

Performance of Enterprise Sector of Slovakia in Achieving Sustainable Development Goal Related to Industry and Innovation

Petra Lesníková
 Technical university in Zvolen
 Zvolen, Slovakia
 lesnikova@tuzvo.sk

Jarmila Schmidtová
 Technical university in Zvolen
 Zvolen, Slovakia
 schmidtova@tuzvo.sk

Abstract—The paper is focus on one of the 17 sustainable development goals (SDGs) defined in Agenda 2030. The main goal of Agenda 2030 is to lead individual countries towards sustainability and also contribute to fulfil the global goals. However, the business sphere is also involved in sustainable development. Crucial drivers of economic development and growth are investments in the field of innovation. The aim of the paper is to evaluate the performance of enterprise sector within the indicators of goal 9 - industry and innovation, and to compare the achieved results with selected countries.

Keywords—sustainable development goals, industry, innovation, enterprise sector, V4, EU.

I. INTRODUCTION

For several years, sustainable development has been a priority for world leaders and concurrently is a challenge for the international community to move towards a development that synchronize economic development, social cohesion and the protection of the environment. The current Agenda 2030 for Sustainable Development from the United Nations (UN), approved by the General Assembly in September 2015, is a comprehensive and integrated development of global priorities for sustainable development with emphasis on mutual cooperation in this area with the involvement of developed and developing countries. For document "Transforming our World: Agenda 2030 for Sustainable development" is typical principles such as transformation, integration and universality [1].

The transformation force of Agenda 2030 represents 17 sustainable development goals (SDGs) which contain 169 sub-targets. The mission of these goals is to stimulate particular actions on the next 15 years in areas which are important for mankind and planet [2]. These areas are also known as triple bottom line. The SDGs could be divided into three area and four area - condition good governance at all levels [3]. Within economic area it is about the end of poverty, hunger and disease to create conditions for sustainable inclusive and sustained economic growth and decent work. The environmental area is focused mainly on protection of planet and natural resources, and global environmental change (energy use, pollution, etc.). The last area solves the problems as inequalities between countries, creation of peaceful, just and inclusive societies, protection of human rights with emphases on gender equality. In general, the SDGs have the ambition to direct the structural political, economic and social transformation of the individual countries of the world in response to the threats humanity faces today. Significantly, an increased degree of

globalization is involved in this state through the presence and widening of country differences and significant material benefits for certain social groups [4]. The issue of solving the problem of the SDGs engages academic sphere, enterprises, non-governmental organizations, governments, and the experts and leaders of this area [3], [5].

The paper focuses on one of the 17 SDGs of Agenda 2030, namely Goal 9 Industry, Infrastructure and Innovation. In relation to the enterprise sector we put attention to industrialization and innovation. The aim of the paper is to evaluate the situation of selected indicators of this goal for enterprise sector in SR during several years (according to available data) and to compare the evolution of these indicators from the V4 and EU perspective.

II. THEORETICAL BACKGROUND OF SDG

A. SDG as a Way of Future Direction of Society and Business

Agenda 2030 continues in the call of the UN Millennium Declaration in 2000 when the Millennium development goals (MDGs) were defined. It was the first common vision and widely accepted framework for global development at all [2]. The MDGs have been adopted by 147 heads of states, which considerably improve the quality of life of people and poverty in their dimensions, e.g. income poverty, hunger, disease, and promoting education, gender equality and environmental sustainability with quantitative targets [6]. It has been occurred some critical discussion about formulation of this goals. Some of them claim that MDGs were created without adequate involvement of developing countries or that they are unachievable, not adapted to national needs or not specify responsible stakeholders [7]. The SDGs unlike the MDGs are focused on simultaneously integration of three essential pillars of sustainable development whereas the MDGs was related to a traditional economic and social development agenda [8]. Moreover, in the case of the SDGs they represent a more integrated system and proposed goals and particular targets create a certain network [9].

At general the SDGs represent a challenge for business. The Agenda 2030 [2] says "Private business activity, investment and innovation are major drivers of productivity, inclusive economic growth and job creation. We acknowledge the diversity of the private sector, ranging from micro enterprises to cooperatives to multinationals. We call upon all business to apply their creativity and innovation to solving sustainable development challenges". From this

statement it follows that private sector plays an important role in sustainable development and achieving the SDGs [10]. Business in this way present a source of finance, a driver of innovation and technology, an engine of economic growth and employment [11]. The SDGs cannot be really achieved without active cooperation of multinational enterprises [12]. From the perspective of business world, all companies (regardless of size or field of industry) can contribute to the better achievement of the SDGs. These goals outline new markets and also opportunities for companies and local business which play an important role in this process [13]. According to survey of PwC [14] in 2017 52% of the companies identified the relevant SDGs to their own business, some of companies (34%) identified a specific project related to this issue and 29% set the goals aligned to SDGs. Business impact and opportunity are seen mainly in SDGs related to Decent work and economic growth, Industry, innovation and infrastructure, Responsible consumption and production, Climate action, Good health and well-being, Affordable and clean energy, regard to field of industry. Opportunity is conceived as a creation value for business and society too, e.g. developing products, services, technologies; investing in supply chains which are ethical, inclusive, resource-efficient and resilient; improving the skills, well-being and hence productivity of employees, suppliers; increasing investment in renewable energy and other infrastructure projects [15]. Another possible example of contribution of business to sustainable development is ecological approach toward building a wood-based structure which was presented in study of authors [16]. Within the sustainable performance of enterprise the professional accountants play the important role [17].

Under the conditions of the Slovak Republic the sustainable development is integrated in Act no. 17/1992 on the environment as a "development that preserves the present and future generations of the opportunity to satisfy their basic living needs while not reducing the diversity of nature and preserving the natural functions of ecosystems" [18], mainly from the point of view of ecology. Since 1996 the SR has been a member of the United Nations Commission on Sustainable Development that provide a center point for the assessment of sustainable development at international, national and local levels. In 2013, however, it was replaced by the establishment of the High Level Political Forum as the main forum for sustainable development issues [19]. Slovakia as an EU member, like all the Member States, has undertaken commitments to implement its policies and strategies of the regulations affecting sustainable development. As a result of these activities, the adoption of the National Sustainable Strategy was completed in 2001 and they were developed some action plans: Agenda 21, Sustainable Development Action Plan 2005-2010 [20].

The Slovak Government regards sustainable development as one of the cornerstones of the knowledge society. An application the principles of sustainable development into practice still represents a great challenge for the SR. In this context, the Ministry of Economy of the Slovak Republic, in cooperation with other authorities and institutions, created and approved in 2013 the Smart Specialization Strategy. This strategy must meet the

priorities of the Europe 2020 strategy as a basic framework document supporting research and innovation, and sustainable economic growth and employment in Slovakia by supporting research and innovation taking into account regional specifics. An important goal is the integration of key industries with higher value added [21].

Responsibility for Agenda 2030 in Slovakia is divided between the Office of the Deputy Prime Minister of the Slovak Republic for Investment and Informatization (responsibility for the national implementation) and the Ministry of Foreign Affairs and European Affairs of the Slovak Republic (responsibility for implementation in the international environment). In July 2018, the Deputy Prime Minister of the Slovak Republic for Investment and Informatization introduced the first voluntary report on progress in implementing the Agenda 2030 for Sustainable Development at the United Nations. The Office of the Slovak Deputy Prime Minister for Investment and Informatization established the Government Council for the Agenda 2030, which will ensure that the issue of sustainable development becomes an integral part of all public policies [22].

B. Goal to Promote Inclusive and Sustainable Industrialization and Foster Innovation

According to [15] one of the SDGs with an opportunity for business is Goal 9 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. This SDG contains of 8 targets and 12 indicators which was defined by the UN. These targets specify the essential of the goal. Indicators mean the concrete metrics which are used to assessment the achieved the targets [23]. We are interested mainly on these goals [2]:

- a) Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.
- b) Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.
- c) By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.
- d) Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development (R&D) workers per 1 million people and public and private research and development spending.

- e) Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.

In Table 1 are shown selected indicators related to goal 9 in relation to industrialization and innovation. There are mentioned also data source and linking to targets described above. The data about selected indicators we achieved from Eurostat [24], United Nations Industrial Development Organization (UNIDO) [25] and website SDG-Tracker. The SDG-Tracker is a joint collaborative effort between researchers at the University of Oxford and the Global Change Data Lab. Data from this source are gathered across all of the 17 SDGs and there are sourced from official sources (UN, World Bank, World Health organization and others) [23].

TABLE I. SELECTED INDICATORS RELATED TO INDUSTRIALIZATION AND INNOVATION

No.	Name of indicator	Linking to goals	Source of data
9.2.1	Manufacturing value	a)	SDG-Tracker
9.2.2	Manufacturing employment Employment in high-tech industries	a)	Eurostat
9.3.1	Value of small-scale industry	b)	UNIDO
9.3.2	Small-scale industries with affordable credit	b)	Not available
9.4.1	CO ₂ emissions per unit value added	c)	SDG-Tracker
9.5.1	Expenditures on R&D R&D personnel	d)	Eurostat
9.5.2	Researchers per million inhabitants	d)	SDG-Tracker
9.B.1	Medium and high-tech industry	e)	SDG-Tracker

Source: Authors

III. PERFORMANCE OF SELECTED INDICATORS OF INDUSTRY AND INNOVATION IN SLOVAKIA ENTERPRISE SECTOR

As we mention in part II. Theoretical background of SDGs these goals represent a challenge and also opportunity for businesses to promote a sustainable world. We have analyzed the status of selected indicators of industry and innovation that we consider to be the closest to the enterprise sector. Selected indicators were analyzed for SR during several years and subsequently compared with the average indicator in V4 and EU countries (according to available data). Primary we obtained the data from Eurostat but not all data about indicators was available. From this reason the used data were from multiple sources, whereas not in all cases are including the aggregated data. SR as a member of the Visegrad Group (also known as Visegrad Four or V4) is linked with these countries in a number of field of common interest and cooperation.

From the view of macroeconomic characteristics the real GDP growth has significantly varied across the EU (28 countries). In 2017 all member states recorded a positive change rate (it was the first time since 2007). In 2017, the highest annual growth rates of real GDP were recorded in Ireland (7.2%), Romania (6.9%), Malta (6.4%) and Slovenia (5.0%), while the lowest rates of change were registered in Belgium and the United Kingdom (1.7% in both countries),

Italy (1.5%) and Greece (1.4%) [26]. In the case of countries V4 all countries achieved a higher economic growth than the SR. In the first quarter of 2018, the Polish economy recorded an acceleration of economic growth on a year-on-year basis, by 0.6 percentage points to 5.0%. The Czech Republic and Hungary recorded a slowdown of 1.1 percentage points to 4.4%, resp. 0.2 percentage points to 4.7% [27]. The Slovak Republic recorded an increase of 3.5%. Although V4 countries are currently growing faster, they are still threatening to end their growth when they reach that limit.

A. Manufacturing Value Added

The indicator Manufacturing value added measures the contribution of enterprise (manufacturing) sector to a country's total GDP. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs in manufacturing production [23]. In Fig. 1. is shown the level of manufacturing value added in V4 countries.

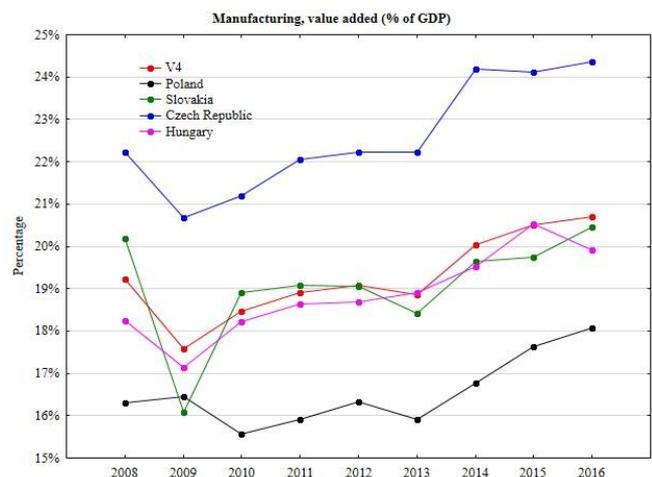


Fig. 1. Manufacturing value added (% of GDP) in V4. (source: processed based on SDG-Tracker.org)

Between 2008 and 2016, the highest value of manufacturing value added is recorded by the Czech Republic among the V4 countries. In 2017 indicator of manufacturing value added achieves 24.28%. Slovakia and Hungary are reaching the approximately the same values; in 2017 the manufacturing value added of Slovakia reached 20.1% and the value of Hungary reached 19.87%. Nearly all countries except Poland recorded a decreasing trend in 2009 due to the global economic crisis. However, Slovakia marked the biggest down flow from 20.19% in 2008 to 16.07% in 2009. In Poland, the decrease was recorded a year later. The manufacturing value added in the Slovak Republic after the crisis in 2009 shows a growth tendency except of slight decrease in 2013. We can say that the value of this indicators move approximately around the average value of the V4 countries.

The growth potential of Slovakia is dependent mainly on industry manufacturing, which it creates conditions for the growth of high-tech services, especially in the area of significant growth in the use of information technology in complex enterprise management. In the structure of industry the manufacturing has always had the dominating position. Forecasts suggesting that its share of GDP and employment

in both the economy as a whole and industry will decrease. A key position in the structure of Slovak manufacturing is the automotive industry, followed by the engineering and electrotechnical industry. According to the [28] a typical industrial enterprise formed a new created value over the monitoring period, almost in all selected divisions, and in 2015 raised its owners' equity to almost 7% per annum, it was not sub-capitalized and its indebtedness did not exceed the critical threshold.

We can say that the enterprise sector in the SR within the aim of raising industry's share of employment and GDP is almost at V4 average and has a growing tendency since 2013. Business to promote this goal could support for example the creating decent jobs, integrating environmental and social issues into core business operations, and providing innovative solutions to tackle development challenges.

B. Employment in High- and Medium-High Technology Manufacturing Sectors and Knowledge-Intensive Service Sectors

In the paper we focused not on manufacturing employment but on employment in high- and medium-high technology manufacturing industries. The indicator shows the industry's contribution to the economy and job creation and measures the employment in high- and medium-high technology manufacturing sectors as a share of total employment. High-tech industries are key drivers of economic growth and productivity and provide high added value for sustainable growth.

Nowadays, the main aspects of the Industry 4.0 are the support of investment in new technologies and their use in industrial practice, the support of eco-efficiency in the development of industrial production. The problem is the lack of "intellectual" assets, as well as the main technical production capacities. If industrial enterprises want to respond to Industry 4.0, they must invest in long-term tied assets. The future economic success of these companies will not only depend on the quality and attractiveness of the innovations provided by the market, but also on the funding sources they use to buy these investments and implement the innovations [28].

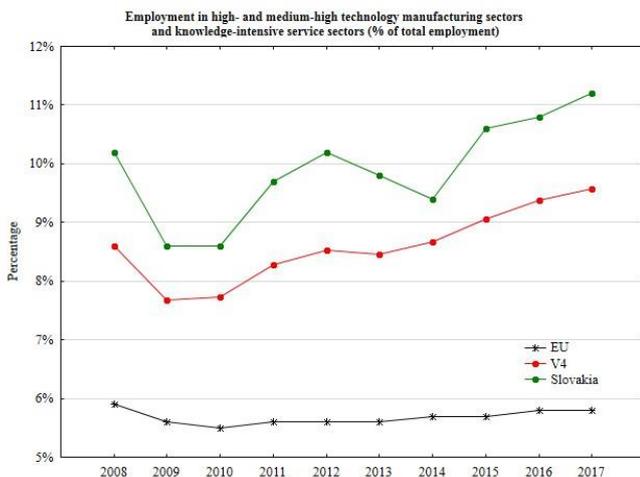


Fig. 2. Employment in high- and medium-high technology manufacturing. (source: processed based on Eurostat)

From the Fig. 2. is evident that SR in this indicator reached 11.2% in 2017. In terms of time line, it is recorded the decrease in employment occurred in 2008 and 2013-2014. The similar values achieved also the Czech Republic (11.4% in 2017); Hungary marked the slightly lower value (9.8%) and Poland reached the value of 5.9%. The average of employment in high and medium-high technology sectors in EU reached lower values than V4, which may be due to countries with a lower growth of GDP (up to 4%) e.g. Bulgaria, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, United Kingdom and others [27].

Slovakia is among the EU countries with the highest percentage of manufacturing workers with high and medium-sized manufacturing technologies. A favorable and stable business environment is one of the key tasks of the government, as it creates the conditions for economic growth.

C. Value of Small-Scale Industry

Small-scale industries is in the SDG framework also called small-scale industrial enterprises generally refer to enterprises, engaged in production of goods and services for market below a designated size class. In the Fig. 3. is shown an indicator calculating the share of manufacturing value added of small-scale manufacturing enterprises in the total manufacturing value added. Enterprises in general are classified to three categories: small, medium-sized and large enterprises mainly from the number of employees or volume of turnover. These categories have a different conditions for entrepreneurship, possibility of development, funding, etc. Small and medium-sized enterprises (SME) despite of their small contribution to total industrial output, their role is important mainly in relation to job creation and potential source for economic growth.

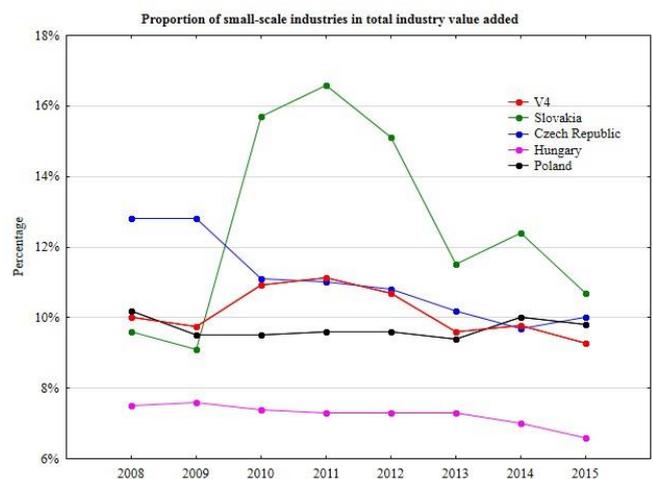


Fig. 3. Small-scale industries and value added. (source: processed based on UNIDO)

From view of SME in Central European countries in 2016, the positive evolution has continued. The number of SMEs in SR grows year-on-year, with their share increasing by 3.9% in 2016, Poland (5.5%), Hungary (2.7%) and Czech (1.7%). The areas for the application of the better regulation agenda are defined in the Act on Promotion of SMEs. Since 2009 (9.1%) the Slovakia has recorded a sharp increase in

the share of small-scale industries in total value added by 16.6% in 2011. Consequently, in 2013 this value decreased on 11.5%. As we see the values of the indicator have a markedly fluctuating character compared to other countries.

To support of achievement the goal related to small-scale industries it would be adequate to increase local value added mainly through local purchasing and forging supplier linkages with domestic companies. Furthermore, it is necessary to promote investing in skills, management and technological training and improve access to funding in enterprise sector.

The data about another interesting indicator Small-scale industries with affordable credit which measures the proportion of small-scale industries with a loan or line of credit were not available.

D. CO₂ Emissions Per Unit Value Added

Indicator of CO₂ emissions per unit value added measures the carbon intensity of the manufacturing economic output and it reports the quantity of carbon dioxide emissions generated per unit of economic value (kilograms of CO₂ emitted per dollar of GDP). Manufacturing industries are generally improving their emission intensity as countries move to higher levels of industrialization, but it should be noted that emission intensities can also be reduced through structural changes and product diversification in manufacturing [23]. As we can see on Fig. 4. the CO₂ emissions per unit of value added computed for manufacturing sector have a decreasing tendency in all countries of V4. The data are only available until 2014. Hungary (0.18 kg) and Slovakia (0.21 kg) reached the lowest value of emission per unit value. The same level is achieved by Czech Republic and Poland (0.31 kg).

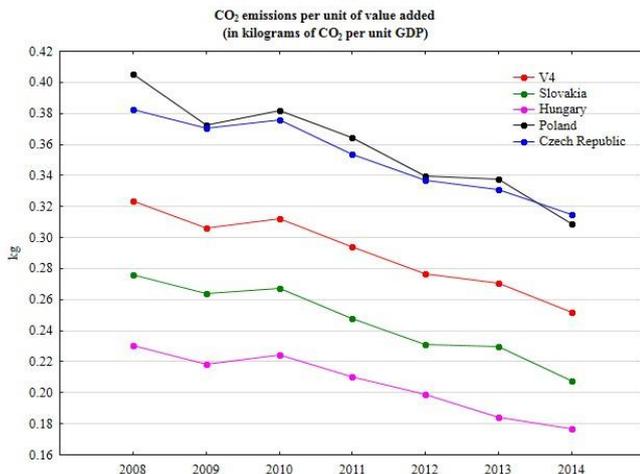


Fig. 4. View of the CO₂ emissions per unit of value added. (source: processed based on SDG-Tracker.org)

In this regard is important the Envirostrategy 2030 which identifies the basic system problems, it sets 2030 targets, and it proposes framework measures to improve the current situation. Moreover, the Slovak Republic has a specific national strategy to adapt to climate change. The National strategy for adaptation of the Slovak Republic to the adverse effects of climate change was adopted by the Slovak Government in March 2014. The current national targets for

the 2020 (13% ceiling for non-ETS emissions, and 21% reduction of ETS emissions) are already achieved (non-ETS), or on the way to be achieved (ETS). Taking into account the need to develop long-term, low-emission strategies according to the Paris Agreement, Slovakia is currently preparing, in co-operation with the World Bank the Low-Carbon Growth Study of the Slovak Republic, along with the development trends up to 2050. The study will identify the potential for CO₂ reduction in individual sectors of the economy (including energy), it will offer scenarios of its evolution, and identify the most effective measures in terms of costs and benefits [29].

Businesses can support the improvement this goal some ways which include e.g. the using of environmentally friendly technologies through improving product design, processes, material efficiency and their reuse; investing in energy efficiency in buildings; implementing circular business models to further reduce the own environmental impact; performing assessments of economic, social, and environmental impact through whole lifecycle of products and service.

E. Expenditures on R&D

The indicator measures gross domestic expenditure on R&D as a percentage of the GDP. Investing in R&D and innovation are essential for long-term economic development and prosperity as they foster economic growth, job creation, labor productivity and resource efficiency. The percentage of total expenditure on research and development from GDP allows for a relevant comparison of the situation in the Slovak Republic with the situation in the other EU countries [23].

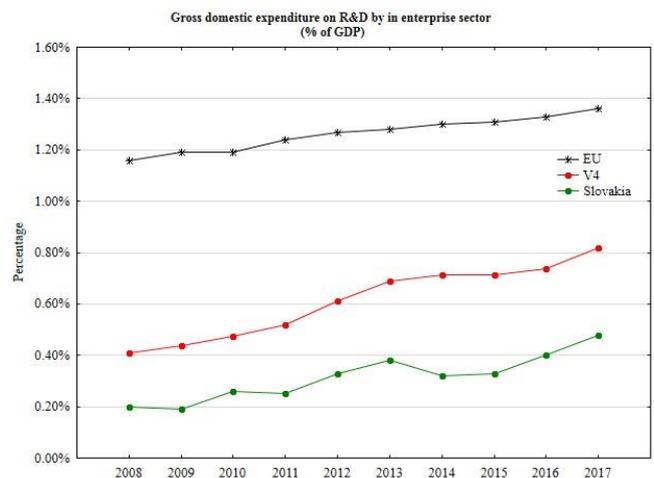


Fig. 5. R&D expenditures. (source: processed based on Eurostat)

As in the previous case also in this case Slovakia also falls behind the average of EU and V4 countries. While the average value of the expenditures of R&D in enterprise sector in V4 is 0.81% GDP (2017) and in EU is 1.36%, in Slovakia this value is lower. From the perspective of the Slovak enterprise sector in 2017, it was invested 0.48% of GDP in R&D, which represents the highest value in the monitored sector. This value presents a slight growth in comparison to 2016 about 0.08 percentage points. Expenditures on R&D of all sectors are higher - on the value of 0.88%. The highest value was the in 2015 (1.17%).

Within the R&D expenditures are important investment in education, training and lifelong learning, the promotion of creation of patent applications. It is necessary to aligning R&D priorities with national and international sustainable development priorities.

F. R&D Personnel in Enterprise Sector

This indicator measures the share of R&D personnel in the enterprise sector. Obtained data are presented in full-time equivalents as a share of the economically active population. The following figure shows the evolution of the indicator in SR, V4 and EU countries.

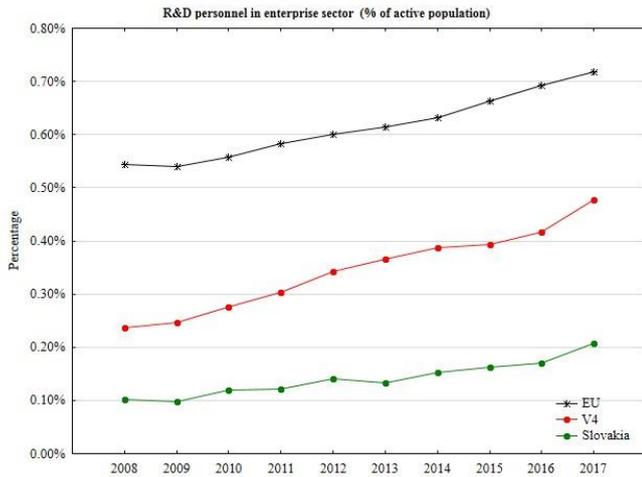


Fig. 6. Share of R&D personnel in enterprise sector. (source: processed based on Eurostat)

From the figure is evident that share of R&D personnel in case of Slovakia and also in V4 and EU has an increasing tendency. As we see Slovakia in this indicator has still fall behind the average of not only the EU (0.72%) but also the V4 (0.47%). During 10 years, the share of R & D personnel in Slovakia has increased from 0.10% (2008) to 0.21% in 2017. From the perspective of the V4 countries, the Czech Republic (0.76%) and Hungary (0.54%) are countries that approach to the EU average (year 2017). Poland also has a greater share of R&D personnel (0.39%) in comparison to Slovakia. Moreover, all countries of V4 except Slovakia reached more progress in examined period in this indicator but the trend is likely to grow even in the future.

An important role in economic development is played by startups with their innovative activities. Revenues from innovation can be seen both in services and in manufacturing. Examples of nowadays startups in Slovakia are startups from the field of waste monitoring, efficient business data analysis, communications platforms, staff evaluation, and many others. The startups are also being supported by the State through a government program to support, which aim is to facilitate innovation business. Gradually, the number of startups increases, which can positively affect not only the economic aspects but also the wider context. Examples of state aid schemes up to 2020 are [30]: Startup scheme, Scheme to promote increasing of innovative performance of businesses and clusters, Scheme to support the cooperation of business entities and scientific research centers in the form of innovation vouchers, Scheme for support of industrial clusters organizations.

G. Researchers in R&D

Researchers in R&D are professionals engaged in the conception or creation of new knowledge, products, processes, methods, or systems and in the management of the projects concerned [24]. This indicator is associated with the enterprise sphere to a lesser extent. However, from the point of view of researchers in R&D per million people it is interesting that Slovakia has long been above the average of V4 countries. The Czech Republic records a larger number of researchers with a continuously growing trend. In 2015, there are registered 3,612 researchers per million people. The SR in the same year recorded a slight decrease (2,655 researches). The fall is also in the case for Hungary (2,569). Poland has the lowest number of researchers among the V4 countries (2139). It should also note that researchers in R&D are involved in the conception or creation of new knowledge, products, processes, methods and systems and in the management of the concerned projects. In Fig. 7. is shown the number of researcher in particular countries.

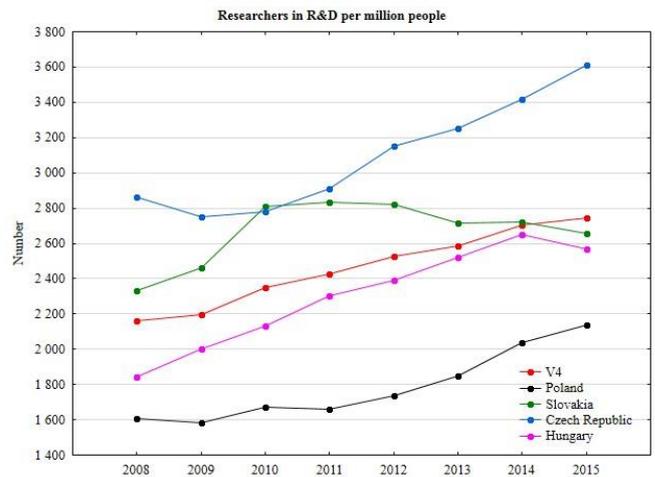


Fig. 7. Number of researches in R&D. (source: Processed based on Eurostat)

H. Medium and High-Tech Industry

Mention indicator indicates the proportion of medium and high-tech industry value added in total value added.

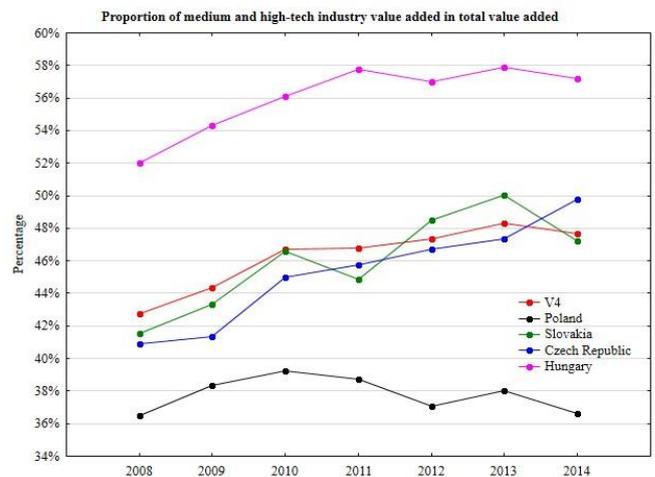


Fig. 8. Medium and high-tech industry. (source: processed based on SDG-Tracker.org)

Higher values indicate that a country's industrial sector is more focused on high-tech and innovation products. The Figure 8 illustrates the level of indicator for particular countries in the years 2008-2014. The highest values for this indicator are reached in Hungary (2014-57.21%) and the lowest value is in Poland (2014-36.61%). SR and Czech Republic indicate very similar values (SR-47.21% and CR - 49.75%). The evolution of indicators are fairly the same throughout the reporting period. It follows that the industrial sector of Hungary is more focused on high-tech and innovation products like other V4 countries.

IV. CONCLUSION

The tendency of increased investment activity creates beneficial conditions for further growth of economic activity in the future. Innovation is the driving force behind economic development and a decisive factor in the competitive struggle of enterprises. In terms of the sustainable development indicators these are measured for various sectors (government, higher education, private non-profit sector). In this paper we focused on indicators of enterprise sector within the goal 9 – Industry and innovation.

In terms of the manufacturing value added, employment in high and medium-high technology manufacturing sectors, R&D, R&D personnel in the enterprise sector in the Slovak Republic, the values of these indicators were rising. In the last two cases, however, growth was below the average of V4 countries. Slovakia is among the EU countries with the highest percentage of manufacturing workers with high and medium-sized manufacturing technologies. Moreover, high-tech industries are key drivers of economic growth so if enterprises want to respond to Industry 4.0, they must invest into many ways. Positive is the drop in CO₂ emissions per unit value added during monitored years. We can conclude that for Slovakia the fulfillment of SDGs is still a challenge. There are many places where Slovakia has a reserves and where it is possible to improve.

REFERENCES

- [1] Ministry of Environment of the Slovak Republic. (2019, January 2012). Sustainable development – Agenda 2030. [Online]. Available: <http://www.minzp.sk/sekcie/temy-oblasti/udrzatelny-rozvoj/agenda-2030/>
- [2] United Nations. (2019, January 20). Transforming our world: Agenda 2030 for sustainable development. A/RES/70/1, 2015. [Online]. Available: <https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>
- [3] J. D. Sachs, "From millennium development goals to sustainable development goals" *The Lancet*, vol. 379, no. 9832, pp. 2206-2211. 2012.
- [4] D. Reed, "Poverty and the environment: Can sustainable development survive globalization?" *A United Nations Sustainable Development Journal*, vol. 26, no. 3, pp. 176-184, 2002.
- [5] G. Harangozó, and G. Zilahy, "Cooperation between business and non-governmental organizations to promote sustainable development" *Journal of Cleaner Production*, vol. 89, pp. 18-31. 2015.
- [6] J. D. Sachs, and J. V. McArthur, "The millenium project: a plan for meeting the millenium development goals," *The Lancet*, vol. 365, no. 9453, pp. 347-353. 2005.
- [7] M. Fehling, B. D. Nelson, and S. Venkatapuram, "Limitations of the Millenium development goals: a literature review," *Glob Public Health*, vol. 8, no. 10, pp. 1109-1122, 2013.
- [8] F. Biermann, N. Kanie, and R. E. Kim, "Global governance by goal-setting: the novel approach of the UN Sustainable development goals," *Current Opinion in Environmental Sustainability*, pp. 26-27. 2017.
- [9] D. Le Blanc, (2019, February 15). Towards integration at last? The sustainable development goals as a network of targets. DESA working paper no. 141, UN, Department of economic and social affairs, 2015. [Online]. Available: https://www.un.org/esa/desa/papers/2015/wp141_2015.pdf
- [10] Business for 2030. (2019, February 10). An initiative hosted by the United States Council for International Business. [Online]. Available: <http://www.businessfor2030.org/privatesector>
- [11] R. Scheyvens, G. Banks, E. Hughes, "The private sector and the SDGs: The need to move beyond "business as usual," *Sustainable Development*, vol. 24, no. 6, pp. 371-382. 2016.
- [12] J. A. van Zanten, and R. van Tulder, "Multinational enterprises and the sustainable development goals: An institutional approach to corporate engagement", *Journal of International Business Policy*, vol. 1, no. 3/4, pp. 208-233. 2018.
- [13] GRI, (2019, February 15). UN Global Compact, WBCSD, SDG Compass. The guide for business action on the SDGs, 2015. [Online]. Available: https://sdgcompass.org/wp-content/uploads/2015/12/019104_SDG_Compas_Guide_2015.pdf
- [14] PwC, (2019, February 15). SDG reporting challenge 2017. Exploring business communication on the global goals. [Online]. Available: <https://www.pwc.com/gx/en/sustainability/SDG/sdg-reporting-challenge.pdf>
- [15] United Nations Global Compact, KPMG, (2019, February 11). "SDG industry matrix. Industrial manufacturing", 2016. [Online]. Available: <https://home.kpmg/content/dam/kpmg/xx/pdf/2017/05/sdg-industrial-manufacturing.pdf>
- [16] M. Potkány, M. Gejdoš, and M. Debnár, "Sustainable innovation approach for wood quality evaluation in green business" *Sustainability*, vol. 10, no. 9, pp. 2984-2998. 2018.
- [17] I. Makarenko, and A. Plastun, "The role of accounting in sustainable development," *Accounting and Financial Control*, vol. 1, no. 2, pp. 4-12. 2017.
- [18] (2019, January 30). Act no. 17/1992 on the environment. [Online]. Available: <https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/1992/17/20071001>
- [19] Enviroportal. (2019, January 30). Information portal of Ministry of Environment of the Slovak Republic. [Online]. Available: <https://www.enviroportal.sk/europska-environmentalna-agentura>
- [20] Negotiation of Government of SR. (2019, February 15). Proposing the National Implementation Procedure for Agenda 2030. [Online]. Available: http://www.rokovania.sk/File.aspx/ViewDocumentHtml/Mater-Dokum-211016?prefixFile=m_
- [21] Ministry of Economy of the Slovak republic. (2019, February 15). [Online]. Available: <https://www.economy.gov.sk/innovations>.
- [22] Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization. (2019, February 15) [Online]. Available: <https://www.vicempremier.gov.sk/en/index.html>.
- [23] H. Ritchie, M. Roser, J. Mispy, and E. Ortiz-Ospina. (2019, February 11). Measuring progress towards the Sustainable Development Goals, SDG-Tracker.org. 2018. [Online]. Available: <https://sdg-tracker.org/infrastructure-industrialization#targets>
- [24] Eurostat. (2019, February 11). SDG 9. Industry, innovation and infrastructure. [Online]. Available: <https://ec.europa.eu/eurostat/web/sdi/industry-innovation-and-infrastructure>
- [25] UNIDO. (2019, February 11). 9 Industry, innovation and infrastructure. [Online]. Available: <https://stat.unido.org/SDG/SVK>.
- [26] Eurostat. (2019, February 11). National accounts and GDP. [Online]. Available: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=National_accounts_and_GDP
- [27] National Bank of Slovakia. (2019, February 11). Economics Report 2018. [Online]. Available: https://www.nbs.sk/_img/Documents/_Publikacie/SESr/2018/protected/SESr_0918sk.pdf
- [28] Financial Report. (2019, February 11). Industry Analysis in the SR: Success in Industry 4.0 requires investment. [Online]. Available: <https://www.finreport.sk/agenturme-spravy/analiza-priemyslu-v-sr-uspech-vo-vyzve-priemysel-4-0-vyzaduje-investicie/>

- [29] Ministry of Environment of the Slovak Republic. (2019, February 11). Environmental Performance Reviews. Mid-term progress report: Slovak Republic. [Online]. Available: <https://www.minzp.sk/files/omv/mid-term-review-environmental-performance-slovakia-2017.pdf>
- [30] Ministry of Economy of the Slovak Republic. (2019, February 9). State aid. [Online]. Available: <http://www.statnapomoc.sk/en/>