities (15.7%), and administrative and support service activities (10.1%). Other industries had less than a 10% share and, thus, do not represent a significant portion of the sample. The majority of the observed companies were independent (80%); 20% of respondents operated as a part of an enterprise group.

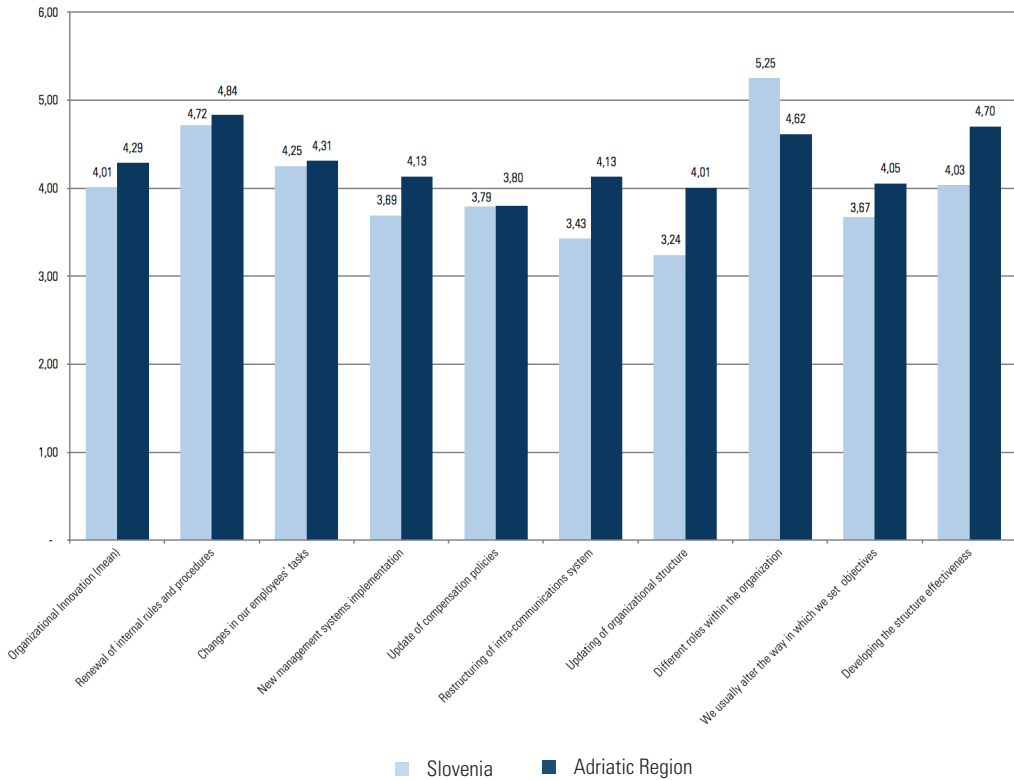
The low response rate is a characteristic of the contemporary environment and the lack of time on the part of the respondents. Additionally, the questionnaire was long, which contributed to numerous respondents not completing it satisfactorily enough to be eligible for analysis.

#### 9.3.1 ORGANIZATIONAL INNOVATION

Organizational innovations reflect the introduction of new business methods, organization of work and external relations. The answers reflect that organizational innovation in Slovenia is below average.

Compared with the Adriatic Region, Slovenian companies reported slightly below average levels of organisational innovation. The differences are very small, the average in Slovenia is lower by 0.28 %. The only answer that was significantly higher in Slovenia was how many different roles the employees perform. It seems that the employees in Slovenian companies need to be more flexible and perform more different roles within company than their Adriatic Region counterparts.

**Chart 9.1 – Organizational innovation  
(Slovenia in comparison to the Adriatic Region average)**

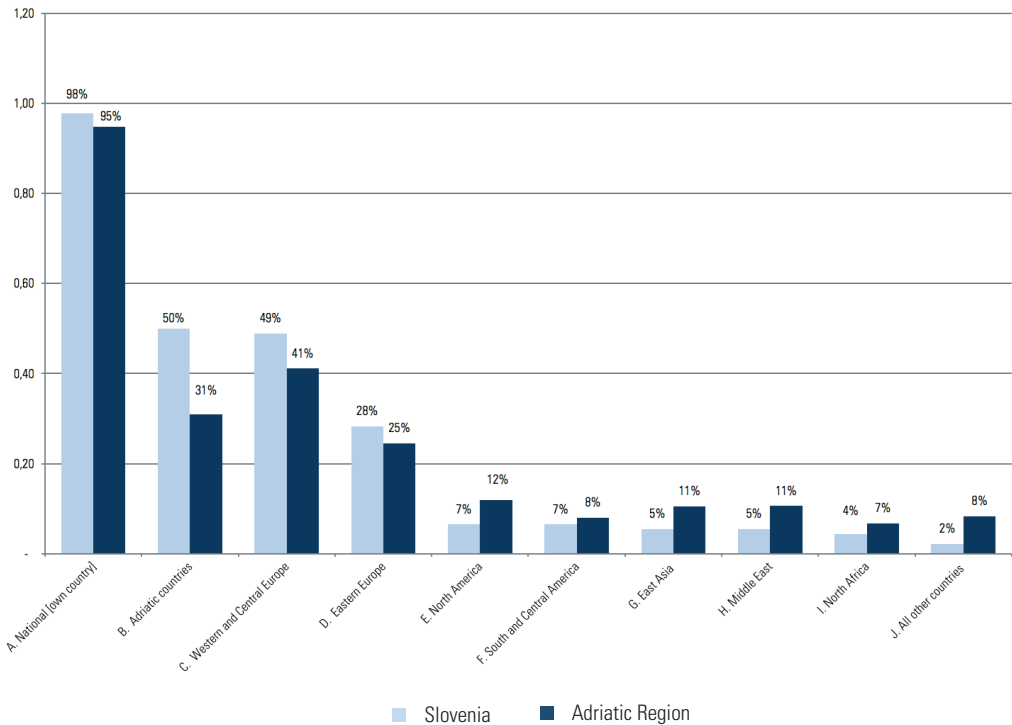


### 9.3.2 INTERNATIONALIZATION LEVEL AS INNOVATION ENabler

In the period from 2011-2013, almost all (98%) companies in Slovenia were present on the domestic market, where the majority of turnover was also earned. However, only 30% were only present in the domestic market, meaning that most of the companies were exporting. Half of the exporting companies reported exporting their products in the Adriatic Region, as well as Western and Central Europe, with equally strong presences on these markets. The next biggest market was Eastern Europe, while the presence on the markets in North America, East Asia, South and Central America, the Middle East and North Africa was much less pronounced. The majority of surveyed companies did export to at least one country in the period 2011-2013 (70%). Of the exporting companies, 35% were exporting to up to five countries, while the other half of exporters (35%) were exporting to more than five markets.

As demonstrated, major differences are on the focus of Slovenian companies on the Adriatic countries and markets of Western and Central Europe, where Slovenian companies are much more strongly present than the average company from Adriatic region. Presence on Eastern European markets was roughly the same, while Slovenian companies were focused less on other regions of the world.

**Chart 9.2 – Geographic markets where enterprises sold goods and/or services during 2011-2013 (Slovenia in comparison to the Adriatic Region average)**

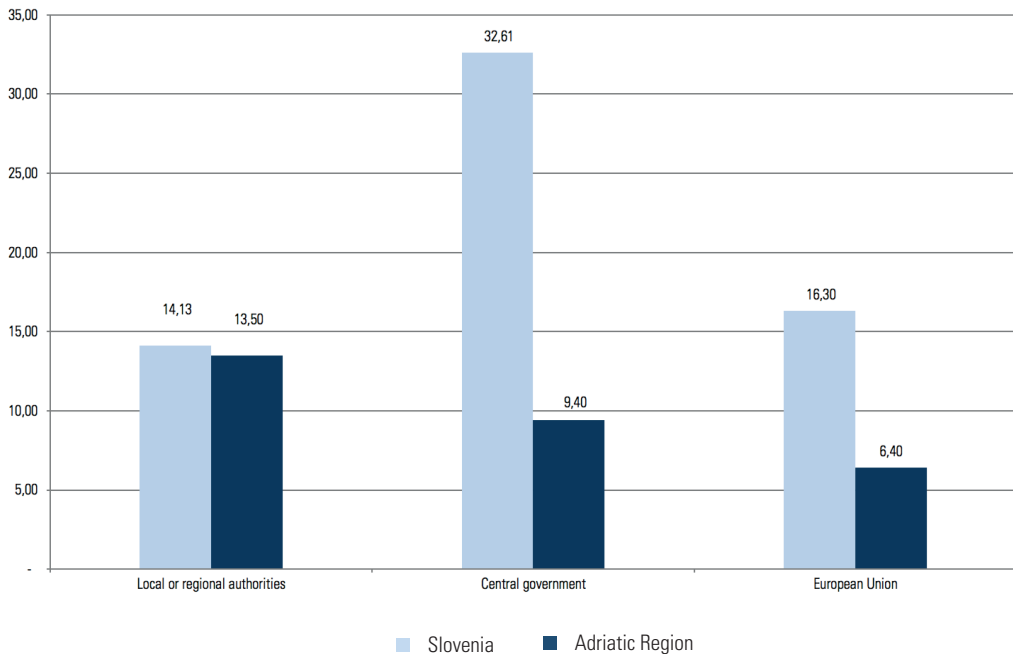


### 9.3.3 INNOVATION INCENTIVES AS INNOVATION ENABLERS

Most of the innovation support in Slovenia came from the central government (32%). The support of local authorities and the European Union was much lower (14% and 16%, respectively). The majority of innovating companies in Slovenia did not receive any kind of public financial support for innovative activities in the period between 2011 and 2013.

The differences between innovation support in Slovenia and the Adriatic Region are shown in Chart 9.3. Again, the support of the Central Government in Slovenia is much higher than the average Adriatic company receives. The support from local/regional authorities is roughly the same, while the support from the EU is again much higher. The latter fact is probably the consequence of several Adriatic countries not being EU members. The data shows that the support for innovation coming from public sources is above average in Slovenia.

**Chart 9.3 – Public financial support (%) for the innovation activities in enterprises during the 2011, 2012 and 2013 period coming from the government (Slovenia in comparison to the Adriatic Region average)**



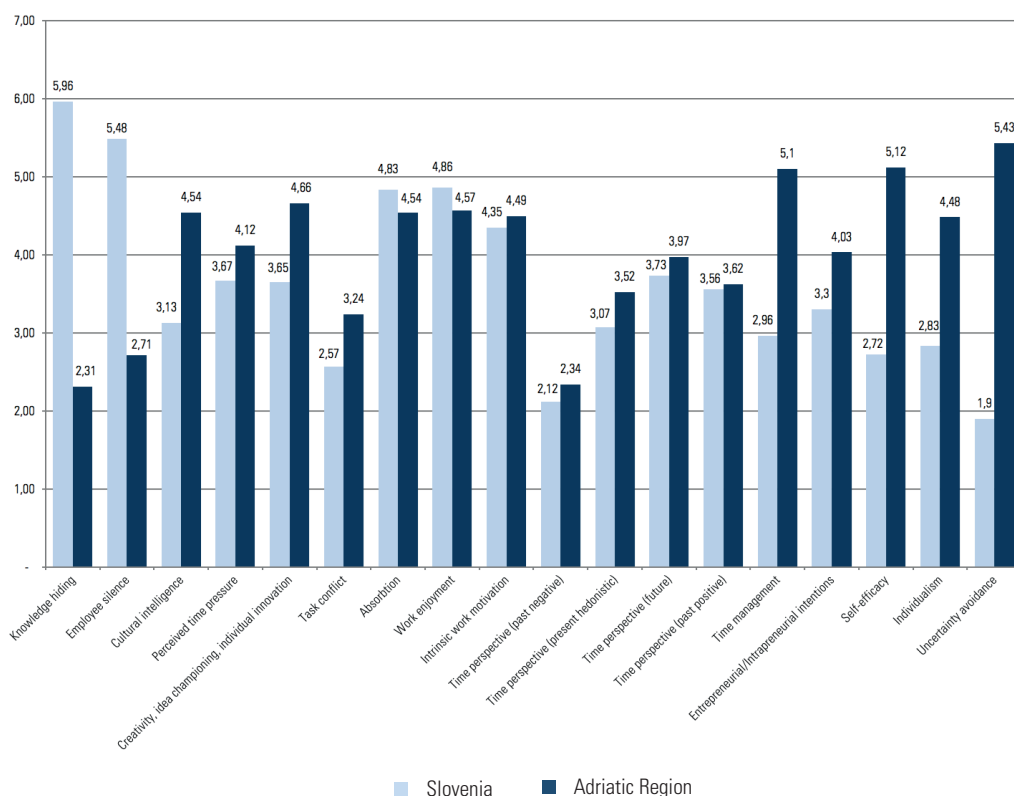
## 9.4 MICRO FOUNDATIONS OF INNOVATION

In Slovenia, two innovative companies participated in the study. The first company was a biotechnology manufacturer that employed about 70 people. The second company was working in the automotive industry and employed about 200 people. They were collaborating with about 30 companies in Europe, the USA and in Asia.

In the analysed companies in Slovenia, the gender structure was quite balanced with the ratio of men to women being 54% to 46%, respectively. The average employee age was 36.1, with the youngest being 19 years old and the oldest 59 years old. The majority of employees only held high school diplomas (58.8%); other educational levels in the Slovene sample included bachelor's (26.5%), master's (4.4%) and doctoral degrees (10.3%).

The following graph presents the average descriptive results for Slovenia in comparison with the Adriatic Region in reference to the results of multi-level analysis at

**Chart 9.4 - Micro-determinants of innovation in Slovenia and the Adriatic Region**



the Adriatic level. Here, it is important to take into account certain cross-country interpretation limitations, since the provided answers could be culturally conditioned, due to the fact that the questions in the survey mostly deal with perceptions. In the case of Slovenia, factors that could have influenced the results are also related to the companies' specific settings; in particular, the fact that one Slovene company is part of the biotechnology sector; could mean that it exhibited significantly different drivers of work that could influence the results, such as a highly competitive climate or the imperative to hide knowledge. The obtained results could have been significantly different if companies from some other innovative sectors had been recruited for the study.

The data show that **knowledge hiding** occurs very often in the Slovene respondent companies (5.95) in comparison with the Adriatic Region (2.31). The reasons for this occurrence can be linked to the general climate in the studied companies in Slovenia, which was deemed to be very competitive. Therefore, employees in such a setting could view their hiding knowledge and information from their colleagues as a means of obtaining competitive advantage within the company.

**The construct employee silence** is quite in line with knowledge hiding, which is why it comes as no surprise that, just like in the case of the aforementioned construct, the mean obtained from the Slovene respondents (5.48) was much higher than in the Adriatic Region in general (2.71). Therefore, it may be interpreted that employees in Slovenia stand out from the majority of other respondents across other countries in their proclivity to silent behaviour.

**Cultural intelligence**, a construct that should be favourable in stimulating innovativeness in the international environment, has in the case of Slovenia (3.13) not shown levels as high as in the Adriatic Region (4.54). The reasons for this occurrence could be related to the fact that the majority of respondents in both Slovene participating companies do not have much contact with the international market, which is why skills related to cross-country collaborations might not be as crucial for them, and they have not (yet) had a chance to develop them through their work experience.

**Perceived time pressure** is ranked slightly lower in Slovenia (3.67) than in the Adriatic Region (4.12). Reasons for this could be related to knowledge-intensive industries such as biotechnology, where time cycles of research and implementation are quite long and, therefore, time is not a very significant stress factor for the employees.

**Idea championing and individual innovation** are ranked just a bit lower in Slovenia (3.65) than in the Adriatic Region (4.66). With high levels of negative factors of innovation in Slovenia, such as knowledge hiding and silence, this is not surprising; however, it does not indicate promising results for the Slovene participating companies.



**Task conflict** is not present to a large extent in the Adriatic Region (3.24) and is even less so in the case of the Slovene study respondents (2.57). It is true that, as in some other empirical studies task conflict has been identified as a potential innovation inhibitor, the low representation of this determinant could be interpreted in a positive way. However, some studies also point to the beneficial outcomes of conflict for creativity and innovation and, as these constructs were quite low in the case of Slovene responding companies, a lack of task-related conflict and consequent uniformity of opinions could be one of the reasons for a lack of creative ideas and their implementation.

**Absorption/flow at work, work enjoyment** and **intrinsic work motivation** are ranked rather high in the case of Slovenia, but the research has shown no significant correlation between these constructs and individual-level innovativeness in the Adriatic region.

The means of all four **time perspectives** are just a bit lower in Slovenia (past negative: 2.12; present hedonistic: 3.07; future: 3.73; past positive: 3.56), but are actually quite similar to those in the Adriatic Region.

**Time management** is another determinant that is highly correlated with innovativeness (on the Adriatic Region level), which scored far lower in the case of the respondents in the two Slovene companies (2.96) than in the Adriatic Region (5.1) in general. A similar interpretation, as in the case of perceived time pressure, could apply; time does not seem to be a very significant factor in the case of the two Slovene responding companies, which cannot be interpreted as very positive.

**Entrepreneurial and Intrapreneurial intentions** represent another factor related to employees' innovativeness on the Region level that is far lower in the case of Slovenia (3.3) than it is in the case of the Adriatic Region (4.03). This speaks to the almost proverbial lack of entrepreneurial drive among the generally risk-avoidant Slovenes.

**Self-efficacy** is again much lower in the case of Slovenia (2.72), in comparison with the whole Adriatic Region (5.12), thus, speaking for a lack of self-confidence among the Slovene employees.

With regards to **uncertainty avoidance**, as a construct for the measurement of national culture, the results of Slovene respondents are quite surprising with much lower scores (1.9) than in the Adriatic Region in general (5.43), which goes against general patterns with regards to risk-taking among Slovenes.

**Individualism**, as another construct that measures national culture, is much lower in the case of Slovenia (1.9) than it is in the case of the Adriatic Region in general (4.48), speaking in favour of viewing Slovenia as a more collectivistic culture.

## 9.5 CONCLUSIONS

This chapter focused on Slovene chains of enablers of innovation at the macro, meso and micro levels. The Republic of Slovenia is a small (population of 2.06 million over its geographical size of 20,273 km<sup>2</sup>) EU Member State in southern Central Europe. It is a parliamentary republic and a member of the United Nations, the European Union and NATO.

The main research and innovation actors in Slovenia are the Ministry of Higher Education, Science and Technology and the Ministry of Economic Development and Technology. Coordination is run by the Competitiveness Council. The Slovenian Research Agency implements funding of public research organisations through several programmes, from the funding of research programmes, basic and applied research projects, infrastructure funding for the national research institutes, targeted research projects, a programme for young researchers, international cooperation programmes, funding of science information services and research infrastructure, etc. Recent data show that Slovenia invested EUR 890 million, or 2.39% of its GDP, on research and development (R&D) in 2014, which is above the EU-28 average (2.03%).

Slovenia exhibits several economic or scientific-output indicators that place this country considerably above the average of the Adriatic Region. The Slovenian GDP per capita is one of the highest in Central Europe. The number of SCImago scientific journal articles is, in relative terms, higher for Slovenia than both the Regional mean and the EU-28 mean. Slovenia's governmental (public) expenditure on R&D, relative to GDP, is almost double the Regional mean and also higher than the EU-28 mean. Nevertheless, Slovenia also experiences several challenges related to its social and economic system, such as a considerable percentage of citizens living below the threshold for poverty (14%), corruption among high-level politicians and some challenges related to ensuring equal rights.

As for the innovation indicators at the meso level, based on our study of 92 innovative micro, small and medium companies, most forms of organizational innovation in Slovenia are below the average reported for the Adriatic Region. Major differences are on the focus of Slovenian companies on the Adriatic countries and markets of Western and Central Europe, where Slovenian companies are much more strongly present than the average company from the Adriatic region. Presence on Eastern European markets was roughly the same, while Slovenian companies were focused less on other regions of the world. In line with the macroeconomic data, most of the innovation support in Slovenia comes from the Central Government.

The two key findings of our micro-study of innovation enablers (among the employees of two innovative Slovene companies) found that knowledge hiding occurs very often in Slovene respondents, in comparison with the Adriatic Region, and that

cultural intelligence in the case of Slovenia does not show levels as high as in the Adriatic region.

Taken together, going by the macro indicators, Slovenia is definitely among the most developed innovation systems in the Adriatic Region and compares well with (even exceeds in some indicators) the EU-28 member states. This is indeed an accomplishment only 25 years after its independence. However, examining the innovation system more closely, several opportunities for improvement exist, as pointed out in this report: at the macro level (dealing with corruption, social issues and further reducing unemployment and poverty); the meso level (focusing on additional market areas, organizational/non-technological innovation); and the micro level (dealing with the culture of competitiveness and preventing knowledge hiding, embracing cultural diversity and improving cultural intelligence among the employees).

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