



Specific Support for Montenegro

Towards Entrepreneurial Innovation Ecosystems

Background report

Horizon 2020 Policy Support Facility



Research and
Innovation

Towards Entrepreneurial Innovation Ecosystems in Montenegro

European Commission
Directorate-General for Research and Innovation
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Contact (H2020 Specific Support for Montenegro):
Diana Ivanova-Van Beers, Policy Officer: Diana.IVANOVA-VAN-BEERS@ec.europa.eu
Eugenija Puciute, Policy officer: Eugenija.PUCIUTE@ec.europa.eu

Contact (H2020 PSF coordination team):
Román ARJONA, Chief Economist and Head of Unit A4 - Roman.ARJONA-GRACIA@ec.europa.eu
Stéphane VANKALCK, PSF Head of Sector, Unit A4 - Stéphane.VANKALCK@ec.europa.eu
Diana SENCZYSZYN, PSF Team Leader, Unit A4 - Diana.SENCZYSZYN@ec.europa.eu

RTD-PUBLICATIONS@ec.europa.eu

European Commission
B-1049 Brussels

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Ecosystems***

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Prepared by an independent expert:

Maja Bučar

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INTRODUCTION

Innovation as one of the main drivers of economic growth is securing a rather important place in all types of economic activities in Montenegro and is now considered to be the basis for the country's economic transformation and modernisation (ERP, 2016, 97). Montenegro continues to have very few enterprises that base their activities on innovation, knowledge and modern technologies, which has a negative effect on the country's level of productivity and competitiveness. Today, cooperation among enterprises with scientific and research institutions is still at an initial phase, which means it has yet to produce significant results in the field of innovation. The current measures present a balanced approach to developing incubators and start-ups in different geographical areas and establishing connections between local and regional business centres. However, construction alone is not enough – investment in technology and skills development is needed (EC, 2017a).

This background report aims to provide information on the economic situation, the state of affairs in research and development as well as innovation, and more specifically, on the business environment for SMEs, especially start-ups. The material was gathered from various available reports, statistics, other projects and studies. The latest available data is presented, although in some cases older analyses are also used where relevant.

1 ECONOMIC SITUATION¹

After 1945, Montenegro, a small Western Balkan state with a population of 624 000, became part of the Socialist Federal Republic of Yugoslavia (SFRY). In 1992, it became a member of the Federal Republic of Yugoslavia – FRY (together with Serbia), which was renamed the State Union of Serbia and Montenegro in 2003. In 2006, Montenegro became independent and started its preparations towards Euro-Atlantic integration.

Until 2001, Montenegro's economy had been based on strong state intervention, followed by a process of economic liberalisation. One such, symbolical step towards the market economy was the unilateral introduction of the euro in 2002, which was not officially approved by the EU institutions.

1.1 GDP and NATIONAL ACCOUNTS

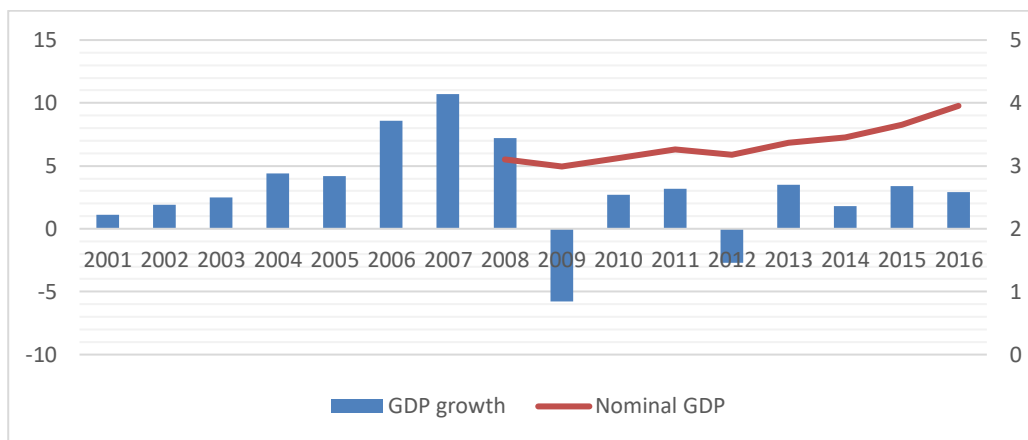
After a stronger orientation towards the 'market economy', Montenegro experienced an economic boost, with average GDP growth between 2002 and 2008 at 4.8 %, which was the lowest in 2002 (1.1 %) and the highest in 2008 (10.7 %) (Trading Economics, 2018). This growth was supported by the growing service sector (tourism) while, at the same time, the country had been experiencing large capital inflows (real estate investments) and an increase in government expenditure. On the one hand, the capital inflows affected the current account in the balance of payments and the country's growing external

¹This chapter was prepared in close cooperation with Boštjan Udovič, University of Ljubljana.

debt while, on the other hand, it had a spillover effect on various sectors, such as construction, tourism, real estate, etc. (WB, 2016).

The world economic crisis also hit Montenegro: in 2009, it was faced with a sharp decline in GDP (-5.8 %). In 2010 and 2011, GDP grew by 2.7 % and 3.2 %, respectively, while in 2012, it fell again by 2.7 %. Average GDP growth in the period 2008-2017 was 1.8 %², presenting almost one-third of GDP growth in the period 2001-2008 (Eurostat, 2018).

Figure 1: Nominal GDP in current prices (EUR billion) and GDP growth (2002-2016)



Source: Own calculations on the basis of Eurostat (2018); Trading Economies (2018)

Oscillations in GDP growth were also translated in the GDP per capita, which only reached the pre-crisis level (in nominal terms) in 2013. What is more problematic is that in terms of GDP percentage in purchasing power standard (PPS) (EU-28), Montenegro has been improving in small steps. In 2006, Montenegro GDP percent in PPS (EU-28) was 35 % of the EU-28, while a decade later it stopped at the level of 46 %. Although these figures present a positive trend, the problem is that the yearly increase is too slow, especially bearing in mind that Montenegro is a prominent candidate for EU membership in 2025 (Eurostat, 2018).

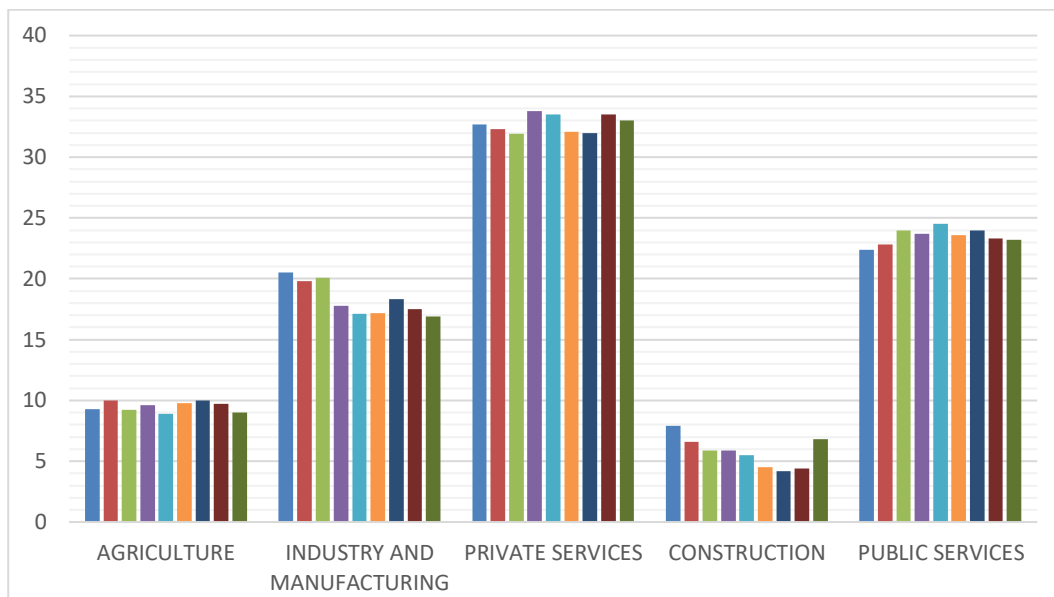
1.1.1 GDP by sector

A breakdown of Montenegrin GDP on the basis of the gross value added of different sectors shows that over the last decade there were almost no changes in GDP composition. The most important contributor to the GDP in Montenegro is the wholesale, retail trade and accommodation sector which, on average, contributes 27 % of the total GDP (EU-28=18 %), followed by the public administration sector contributing 19.5 % (EU-28=18.5 %) and industry which provides up to 13 % of the total GDP (EU-28=19 %). In fourth place is agriculture with a share of 9.8 % (EU-28=1.7 %). In fifth place are manufacturing (on average 5.7 %; EU-28=15.5 %), construction (5.4 %; EU-28=5.5 %) and information and communication (5.6 %; EU-28=4.5 %).

² The average GDP growth (without the fall in GDP in 2009 and 2012) was 3.5 % (Eurostat, 2018).

The trend is important here. Between 2008 and 2016, the value added of manufacturing in Montenegro declined sharply (by more than 25 %), and there was a similar trend in information and communication sector (35 % decrease in 2016 compared to 2008). In the construction sector, the decline from 2008-2015 was 44 % while, in 2016, this sector saw 50 % growth (compared to the previous year). The drop in construction, information&communication and manufacturing resulted in a higher contribution to GDP from: (a) professional, scientific and technical activities; and (b) wholesale, retail trade and accommodation in the country's total GDP. While the 2016/2008 index for retail trade, wholesale and accommodation was 110, the index for professional, scientific and technical activities grew to 171 (a detailed structure of Montenegro's GDP is presented in figure 2).

Figure 2: GDP construction by sectors 2008-2016 (in %)



Source: Eurostat (2018)

Figure 2 not only shows the structure of Montenegrin GDP, but also illustrates the role of services, at more than 70 %. This means that the Montenegrin economy is heavily reliant on services, especially tourism which, according to MONSTAT, represented 9 % of the country's total GDP in 2016. Thus, it may be possible to suggest that tourism and agriculture (as individual activities) are two strategic sectors³. Tourism and agriculture also play an important role in the employment structure. For example, 48 824 families earn their income either partly or entirely from agriculture (WB, 2016, 44). However, there is still room for improvement in employment in tourism and agriculture since Montenegro offers lots of possibilities, especially in the agro-tourism which remains neglected.

³ This has also been pointed out by the Montenegro Development Directions 2015-2018 where, along with tourism and agriculture, energy and manufacturing are listed in the strategic sectors; see <http://www.mf.gov.me/en/news/153253/Montenegro-Development-Directions-2015-2018.html>

The Montenegrin economy largely depends on SMEs. According to the Monstat data (2018), small enterprises represents 51 % of the total GDP, large enterprises make up 25 %, and medium-sized enterprises 24 %.

1.1.2 Trade and foreign direct investments

On average, exports represent 40 % of GDP while, since 2010, imports have represented 60 % of GDP. The trade deficit is increasing on a yearly basis; in 2017, the merchandise trade deficit worsened and represented 44.2 % of GDP; at the same time, the current account deficit grew to 19 % of GDP.

1.1.2.1 Trade

As regards foreign trade, Montenegro is still predominantly oriented towards European countries. In 2016, 90 % of Montenegro's exports went to European countries (37 % to EU countries) and 9 % to Asian countries. In Europe, the country's main export partner is Serbia, with a 25 % share of the country's total exports, followed by Bosnia and Herzegovina (8 %) and Slovenia (5 %). In Asia, the main trading partner is China with a 5 % share of total Montenegrin exports.

A similar pattern is seen regarding imports into Montenegro, with European countries accounting for 84 % of total imports, while Asian countries take a 13 % share. Serbia is the biggest importer into Montenegro, with a share of 22 % of Montenegro's total imports, followed by Germany (10 %), Italy (7 %) and Croatia, Greece and Bosnia and Herzegovina (5 % each). In Asia, the biggest importer is China, representing 80 % of the total Asian imports into Montenegro (9 % of the Montenegro's total imports).

Montenegro exports mainly materials and minerals (37 %), followed by manufactured goods (25 %). On the other hand, it imports mainly machinery and equipment (25 % of total imports), followed by food and live animals (19 %) and manufactured goods (16 %) (Montstat, 2018).

1.1.2.2 Foreign direct investments

Foreign Direct Investment (FDI) is important for the Montenegro economy. In recent years, the flow of FDI and stock has risen in such a way that in 2017 net FDI totalled 11.3 % of the Montenegro GDP and covered 59.3 % of the country's current account deficit (EC, 2018). Taking the nominal numbers into consideration, there is a large gap between the inward and outward FDIs, whether or not flows or stocks are taken into consideration. In 2010, although the stock of inward FDI stopped at the level of USD 4.231 million, the stock of outward FDI was only USD 375 million; five years later, the gap between both was even wider (see table 1) (UNCTAD, 2018). According to the World Investment Report (WIR 2018, 58) "the number of cross-border (M&A)⁴ deals in Montenegro [in 2017] remained limited (the largest deal was the acquisition by Özata Shipyard (Turkey) of a majority stake in the state-owned Adriatic Shipyard Bijela for \$2 million). Italy was the largest source of inward FDI, mostly in the form of loans to its affiliates. Sources of investment also included the transition

⁴ Mergers and Acquisitions

economies of Azerbaijan and the Russian Federation, whose companies invested mostly in real estate.”

Table 1: FDI flow and stock 2010-2016 in USD million

FLOW		YEAR	STOCK	
INWARD	OUTWARD		INWARD	OUTWARD
760	29	2010	4 231	375
558	17	2011	4 209	379
620	27	2012	4 707	414
447	17	2013	5 143	451
497	27	2014	4 844	422
699	12	2015	4 570	390
226	-185	2016	4 663	202

Source: UNCTAD database (2018)

Oscillations in the inflow of FDIs are quite large, while the detailed analysis among the main investors blurs the figures even more. Data from the Montenegro Central Bank show that, between 2013 and 2017, Russians were the main direct investors, although their investments were mainly directed towards the real estate business. In 2013, Russian investments in the real estate business totalled up to 22 % of all direct investments, while the total amount of Russian investments surpassed 28 %. The second largest investor was Slovenia with 9 % of total inward investments in Montenegro. Once again, in 2014, Russians were the country’s top direct investor, with a share of 25 % (20 % in real estate), followed by the Swiss Confederation (11 % of the total inward flow). In 2015, the biggest investor was Austria with 35 % of total inward FDI, followed by the Netherlands with 9 %. In 2016, Norway was the most important investor with a share of 27 %, followed by Russia (7 %), Italy (7 %) and Azerbaijan (6.5 %) ⁵. In 2017 ⁶, the main investor was the United Arab Emirates at 20 % ⁷, followed by Russia at 11 %, which invested (once again!) the largest part of its investments in the real estate business.

As regards the structure of the FDIs, it should also be mentioned that 42 % of inward FDI are in services; 35 % in the retail trade; 15 % in construction, and 7 % in industry. The main (single) FDI investors (stock) are: Serbia (32 % of all

⁵ Investments in skiing complex on Žabljak.

⁶ The data for 2017 are only available for the period January – November 2017.

⁷ They invested mainly in accommodation resorts, such as the Capital Plaza Centre in Podgorica and the Porto Montenegro nautical estate. They also invested in the Tobacco Enterprise (Novi duvanski kombinat) which started operations in May 2018.

inward FDIs), Austria, Cyprus and Slovenia (with 6 % of total inward FDIs), and Croatia and the Netherlands (with 5 % of the total FDIs) (Monstat, 2018).

To enhance the investments in Montenegro, the government has taken several measures. First, it established eight business zones (Kolašin, Berane, Nikšić, Bijelo Polje, Podgorica, Cetinje, Mojkovac and Ulcinj) that could be beneficial for attracting direct investments and could create some spillover effects. Second, it established the investment fund that supports the activities for attracting FDIs. And third, after 2013, Montenegro developed strong support for commercial diplomacy, the main tasks of which are to promote Montenegrin enterprises' exports and to seek and support both inward and outward FDIs.

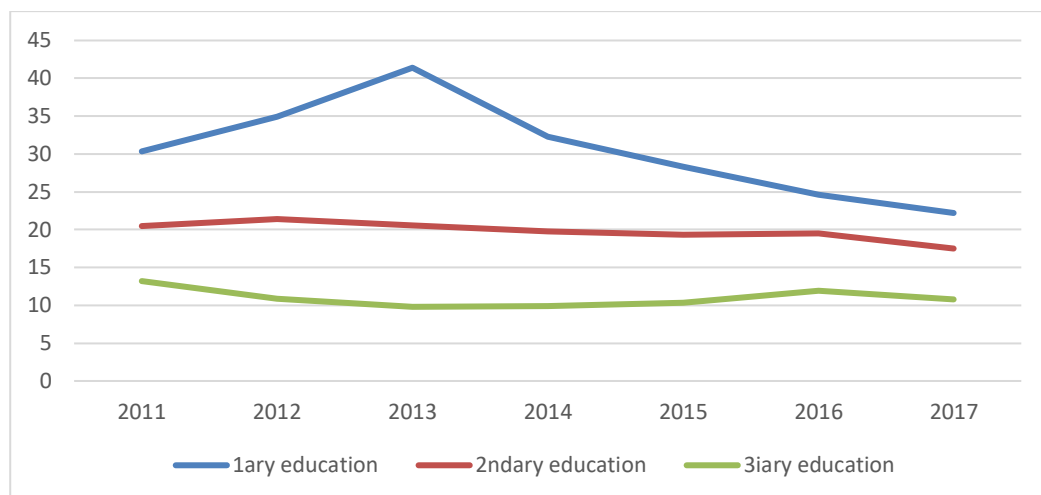
1.1.2.3 Challenges to trade and FDIs in Montenegro

According to the WB (2016, 42): "Montenegro lags on openness and international trade. Coastline, proximity to the EU markets and educated workforce present a potential for Montenegro to overcome its size limitations." However, this potential has not been exploited since only 7 % of Montenegrin firms export their goods, which is less than half of the regional percentage and one quarter compared to Estonia. The next problem is the concentration of exports – geographically and their composition. As mentioned above, the main trading partner is Serbia which, together with Slovenia and Bosnia and Herzegovina, represent almost 40 % of international exchange (in geographical terms). On the other hand, the concentration of exports of raw materials, minerals and manufactured goods represents almost two thirds of Montenegrin exports. Diversification in the geography and composition of the country's exports would be beneficial not only for its economic stability (and its resilience to economic shocks), but also for greater innovativeness and a better business environment for developing start-ups.

1.2 Unemployment

Another danger in Montenegro's economy is the level of unemployment. In 2005, the unemployment rate was 30.3 %. This started to fall in the following years and by 2017 had almost halved. However, 16.1 % is still worrying and international institutions have suggested that Montenegro adopts certain measures to reduce the unemployment figures (Monstat, 2018). The share of unemployed women is slightly higher than that of unemployed men. In the period 2012-2017, the percentage of unemployed youth was on average 18 % (Eurostat, 2018). The highest number of unemployed concerns those with only primary or no education. This rose to 41.4 % in 2013 before falling over the next five years. In 2017, the share of unemployed people with primary education was 22.2 % (average: 30 % between 2011 and 2017). Between 2011 and 2017, the share of unemployed people with secondary education was on average 20 %, while the share of those with tertiary education who had been unemployed was on average around 10 %. In parallel with these high shares of unemployment is the problem of the immutability of this share, especially when people with secondary and tertiary education are taken into consideration (Eurostat, 2018) (Figure 3).

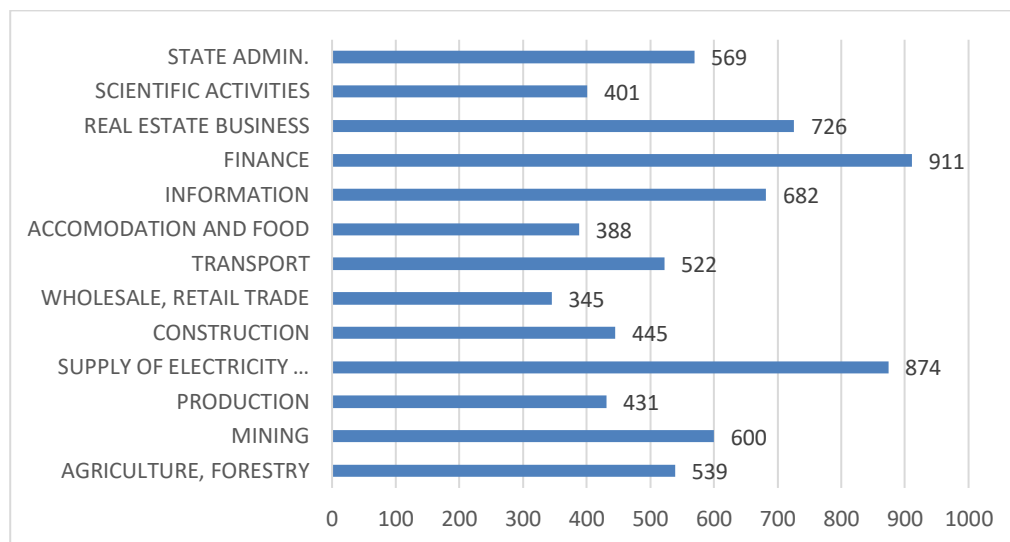
Figure 3: Share of unemployment according to the level of education



Source: Eurostat (2018)

According to the World Bank report (WB, 2016, xiiff) there are three main factors that can be possible explanatory factors for the high unemployment in Montenegro: (a) the incomplete economic transition and the incomplete restructuring of the national economy (especially resulting from shocks during the economic crisis); and (b) labour mismatches: low-skilled labour is mainly defined by seasonal issues (tourism) and comes from migration rather than domestic sources – on the other hand, highly skilled workers are forced to emigrate, since there is a lack of high-value-added jobs). The third factor is the high reservation wage, which is the wage range below which the Montenegrins are not prepared to work. This high reservation wage can be explained by three factors that are important in the Western Balkan transition economies: (1) the remittances of Montenegrins working outside the country; (2) high public and private transfers both among generations (in the same family) and from the state to individuals; and (3) the informal economy which, according to some estimations, employs around 30 % of the total labour force (WB, 2016, xiii).

Figure 4: Average net salaries in NACE sectors



Source: Monstat (2018)

1.3 Poverty

Montenegro has a poverty rate of 8.3 % which is among the lowest in the Balkans (WB, 2016, 7). In absolute (nominal) terms, in 2016, the national poverty line (inflation adjusted) was EUR 144 68, while in 2013, it was EUR 186 45. However, the picture is quite different when the at-risk-of poverty rate is taken into consideration. Between 2006 and 2013, this oscillated dramatically. In 2006, it was 11.3 %, falling to 4.9 % in 2008 then rising in 2010 to 6.6 %, up to 11.3 % in 2012, before stopping in 2013 at 8.6 % (Monstat, 2018). These shifts can be explained by the oscillations in GDP between 2008 and 2013. As pointed out by the World Bank, the GDP “growth was less pro-poor”, meaning that “the poorest benefited the most from the boom but were hit hardest by the bust” (WB, 2016, 8).

1.4 Balance of payments and public debt

Montenegro has faced serious imbalances in public expenditure. In the period 2012-2017, the average annual deficit was almost 5 %, bringing the level of debt to 64.4 % of total GDP in 2017. Almost 95 % of the total debt could be attributed to central government debt (Economic Reform Programme, 2018, 38), where the debt is mostly external (ibid., 39). This means that Montenegro has been heavily dependent on external sources for domestic financing, which is threatening the stability of Montenegro’s economic development (EC, 2017b, 3). To address the issue of the growing deficit and debt, the Montenegrin government adopted a plan for redressing its public finances. This plan projects that the budget will be balanced by 2019 and that the ratio of public debt will decline by 2020 (EC, 2018, 42). In the ERP (2018), Montenegro anticipates taking three steps to achieve the set plan: (a) a reduction in public spending on public sector salaries (which would inevitably demand an optimisation of the number of employees in this sector and greater efficiency on their part); (b) the introduction of different reforms to the

social security system, based in particular on incentivising people to opt for inclusion in the labour market; and (c) continuation of the healthcare system reform, in which special emphasis will be given to increasing the quality of healthcare and ensuring the sustainability of the health insurance fund (ERP, 2018, 51).

1.5 Assessment of Montenegro's competitiveness by international institutions

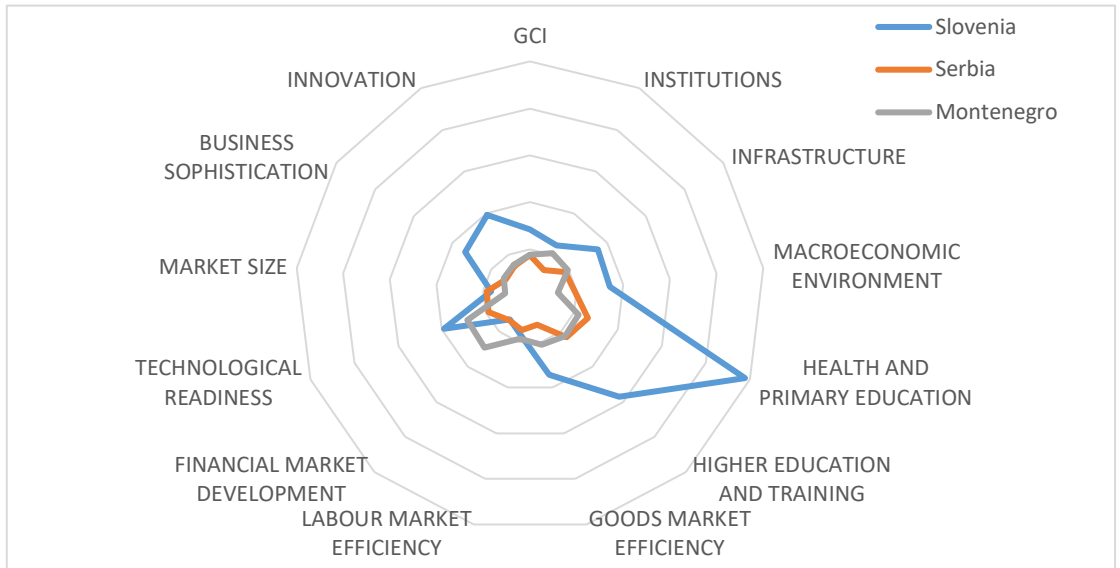
The Global Competitiveness Report (GCR) 2017-2018⁸ ranked Montenegro 77th (out of 137), which is somewhat in line with previous years. Montenegro received the best evaluation in 2013 and 2014 (ranked 67th), but the worst in 2017 (82nd). The most problematic parts are the *macroeconomic environment* (ranked 116th), the *market size* (128th) and *business sophistication* (101st), while the country performs better in the fields of *financial market development* (47th), *technological readiness* (48th) and *higher education and training* (61st).

A breakdown of the *macroeconomic environment index* shows that the main problems for the country are the growing deficit, increasing debt and its low country credit ranking. In the *business sophistication* category, the main issue is the low level of cluster development and the extent of marketing across the country. Montenegro performs better in *financial market development*.

However, some challenges still need to be addressed. The first concerns the limited availability of the financial services and their affordability. In the composite index of *technological readiness*, much more must be done in the field of technology absorption and FDI technology transfer. Respondents stated that *access to financing* was the main barrier to doing business in Montenegro (factor 16.4). This was followed by the *inefficient bureaucracy* (13.2) and *corruption* (10). At the bottom of the scale, where Montenegro does well, is the (low) *inflation rate, government stability and predictability* and a *good public health system*. Somewhere in the middle, the respondents indicated that the Montenegrin economy also suffers from an *insufficient capacity to innovate* (5.2).

⁸Available at: <http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>

Figure 5: Global competitiveness index (by pillars): Montenegro, Serbia, Slovenia

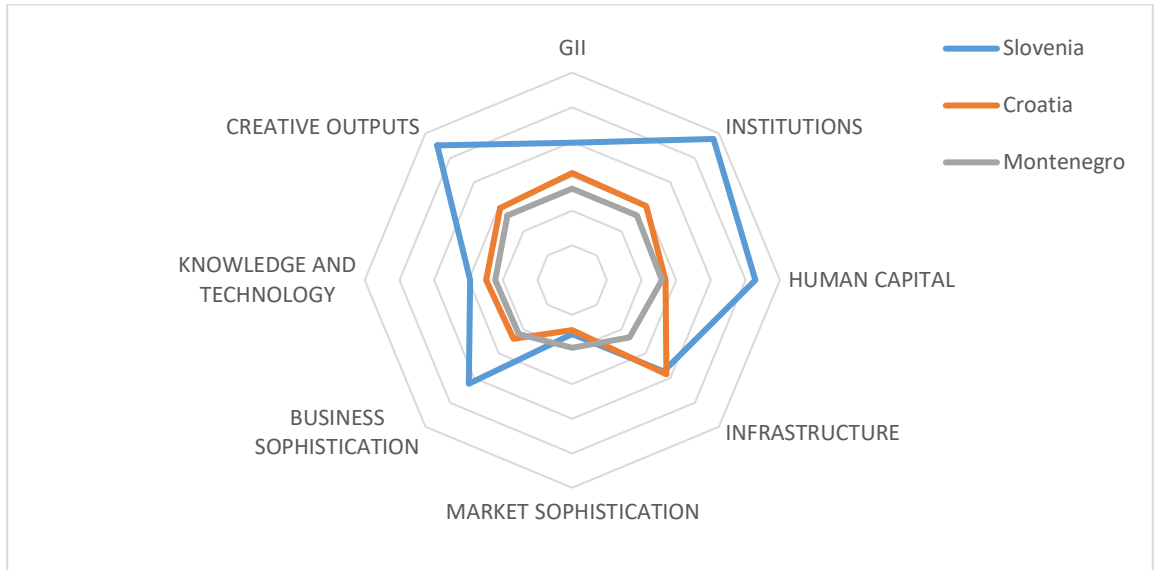


Source: WEF (2018, 208)

Similar results for the Montenegro business environment are also presented in the Global Innovation Index 2018⁹. According to that, Montenegro's strengths are: (a) high e-participation; (b) accessibility of credits; (c) GERD financed from abroad; (d) the net inflows of FDI; and (e) online creativity. On the other hand, weaknesses in the country's business environment include: (a) low GERD; (b) low intensity of local competition; (c) lack of university/industry RDI collaboration; (d) few or no clusters; and (e) few publications in high-ranked journals. Compared to 2016, in 2017, Montenegro improved its Global Innovation Index by three ranks (from 51 to 48). However, the challenges remain the same: (a) the divergence between innovation inputs and outputs; and (b) the low ratio of RDI efficiency (Global Innovation Index, 2017, 261).

⁹ Available at: <https://www.globalinnovationindex.org/>

Figure 6: Global innovation index: Slovenia, Croatia and Montenegro

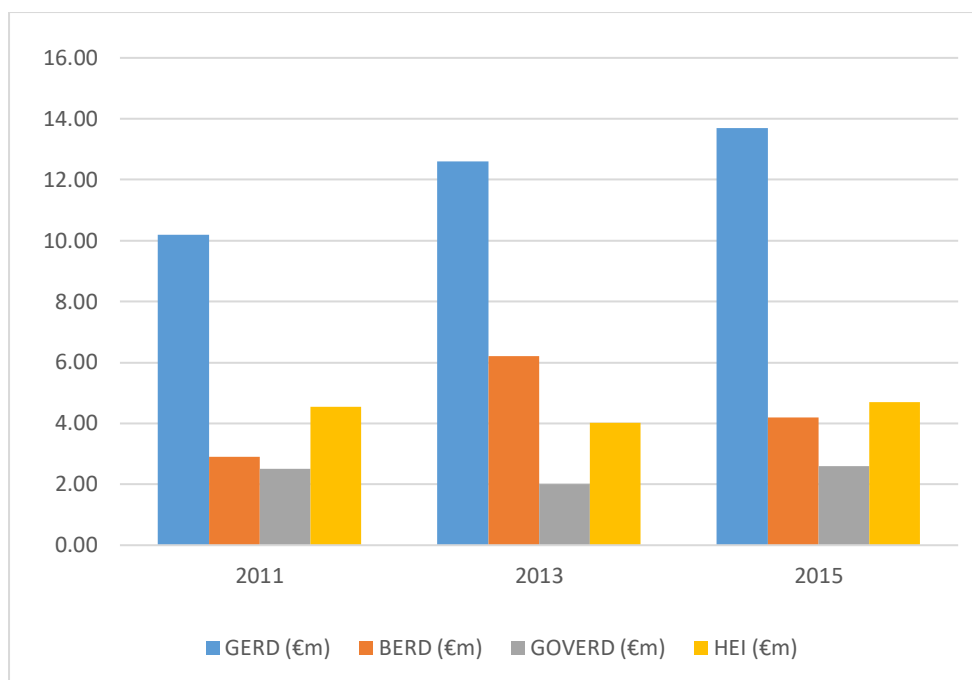


Source: GII (2017)

2 RESEARCH AND DEVELOPMENT

2.1 Key statistics

Figure 7: Research and development expenditure, by source of funding



Source: Eurostat, 2018

Since 2010, Montenegro has spent approximately 0.38 % of its GDP on research and development (R&D), which nominally means a gradual increase in funding. By 2015 (latest available data), this translated into EUR 13.67 million, or in per capita terms EUR 22 – one of the smallest amounts in Europe¹⁰.

As for many less-developed R&D environments, state budget is the main source of R&D funding, partly through higher education institutions (HEI) and partly through government expenditure on R&D (GOVERD), while most of the R&D activities are performed by HEIs.

¹⁰The EU average is EUR 593 and the lowest per capita spending among EU Member States is EUR 39 in Romania (Eurostat).

Table 2: R&D expenditure by source of funding, as % of GDP

Indicator	2011	2012	2013	2014	2015
Total expenditure on R&D (GERD) (% of GDP)	0.31	n.a	0.37	0.36	0.38
GERD by source of funding – state budget (% of GDP)	0.15	n.a	0.12	0.17	0.22
GERD by source of funding – enterprises (% of GDP)	0.10	n.a	0.16	0.10	0.11
GERD by source of funding – from abroad (% of GDP)	0.06	n.a	0.08	0.08	0.02
GERD by source of funding – from NGO (% of GDP)	n.a	n.a	0.01	0.01	0.03

Source: Monstat (2011-2014), Ministry of Science, for 2015

While there are 1 766 registered researchers with the Ministry of Science (MoS), this nominal figure translates into only 673 full-time equivalents (FTE) (2015), partly explained by the fact that most of the R&D is performed at universities, where research is a side activity to teaching. As for the employment sector, 60 % of researchers (430 FTE) are employed in higher education, 21 % in the government sector (139 FTE) and 15 % in the business sector (104 FTE).

Table 3: Number of researchers, head count

		2011		2013		2014		2015	
No. of researchers		1699		1617		1708		1766	
Total headcount									
Male	Female	847	852	794	823	869	839	926	840

Source: Ministry of Science

One important factor in terms of research potential concerns the qualifications of the research staff: of 1 766 researchers, 849 were researchers with a PhD (ISCED 8), 745 had a Master's degree (ISCED 7) including PhD students, and 172 researchers had completed the first cycle of higher education. According to an analysis by the MoS, carried out in 2014, there were 236 Montenegrin scientists living abroad (180 of whom had a PhD).

The Law on Scientific Research Activity¹¹ specifies the research titles as either a researcher or a senior researcher. A person with at least higher education and who works in research may be granted the title of researcher. A person with the academic title of Master of Science and who has published scientific papers may be granted the title of senior researcher (Law on SRA, article 50). In addition, there are also scientific titles¹², which are: scientific associate, senior scientific associate and scientific adviser. A scientific title is granted for a five-year period, except in the case of scientific adviser which is a title granted for an indefinite period (ibid., article 51).

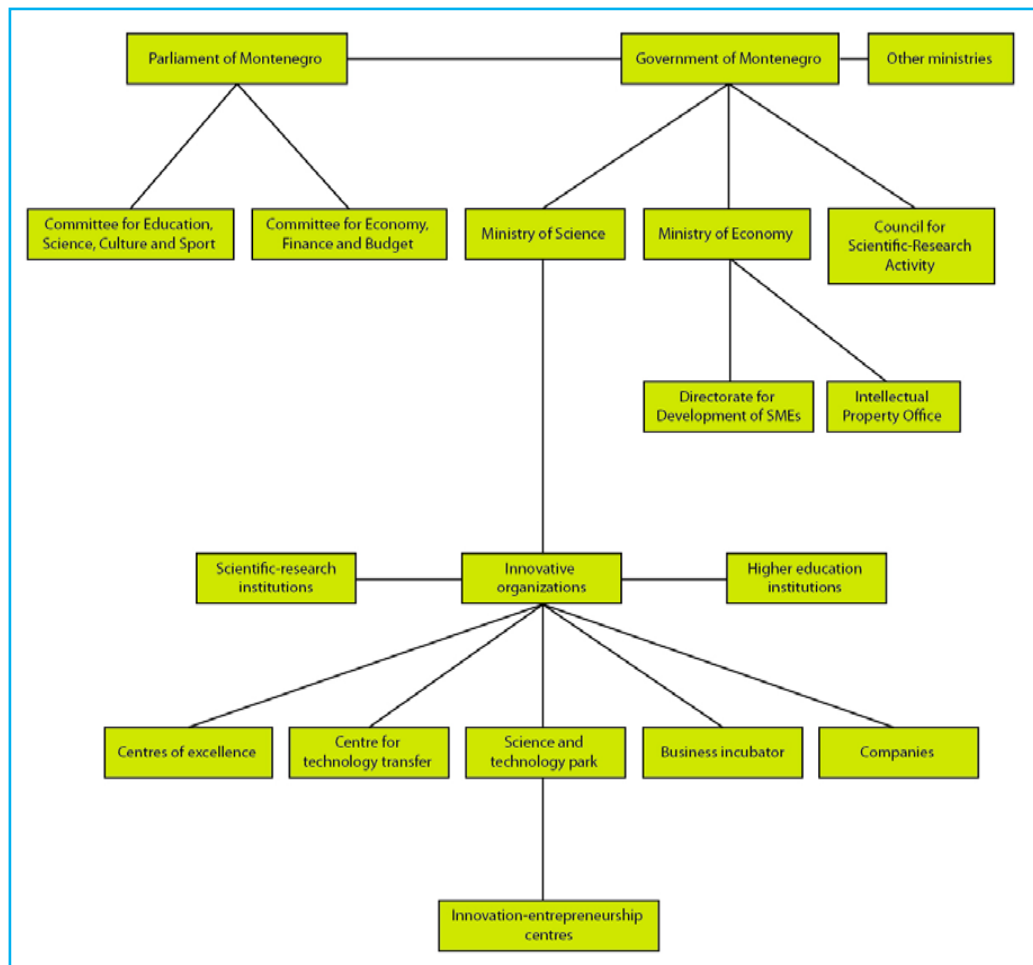
According to an assessment by World Bank experts (WB, 2013), with the exception of a few research areas, R&D infrastructure in Montenegro is generally weak and out of date. The country has research infrastructure potential in the areas of: (a) biomedical and life sciences (especially agriculture, public health, hydrographical and seismological research, water and marine chemistry, and microbiology research, as well as marine biology infrastructure); (b) information and communication technologies (ICT) (especially in the field of energy, telecommunications, electronics, computer engineering, and related technologies); and (c) materials science (in the area of mechanical engineering and metallurgy with research and testing labs).

¹¹Source: Law on Scientific Research Activity; Official Gazette of Montenegro, No. 80 of 31 December 2010, 40/11, 57/14.

¹²Scientific titles are comparable to academic titles, as follows: scientific associate – academic title of assistant professor; senior scientific associate – academic title of associate professor; scientific adviser – academic title of full professor (Law on SRA, article 54).

2.2 Structure of the science and research sector

Figure 8: Organisational chart of SR sector



Source: Ministry of Science

The *Ministry of Science* is the main state administration body for implementing research, development and innovation policy through national and international programmes of general interest. The funding is provided mainly through calls for projects. It also negotiates and implements bilateral agreements on science and technology (S&T) cooperation, and concludes memoranda, protocols and cooperation programmes with ministries and foreign organisations.

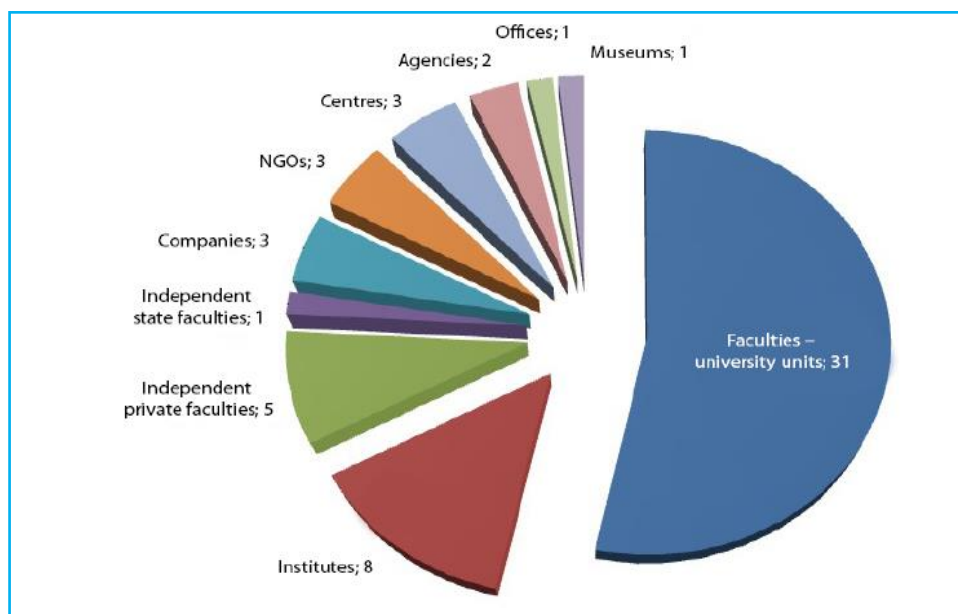
The *Council for Scientific-Research Activity* is appointed by the government for the period of five years and has nine members. Its task is to monitor the implementation of strategies and laws in the field of research and development, providing expert suggestions in terms of improving research and innovation activities and acting in an advisory role. One Council member must be appointed from among the representatives of the ministry, while eight members are

appointed from among the prominent experts who contribute to the development and application of scientific research activity, from research institutions, institutions of higher education, the academies of sciences and arts, and the economy. The appointments are made by the minister.

According to the Law, the Council must analyse the state of play and achievements in scientific research activity, issue expert suggestions and therefore has special powers to: 1) prepare and propose the [scientific] strategy; 2) propose the priorities from the strategy and programmes of general interest for the current year; 3) issue opinions on the criteria for granting the research and scientific titles; 4) issue opinions on laws and other regulations in the area of scientific research activity and other areas which ensure general conditions for the promotion of scientific research activity and the exploitation of its results; 5) issue opinions on the process of determining the amount of funding for financing priorities determined in the strategy; 6) propose that the ministry adopts decisions on awarding the status of a centre of excellence; 7) monitor the implementation of the strategy; 8) nominate commissions for the implementation and monitoring of the activities defined by the strategy, as well as the quality control of the scientific research work; 9) cooperate with the Higher Education Council; and 10) perform other tasks prescribed by the present Law and the act establishing the Council (Law on SRA, article 16).

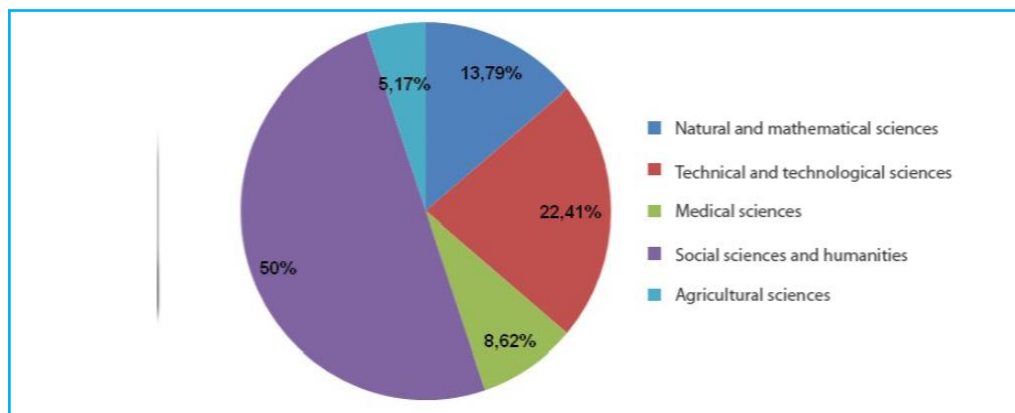
There are 58 research institutions registered with the Ministry of Science, most of which are in the higher education sector. Only three research units are registered by companies and, according to information available on their web pages, most are engaged in testing and certification activities within their laboratories. The University of Montenegro has the most research units (23).

Figure 9: SR institutions by type of organisation



Source: Ministry of Science, 2018

Figure 10: SR institutions classified per field of science



Source: Ministry of Science, 2018

In terms of fields of science, the most numerous are those institutions in the social science sector. A list of all licensed research institutions is published on the MoS website¹³. Of the eight institutes registered, only three appear to be engaged in technical or natural sciences.

In accordance with the Law on Higher Education¹⁴, the academic titles are: full professor, associate professor and assistant professor. Based on a public competition, academic staff are appointed by the senate for a period of five years; however, full professors are appointed on a permanent basis. The Law on higher education also stipulates norms and standards for funding HEIs. It states that the founder is responsible for providing financial resources for public HEIs to cover the following costs:

- Financial costs, current costs and investment maintenance;
- Salaries of employees in accordance with the Law, the Collective Agreement and Organisation Act, and job descriptions;
- Equipment and library funds;
- Performing scientific research, or artistic work, which enhances the quality of lectures;
- The scientific and professional improvement of employees;
- Other costs (Law on HE, article 64).

¹³ <http://www.mna.gov.me/en/organization>.

¹⁴ Law on Higher Education; Official Gazette of Montenegro, 044/14 of 21 October 2014, 052/14 of 16 December 2014, 047/15 of 18 August 2015, 040/16 of 30 June 2016, and 042/17 of 30 June 2017.

The level of funding is determined annually and depends on the number of students who are allowed to enrol in specific programmes. According to the Ministry of Education, the enrolment number is decided by taking into account the needs of the labour market, the capacity of HEIs and other norms and standards suggested by the Council for Higher Education¹⁵. This does not mean that individual faculties cannot enrol more students – it simply means that all others must pay tuition fees and thus generate additional income for the faculty/university.

As regards performing research activities, the Law on HE, which is of specific interest is the Article 66, stipulates regulating the generation of income of public institutions (such as the University of Montenegro):

"The activities of Public Institution are, by rules, non-profit. A Public Institution may, in accordance with the Law, promote and use education and research activities on the market for the purposes of generating incomes for Higher Education goals and achievements, which is used for improvement lectures and scientific research activities, in accordance with its Financial Plan. Each Public Institution shall primarily get the consent of the Government, when that activity includes or might include the usage of the right to any sort of significant intellectual property, in any literary, artistic or scientific papers, scientific discoveries, projects, inventions, good or services which are, wholly or partially, directly or indirectly, provided for from the funds of the Budget of Montenegro."

Four universities exist in the country: the biggest is the state-owned University of Montenegro¹⁶, and there are three private ones: the University of Donja Gorica¹⁷, the University Mediterranean and the University Adriatic¹⁸. There are also some individual private faculties, but they are too small to be engaged in research.

This was the finding of the cross-cutting summary report 'Evaluations of ten higher education institutions in Montenegro', which was produced by the Institutional Evaluation Programme in August 2014 (Jørgensen and Sursock, 2014). The report is based on evaluations of 10 HEIs in Montenegro. These evaluations took place in the framework of the project 'Higher Education and Research for Innovation and Competitiveness' (HERIC), implemented by the government of Montenegro with the overall objective of strengthening the quality and relevance of higher education and research in Montenegro. According to their findings, at the time of the evaluation (2014), the University of Montenegro was the only Montenegrin HEI with the capacity for research of any significance. The private independent faculties are not officially recognised as having a research mission, and the two private universities have very few, mostly applied research activities. The evaluators' assessment was that the research activities suffer from a basic lack of funding, to a large extent the consequence of the teaching-focused funding model within HEIs. It is necessary to allocate financial resources to areas

¹⁵The Law on HE provides for the establishment of a 13-member Council for Higher Education, appointed by the government for four years, with organisation and quality assurance tasks.

¹⁶ <http://www.ucg.ac.me/>

¹⁷ <http://www.udg.edu.me/en/>

¹⁸ <http://www.fms-tivat.me/>

where there is potential for developing excellence or to those deemed valuable for Montenegrin society.

Their recommendation was that in order to develop research capacity, national authorities must increase funding and adapt funding models to finance research adequately. Furthermore, they felt that the institutions interested in developing their research capacity should:

- Identify and focus on existing or potential areas of strength;
- Invest in basic research infrastructure;
- Train administrative and academic staff;
- Participate in international networks with the aim of developing research capacity in Montenegro.

2.2.1 University of Montenegro

One of the institutions engaged in research activity is the University of Montenegro (UOM), which was established in 1974 and currently has 19 faculties, 3 associated research institutes and 73 study programmes. It employs 1 073 people, which includes around 300 professors and 300 research assistants.

The University of Montenegro budget comes mainly from the government (EUR 17.3 million in 2017) and own earnings (EUR 12 million in 2017), comprising EUR 9 million in tuition fees¹⁹, EUR 2.28 million from research projects, EUR 0.59 million from other institutions and other funding of EUR 0.11 million²⁰.

In 2009, the university prepared a strategic research plan in which one of the so-called '*stretched*' ideas was the possible establishment of an innovation and incubation centre at the university to support the creation and development of entrepreneurship in Montenegro, with a special focus on innovative start-up companies, and science, research and development, also by involvement of talented students. In addition, in the collection of good practice examples of programmes, instruments and measures aimed at supporting innovation activities, assembled under WBC-INCO.NETs project in 2011 as a good practice for Montenegro, the university's Research and Development Service Centre (R&D SC) is listed. The Centre was formally established in October 2009 within the framework of the TEMPUS project 'Creating R&D capacities and instruments for boosting higher education-economy cooperation'. In 2011, an assessment by a research team of the Centre's sustainability following financing from the TEMPUS project was very optimistic, thanks to a statement from the university that it should continue to provide financing (Inno-WBC, 2011).

No mention of either activity can be found on the university's web page today. However, there is a plan to create a Technology Transfer and Professional Service

¹⁹ 80 % of tuition fees go directly to the departments based on the number of enrolled students.

²⁰[http://senat.ucg.ac.me/data/1523523397-\\$Samo-evaluacioni%20izvjestaj-follow%20up%20evaluacija_03.04.2018.pdf](http://senat.ucg.ac.me/data/1523523397-$Samo-evaluacioni%20izvjestaj-follow%20up%20evaluacija_03.04.2018.pdf)

Centre which will be in charge of raising awareness on intellectual property rights, increasing technology transfer from the university, promoting innovation and entrepreneurship among students and academics as well as organising conferences, consultancies and workshops²¹. In May 2018, a new Centre of Excellence in Research and Innovation was founded by the university. According to the statutes, this Centre will receive financial support from the Ministry of Science and Technology as well as its own sources. Its tasks will be (University of Montenegro, 2018):

- Implementation of basic, developmental and applied research;
- Preparation of international project proposals and their implementation;
- Development of innovative solutions, patents and prototypes;
- Training in research, protection of IPR and patent applications;
- Project design and preparation of different analyses, expertise and studies;
- Offering consultancy/expert services and assistance in technology transfer from the academic community to the business sector;
- Developing partnerships with the business sector and linking researchers and students with business partners;
- Offering assistance to business incubators and science parks;
- Joint activities with other units involved in technology transfer;
- Organisation of scientific conferences, seminars and other events dedicated to research and innovation;
- Organisation of training through seminars and courses;
- Other tasks according to the University of Montenegro's statutes.

With the start of operations at the Centre of Excellence in Research and innovation, the activity and the staff at the Centre of Excellence BIO-ICT will be transferred to this new Centre of Excellence.

Within the HERIC project, a workshop was held at the university's premises entitled *'How to successfully implement technology transfer and commercialise the results of scientific research'*. During the event, presentations were made by international experts, led by Ms Danica Ramljak, Science and Innovation Expert from the World Bank. The main focus of the workshop was to present the importance of science and innovation as a driver of economic growth through innovative research, intellectual property protection, cooperation between the public and private sector, and the opening of new start-ups based on the results of scientific research. The aim was to empower the Montenegrin scientific

²¹ <http://www.ucg.ac.me/objava/podorg/0/70/poz/info>

community and encourage it to take a further step forward in contributing to Montenegro's development. Vice-rectors, deans and vice-deans of all the individual faculties, as well as representatives from state institutions and the World Bank took part in the workshop²².

From the information available on the employment and salary structure of the academic personnel, apart from the overall Collective Agreement²³, signed between the ministry, university and the union of public employees, the basic salary is set according to the expected academic engagement. The Collective Agreement also stipulates that at least 30 % of working time should be devoted to research, although no measurement has been specified for this²⁴. On the other hand, the basic pay for academic work is strictly regulated: a full professor is committed to four hours of teaching a week. If the number of hours is increased, the basic salary can also be increased by an additional 50 %. The payments derived from projects, earnings from the market and other forms of teaching are regulated in a special act specified by the university²⁵.

Criteria on conditions and requirements for promotion to academic titles, which is set by the Council for Higher Education in accordance with the Law on HE, specifies the number of so-called "points" required for promotion to a particular title. Besides publications, technical and development contributions are also recognised as elements contributing to fulfilling the criteria²⁶.

2.2.2 Business R&D

The available data suggest that business enterprises invest little in R&D, limiting their possibilities of developing new products and processes and absorbing technologies from abroad. A closer look at the industry level is required to identify industries with relative strengths in performing R&D, but unfortunately, as discovered by the study on smart specialisation, detailed R&D statistics from industry are not available for Montenegro. This is largely explained by the small number in the business enterprise sector responding to the R&D survey²⁷. To assess industry's innovative potential, it is recommended to collect R&D expenditure data for NACE 3-digit industries (Hollander, 2018).

²² <http://www.heric.me/en/news/university-montenegro-hosts-workshop-commercialization-scientific-research-and-development>

²³ http://www.ucg.ac.me/skladiste/blog_6/objava_3710/fajlovi/Collective%20Agreement.pdf

²⁴ According to an unofficial source, the salary is based exclusively on teaching commitment, with compensation for participation in research projects being regulated outside of the basic salary.

²⁵ Available in Montenegrin at:

http://www.ucg.ac.me/skladiste/blog_7/objava_24/fajlovi/Bilten%20387.pdf

²⁶ For example, a new product or technology accepted at the international level or a patent awarded at the international level would be worth eight points, while participation in an international scientific project is worth four points. On the other hand, a monograph of international importance is valued at 10 points. Source: http://www.ucg.ac.me/skladiste/blog_6/objava_10/fajlovi/Criteria%20on%20the%20conditions%20and%20requirements%20for%20promotion%20to%20academic%20titles.pdf

²⁷ Due to the small number of respondents in the business enterprise sector, it is more than likely that business R&D activities are underestimated as, in particular, R&D activities in smaller enterprises will not be captured.

2.3 Scientific output²⁸

Until 2006, the year Montenegro became independent, the average yearly number of publications in the country was about 40. From 2006 to 2011, scientific output increased strongly at a rate of more than 20 % per year. Scientific output declined marginally between 2011 and 2012 but increased again in 2013 and 2014 at an average annual growth rate of around 12 %.

Montenegro is among the countries with the highest share of scientific papers with at least one international co-author. For countries with low volumes of scientific output, this indicator does not necessarily signal scientific quality but rather the necessity to collaborate with foreign authors because of a lack of domestic opportunities.

About 6 % of Montenegrin scientific publications are among the top 10 % most-cited publications worldwide, although only 0.3 % of Montenegrin scientific publications are among the top 1% most-cited publications worldwide. Both results signal that the quality of Montenegrin scientific publications is below average and should be improved.

For the entire 2006-2016 period, 2 668 publications were covered for Montenegro in Scimago. This number increased from 56 in 2006 to 401 in 2014, followed by a decline in 2015 then a further increase to 431 in 2016.

The quality of Montenegrin publications is below average, as measured by the share of publications in the top 10 % and top 1 % most-cited publications (using Web of Science data), and by a lower ranked performance on citations compared to rank performance on published documents (using Scimago data).

In terms of research specialisation, the activity index (also called the 'Relative Specialization Index'²⁹) per area shows that Montenegro has no well-established specialisations (WB, 2013). In fact, there is no scientific field in which there is a speciality index above 1, indicating a lack of specialisation. The only two areas where the country approaches a specialisation index of even half of the world average are computer science, and physics and astronomy.

There were 28 new PhD graduates in 2016. According to South East Europe Start-up Report 2017, there were 30 patents, 232 trademarks, and 5 industrial designs issued in 2015 in Montenegro.

²⁸ This section is largely based on the study conducted by Hugo Hollander: *Mapping economic, innovation and scientific potential in Montenegro - Final report, 15 March 2018*.

²⁹ The Law on research already specifies that the "equipment aimed for scientific research activity, obtained as donation from abroad or purchased abroad, may be exempt from customs fees and value added tax, based on the opinion of the Ministry" (article 60).

2.4 Strategy of scientific research activity

In February 2018, the MoS published the Strategy of Scientific Research Activity for the period 2017-2021. This provides an extensive overview of the country's scientific activity whilst also identifying through SWOT analysis the main elements on which to base further development.

Table 4: SWOT analysis of scientific research activity

<p>STRENGTHS</p> <ul style="list-style-type: none"> Proven regional stability factor (NATO membership and EU integration process) Good regional connections Internationally recognised tourist destination Size of the country suitable for quick reform implementation Process of economy transition completed Access to leading international R&I funds enabled Presence of internationally well-integrated excellent individuals/ research teams 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> No close-to-market innovation culture No long-term planning for R&I activities (opportunistic approach) Habits in terms of doing business and lack of readiness to take risks Gaps typical of small countries (insufficient 'critical mass' in the SR community, 'brain drain', etc.) SR community is fragmented, not connected and unreliably evaluated The national/budget funds are insufficient No continuity of national R&I funds and project sustainability Insufficient involvement of the private sector Practice of investing into fragmented national projects with no satisfactory results Access to international R&I funds and infrastructures is used to a negligible extent
<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> Existing large investments in other economic sectors (energy, tourism, transport and agriculture) Evidence of need to increase quality in SME sector Implemented integration into important international funds (H2020 programme, etc.) Cooperation with foreign investors on individual large investment projects Exercising further access to large international research infrastructures (CERN, EMBL, etc.) Implementation of the "large research infrastructure for sustainable technologies" in South East Europe Favourable geopolitical position and location of Montenegro Use of human potential in diaspora 	<p>THREATS</p> <ul style="list-style-type: none"> Dependence on global trends Commitment to existing technologies Loss of high-quality human resources Inertia and bureaucratic mentality of the institutional system Opportunistic participation in international R&I projects (lack of initiative)

Source: Strategy of Scientific Research Activity for the period 2017-2021

In the Strategy, the following problems have been detected for Montenegro's S&T: the scientific research community is fragmented, insufficiently interconnected, and in the state of inadequate appreciation of academic and scientific contributions. There are only embryonic examples of any commercialisation of research, which is partly attributed to the poor ability to convert intellectual property into business.

Problems with funding are highlighted: both the insufficiency of the funds as well as a lack of continuity. The funding is mainly project based, and the projects are not sustainable. Currently, there is limited interest on behalf of the private sector in commissioning research or investing in own R&D capacities.

To overcome these problems, the Strategy has proposed three main ambitious goals:

- 1) Developing human resources and research capacities;
- 2) Enhancing international cooperation and networking;
- 3) Strengthening synergies between science and economy.

There are several priorities within each goal addressing the main issues in research. Priority one tackles the employment of researchers at universities and introduces the possibility of full-time research employment, in particular more possibilities for holders of doctoral degrees and students of doctoral studies. Changes are planned for the financing system, whereby it is proposed to finance projects based on certain levels of the so-called 'top-down' approach and to focus on concrete problems and solving social challenges in Montenegro by applying innovations in a particular field. New guidelines on financing centres of excellence should be developed opening the opportunities for multi-year funding, thereby contributing to sustainability. A focus on talent development is planned through a national programme of scholarship for excellence as well as by engaging young researchers on scientific projects. Better cooperation with the diaspora is another priority.

The main priorities under goal 3 are particularly important for start-ups. One priority to strengthen synergies between science and the business sector is better utilisation of the existing infrastructures, primarily Tehnopolis and the Centre of Excellence, where the strategy proposes a parallel use of the same equipment by several stakeholders, i.e. employed researchers, SMEs (business sector), HEIs and public institutions. The Strategy states: "The efficient management of these infrastructures could not only optimise their use, but also achieve the first results in terms of financial self-sufficiency and sustainability in a short period of time."

Besides better use of the existing infrastructure, the setting up of the Science and Technology Park should be completed by 2021. This, the Strategy hopes, will not only strengthen the institutional framework and help the emergence of innovative ideas and their commercialisation into new or improved technologies, products and services, but will also provide for new employment through the creation of SMEs in the form of innovatively motivated start-up and spin-off companies.

Another important element within the cooperation ecosystem is the plan to form a technology transfer and networking platform. During the development of the platform, comparative successful practices and modern technological solutions will be considered and taken into account, such as the development of advanced IT databases on available scientific research, human and material resources, patents for which the investors are sought, and the economic and social challenges for which an innovative solution is needed. Considering the current lack of detailed information in the area of technology transfer and available patents, such a platform could considerably increase the possibilities for closer collaboration between researchers and businesses.

Another important element of the Strategy is the planned introduction of stimulating fiscal and customs policy measures³⁰ for the R&I sector. A range of tax incentives is to be explored for innovative start-ups and other companies, funds, foundations, professional associations, clusters, etc., as well as through favourable customs treatment of imports related to R&I. The government intends that such policy measures will encourage large companies to invest in the development of authentic innovative products suitable for improving their own performance, but also for placement on the open market, including exports.

The Strategy recognises the problems concerning the protection of intellectual property rights (IPR) and plans to further adapt the regulatory framework for IPR and logistic support for stakeholders in the process of protecting their rights. In this regard, it states: *"A strong regulatory framework for the protection of intellectual property rights is the best guarantee for relaxed investment in R&I, especially if it provides for a fair and appropriate distribution of potential profits between researchers, research infrastructures in which they work and investors."*

According to the Strategy, in future, research and innovation activities will continue to be financed from budgetary sources, but the funding strategy will be focused on market-oriented projects of higher value that imply the involvement and teamwork of a larger number of researchers and a multidisciplinary approach.

One of the weaknesses of the current system is the lack of reliable and detailed data on R&D and innovation. With this in mind, Montenegro authorities have initiated a reform of the statistical system in science through the project 'Strengthening statistical capacities and provisions of economic and social statistics' so that the data collected would be internationally comparable, including data on innovation statistics, in the period up to 2020.

²⁹ The Law on research already specifies that the "equipment aimed for scientific research activity, obtained as donation from abroad or purchased abroad, may be exempt from customs fees and value added tax, based on the opinion of the Ministry" (article 60).

Table 5: Indicators for monitoring the implementation of the SRA strategy

No	Indicator	Latest available data	Target value by 2021
1	Gross domestic expenditure on R&D (GERD)	0.38 % GDP (2015)	Increase by 50 % (2021)
2	The number of Doctors of Science in registered scientific research institutions in Montenegro	856 Doctors of Science (2015)	Increase by 20 % (2021)
3	The total number of researchers in Montenegro/the total number of researchers in Montenegro in FTE	1 766 researchers 523 researchers (FTE) in 2015	Increase by 10 % (2021)
4	Rate of return of funds invested in the international programmes in a ¾-year period	10 % (period 2014-2016)	120 % (period 2017-2020)
5	The number of patents/ innovative solutions a year, on average within a four-year period	8 domestic patents on average (period 2013-2016)	Increase by 50 % (period 2017-2021)

2.5 Higher Education and Research for Innovation and Competitiveness (HERIC)

Higher Education and Research for Innovation and Competitiveness (HERIC)³¹ is one of the most important projects, jointly implemented by the MoS and the Ministry of Education in the period of 2012-2018. The activities are financed with a World Bank loan totalling EUR 12 million, of which about EUR 7 million is allocated to science. The project's main goal is to establish a competitive environment for research within which these instruments are financed: setting up the first centre of excellence in Montenegro (BIO-ICT, financed with EUR 3.4 million), large research grants (eight grants in total amounting to EUR 2.6 million) and national scholarships for excellence. HERIC supports initiatives that will enable innovation to become a pillar of development, scientific institutions and public and private enterprises to take a more active role in R&D, and improvements in technology transfer. The project's activities are focused on strengthening human resources (especially exceptional research teams), research infrastructure, improving international cooperation and linking science and the economy towards the commercialisation of innovations.

HERIC's main beneficiaries are students, graduates and academic staff who benefit from implementing supports for quality assurance and finance reform in higher education, as well as internationalisation efforts for human capital capacity

³¹ <http://www.herik.me/en>

building. It was planned that universities and research institutions will also benefit from financing higher education reforms and establishing a competitive research environment. Faculties, scientific research institutions, and non-university research institutions received grants financed by the project to incentivise their participation in higher education reforms and to support larger, more impactful R&D sub-projects, too.

The HERIC project has four components:

- Higher education finance reforms and implementation of quality assurance norms;
- Human capital development through internationalisation initiatives;
- Establishing a competitive research environment;
- Project management and monitoring and evaluation.

Originally, the plan was to implement the project by the end of 2017; however, it has been extended until the end of 2018. According to the information on the project web page, several activities are still in progress.

The component 'Establishing a competitive research environment' was valued at EUR 5 966 820, which covers the following³²:

- Establishment of a pilot centre of excellence;
- Supporting collaborative research and development sub-projects; and
- Technical assistance to strengthen the design and implementation of the research grant programme.

Establishing centres of excellence (CoEs) in scientific research was a core component of the Montenegro government's science and innovation strategy until 2016 and was also articulated in the 2010 Law on Scientific Research Activity. The establishment of CoEs was expected to help to upgrade Montenegro's science and technology infrastructure in areas where scientific and economic potential are the highest, thereby enhancing the quality and relevance of R&D outputs and increasing cooperation with the private sector and foreign research institutions.

As the pilot CoE, the BIO-ITC centre of excellence³³ was implemented as a three-year research programme at the University of Montenegro led by the Faculty of Electrical Engineering. In addition, there are three other leading Montenegrin partners: the Biotechnical Faculty, the Institute for Marine Biology and the Institute of Public Health. Other project partners are two international universities: St Petersburg Scientific Research Centre for Ecological Safety, and the Centre for TeleInfrastruktur (CTIF), as well as two successful Montenegrin SMEs: COGI d.o.o. and Green House Jovovic d.o.o. The project grant for the pilot CoE financed, *inter alia*, an upgrade of the facilities and the purchase of scientific equipment, provision of technical assistance and training for the CoE management and staff to strengthen strategic areas (particularly project

³² <http://www.herice.me/en/establishing-competitive-research-environment>

³³ <http://www.bio-ict.ac.me/index.php>

management, monitoring and evaluation, intellectual property rights and technology transfer, and entrepreneurship promotion), and financing the development of partnerships with private-sector and international research centres. The project, which received nearly EUR 3.5 million was to have been completed and self-sustainable by the end of the grant period (2017); however, like the overall HERIC project, this has also been extended for another year³⁴.

The HERIC project supported the setting up of a competitive grants programme funding larger, more impactful R&D activities which should lead to international collaboration and generate commercial innovations. The grants were awarded to researchers in Montenegrin research institutions who had applied to initiate collaborative research and development sub-projects together with international and national partners. The allocation took place through calls for proposals administered by the MoS. A list of approved projects is presented in Table 6.

It is important to add observations from the report³⁵, based on an investigation into the commercialisation potential of the five projects selected by HERIC with the help of external experts. The call required all projects supported under the HERIC programme to develop commercialisation plans. However, the report found that due to a possible lack of enthusiasm added to a lack of know-how, this activity was postponed until almost the end of HERIC's programme cycle (Lindholm, 2017). This is leading to an inadequacy between the willingness to commercialise and the real needs and demands emerging from market players. The R&D/engineering projects were designed and implemented without a solid understanding of the potential commercial value (or impact) that could be produced once the projects had been successfully completed. Also, the investigation pointed out that several projects supported under the programme seemed to relate to engineering, leading in turn to the difficulty – or impossibility – of protecting findings through patenting or alternative forms of protection. Part of the problem detected was also attributed to the organisational set-up for research at the university, whereby the university apparently has a reasonable knowledge of what could or should be done. However, for various reasons, such activities are not considered as a priority and are therefore postponed. Moreover, it seems that the university management and research teams do not have a common understanding of what is currently doable and what is not. All the research teams complain about the difficulty of working with the university administration when it comes to commercialisation actions (including the creation of start-ups) (Lindholm, 2017: p. 3).

³⁴ When the Centre of Excellence in Research and innovation at the University of Montenegro starts work, the activities and staff at the BIO-ICT will be transferred to this new CoE.

³⁵Lindholm, P., 2017, HERIC project - Advisory services on intellectual property and academic IP commercialisation; final report, May 2017.

Table 6: Projects selected within the HERIC programme

	GRANT PROPONENT	NAME OF THE PROJECT	ACRONYM WEB ADDRESS	STATUS	GRANT AMOUNT
1	University of Montenegro Faculty of Electrical Engineering	New ICT trends based on significantly smaller number of data/metrics and their application in multimedia, biomedicine and communications	CS-ICT www.cs-ict.ac.me	Completed	EUR 372,000
2	Donja Gorica University Faculty of Polytechnics	Laboratory for product design, including disciplines such as graphic, fashion and interior design	PRODE www.prode.me	Underway	EUR 337,000
3	University of Montenegro Biotechnical Faculty	Control of invasive and domestic mosquito species and pathogens that they can transmit in Montenegro	LOVČEN www.project-lovcen.me	Underway	EUR 390,000
4	University of Montenegro Maritime Faculty	Application and promotion of the concept of sustainable development at AD Marina Bar	SUST-MARINA www.sust-marina.ac.me	Underway	EUR 240,000
5	Mediterranean University Faculty for IT	Construction of a measuring station for exploring atmospheric discharges on the Lovćen mountain	LAMS www.lams-project.me	Underway	EUR 325,000
6	University of Montenegro Biotechnical Faculty	Valorisation of Montenegrin katun (nomad villages) through sustainable development of agriculture and tourism	KATUN www.katun.me	Completed	EUR 315,000
7	Clinical Centre of Montenegro	Development, validation and application of telemedicine system TELEMONTKQ for quick diagnostics of heart disease in Montenegro	Telemont-EKG www.telemontekq.me	Completed	EUR 315,000
8	Clinical Centre of Montenegro	HLA typing and HLA laboratory in Montenegro	HLA-MNE	Underway	EUR 315,000 (+ EUR 150,000 from the Ministry of Health)
					TOTAL EUR 2,609,000

Source: Ministry of Science, 2018

3 INNOVATION

3.1 Statistics on innovation activity

There are no Community Innovation Survey data for Montenegro. Monstat is planning to introduce its first pilot innovation survey in 2018. Available information comes from various projects and indexes where some estimates on innovation activity are provided based on surveys or other sources. However, the accessible data are insufficient to evaluate the innovation potential at industry level.

One indirect source is the World Bank's Enterprise Survey. The most recent Enterprise Survey for Montenegro³⁶ was conducted in 2013, which collected responses from business owners and top managers in 150 enterprises. Of the surveyed firms, about one-third were in manufacturing and two-thirds in services (in retail and in other services). Large firms represented almost 11 % of all surveyed firms, and small firms at 66 %.

Table 7: Selected innovation indicators

Indicator	Montenegro (2013)
Percent of firms that introduced a new product or service	14.3
Percent of firms whose new product/service is also new to the main market	22.7
Percent of firms that introduced a process innovation	11.7
Percent of firms that spend on R&D	9.5
Percent of firms using technology licensed from foreign companies (manufacturing firms only)	9.0

Source:

<http://www.enterprisesurveys.org/data/exploreeconomies/2013/montenegro#innovation-and-technology>

Overall, relatively low levels of innovation activity are recorded in comparison with data usually gathered by statistical surveys. But at least two methodological observations must be made: the date of the survey – 2013 – as well as the method of including a limited number of managers. The breakdown by sectors also reveals interesting findings which suggest that the service sector is more prone to the introduction of new products and services than manufacturing, a situation which is usually reversed³⁷. On the other hand, the fact that 89 % of

³⁶<http://www.enterprisesurveys.org/~media/GIAWB/EnterpriseSurveys/Documents/Profiles/English/Montenegro-2013.pdf>

³⁷The same survey found that in Europe and Central Asia, the percentage for manufacturing firms was 34.0 and 24.1 for those in the service sector.

firms found that their new product was simultaneously also new to the market is extremely high, which suggests that the survey data should be treated with caution.

Table 8: Innovation activities: by industry

Indicator	Manufacturing	Services	Retail	Other services
Percent of firms that introduced a new product or service	7.8	15.7	11.5	17.6
Percent of firms whose new product/service was also new to the main market	89.0	15.7	n.a.	1.9
Percent of firms that introduced a process innovation	3.4	13.5	7.3	16.3
Percent of firms that spend on R&D	1.9	11.1	4.7	14.0

Source: Enterprise Surveys (<http://www.enterprisesurveys.org>), World Bank, 2013

Another possible source of information on innovation activity are the results of the so-called PACiNNO Report: Analysis of Innovation Chain of Enablers and Inhibitors in the Adriatic Region³⁸. The report presents a summary of research results obtained within the framework of this project, with a special focus on an analysis of the chain of innovation enablers and inhibitors in the Adriatic Region. It summarises the results of a multi-level study on the determinants of innovation conducted in eight countries in this region. Three levels of analysis are blended in the report: macro, meso and micro. While the findings at micro level are not particularly illustrative as stand-alone figures, since only two small companies

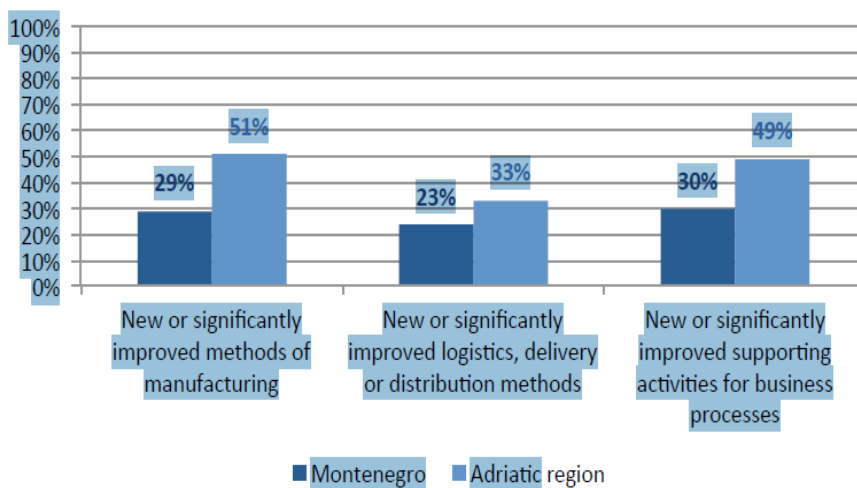
³⁸Analysis of Innovation Chain of Enablers and Inhibitors in the Adriatic Region: PACiNNO Report; edited by Ana Marković Čunko, Ani Gerbin. Rijeka: Medicinskifakultet, 2016. ISBN 978-953-7957-52-0; <http://www.pacinnno.eu>

from Montenegro were analysed, the meso level provides some interesting observations, especially concerning obstacles to innovation³⁹.

Meso-level analysis aimed to improve the understanding of innovation drivers and outcomes at the organisational/firm level. A survey research method was used to study the meso-foundations of innovation, with a questionnaire developed based partially on CIS methodology in conjunction with additional questions derived from the academic literature. The questionnaire was sent to a random sample of 411 firms from Montenegro’s central register of companies. A total of 369 responses were obtained, 118 of which were classified as completed. The majority of small and medium-sized enterprises (SMEs) surveyed in Montenegro are service-oriented micro companies – wholesale and retail trade represent the dominant sector in the sample, which is also the case at the national level. Since Montenegro has a large tourist sector, it is no surprise that accommodation and food make up 22 % of the sample, while other services account for 11 %. The report cites that the biggest sampling problem in Montenegro was the country’s size, resulting in a small number of active companies and, consequently, a small number of innovative companies.

Some of the main findings of the meso-level country analysis are provided below. Montenegro significantly lags behind the Adriatic Region: more than a half (57 %) of the Adriatic Region respondents declared they had introduced product innovations compared to only 25.6 % of respondents in Montenegro. Similar figures are recorded in terms of introducing process innovation.

Figure 11: Introduction of process innovation



Graph 3.8.3.2 Introduction of process innovation in enterprises in 2011, 2012 and 2013 (Montenegro in comparison to the Adriatic Region average)

Source: PACiNNO Report, 2016

³⁹The report also presents macro-level data on Montenegro, but many of the indicators cited there are relatively old.

The data obtained data on organisational innovation demonstrated a general lack of innovative behaviour, especially in terms of implementation of the new management system and changes in the employees' tasks.

Since most of the surveyed companies were focusing only on the domestic market, their (lack of) innovation activity was not related to internationalisation or vice versa – internationalisation was not a motive for more innovation activity.

One of the key highly relevant factors in the PACiNNO Report relates to inhibitors of innovation activity, which were identified by the survey. In the period from 2011 to 2013, apparently the biggest factor that prevented Montenegrin companies from innovating was the lack of funds, followed by high innovation costs, lack of qualified personnel, fear of established competition and the uncertain demand for innovative goods or services. The only "internal" barrier identified by the respondents was the lack of qualified personnel while, on the other hand, the most important sources of innovation were internal, within the company. However, the companies surveyed also frequently relied on suppliers, clients from the private sector and other sources, like scientific and technical publications, as well as conferences and exhibitions. In terms of mutual cooperation among innovative companies, the majority relied on cooperation with other enterprises and institutions, mostly clients, suppliers and other enterprises in the group, mainly located in the same country. In contrast, the results also point to poor representation of the public sector as a source of innovation regarding education and research institutes – enterprises did not establish frequent cooperation with public or private research institutes, while cooperation with universities and other higher education institutions is more frequent but still quite poor.

3.2 Institutional set-up

The most complete information on the institutions engaged in innovation activity (or those still to be created in accordance with the Law on Innovation Activity, 2016) is provided in the Strategy for Innovation Activity, 2016. The text below is based entirely on the text from the Strategy, pp.15-17.

For the time being, Montenegro has one CoE which started operations on 1 June 2014. The MoS awarded the status of the first CoE in Montenegro to the University of Montenegro – Faculty of Electrical Engineering in Podgorica, for implementation of the SR project '*Centre of Excellence in Bioinformatics – BIO-ICT*'⁴⁰.

CTTs (centres for technology transfer) may be formed by universities, CoE and STP (science and technology parks) to carry out the transfer of new technologies to companies, for the use of new or the improvement of existing technologies, procedures, products, services and processes; and encouraging the realisation and commercialisation of technology transfers, consulting services and assistance in the protection and use of intellectual property rights. For the time being, there are no such centres in Montenegro, although there are plans to establish one soon, at the University of Montenegro.

⁴⁰ See also information in section 2.5, p.30.

According to the Law on Innovation Activity, a *Science Technology Park (STP)* is an innovative organisation that provides specialised infrastructure and services, information systems, professional and consulting services in several areas of science. These services are provided for SR (scientific research) institutions, HEIs and other innovative organisations and companies, in order to connect them, and for the economic development of several regions or the country as a whole. Based on the 'Strategic Plan for the Establishment of STP in Montenegro' (2012), the science and technology park in Montenegro was conceived as a networked structure with a seat in Podgorica and three decentralised units – impulse centres, constituting an integral part of the STP and located in Nikšić, Bar and Pljevlja⁴¹.

A *Centre for Innovation and Entrepreneurship (CIE)* is defined as an innovative organisation that provides a specialised infrastructure and services, information infrastructure, professional and consulting services, support for establishing cooperation with potential partners for participation in national and international programmes, projects and funds, from various fields of science. The services above are to be provided for those using the services of SR institutions, HEIs and other innovative organisations and companies, for the purpose of economic development at the local or regional level.

In 2014, work started on establishing the first CIE 'Tehnopolis' in Nikšić⁴² which is currently the only CIE in Montenegro. On the Tehnopolis web page, 14 tenants are listed, seven of which are at the incubation stage, three are pre-incubation, two are listed as members under "commercial conditions" and one as a virtual member. The following services are provided for the tenants (on the Tehnopolis website):

- Spatial, technical, administrative and scientific support to new and existing entrepreneurs;
- Consulting services for new and existing entrepreneurs;
- Education programme organisation, professional development and gaining practical skills;
- Promotion of Tehnopolis and entrepreneurship as the basis for developing micro and small enterprises;
- Networking of institutions, scientific research communities, foreign partners with the regional and local economy;
- Office rental space subsidy;
- Transfer of knowledge and technologies;

⁴¹ The current Strategy for Science plans to establish the STP by 2021.

⁴² <http://www.tehnopolis.me/online/en/home-eng/>

- Business planning and development services;
- Presentation of “tenants” at fairs and expos;
- Networking of enterprises and connecting with incubators and STPs in the region;
- Free access to hi-speed internet;
- Using all available resources at Tehnopolis (electro-mechanical and biochemical laboratory, data centre, convention centre, meeting room, lounge bar, additional common areas) under certain conditions;
- Presentation of “tenants” on www.tehnopolis.me portal
- Membership of Montenegrin Employers Federation.

Recently, a co-working space for start-ups, IT companies, individuals, students and digital nomads with creative entrepreneurial ideas was also officially opened at the Tehnopolis Innovation and Entrepreneurship Centre. The premises have been equipped thanks to an EU project in which Tehnopolis is a partner: ‘Cooperation for Development of Cross Border Business Environment – CODE’ from the Interreg IPA CBC Croatia – Bosnia and Herzegovina – Montenegro (press release, May 2018).

The establishment of the Tehnopolis was a priority reform measure no. 15 in the Economic Reform Programme 2018-2020: Construction of the Innovation-Entrepreneurship Center “Tehnopolis” in Nikšić. As observed in the description of the measure, the process was rather complex⁴³. The measure was expected to

⁴³ In accordance with the implementation schedule of the Strategic Plan for introducing the Science and Technology Park (STP) in Montenegro (2012), the first CIE – Tehnopolis in Nikšić – was established in 2014, and started work on 11 September 2014, the day of registration in the Central Registry of Business Entities (CRPS), in temporary business premises in Nikšić provided by the Nikšić municipality. The main design envisages that Tehnopolis’ activities are carried out in the business premises of the reconstructed Military Club in Nikšić. This building should accommodate office space for up to 20 micro and small enterprises, and 3 laboratories: a biochemical laboratory, an industrial design laboratory, and an ICT laboratory (ICT data centre). Bearing in mind that works on reconstruction and refurbishment of the Military Club in Nikšić started late (in July 2015), implementation of this measure was rescheduled for 2016. Training employees in Tehnopolis in the specification of the required equipment for laboratories and procurement of such equipment is planned from IPA II funds as part of the competitiveness and innovation sector, which will be implemented in the period 2016-2018. Financial structuring and fiscal implications: the Law on Budget of Montenegro for 2015 has planned financing for the reconstruction of the Military Club in Nikšić to accommodate Tehnopolis in the capital budget for a total of EUR 929 000, of which approximately EUR 100 000 was used, while the sum of EUR 63 620 was used for work at Tehnopolis. The Law on Budget of Montenegro for 2016 planned in the capital budget funds for completion of works for reconstruction of the Military Club in Nikšić to accommodate Tehnopolis totalled EUR 805 000. In 2016, the operation of Tehnopolis was financed with EUR 67 186. As part of the IPA II competitiveness and innovation sector, publishing of the terms of reference for technical assistance for training employees in Tehnopolis for the sum of EUR 30 000 was planned in 2016, as well as technical assistance for preparation of detailed specifications for equipment in the Tehnopolis laboratories for the sum of EUR 40 000, while the activities will be continued in 2018 under the same

have an important impact on increasing the country's competitiveness, as Tehnopolis should have "multiple positive effects on competitiveness of the economy of Montenegro, since it should become the most important development centre in Nikšić that will support creation and attract new small and medium-sized enterprises, consolidation of existing enterprises, open new possibilities for cooperation of scientific and research institutions with business entities, and in such manner enable innovative environment inductive for creation of new products and services and opening of new jobs" (Economic Reforms Programme 2018-2020).

A *business incubator* is an innovative organisation that provides administrative, technical, consulting and other services to users of start-up and spin-off companies in the first years of their operation, with a view to supporting their development.

At present, Montenegro has several business incubators. "Inventivnost" in Podgorica started operations in 2008⁴⁴. Its founders were the capital city of Podgorica and the Montenegro government – Directorate for Development of SMEs. The incubator provided support to young and talented people from the ICT and services sector for launching new businesses, by enabling them to use office space under favourable conditions, equipment, legal and consulting services, as well as the possibility to attend various courses and other forms of professional development led by recognised experts from home and abroad. Inventivnost stopped working in 2012: it was established by the government and was never closed although it is no longer operational. The city of Podgorica established "Biznis centar" which started operating on 1 January 2016. The city of Cetinje also established "Biznis Centar Cetinje", in 2017, comprising a business incubator and an innovation centre.

Incubator BSC Bar⁴⁵ began operating in 2010, with the primary mission to support the promotion of entrepreneurship through comprehensive and integrated support to SMEs. BSC Bar is a general-type incubator, carrying out a series of activities with special emphasis on the development of SMEs through training in business skills, consulting services, mentoring, financing based on the best business plans, and the assignment of office space in the business incubator on favourable terms. In July 2018, 20 companies are listed as tenants.

The Berane LLC Regional Business Centre was established by the municipalities of Andrijevica, Berane, Plav, Rožaje, Bijelo Polje and the Regional Development Agency for Bjelasica, Komovi and Prokletije. In the "Rudeš" business zone, a building was reconstructed and equipped for the needs of the regional business centre and business incubator. A 1000 m² building is designed for beginners in business and is of the production-service type. The project also trains employees

programme, in the form of procurement of equipment for the Tehnopolis laboratories for the sum of approximately EUR 1 million.

⁴⁴ <https://wbc-rti.info/object/organisation/10920>; the website listed (<http://inventivnost.me/en>) could not be accessed.

⁴⁵ <http://www.bsctbar.org/en>

in the incubator in order to create preconditions for beginners in business to realise their business ideas. The centre was opened in February 2016.

Other initiatives include:

- Co-working space: Beta-Bar, an initiative of the Nova ivica company in Bar, established in 2017;
- Digitalizuj.ME – a start-up hub, established as an NGO but with support from the company Domain.me. <http://digitalizuj.me/> , established in 2011 in Podgorica; and
- Digitalna fabrika, established as a hub of the telecommunications company M-Tel, in 2017, www.digitalnafabrika.mtel.me

In addition, the following actors have also been identified as significant in the innovation system:

Montenegro's Chamber of Economy which, as an association that brings together and represents the interests of business entities in the country, takes part in the adoption of economic-systemic measures and measures of economic policy by making proposals and recommendations concerning the interests of business operations and the development of market economy, while also participating in numerous projects aimed at improving the innovative capacity of business entities. Trade associations play a unique role in social and economic governance. Particularly recognisable among them are the *Union of Employers of Montenegro*, the *Association of Managers of Montenegro*, and the *American Chamber of Commerce and Montenegro Business Alliance* which provide continuous support to companies in the form of advisory services and educational programmes in the fields relevant to their business operations, growth and development.

3.3 Legal and strategic framework for innovation activity

To promote innovation activity, the government adopted several strategic documents, including the Law on Innovation Activity, 2016 and the Strategy on Innovation Activity (2016-2020), with an action plan.

The *Law on Innovation Activity* (2016) provides for definitions of innovation, innovation actors as well as several other important elements of innovation activity.

It provides the following definition of a *start-up*: "a newly formed company established with the aim of developing innovation ideas or business models and their commercialisation on the market (article 8);

and for a *spin-off*: "...a newly formed company created as a result of scientific research, technology transfer or separation from the existing company, with a view to commercial exploitation of research results or innovations" (ibid.);

The registration of entities which wish to perform an innovation activity is prescribed within the Law, where the conditions which must be met by a legal person are also specified (articles 15-19):

A legal person may be registered on the register, if:

- 1) It is registered in the Central Register of Companies;
- 2) It is implementing a programme of innovation activities;
- 3) It has provided personnel, facilities and equipment for carrying out innovation activities;
- 4) It has provided funds for work; and
- 5) It has provided hygienic – technical conditions, in accordance with a separate law.

The Law also stipulates that a strategy on innovation activity must be prepared. In article 9, it is stated:

“The Strategy shall determine:

- 1) Specific objectives of the development of innovation activities;
- 2) Priority innovation programmes and projects of common interest;
- 3) Supervision over the implementation of innovation programmes and projects;
- 4) Method of funding innovation programmes and projects;
- 5) Infrastructure to support the development of innovation; and
- 6) Other issues of importance for the performance of innovation activities.

The Strategy shall be adopted by the Government of Montenegro (hereinafter: The Government), at the proposal of the Council for Scientific-Research Activities, for a period of five years.”

Following this, the Montenegro authorities prepared the *Strategy of Innovation Activity with the Action Plan (2016-2020)*, which was adopted in July 2016. The Strategy first presents the EU, regional and country-level context, gives basic information on the existing innovation system in Montenegro, then moves on to define the Strategy’s vision, mission, strategic goals and priorities.

The thematic priorities for the field of innovation activity for the period until 2020 are the following:

- Energy;

- Agriculture and food;
- Sustainable development and tourism;
- Information-communication technologies;
- Medicine and health of people; and
- New materials, products and services.

The Strategy sets three strategic goals:

Goal I: Increasing the capacities for innovation and technological development of Montenegro:

Priorities within strategic goal no. I

- Establishing a legal framework for carrying out innovation activity in Montenegro;
- Improving infrastructure to support innovation and technological development;
- Strengthening human resources for innovation and technological development; and
- Monitoring the success of implementation of measures encouraging innovation.

Under each priority, several actions and measures are planned, which should contribute to implementation of the strategic goal. For example, to mention just a few activities within the priority of strengthening human resources, a conference is proposed with Montenegrin diaspora, training, seminars, workshops, schools and promotional events on the topic of innovative start-ups; entrepreneurship is also proposed, as well as *rewarding the inventors/innovators for the most successful innovative solution*.

Goal II: Strengthening the instruments for networking and cooperation of actors in the innovation system

Priorities within strategic goal no. II

- Financing grant schemes for collaborative projects in the academic, scientific and business sectors;
- Financing innovative programmes and projects; and
- Strengthening the capacity to participate in international programmes for science and innovation.

As proposed measures, different financing schemes are planned, all of which are based on the principle of cooperation among public research and business, as well as directly supporting the innovativeness of SMEs. Participation in international programmes is to be encouraged by providing support in preparing proposals, and promoting specific programmes under H2020, EUREKA and other EU or regional international programmes.

Goal III: Strengthening potential for innovation in the business sector

Priorities within strategic goal no. III

- Strengthening the innovation potential of SMEs and their recognition in the innovation system;
- Strengthening support for SMEs' participation in international programmes.

To achieve these priorities, several measures are planned. For start-ups, SMEs and clusters, the Strategy states that financial support instruments are made available in the form of grants and loans, the use of which will enhance their innovative potential and improve their position as important actors in the system making an overall contribution to innovation.

Among the measures listed are:

- Strengthening the innovativeness of companies by complying with the requirements of international standards;
- Stimulating development of IA clusters⁴⁶;
- Improving the use of instruments for financing innovation and strengthening innovation activity through credit support;
- Improving the use of instruments for financing innovation and strengthening innovative activities through credit and grant support models;
- Improving the use of instruments for financing venture capital to encourage innovation;
- Strengthening support for SMEs' participation in international programmes.

Within the second priority, the Strategy stresses the importance for representatives of the SME sector in Montenegro to have the opportunity to familiarise themselves with EU values, EU policies in different areas, legislation and ways of implementing it, successful solutions and experiences from other countries within the EU, as well as with the methods and rules upon which the EU functions. In this regard, Montenegro's current participation in EU

⁴⁶The functioning of clusters and their promotion aimed at achieving a better competitive position for SMEs in the national and international market will be supported through the programme to encourage cluster development in Montenegro. According to data from 2016, there were 17 active clusters. The call for cluster support in 2018 is presented in the next chapter.

programmes brings opportunities for SMEs to participate in H2020 projects as part of a consortium while, on the other hand, they can also use its special mechanism, i.e. the SME instrument, to exercise independent and direct participation. The second important programme is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises – COSME (2014-2020), to which Montenegro acceded on 25 June 2014 by signing the agreement on participation.

Among international programmes, participation in Enterprise Europe Network (EEN) is also mentioned. This EEN project was to be implemented in November 2008, when Montenegro's European Centre for Information and Innovation was established, as part of the EEN network. The project is being implemented by a consortium consisting of: the Directorate for Development of SMEs, which is coordinating it; the Faculty of Mechanical Engineering – University of Montenegro; the Chamber of Economy of Montenegro; and Business Start-up Centre Bar.

The Strategy specifies several *key performance indicators for the implementation of strategic goals by 2020*:

- The percentage of investment in R&D

The total national spending on R&D, which amounted to 0.36 % of GDP in 2014, should reach 0.6 % of GDP in 2020.

- The percentage of private-sector investment

Investment by business and the entrepreneurial sector in R&D, which amounted to around 0.14 % of GDP in 2014, should reach about 0.3 % of GDP by 2020.

- The number of staff engaged on R&D

In 2014, 2 339 people were engaged in R&D. This number is expected to grow to 2 600 in 2020.

- The number of inventors

According to official Intellectual Property Office (IPO) data, there are currently 56 registered inventors who have protected their inventions with patents. In 2020, this number is expected to grow to about 70.

- The number of registered patents

According to official IPO data, there are currently 2 383 patents registered with the Office. In 2020, that number is expected to grow by 1 200 patents.

- Ten start-up companies have been created in the framework of the implementation of support programmes.
- Global Innovation Index ranking

Montenegro has been recognised as a country that achieves innovation (innovation achiever) and in 2015 was ranked 41st (out of 141), which is an excellent result that the government wants to be improved by 2020.

The MoS⁴⁷ has started to publish calls for funding innovation projects: a pilot in 2017 and the first fully-fledged call in 2018, for a total of EUR 1 million, with the size of one grant for a sum up to EUR 0.1 million.

⁴⁷ <http://www.mna.gov.me/en/ministry?alphabet=lat>

4 ENTREPRENEURSHIP

4.1 State of affairs - small and medium-sized enterprises

Out of 28 268 registered businesses, 99 % are SMEs; 73 % of firms are in services, compared to 18 % in manufacturing and 9 % in construction and other sectors. Micro firms account for about 25 % of all employment, small firms for 28 %, and SMEs provide more than 75 % of all employment.

According to tax authorities' data, the number of enterprises increased from 2011 by 39.6 %. Most of them are located in Podgorica (35.9 %), followed by Budva (11.2 %) and Bar (9.9 %). The majority of companies are registered in the trade sector (30.9 %), tourist services (12.4 %), construction (10.7 %), manufacturing (8.4 %), and transport (5.1 %).

Table 9: Number of companies and entrepreneurs during 2011-2017

	2011	2012	2013	2014	2015	2016	2017
micro	16 436	17775	20911	22911	22129	23070	23523
small	1825	1751	1911	1897	1983	2012	2062
medium	310	303	330	330	343	358	341
large	61	64	58	56	59	65	65
All	18632	19374	21583	23194	24514	25505	25991
entrepreneurs	9602	9519	9580	9652	9579	9521	9391

Source: Montenegro Tax Authority

Table 10: Value added, by size of enterprises

Classification of activities	Size of enterprise	2012	2013	2014	2015	2016
Sectors B- S, Except for K and O	Small (0-49)	36%	36%	39%	41%	45%
	Medium (50- 249)	32%	29%	28%	28%	26%
	Large (+ 250)	32%	35%	33%	31%	30%
	all	100%	100%	100%	100%	100%

Source: Monstat

In 2017, according to data from the tax authorities⁴⁸, the total number of employees was 164 759, which is 23 943 (17 %) more than in 2011. Most of them are employed by micro enterprises – 50.946 (30.92%); next are large enterprises with 40 107 employees (24.34 %), small enterprises 38 794 (23.55 %), and the least are in medium-sized enterprises 34 912 (21.19 %).

⁴⁸There is a discrepancy between Monstat's data (employment in 2017 is quoted as 182368) and that of the tax authorities.

A comprehensive overview of the country's SME sector is provided by the 2017 SBA Fact Sheet Montenegro⁴⁹. The last available review is for 2016 and the first half of 2017. The main finding is that SMEs are very important for Montenegro's economy, although there is still plenty of room for improvement. One such area definitely concerns raising the level of productivity. SME productivity, measured as value added per employee, is estimated to have remained at around EUR 11 000 per person, compared to over EUR 43 500 on average in the EU. Value added increased by almost 20 % in 2012-2015, while employment rose by around half this in 2011-2015. Growth is estimated to have been particularly strong in micro firms, where employment is estimated to have increased by over a third between 2011 and 2015. Given the scale of SMEs' contribution to the economy, further SME employment and value-added growth can be expected.

A significant factor contributing to the growth of SME employment was the introduction of a national employment strategy in 2014, which included employer subsidies of up to EUR 100 per month per employee in return for providing seasonal employment to young people lacking previous work experience.

Besides tourism, another sector where SMEs have done well in recent years is information and communication: SME value added is estimated to have risen by around 40 % and SME employment by around 10 % in 2011-2015. This growth is a reflection of government efforts to develop Montenegro as an information society. In the period 2009-2013, the government introduced several measures to strengthen ICT infrastructure, promote access to modern technologies and facilitate the use of ICT. Examples of projects include the digitalisation of governmental administrative processes, providing primary schools with computers and internet access, and the implementation of a cyber-security strategy.

4.2 Barriers to doing business

A good overview of the barriers is provided by the Report⁵⁰ on Business Barriers (2016). An online platform – www.bezbarijera.me – was established for use by the business community between November 2015 and March 2016 to indicate the problems they encounter in their business operations. The report sums up the barriers identified and makes suggestions for consideration by the Council for Improving the Business Environment, Regulatory and Structural Reforms. Besides the portal, which was widely promoted, people were invited to participate in identifying the barriers and four events were held during which business barriers were discussed.

⁴⁹https://ec.europa.eu/neighbourhoodenlargement/sites/near/files/montenegro_sba_fs_2017.pdf

⁵⁰The report on business barriers identified through the No Barriers! So Business Doesn't Wait campaign was developed within the framework of the Cutting Red Tape – Public Administration Tailored to the Needs of Citizens and Businesses project, implemented by the United Nations Development Programme (UNDP) in cooperation with the Ministry of Finance, financially supported by the UK Embassy in Montenegro. The idea for the project was designed in collaboration with the South East Europe Public Sector Communication Association (SEECOM), modelled on the UK Red Tape Challenge project.

The total of 124 barriers were reported (of which 45 by women, and 79 by men) which can be grouped under eight headings:

Table 11: Barriers to business

Type of barrier	Number of answers
• Financial impediments to launching and developing business	12
• Cumbersome and unclear procedures	5
• Inappropriate inspection control	7
• Inadequate legal regulation	38
• Inefficient administration	21
• Limitations to business operation	12
• Grey economy	7
• High fee rates	22

Source: Report on business barriers, 2016

Especially illustrative are some of the observations made by business people on the platform, explaining their daily experience with barriers, related to red tape and unclear administrative procedures. They often point out processes which resemble 'catch 22'⁵¹ (Report on business barriers, 2016: p.12).

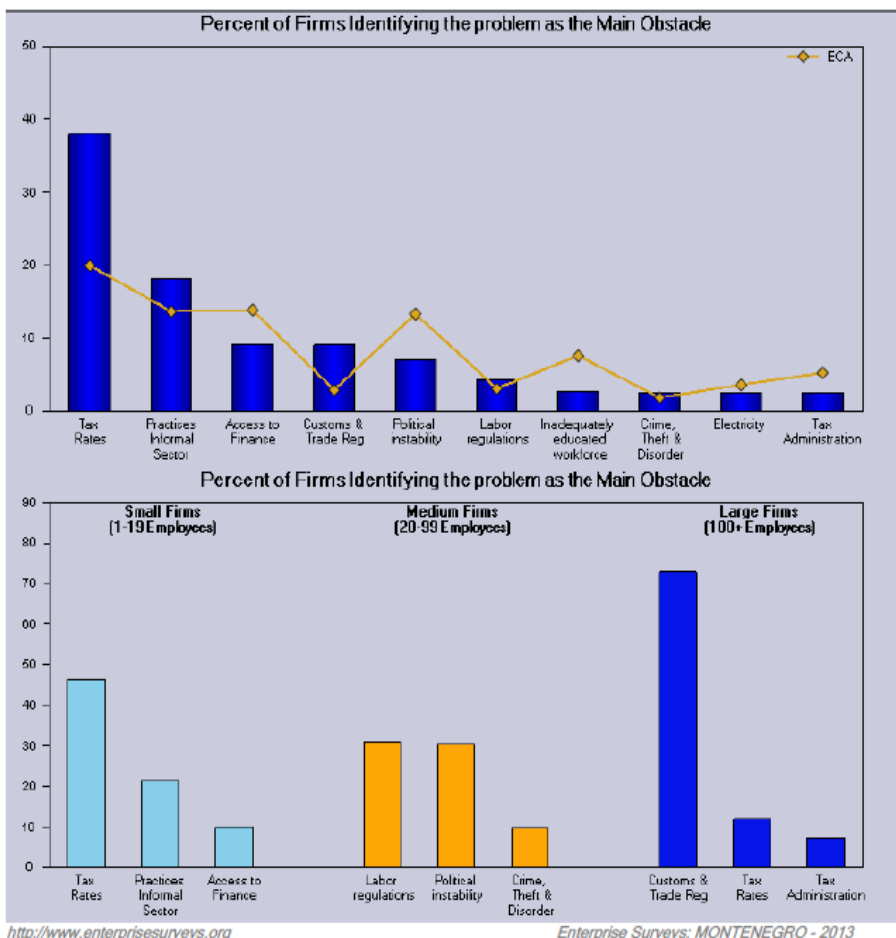
The EC assessment of the ERP (2017-2019)⁵² also identified barriers in the business environment. They point to SMEs' limited access to finance and low level of internationalisation, which remain key barriers to increasing competitiveness. Frequently family-run, SMEs often face weak internal capacities, poor investment readiness and financial literacy, as well as a lack of professional management expertise.

⁵¹ A catch-22 is a [paradoxical](https://en.wikipedia.org/wiki/Catch-22_(logic)) situation from which an individual cannot escape because of contradictory rules: [https://en.wikipedia.org/wiki/Catch-22_\(logic\)](https://en.wikipedia.org/wiki/Catch-22_(logic))

⁵² EC (2017a) <http://data.consilium.europa.eu/doc/document/ST-8442-2017-INIT/en/pdf>

Figure 12: Main obstacles to doing business

Snapshot of the Business Environment in Montenegro



4.3 SME institutional set-up and policy support

The Strategic Guidelines for Development of SMEs (2017) recognise that the implementation of SMEs’ development strategy is in the hands of numerous institutions, and the private and public sector, and is implemented broadly on the basis of the Strategy for Development of SMEs 2011-2015.

According to their assessment, several of the Strategy’s main objectives have been implemented. They have established a complete overview of the SMEs and put in place a comprehensive registration system, the issuing of building permits is faster, as is the work of cadastral offices. Training was given to public administration officers to help them become more efficient in dealing with SMEs, several administrative barriers have been removed, and the issuing of employment permits for foreign workers is smoother. To a certain extent, the

capacity of the investment and development Fund has increased. Procedures related to customs and tax payments are in the process of being simplified.

For the future, the Strategic Guidelines propose:

- Upgrading the support for the innovativeness of SMEs;
- Strengthening the internationalisation and export orientation of SMEs;
- Supporting the introduction and greater utilisation of ICT in SMEs;
- Promoting instruments supporting women entrepreneurs and entrepreneurship among the young;
- Developing a green economy;
- Promoting the integration of and participation in global value chains;
- Upgrading of statistical monitoring of SMEs; and
- Upgrading support to SMEs in implementation and certification, based on quality system assurance.

According to the Ministry of Economy's new Rulebook on internal organisation and systematisation, published in 2018, the former Directorate for SMEs was lowered in the hierarchy and became a division (direction) under a new Directorate: the Directorate for investment, development of SMEs and management of EU funds⁵³.

This division is within the Ministry of Economy and provides institutional support to SMEs⁵⁴. The most important documents and calls related to SMEs can be found on its web page, either in English or Montenegrin.

During 2016 and the first quarter of 2017, which is the reference period for the policy measures in the SBA 2017's fact sheet, Montenegro implemented eight policy measures, thereby addressing six out of 10 policy areas under the Small Business Act. On entrepreneurship, the following measures were adopted: in 2016, Montenegro's industrial policy until 2020 was adopted, setting out a strategic framework for regulatory reform and the envisaged financial and

53

<http://www.gov.me/biblioteka/pravilnici?AccessibilityFontSize=150%3Fquery%3D%D0%A3%D0%BD%D0%B5%D1%81%D0%B8%D1%82%D0%B5+%D0%BF%D0%BE%D1%98%D0%B0%D0%BC%3A&alphabet=lat&pagerIndex=1>

⁵⁴<http://nasme.me/en/>

administrative support. The 2016-2020 strategy for public administration reform was adopted in July 2016⁵⁵.

In addition, Economic Reform Programmes⁵⁶ were adopted, the first for the period 2017-2019 and the latest one for 2018-2020. The Strategic Guidelines for Development of SMEs for the period 2017-2010, adopted in December 2017, are also very important for SMEs. A new Strategy for the Development of micro, small and medium enterprises 2018-2022 is being finalised now that the public debate has ended⁵⁷.

The SBA fact sheet observed that since 2011, institutional support for business start-ups has developed further. Most notably, three business incubator centres have been opened across the country⁵⁸, providing entrepreneurs with office space, infrastructure and a range of services and amenities (albeit still limited in scope) to enhance their business skills. In general, the SBA fact sheet states that the business support services could be further expanded and scaled up, especially since there is still no single point of contact responsible for providing help for all start-up procedures. The registration of businesses is a streamlined and a relatively inexpensive procedure. Online company registration and online filing for tax and social security returns are operational, and licensing procedures have been simplified. Value added tax can be deducted when purchasing research equipment, thereby stimulating businesses to invest in R&D.

Among SME policy priorities, the further simplification of business-related legislation, especially at the local level, should remain the main focus. This includes lowering the number and amount of local authority fees and taxes, and streamlining the process for issuing work permits. The framework for business transfers needs to be improved, as does cooperation between HEIs and businesses. Montenegro needs to make sure that its State Aid Control Commission operates independently to ensure a more level playing field for businesses. There is also a need to make sure that the public authorities are more customer orientated, in particular for SMEs.

The Economic Reforms Programme 2018-2020⁵⁹ (ERP 2018) puts significant emphasis on improving the business environment and reducing the informal economy. In that regard, at its session on 1 June 2017, the Montenegro government passed the Decision on setting up the *Competitiveness Council*

⁵⁵In addition, Montenegro is in the final phase of implementing a regulatory simplification project which started in 2012 and consists of 1 446 measures. While around 90 % of these actions have been implemented, completion has been delayed until 2018.

⁵⁶These are being evaluated by the European Commission as part of the accession negotiations. The most recent evaluation publically available is the Economic Reform Programme of Montenegro (2017-2019) Commission Assessment; 8442/17, April 2017.

⁵⁷ <http://www.mek.gov.me/vijesti/186322/Javni-poziv-za-ucescu-u-Javnoj-raspravi-o-nacrtu-Strategije-razvoja-mikro-malih-i-srednjih-preduzeca-u-Crnoj-Gori-2018-2022-godi.html>

⁵⁸Details in previous chapter.

⁵⁹<https://www.ekonomi.gov.tr/portal/content/conn/UCM/uuid/dDocName:EK-259188;jsessionid=8RGjfcRWVzZGq9KQALWCbt69XUXf08SSZGf0uUkjA1yOp2sftCAi!-579733685>

tasked with coordinating activities related to implementing the priority reform measures set out in strategic documents, which aim to eliminate key obstacles to the country's greater competitiveness and faster economic growth.

The Council was created by the government Decision in October 2017 and comprises 35 members (most of the ministers, managers of several public bodies, representatives of business associations, and large companies). The Competitiveness Council's numerous tasks include:

- Coordinate the activities of state administration bodies and other competent bodies and institutions with regard to implementation of the priority reform measures defined in strategic development documents, which aim to remove the key obstacles to the greater competitiveness and faster economic growth of Montenegro;
- Analyse applicable regulations from the aspect of their impact on the business environment and competitiveness; initiate the process of proposing amendments to the regulations with a view to their simplification, i.e. removal of procedures that represent a barrier to greater competitiveness or the termination of their validity;
- Propose to the government of Montenegro (hereinafter: the government) a plan of structural reforms for improving the competitiveness of the economy, which is prepared on an annual basis and forms an integral part of the Economic Reform Programme and other key economic policy documents;
- Monitor, coordinate and assess the key activities of state administration bodies and other competent bodies and institutions with regard to the implementation of structural reforms; prepare semi-annual reports on the implementation of structural reforms, which are submitted to the government for consideration along with an opinion, i.e. a proposal of measures;
- Take part in the process of drafting a plan for combating the informal economy, the employment plan, as well as all development plans relevant to increasing competitiveness and strengthening macroeconomic stability, and monitor their implementation;
- Exercise international cooperation with relevant organisations and institutions and exchange experience and good practice in terms of improving competitiveness and sustainable development;
- Publicly promote the importance of the competitiveness of Montenegro's economy for its overall economic development and improving the quality of life of its citizens.

Reform activities, which focused on improving the business environment, resulted in progress for Montenegro that was recorded in the latest 2018 Doing Business (DB) report, in which the country was ranked 42nd out of 190 countries, thereby moving up nine places compared to the 2017 report. The remaining obstacles to further improvement of the business environment specified in the Doing Business Report (2018) are: "Starting a business", "Work of cadastral offices", "Issuing of

construction permits” and “Paying taxes”; these will be the focus of the government’s further reform measures.

Table 12: Doing business in Montenegro

✔ Reform making it easier to do business ✘ Change making it more difficult to do business

MONTENEGRO		Europe & Central Asia		GNI per capita (US\$)		
Ease of doing business rank (1–190)		42	Overall distance to frontier (DTF) score (0–100)	73.18	Population	6,970,622,781
Starting a business (rank)	60	Getting credit (rank)	12	Trading across borders (rank)	44	
DTF score for starting a business (0–100)	90.07	DTF score for getting credit (0–100)	85.00	DTF score for trading across borders (0–100)	88.75	
Procedures (number)	6	Strength of legal rights index (0–12)	12	Time to export		
Time (days)	10	Depth of credit information index (0–8)	5	Documentary compliance (hours)	5	
Cost (% of income per capita)	1.5	Credit bureau coverage (% of adults)	0.0	Border compliance (hours)	8	
Minimum capital (% of income per capita)	0.0	Credit registry coverage (% of adults)	31.6	Cost to export		
				Documentary compliance (US\$)	67	
Dealing with construction permits (rank)	78	Protecting minority investors (rank)	51	Border compliance (US\$)	158	
DTF score for dealing with construction permits (0–100)	69.30	DTF score for protecting minority investors (0–100)	61.67	Time to import		
Procedures (number)	8	Extent of disclosure index (0–10)	5	Documentary compliance (hours)	10	
Time (days)	152	Extent of director liability index (0–10)	8	Border compliance (hours)	23	
Cost (% of warehouse value)	10.9	Ease of shareholder suits index (0–10)	6	Cost to import		
Building quality control index (0–15)	12.0	Extent of shareholder rights index (0–10)	6	Documentary compliance (US\$)	100	
		Extent of ownership and control index (0–10)	3	Border compliance (US\$)	306	
		Extent of corporate transparency index (0–10)	9			
✔ Getting electricity (rank)	127	Paying taxes (rank)	70	Enforcing contracts (rank)	42	
DTF score for getting electricity (0–100)	59.17	DTF score for paying taxes (0–100)	76.67	DTF score for enforcing contracts (0–100)	66.75	
Procedures (number)	7	Payments (number per year)	18	Time (days)	545	
Time (days)	142	Time (hours per year)	300	Cost (% of claim)	25.7	
Cost (% of income per capita)	425.6	Total tax and contribution rate (% of profit)	22.1	Quality of judicial processes index (0–18)	11.5	
Reliability of supply and transparency of tariffs index (0–8)	5	Postfiling index (0–100)	70.49			
				Resolving insolvency (rank)	37	
Registering property (rank)	76			DTF score for resolving insolvency (0–100)	68.70	
DTF score for registering property (0–100)	65.76			Time (years)	1.4	
Procedures (number)	6			Cost (% of estate)	8.0	
Time (days)	69			Recovery rate (cents on the dollar)	49.3	
Cost (% of property value)	3.2			Strength of insolvency framework index (0–16)	13.5	
Quality of land administration index (0–30)	17.5					

Source: *Doing Business, 2018: country tables*⁶⁰

The ERP (2018) sees the main challenges to the implementation of reforms in the business environment in the following areas:

- Improving the technical preconditions and IT solutions in state institutions, for the purpose of simplifying procedures and increasing the efficiency of state services;
- A high level of non-transparent procedures, with the steps needed to be taken to carry out a task being unclear in advance, and the need to obtain some form of state consent;
- A high number of para-fiscal charges, in particular at the local level, which was highlighted by representatives of Montenegro’s Chamber of Economy and the Union of Employers at the round table which took place during the consultation process for drafting the 2018 ERP.
- There are also constraints in respect of financial literacy and investors’ readiness to invest funds, which need to be eliminated by means of the

⁶⁰http://www.doingbusiness.org/reports/global-reports/~/_media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB18-Chapters/DB18-Country-Tables.pdf

proposed measures, while efforts should be intensified to enter new markets, use services of business support, invest in innovation, etc.

4.3.1 Access to finance

Overall, the assessment of SBA fact sheet is that SMEs' access to finance has improved in recent years. Montenegro's Investment and Development Fund (IDF), which provides financial assistance to start-ups⁶¹, entrepreneurs and SMEs through credit lines at favourable interest rates or guarantees, has almost doubled from around EUR 66 million in 2013 to above EUR 100 million annually. However, the fund is largely dependent on external donors. There is a one-stop shop in place to help SMEs to access the required funds.

ERP (2018) states that access to funding for SMEs should be improved by resolving issues faced by certain categories of start-ups and SMEs, and these most often include a lack of means to secure loans (collaterals).

Therefore, support to improve SMEs' access to finances is a measure specified in the national strategic documents (Development Directions 2018-2021, the Strategic Guidelines for SME Development 2018-2021), and in the Small Business Act (SBA) recommendations. This measure is in response to Recommendation No. 5 (to continue the strengthening of financial and non-financial support services to small and medium-sized enterprises), made at the ministerial meeting held in May 2017. This recommendation concerning the necessity of improving financial and non-financial support for the SME sector was also given by representatives of the Federation of Trade Unions of Montenegro aiming to provide preconditions for greater employment.

The ERP (2018) announced that in the coming period the IDF will intensify activities that will also encourage entrepreneurship, improve the current financial instruments and introduce new ones so that the absorption of financial resources might satisfy different categories of beneficiaries. The financial offer will continue to strive to provide benefits with regard to zero-interest lending for special target groups, as well as favourable interest rates in view of further improvement for SME sector operations, and also to implement entrepreneurship education programmes aimed at easier access to financial support.

According to the 2018 ERP, activities are planned to establish a guarantee fund and microcredit within the IDF in line with the Law Amending the Law on the IDF. These activities will be undertaken with a view to facilitating interaction between SMEs and financial institutions, through the issuing of loan guarantees for the purpose of overcoming the key problem that SMEs face, i.e. difficulty in mobilising the collateral required by financial institutions. The Loan Guarantee Facility financial instrument within COSME will continue, while activities will intensify towards promoting the instrument for investing in equity for innovative enterprises within the WB EDIF programme – the ENIF Fund (Enterprise

⁶¹ Meaning all new entrants to business.

Innovation Fund)⁶². The grant model of support for clusters will be implemented on a larger scale compared to the previous period due to increased interest from the clusters themselves.

With the aim of harmonising with international business standards, a grant support was planned (contracted support for 42 SMEs for the amount of EUR 0.070 million in 2017 and a subsidy was implemented for EUR 0.0554 million for 34 business entities which have carried out the planned activities). Grant support is planned for improving SME innovations (ERP, 2018: p.74).

The most important institutions providing support to SMEs, start-ups or individuals wishing to start their own businesses are the Montenegro Investment and Development Fund and Employment Agency of Montenegro.

The Employment Agency has a special line of support for the unemployed (training for entrepreneurship) as well as special credits available to SMEs for employing up to three people. The amounts are small – EUR 5 000 per employee, for a maximum of three newly employed. However, the Agency stresses that the procedure to obtain the credit has been simplified to the greatest extent possible and free advice offered to help prepare a business plan which must accompany the credit request. In the period 2012-2015, the Agency has provided 316 loans for self-employment amounting in total to EUR 2 million and creating 459 new jobs.

The Investment and Development Fund of Montenegro (IDF MN) was established by the Law on Investment and Development Fund of Montenegro JSC (Official Gazette of Montenegro, No. 88, dated 31 December 2009). The Fund's core businesses are established by granting loans and extending guarantees, performing activities pertaining to the sale of capital in the Fund's portfolio, and other activities aimed at supporting economic development⁶³.

The Funds' broadly defined core business and goals⁶⁴ provide for their concretisation in several activity areas, *inter alia*:

- Supporting small and medium companies (credit and guarantee support);
- Support in resolving infrastructure and ecological projects;
- Supporting export and employment;
- Privatisation of the residual social capital.

During the period 2011-2015, the IDF granted 68 start-up loans for a total of EUR 3.424 million (Strategic Guidelines, 2017). During the period 2016-2017,

⁶² The IDF accessed the ENIF – Enterprise Innovation Fund in the capacity of a partner and investor in April 2016.

⁶³ <http://www.irfcg.me/en/2014-03-05-12-55-38/2014-03-05-12-56-48>

⁶⁴ https://www.youtube.com/watch?v=X-Ax5FQNo8s&list=PLLL5gkG_J8vvkvSw8xVaityCyywEbKvka

(beginning in December) the total amount disbursed was EUR 4.951 million for 71 approved projects. From mid-2016, an additional interest-free credit line was made available to unemployed university graduates, under which up to December 2017 16 credits were approved to a total value of EUR 0.419 million (Strategic Guidelines, 2017).

The IDF reports that during 2017, EUR 10.1 million credits were awarded at 0 % interest rate to special categories⁶⁵: young women entrepreneurs, start-ups and individual entrepreneurs, which is a significant increase (65 %) over 2016. It is expected that this will increase further in 2018.

A special IDF programme is available to promote green and brownfield investments. Here, credits of EUR 3 to EUR 5 million are available at an interest rate of 4.00 % with a grace period of 4 years and repayment in 12 years. During 2017, 9 projects were financed for a total value of EUR 22.2 million.

Several special programmes target specific categories of potential entrepreneurs. Two programmes are of particular relevance to start-ups.

The first one is providing loans to unemployed university graduates to start their own business. The loans cover the necessary finance for the initial investment⁶⁶ in buildings or livestock, equipment, intangibles (like development of a product and/ or service, patent or licence costs, IPR, etc.) as well as running costs. The IDF loan can cover up to 75 % of total investment costs and up to EUR 50 000, at 0% interest with 4-year grace-period and 12 years' repayment.

The second programme is aimed directly at start-ups, where the loans cover the same costs as the first programme for 75 % of the total investment costs. The 25 % own contribution can be provided over one year from the signing of the loan agreement. Applicants for the loan should not have been operating for more than 12 months. Part of the loans which are provided from the credit line, and financed by the European Investment Bank, are eligible for a lower interest rate (0.5 % to 0.7 % below the regular one).

The loans are limited to EUR 50 000 for companies and EUR 30 000 for individual entrepreneurs, with an interest rate of 3 % and a grace period of 4 years, with 12 years' repayment. In addition, for the projects implemented in the communities in the north of the country and those under Montenegro's average development level for the country, the interest rate is set at 2.5 %. Also, if a start-up requests more than EUR 50 000, special conditions apply.

It is worth noting that the Commission's assessment in April 2017 noted the following with "regard to financial support, the Investment and Development Fund's (IDF) activities continue to largely depend on external funding from

⁶⁵See details further in the text.

⁶⁶ Investment in some activities/sectors is not eligible (trade, banking services, construction for the market, car sales, etc.).

international financial institutions. It is recommended that the performance and effectiveness of the IDF's activities are externally reviewed⁶⁷."

The SBA fact sheet (2017) noted that the last two years have seen some growth in banks' credit, indicating higher corporate lending. However, interest rates in both the traditional banking system and micro-finance lending facilities in Montenegro are generally higher than in the neighbouring countries.

The key gaps are in the lack of business angel funds and venture capital funding. Also, the accessibility of information in this area is highly restricted. A relatively old report, prepared by European Investment Fund in November 2010 on Western Balkans Venture Capital Market Assessment, is one of the few documents addressing this issue.

Its findings are not particularly encouraging: the venture capital market in Montenegro is non-existent, both in terms of supply and demand. Montenegro needs policies that would create conditions for developing an enabling environment for start-up, entrepreneurship and venture capital activity. What is mentioned is that SEAF South Balkans was the only fund actively searching for deal opportunities in Montenegro. Their finding was that the investable demand and the investment readiness of entrepreneurs is very low. At the time, they recommended that educational and networking activities should be organised for entrepreneurs to familiarise them with the concept and benefits of venture capital investing.

At the invitation of the European Commission, Montenegro has recently joined the H2020 ESIL project: Early Stage Investment Launchpad, as a third party. A local leader (Predrag Lesic – Digitalizuj.me) has been appointed and a plan of activities has been created for a two-year period, aimed mainly at raising awareness and knowledge about creating a business angels' network. The project in Montenegro is supported by renowned business angel Phillipe Gluntz from France (Business Angel Europe Association)⁶⁸.

4.3.2 Non-financial support to SMEs and start-ups

So far, only limited budgetary resources have been dedicated to non-financial support. The improvement of non-financial support for small and medium-sized entrepreneurs comes from implementation of the measures and activities specified in the government of Montenegro's strategic documents (Montenegro Development Directions 2018-2021 and Strategic Guidelines for SME Development 2018-2021) and the EU Small Business Act recommendations. The implementation of measures in the subject reform area is directly related to Recommendation No. 5 made to Montenegro at the ministerial meeting held in May 2017 (to continue strengthening financial and non-financial support services to SMEs).

⁶⁷<http://data.consilium.europa.eu/doc/document/ST-8442-2017-INIT/en/pdf>

⁶⁸ <https://www.europeanesil.eu/>

In the SME sector, especially for beginners in business, problems are evident as regards insufficient capacities for setting up enterprises and financial literacy, as well as the potential for enterprises to expand their operations to foreign markets and establish business connections.

Activities planned in ERP 2018:

- Implementation of the Financial Literacy and Investment Readiness and Mentoring programmes;
- Updating the online database of business counselling service providers (consulting services);
- Implementation of activities in the area of SME internationalisation and provision of services within the EEN (business counselling services, organising business meetings and training);
- Strengthening cluster capacities, their managerial capabilities and marketing activities.

Jointly with the Directorate for SMEs and Employment Agency, the IDF launched a support programme for entrepreneurship under which, during 2016-2017, an education programme was implemented for 92 future entrepreneurs. Free support was provided to some of the programme participants to prepare the business plan required to apply for the IDF loan.

4.3.3 Promoting internationalisation

On the internationalisation of SMEs, Montenegro has significant room for improvement as some areas of its performance are below the EU average (SBA fact sheet, 2017). The most significant gap lies in the limited financial resources available to support internationalisation activities. There is also a need to make the customs authorities and other relevant authorities more customer-orientated and to simplify the relevant customs procedures.

Furthermore, initiatives to support Montenegrin SMEs are often planned on an ad hoc basis rather than systematically. The SMEDD Department for the Enhancement of Competitiveness and Export Promotion does not have the resources to fully exercise its mandate as an umbrella organisation providing strategic, operational, legal, financial and linguistic support to SMEs for internationalisation.

4.4 Cluster development programme

Clusters and accelerators are still at an early stage of development, but their capacities are gradually improving. In 2012, the Ministry of Economy adopted Montenegro's 2012-2016 strategy for sustainable economic growth through the introduction of business clusters. The goal was to increase the competitiveness and job-creation capacities of micro, small and medium-sized firms in pilot clusters via two types of programme — state-aid cluster support and technical assistance funded by international financial institutions.

Over the implementation period, EUR 104 222 was awarded to a total of 16 beneficiary clusters through the state aid programme⁶⁹. In addition, the 'Strengthening Competitiveness of Small and Medium-Sized Enterprises in Montenegro through Cluster Development' project, financed in 2011 through the EU's instrument for pre-accession, provided EUR 525 000 for direct technical support to help four clusters design, implement and monitor joint action plans to create effective market linkages. Overall, this initiative benefited 47 SMEs with 167 fixed-term employees, of whom 28 are women. The implementation of the cluster development support programme has had a substantial impact on the development and promotion of the cluster concept in Montenegro. It stands as a catalyst for wider implementation to increase the number of beneficiaries across the country.

For 2018, a call for financing clusters had been published by the Ministry of Economy within the cluster support programme valued at EUR 150 000. The grant of a maximum value of EUR 15 000 can be provided to a project or individual cluster to cover 50 % of eligible costs (or 65 % in underdeveloped areas). The applicants may submit two project proposals. The eligible costs include investment in material and non-material property as well as operative costs (staff and administrative costs related to the promotion of clusters, activities to promote cooperation within and among clusters, marketing, training, workshops, etc.). Strategic priority areas include the food and agricultural processing industry, wood-processing, manufacturing, and tourist services. Clusters set up as business entities or as non-governmental institutions could apply. The call closed on 11 June 2018.

4.5 Start-up ecosystem⁷⁰

4.5.1 Players

In spite of being one of the smallest countries in Europe, the Montenegrin start-up community spontaneously started to emanate promising high-tech business endeavours that promote its positive image within the region. Since 2011, there have been seven start-ups with founders from Montenegro and recognised as having global market potential. However, these have not been raised to series A yet. The *South-East Europe Startup Report 2017*⁷¹ lists them, as quoted below:

TourViaMe (registered in Bulgaria) – Tourism, Market place. TourViaMe is a market place for group guided tours which was founded in 2013. That same year they reached the finals of the Spark.me start-up competition and were fast-tracked by Eleven Accelerator. They received total funding of EUR 100K in seed and convertible notes from Eleven Ventures. After failing to raise a series A, they closed the start-up.

BudoFinder (registered in Bulgaria) – Sports, Market place. BudoFinder is a community market place for martial arts. It was founded in 2015 and is still active

⁶⁹http://www.mek.gov.me/organizacija/razvoji/politika_razvoja_klastera

⁷⁰This chapter was prepared by Nina Radulović, Montenegro.

⁷¹ P. 55, ABC Accelerator Group.

with the main focus shifted towards general IT solutions. They were also funded by the Eleven Accelerator with seed investment of EUR 50K: <http://budofinder.com/>

BeeAnd.me (registered in Austria) – Agriculture, Hardware. Smart monitoring system for beehives. BeeAnd.me aims to help beekeepers overcome the traditional challenges of beekeeping, by providing bee-keepers with technological assistance. BeeAnd.me got the idea during the second Digitalizuj.Me start-up weekend in 2015 and won first prize. Shortly after, the firm was accepted into HUB:raum Krakow accelerator and received an undisclosed investment from Accoi Partners Accelerator.

More Money (registered in Poland) – FinTech, SaaS. A platform powering a new generation of enterprise AI advisors. They use the latest NLP and ML technologies to make a simple and easy solution to replace financial advisors. They joined the HugeThing accelerator programme in Warsaw, Poland in June 2017, having started with the pilot in Montenegro. They focus on large enterprises and getting the first customers onboard: <http://moremoney.me/>

Clockwork Briefcase (registered in Montenegro) – Games, Hardware. The award-winning electronic bomb defusal game. The prototype was finished in April 2016 and its premiere was at the Reboot Develop 2016 games developer conference, where it became an instant hit. The company has been selected for top competitions and has won some: Belgrade Venture Forum 2016, December 2016 – The Winner; Idea Knockout 2016, September 2016 – Second place; How to Web 2016 – Start-up Spotlight, November 2016. http://www.dlabac.com/me/clockwork_briefcase.html

The Badger (registered in USA) – Media, Wearable. A wearable electronic badge. The company raised an undisclosed amount/non-equity assistance from ASU Venture Devils, and had a successful crowdfunding campaign on Indiegogo, raising USD 25K. They have finished the prototype and are now working on mass production: <http://thebadger.me/>

Talkini – Communications, SaaS. Talkini is a software for billable video calls. No installations required, it is ideal for consultants, lawyers, doctors, and coaches. It was founded in 2017 but has yet to secure funding: <https://www.talkini.com/en>

Other start-ups, besides the above-mentioned, are getting new opportunities for further promotion and recognition. In July 2018, at the *Start-up Games* accompanying the *Western Balkans London Summit*, some are participating under the patronage of the *British Government Department for International Trade*. Besides *BeeAnd.me* and *Talkini*, others include:

Uhurasolutions can help companies to replace human interaction with customers by using an AI solution able to read and understand customer contracts and to do complex decision-making: <https://uhurasolutions.com/>

However, besides those companies officially labelled as start-ups, there are other IT and high-tech companies under the radar, i.e. those that have been developing successful local, regional or worldwide business relying exclusively on the

strengths of their founders completely outside the circles of the start-up community. Within these, there are successful IT companies that almost completely cover the local services market related to legal and accountancy software and others that have managed to make a global market break by designing software for clients such as NASA, Rolls Royce, etc. Here is one such successful example:

Angle - this software is for gamma-efficiency calculations for semiconductor and scintillation detectors. It enables accurate determination of the activities of gamma-spectroscopic samples for which no "replicate" standard exists, in terms of geometry and matrix. A semi-empirical "efficiency transfer" (ET) approach is used, based on the effective solid angle (Ω) calculations: <http://www.dlabac.com/me/angle.html>

Likewise, other companies also represent the country's technology resources, but due to a lack of statistics and, sometimes, social inactivity, their impact on its economic development is not properly assessed.

4.5.2 Start-up community

The country's start-up community has begun to build self-awareness with the first start-up competition organised as part of the *Spark.Me* conference⁷². This event gives the region an opportunity for networking and learning in the fields of business development, digitalisation of business, and new marketing methods by gathering relevant presenters and expertise worldwide. The conference is held annually and in 2018 has succeeded to gather around 550 participants from all over the world. The national domain registrar *Domain.Me*⁷³ organizes the event in cooperation with NGO *Digitalizuj.Me*⁷⁴.

The NGO *Digitalizuj.Me* was founded in 2011 with the aim of helping to develop the country's digital community, including start-ups, by organising various lectures, workshops, competitions, hackathons and other projects. Until now, there have been two workshops with 50 participants and two start-up weekends involving 20 teams working on 20 different ideas. They bring in local and regional mentors as well as those recognised globally. This organisation is well connected with global incubators, accelerators and venture funds such as Seedcamp, HUB:raum, LaunchHub, Eleven, Startupbootcamp and TechStars. They also have solid cooperation with public and private universities where they have organised a number of lectures.

The first ICT HUB in Montenegro, *M-Tel Digitalna Fabrika*⁷⁵, was opened in September 2017 by *M-Tel*, one of the country's leading telecommunications companies. This development centre for technology entrepreneurship and innovation offers the creators of promising IT ideas favourable conditions for boosting business. It provides education in the form of a standardised programme lasting five months which covers mentorship, master classes, training, workshops

⁷² <http://spark.me/2018/>

⁷³ <https://domain.me/>

⁷⁴ <http://digitalizuj.me/>

⁷⁵ <http://digitalnafabrika.mtel.me/>

and other activities. It also provides networking by organising meeting events with industry and start-up experts. This type of support is accompanied by comfortable logistics that include pleasant working space, a cloud computing platform, and technical, administrative and legal assistance. The centre is able to host 40 selected tenants, either individuals or working team members. Most importantly, the HUB provides financing for the most innovative ideas, putting at their disposition an aggregate fund of EUR half a million for financing projects valued at between EUR 30 000 and 50 000, depending on their complexity.

The UNDP office in Podgorica is also engaged in start-up promotion and has sponsored a promotional publication 'How to establish a start-up in Montenegro'. The text was prepared by Drazen Zujovic, one of the founders of the first start-ups in the country TourViaMe. It explains what a start-up is, how one should go about testing the idea and what steps are needed to establish a company (Zujovic, 2017).

4.5.3 Assessment of the start-up ecosystem

Generally speaking, the Montenegrin start-up ecosystem is still in the early stages of development and lacking the appropriate infrastructure necessary to make it a promising start-up destination.

First, local investment opportunities are scarce. Scientific research activities in the country are financed primarily from the budgets of the scientific research institutions, the Budget of Montenegro and EU funds (IPA, Horizon 2020, EUREKA, COST), and other international funding (UNESCO, IAEA, ICGEB, etc.). Investments from the business sector are insufficient, and lack a network of venture capital and angel investors, which is accompanied by the lack of mentors necessary to help boost the existing start-up community to a more advanced level. Generally, market culture is based on imported conventional technologies, which means the country has very few enterprises which are focusing their activities on innovation, knowledge, and modern and self-developed expertise. Even those market-leading companies able to bear the risks related to R&D prefer the safe haven of ready-to-use imported solutions.

Secondly, the cooperation between enterprises and scientific and research institutions is incidental, leaving little space for producing significant results applicable in practice in the form of novel competitive products or services. There is an obvious lack of confidence among domestic enterprises in domestic know-how, whilst the national scientific community is more interested in producing knowledge destined for use in academic publishing rather than economically viable results. In fact, within the academic community there is almost no research on start-ups or high-tech companies. Moreover, the entire higher education system is predominantly oriented towards theoretical knowledge rather than its practical application.

Thirdly, support from the government to both start-up and high-tech companies is far from adequate. As regards direct measures of support, grant schemes have proved rather unsatisfactory for the development of more advanced innovative products and services. This can be disregarded in the specific case of establishing the centre of excellence BIO ICT (dedicated to the application of IT in biology and

agriculture in which EUR 3.4 million has been invested), and which was upgraded to the status of a new institute within the University of Montenegro in May 2018. However, such a solitary example of significant governmental support for a concrete innovative endeavour is not enough to alter regular practice.

As regards indirect measures of support, there are no favourable tax incentives or customs relaxation for companies engaging in R&D. Actually, the existing *Law on innovation activity* ("Official Gazette of Montenegro", no. 42/16) is insufficient in providing a proper definition of an 'innovative start-up' that would enable its benevolent treatment by other regulations. In fact, there is not even a common definition of a start-up. The MoS would like to support innovative, high-tech start-ups, while most of the current support measures (Agency of Employment, IDF) finance establishment of any type of new enterprise and differentiate conditionality not according to the area/type of activity, but rather by looking at the founder (individual entrepreneur, college graduate, women, etc.)⁷⁶. Similarly, benchmarks for other companies that invest in R&D are not determined in a way that could provide advantages in legal treatment. Furthermore, neither the national Investment Development Fund nor the commercial banks recognise these enterprises as a particular kind of customer deserving specially tailored credit lines. Likewise, labour law does not recognise any relaxation in the obligations of those companies which employ PhD holders or other types of research personnel.

However, rather loose university policies enable academic staff to utilise intellectual property rights on their own behalf, which is quite attractive from the perspective of its commercialisation. However, in practice, due to the lack of interest and barely accessible venture capital and sale channels, this practical possibility is not really being exploited. By establishing Tehnopolis in Nikšić, as a first infrastructure of its kind in the country, the state has also indirectly contributed to the development of start-ups and other novel and high-tech businesses by providing them with a support facility able to deliver different assistance services.

These are, in short, key reasons why most of the start-up founders are moving abroad in order to incorporate their companies and access better opportunities for further development and growth.

⁷⁶From the reply received from the MoS, it is understood that each ministry/agency thinks of start-ups in its own way, and also following their own objectives (more employment, more business entities, etc.).

Table 13: Start-up funding landscape

<p><i>PHASES OF START-UP DEVELOPMENT</i></p>	<p><i>0 Research</i></p>	<p><i>1. Pre-seed phase: Evaluation of initial ideas preceding start-up</i></p>	<p><i>2. Seed phase: Establishment of the company with the aim of implementing a specific idea; search for investors</i></p>	<p><i>3. Development phase: Implementation of the research and development project to realise the idea or innovation</i></p>	<p><i>4. Prototype phase: Development and production of first prototype; involvement of pilot customers and friendly customers</i></p>	<p><i>5. Market entry: Market introduction, production, start-up and start of intensive marketing</i></p>
<p>SUPPORT MEASURES OFFERED IN MONTENEGRO</p>	<p>Calls for proposals (Min. of Science): - centre of excellence (1 in 4 years, since 2014): EUR 3.4M - collaborative grants on a several years' basis (1 in 4 years, second call under preparation): EUR 0.4M - smaller grants for joining current EU H2020 and COST projects (yearly from 2017): EUR 20 000 for 2-year projects - doctoral research funding (from 2018)</p>	<p>Innovation vouchers (Min. of Economy): EUR 3 500</p>		<p>Innovative projects (Min. of Science): In 2017: up to EUR 20 000 /2 years (5 projects selected) - from June 2018: up to EUR 100 000 (new call under preparation) - EUREKA programme: EUR 15 000</p>	<p>EUREKA: EUR 15 000</p>	

PHASES OF START-UP DEVELOPMENT	0 <i>Research</i>	1. <i>Pre-seed phase:</i> Evaluation of initial ideas preceding start-up	2. <i>Seed phase:</i> Establishment of the company with the aim of implementing a specific idea; search for investors	3. <i>Development phase:</i> Implementation of the research and development project to realise the idea or innovation	4. <i>Prototype phase:</i> Development and production of first prototype; involvement of pilot customers and friendly customers	5. <i>Market entry:</i> Market introduction, production, start-up and start of intensive marketing
ORGANISATIONS AND PROJECTS FOR SUPPORT AND COORDINATION	Min. of Science	- Min. of Economy - Tehnopolis Nikšić	Tehnopolis Nikšić New project on joining the Business Angel Europe community - H2020 ESIL project (Early Stage Investment Launchpad) - Digitalizuj.me - Creating a market of local business investors	Ministry of Science		

Source: Ministry of Science 2018

REFERENCES

Bylaw on organization and operation of the public administration (Official Gazette of the Republic of Montenegro, no. 54/04; <https://www.ilo.org/dyn/natlex/docs/MONOGRAPH/78709/95193/F1228236684/MGO78709%20English%202.pdf>)

Development Fund of Montenegro JSC; Official Gazette of Montenegro, No. 88, dated 31 December 2009.

Doing Business Report (2018): <http://www.doingbusiness.org/reports/global-reports/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB18-Chapters/DB18-Country-Tables.pdf>

EC (2017a) European Commission's Assessment of the ERP (2017-2019); Commission Staff Working Document; SWD(2017) 145 final: <http://data.consilium.europa.eu/doc/document/ST-8442-2017-INIT/en/pdf>

EC (2017b): European Commission Staff Working Document: Economic Reform Programme of Montenegro (2017-2019) Commission Assessment; SWD (2017) 145 final. Brussels: ECOFIN, 25 April 2017: <http://data.consilium.europa.eu/doc/document/ST-8442-2017-INIT/en/pdf>

EC (2018) Montenegro 2018 Report; Commission Staff Working Report; SWD (2018) 150 final: <https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/20180417-montenegro-report.pdf>

ERP (2016) Economic Reform Programme of Montenegro (2016-2018); Podgorica: http://www.gov.me/en/homepage/Montenegro_Economic_Reform_Programme/

ERP (2018) Economic Reform Programme of Montenegro 2018-2020; Podgorica: January 2018: <https://www.ekonomi.gov.me/portal/content/conn/UCM/uuid/dDocName:EK-259188;jsessionid=8RGjfcRWVzZGq9KQALWCbt69XUXf08SSZGf0uUkjA1yOp2sf-tCAi!-579733685>

Eurostat webpage (2018): Statistical data available at Eurostat: <http://ec.europa.eu/eurostat/data/statistics-a-z/abc> (5 July 2018).

Global Innovation Index (2017): Global innovation index report 2018. Available at: <https://www.globalinnovationindex.org/>

Hollander, H. (2018), *Mapping economic, innovation and scientific potential in Montenegro - Final report, 15 March 2018*. Ministry of Science, Montenegro.

Inno-WBC (2011), Good practice examples of innovation policy approaches and instruments in the EU Member States and the Western Balkans; FP7 project.

Jørgensen T. and Sursock E. (2014), Evaluations of ten higher education institutions in Montenegro; European University Association (EUA).

Law on Higher Education (2016), Official Gazette of Montenegro, 044/14 of 21 October 2014, 052/14 of 16 December 2014, 047/15 of 18 August 2015, 040/16 of 30 June 2016, 042/17 of 30 June 2017.

Law on innovation activity (2016), Official Gazette of Montenegro no. 42/16: <http://www.sluzbenilist.me/SluzbeniListDetalji.aspx?tag={068A0960-90D1-4D2D-BB16-CA413480E947}>

Law on SRA (2010) - Law on Scientific Research Activity; Official Gazette of Montenegro, No. 80 of 31 December 2010, 40/11, 57/14.

Lindholm, P. (2017), HERIC Project - Advisory services on intellectual property and academic IP commercialisation; Final Report, May 2017.

Ministry of Science webpage (2018): <http://www.mna.gov.me/en/ministry>

Monstat webpage (2018): Statistical data available at the Montenegro statistical Office. Available at: <https://www.monstat.org/cg/>

Montenegro Development Directions 2015-2018: <http://www.mf.gov.me/en/news/153253/Montenegro-Development-Directions-2015-2018.html>

Montenegro Development Directions 2018-2021 (Dec. 2017): <http://www.mif.gov.me/en/news/184592/Montenegro-Development-Directions-2018-2021.html>

PACiNNO Report (2016), Analysis of Innovation Chain of Enablers and Inhibitors in the Adriatic Region: PACiNNO Report; edited by Ana Marković Čunko, Ani Gerbin. Rijeka: Medicinski fakultet, 2016. ISBN 978-953-7957-52-0: <http://www.pacinnno.eu>

Press release, May 2018 (published 14.05.2018), mimeo, supplied by Min. of Science.

Report on Business Barriers (May 2016), UNDP Podgorica: www.bezbarijera.me

SBA fact sheet Montenegro (2017): https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/montenegro_sba_fs_2017.pdf

Strategic Guidelines for SME Development 2018-2021 (Dec. 2017). Ministry of Economy, Podgorica: <http://nasme.me/wp-content/uploads/2018/01/Strateske-smjernice-razvoja-MMSP.pdf>

Strategy of Scientific Research Activity 2017-2021, February 2018, Ministry of Science: <http://online.fliphtml5.com/szvu/ytxr/#p=2>

Strategy on Innovation Activity with Action Plan (2016-2020); Ministry of Science, July 2016, Podgorica.

The World Bank Enterprise Survey 2013: <http://www.enterprisesurveys.org/data/exploreeconomies/2013/montenegro#innovation-and-technology>

Trading economics (2018): <https://tradingeconomics.com/>

UNCTAD webpage (2018): Statistical data available at UNCTAD: <http://unctad.org/en/Pages/statistics.aspx>

University of Montenegro Strategic Research Plan; *Evolunimont – Project of the 7th Framework*: <http://www.ir.ucg.ac.me/userfiles/file/engleskisajt/UOM%20Strategic%20Research%20Plan%20Proposal150310.pdf>

[University of Montenegro \(2018\)](#) INFORMACIJA O STATUSNOJ PROMJENI NA UNIVERZITETU CRNE GORE (Information on the statutory change at the Uni of Montenegro); mimeo.

WIR (2018) World Investment Report; UNCTAD. Geneva: http://unctad.org/en/PublicationsLibrary/wir2018_en.pdf

WB (World Bank) (2016): Montenegro: Achieving sustainable and inclusive growth amidst high volatility. *Systematic country diagnostic*. Washington DC: IBRD.

WB (2013) Western Balkans Regional R&D Strategy for Innovation; Country Paper series, Montenegro World Bank Technical Assistance Project funded by the European Commission (DG ENLARG – TF011064).

World Economic Forum (2018): Global competitiveness report 2017-2018: <https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018> (5 July 2018).

Žujovic, D. (2017), Kako pokrenuti start-up iz Crne gore. UNDP Regional Office, Podgorica.

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This background report aims to provide information on the economic situation, the state of affairs in research and development as well as innovation and, more specifically, on the business environment for SMEs, especially start-ups. The report will be used for PSF Specific Support, as requested by the Montenegrin authorities, in relation to the development of the legislative framework and an ecosystem model for supporting start-ups in the country.

Studies and reports

