EVALUATION OF THE TECHNOLOGY LEVELS OF SOUTH-EAST EUROPEAN COOPERATION PROCESS (SEECP) COUNTRIES

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ABSTRACT

The Southeast European Cooperation Process (SEECP) is the only cooperation platform in its region. SEECP Process was established to provide an environment of peace, mutual trust and stability, establish good neighborly relations and establish environmental cooperation. The mentioned cooperation process has thirteen members. SEECP is the only cooperation platform that takes its base from Southeast Europe. In this study, by means of the important parameters such as innovation, patents, utility models, trademarks, industrial designs, population, economic indicatiors, the technology levels of the SEECP countries which are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, Kosovo, Northern Macedonia, Moldova, Romania, Serbia, Slovenia, Turkey and Greece evaluated. For this purpose, SWOT and PESTLE analyzes were used. SWOT analysis has been handled as a useful technique to help understand the strengths and weaknesses of the countries in the region, which are discussed while examining the technology levels of the Southeastern Europe Cooperation Process (SEECP) countries, to recognize opportunities and to see possible threats. PESTEL analysis, on the other hand, was used to establish a framework by using political, economic, social, technological, environmental and legal factors in order to determine the important issues that affect the countries' technology levels.
According to the findings about the SEECP countries, it is concluded that Slovenia, Greece, Croatia, Romania and Turkey have moderate, while Albania and Kosovo have quite lower technological levels.

KEYWORDS:

SEECP, technology, R&D, innovation, SWOT Analysis, PESTLE Analysis

JEL CLASSIFICATION CODES:

032, P25, R58

1. INTRODUCTION

The Southeast European Cooperation Process (SEECP), which includes the countries of the region, also called the Balkans, in the South eastern region of the European Continent, was established to provide tranquility, peace, mutual trust and stability in the region, to establish good neighborly relations and to create environmental cooperation, and has thirteen members. SEECP is the only cooperation platform based in Southeast Europe (Ministry of Foreign Affairs of the Republic of Turkey, 2021).

In this study, information about the history and purpose of SEECP and member countries are given in the second part.In this context, regarding Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, Moldova, Montenegro, North Macedonia, Romania, Serbia, Slovenia and Turkey information such as population, economic indicators, innovation, trademark, patent, utility model, industrial design, which are important parameters in terms of determining the technology levels of the member countries, are given. In the third part, technology and the concepts of research and development (R&D), technology, innovation, patent, trademark, industrial model, utility model, which can be defined as a step in the transformation of information into technology, are explained. In the fourth part of this study, information on SWOT Analysis and PESTEL Analysis regarding application methods is given. Accordingly, in the fifth chapter, SWOT Analysis and PESTEL Analysis are used to evaluate the criteria for the technology level

of SEECP countries. In the sixth part, which is the application part of the research, the results obtained are interpreted after the research findings are presented. Finally, in the conclusion part, depending on the aim of understanding the technology levels of the SEECP countries, final evaluations are made in a general framework, and opinions and suggestions are made.

2. THE EAST EUROPEAN COOPERATION PROCESS (SEECP)

SEECP was launched in Sofia in 1996 with the invitation of Bulgaria (SEECP, 2022) to ensure peace, tranquility, mutual trust and stability, to found good neighborly relations and to establish environmental cooperation in Southeast Europe (Ministry of Foreign Affairs of the Republic of Turkey, 2021). SEECP is the only cooperation platform based in Southeast Europe (Foreign Affairs of the Republic of Turkey, 2021).

The Southeast European Cooperation Process, which is the only cooperation platform that represents the partnership of will and exact voice of the Balkans, is accepted at the global level, mainly the European Union, with this feature.The mentioned Cooperation Process also has an important function in terms of integration of the participating states with the organizations existing in Europe and the Euro-Atlantic line(Ministry of Foreign Affairs of the Republic of Turkey, 2021).

SEECP Process aims to develop political and security cooperation, strengthen economic cooperation, and progress the institutions, justice, combating illegal acts and civilized aspects of collaboration among the states that are parties (Ministry of Foreign Affairs of the Republic of Turkey, 2021).

2.1 Member countries

Albania, Bosnia and Herzegovina, Bulgaria, Greece, North Macedonia, Romania, Serbia and Turkey are the founding countries. Croatia joined the Process in 2005, Moldova in 2006, Montenegro in 2007, Slovenia in 2010 and Kosovo in 2014 (SEECP, 2022).

Albania is the 135th most populous country in the world with a population of 2.845.955 people according to 2020 data (Instat, 2021).The Albanian economy is the 123rd largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $16.753.000.000 and the 119th largest economy in the world (World Economic Outlook Database, 2020) with a size of $42.594.000.000 in terms of purchasing power parity.

R&D expenditures in Albania are 0.18% of GDP. This amount is the lowest rate detected among the European Countries. Economic competition and exports are low in the country. The economy is largely based on low technology. Approximately 40% of the scientists migrated from the country to Western countries between 1990-1999 (Musabelliu, 2021).

Albania made a reform in its R&D system in 2006. The Albanian Academy of Sciences was modernized. According to the Global Innovation Index (GII) (WIPO, 2021), Albania's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 1).

Bosnia and Herzegovina is the 135th most populous country in the world with a population of 3.332.593 people according to 2019 data (Worldometer, 2021). The economy of Bosnia and Herzegovina is the 115th largest (World Economic Outlook Database, 2021) economy in the world with a nominal size of $21.953.000.000 and the 114th largest economy in the (World Economic Outlook Database, 2021) with a size of $51.996.000.000 in terms of purchasing power parity.

The amount allocated for R&D expenditures in Bosnia and Herzegovina is very low. According to 2015 data, the ratio of R&D expenditures in GDP is 0.2% (Baris, 2018). Bosnia and Herzegovina's place in the worldwide Innovation Ranking according to the Global Innovation Index (GII) (WIPO, 2021) and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 2).

Bulgaria is the 86th most populous country in the world with a population of 6.910.176 people according to 2021 data (Worldometer, 2021). The Bulgarian economy is the 68th largest (World Economic Outlook Database, 2021) economy in the world with a nominal size of $77.782.000.000 and the 73rd largest economy in the world (World Economic Outlook Database, 2021) with a size of $174.998.000.000 in terms of purchasing power parity.

The low productivity of the Bulgarian labor market, the shortage of skilled labor and migration, the constant

decrease in the population and low income, corruption, problems in justice, political instability, and insufficient R&D activities affect competitiveness negatively (Ministry of Commerce of Turkey, 2019).

According to the Global Innovation Index (GII) (WIPO, 2021), Bulgaria's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 3).

Croatia is the 128th most populous country in the world with a population of 4.058.165 people according to 2020 data (Worldometer, 2021). The Croatian economy is the 77th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $63.172.000.000 and the 80th largest economy in the world (World Economic Outlook Database, 2020) with a size of $117.928.000.000 in terms of purchasing power parity.

R&D investments in Croatia are low compared to similar countries in terms of income level. According to 2011 data, Croatia's gross R&D expenditures constitute 0.75% of GDP. This rate is considerably lower than the EU-27 average of 2.03% (World Bank, 2013).

According to the Global Innovation Index (GII) (WIPO, 2021), Croatia's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 4).

Greece is the 85th most populous country in the world with a population of 10.718.565 people according to 2020 data (Worldometer, 2021). The Greek economy is the 51st largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $194.376.000.000 and the 53rd largest economy in the world (World Economic Outlook Database, 2020) with a size of $310.743.000.000 in terms of purchasing power parity.

In 2017, the share of R&D expenditures for Greece in GDP was 1.1%. The share of R&D expenditures in GDP in Greece, which was 0.5% in 2003, increased to 1.1% in 2017 and increased by an annual average of 5.59% (World Data Atlas, 2017c).

According to the Global Innovation Index (GII) (WIPO, 2021), Greece's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix 1 - Table 5).

Kosovo is the 152nd most populous country in the world with a population of 1.873.160 people according to 2020 data (Worldometer, 2021). The Kosovo economy is the 146th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $8.402.000.000 and the 143rd largest economy in the world (World Economic Outlook Database, 2020) with a size of $23.524.000.000 in terms of purchasing power parity.

The national income per capita of Kosovo for 2017 is $3.880, the growth rate is 4.10% and the inflation rate is 1.49% (Institute of Strategic Thinking (2018).

Moldova is the 138th most populous country in the world with a population of 2.597.100 people according to 2021 data (Worldometer, 2021). The Moldovan economy is the 144th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $11.998.000.000 and the 134th largest economy in the world (World Economic Outlook Database, 2020) with a size of $35.906.000.000 in terms of purchasing power parity.

According to the Global Innovation Index (GII) (WIPO, 2021), Moldova's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 6).

Montenegro is the 169th most populous country in the world with a population of 621.873 people according to 2020 data (Worldometer, 2021). The Montenegrin economy is the 153th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $4.900.000.000 and the 149th largest economy in the world (World Economic Outlook Database, 2020) with a size of $12.000.000.000 in terms of purchasing power parity.

In Montenegro, the share of R&D expenditures in GDP in 2016 was 0.3%. Although the share of R&D expenditures in GDP in Montenegro has fluctuated significantly in recent years, it tends to decrease in the 2003-2016 period, which ended with 0.3% in the 2015-2016 period (World Data Atlas, 2016).

Montenegro's place in the worldwide Innovation Ranking according to the Global Innovation Index (GII) (WIPO, 2021) and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 7).

North Macedonia is the 148th most populous country in the world with a population of 2.077.132 people according to 2019 data (Worldometer, 2021). The economy of North Macedonia is the 134th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $12.983.000.000 and the 125th largest economy in the world (World Economic Outlook Database, 2020) with a size of $33.822.000.000 in terms of purchasing power parity.

In North Macedonia, the share of R&D expenditures in GDP in 2018 was 0.4%. Although the share of R&D expenditures in GDP in North Macedonia fluctuated significantly between 1999 and 2018, it showed an increasing trend resulting in 0.4% in 2018 (World Data Atlas, 2018a).

According to the Global Innovation Index (GII) (WIPO, 2021), the place of North Macedonia in the Worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 8).

Romania is the 61st most populous country in the world with a population of 19.317.984 people according to 2020 data (Worldometer, 2021). The Romanian economy is the 47th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $289.130.000.000 and the 36th largest economy in the world (World Economic Outlook Database, 2020) with a size of $636.481.000.000 in terms of purchasing power parity.

In Romania, the share of R&D expenditures in GDP in 2017 was 0.5%. Although the share of R&D expenditures in GDP in Romania fluctuated significantly between 1998 and 2017, it showed an increasing trend, resulting in 0.5% in 2017 (World Data Atlas, 2017a).

According to the Global Innovation Index (GII) (WIPO, 2021), Romania's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 9).

Serbia is the 105th most populous country in the world with a population of 6.926.705 people according to 2020 data (Worldometer, 2021). The Serbian economy is the 84th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $52.000.000.000 and the 78th largest economy in the world (World Economic Outlook Database, 2020) with a size of $130.600.000.000 in terms of purchasing power parity.

In Serbia, the share of R&D expenditures in GDP in 2018 was 0.9%. Although the share of R&D expenditures in GDP in Serbia fluctuated significantly between 1998 and 2018, it showed an increasing trend resulting in 0.9% in 2018 (World Data Atlas, 2018b).

According to the Global Innovation Index (GII) (WIPO, 2021), Serbia's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 10).

Slovenia is the 147th most populous country in the world with a population of 2.108.977 people according to 2020 data (Worldometer, 2021). The economy of Slovenia is the 80th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $56.000.000.000 and the 93rd largest economy in the world (World Economic Outlook Database, 2020) with a size of $83.000.000.000 in terms of purchasing power parity.

The share of R&D expenditures in GDP in Slovenia was 1.9% in 2017, which is below the previous year's 2% (World Data Atlas, 2017a).

According to the Global Innovation Index (GII) (WIPO, 2021) Slovenia's place in the Worldwide Innovation Ranking and information on the country's patent, utility model, brand and industrial design (WIPO, 2021) are given in (Appendix - Table 11).

Turkiye is the 19th most populous country in the world with a population of 83.614.362 people according to 2020 data (Worldometer, 2021). The Turkish economy is the 20th largest (World Economic Outlook Database, 2020) economy in the world with a nominal size of $794.530.000.000 and the 11th largest economy in the world (World Economic Outlook Database, 2020) with a size of $2.749.000.000.000 in terms of purchasing power parity.

The share of R&D expenditures in Turkey's GDP was 2.8% in 2018.Although the share of R&D expenditures in GDP in Turkey fluctuated significantly between 1999 and 2018, it showed an increasing trend resulting in 2.8% in 2018 (World Data Atlas, 2018c).

According to the Global Innovation Index (GII) (WIPO, 2021), Turkey's place in the worldwide Innovation Ranking and information on the country's patent, utility model, trademark and industrial design (WIPO, 2021) are given in (Appendix - Table 12).

3. RESEARCH AND DEVELOPMENT ACTIVITIES

Research and development (R&D) activities, which can be defined as a step in the transformation of information into technology, with an emphasis on experimental development and research, are included in the Frascati Manual with the aim of increasing the information infrastructure capacity consisting of the knowledge of people, culture and

society and using this infrastructure to plan new applications. It is stated as creative activities carried out at the highest level (OECD, 2002:30). In addition to R&D activities, the concepts of technology, innovation, efficiency, patent, trademark, industrial model and utility model gain importance in scientific studies (Balli Erkan, 2019).

Technology is considered as a description, including the methods and rules that determine the transformation of inputs into output, have known characteristics, and are mandatory in order to obtain a final product (Dosi and Nelson, 2010: Rosenberg, 1975). The development processes of technology indicate that it is the main factor that determines the growth and development performances of countries. This relationship shows itself more in the long run (Mokyr, 1992).

Innovation is used in all languages with the meanings of improvement, advance, renewal. There are modern definitions explaining the concept of innovation in the world. These definitions were developed based on Schumpeter's ancient definition. Innovation is described as modern and improved outputs and processes, modernized administrative mechanisms, evaluation of existing know-how in different fields or finding different markets. Innovation is the clarification of an advanced thought or invention with a commercial field (Nafgizer, 2006).

A trademark is the protection provided to the owner of the goods or services to ensure that the goods or services of one enterprise are recognized and distinguished from those of other enterprises. Distinctive logos, colors, shapes, pictures, drawings, numbers, letters, words or their derivatives that can help to understand the subject of the protection provided are registered as trademarks (Turkish Patent and Trademark Office, 2017).

In the field of technology, the product of an idea with a technical feature related to the solution of a particular problem is called an invention.An invention is sometimes a known process or a progressive improvement in a product. Sometimes it is the creation of a new product, device, and method of operation. A patent is defined by the Turkish Patent and Trademark Office as the monopoly right granted to the owner by preventing the invention from being produced, used or sold by third parties for a limited time and place without permission, and the document stating that this right exists is called a patent document (Turkish Patent and Trademark Office, 2017).

The utility model is an industrial property right that entitles the owners of the globally first inventions that can be applied to the industry (Turkish Patent and Trademark Office, 2017).

Industrial design is an important part of industrial activity, defined as new product development, and it is a method of making products better in every sense, as well as a way to make products look better (Er et al., 2011).

4. METHODOLOGY

In the literature review, it was observed that no study was conducted by applying SWOT and PESTEL analyzes covering all the countries in the region regarding the evaluation of the technology levels of the Southeast European Cooperation Process (SEECP) countries, which is a structure that includes the Balkan countries. It is thought that the study conducted for this purpose will contribute to the academy with the thought that it will prepare the ground for new questions. In addition, it is considered important as it is thought that it will guide the decision makers and practitioners in the sectors that will use the outputs of the findings and cause improvements.

SWOT and PESTEL analyzes were used in the study. In the study, SWOT analysis is considered as a useful technique that will help to understand the strengths and weaknesses of the countries in the region, to realize the opportunities and to see the threats that may be encountered while examining the technology levels of the countries in the region. PESTEL analysis, on the other hand, was used to understand the level of development and technology level in the region from the literature information obtained, and a framework was tried to be created to benefit from political, economic, social, technological, environmental and legal factors.

Although there is no data that directly measures the level of technology in the literature review, it has been seen that innovation values such as patent, trademark, industrial design and utility model are used in understanding the level. For this reason, in order to determine the technology levels of the countries in the region as criteria; the number of patents, trademark, industrial design and utility model applications of countries were taken into account. The criteria discussed in the study are included in the tables in the section where information about the countries of the region is given.

5. EXAMINATION OF SEECP COUNTRIES BY SWOT AND PESTEL ANALYSIS METHODS

5.1. SWOT Analysis

5.1.1 Strengths

Some of the SEECP countries are members of the European Union (EU), some are candidate countries, and some are countries with membership initiatives. Among the countries of the region, Greece, Slovenia, Bulgaria, Romania and Croatia are EU members. Turkey, Montenegro, Serbia, North Macedonia and Albania are candidate countries. Bosnia and Herzegovina and Kosovo are countries with potential for candidacy (Ministry of Foreign Affairs of the Ministry of the Republic of Turkey, 2019).

Southeast European countries have a popular geographical position developing as an investment and logistics hub of increasing importance for Western European countries. In the majority of the countries in the region, privatization and restructuring in the field of industry has come a long way. Labor costs in the region are among the lowest in the European Union. The share of high and medium-high technology industrial production in industrial production is increasing day by day. A positive momentum is observed in the formation of sector clusters and diversification of traditional and renewable energy sources in the region (Isbitiren, 2018).

5.1.2 Weaknesses

Southeastern Europe is not rich in agricultural areas and natural resources (Ertuna, 2007). The economies of Southeast European countries are quite weak. Wages for labor are low and unemployment rates are very high. Corruption figures in the countries of the region show a high course (Brljavac, 2020). In the countries of the region, there are difficulties in making changes in business contacts, bargaining issues and the creation of new business ideas, and tax rates are high. Corruption practices and ineffective judicial regime in the region negatively affect investments. The demographic crisis caused by protracted wars and the aging population are problems. There is low productivity and insufficient competitiveness in production. Productivity per employee is among the lowest in the European Union. Business technologies are outdated. Energy production policies are unbalanced and infrastructure is underdeveloped. Informality in the economy is at high levels (Isbitiren, 2018).

5.1.3 Opportunities

Southeastern European Countries have an important opportunity in terms of workforce and have a very young and qualified workforce (Brljavac, 2020). During the 2000s, the investments of developed European countries were in Eastern European countries such as Poland, Czechia and Hungary, and investment saturation was experienced in these countries. In the recent period, Southeast European countries have come to the fore in terms of investment. The number of EU member countries and EU candidate countries has an important place among the countries of the region. (Filoglu, 2017).

The automotive sector has a serious potential in terms of investment in the region. The important sector representatives of the world are shifting their investments to the region. The sub-industry clusters that will form around these investments create an important opportunity (Filoglu, 2017).

The regional economy is sufficiently mature and exposed to many integrated foreign markets. The economy has the critical mass needed in the majority of production elements at all levels. The political developments in the area of enlargement of the European Union in Southeast Europe are positive and will allow new markets to be found for the entrepreneurs of the countries in the region. The potential European Union membership of the countries makes it possible to provide the common market and indirectly a significant signaling effect. The possibility of using European Union funds will increase. Therefore, the infrastructure can be improved (Isbitiren, 2018).

5.1.4 Threats

Southeast European Countries are losing their skilled and young workforce to Western European States with better living standards and economic opportunities. Countries in the region such as Serbia, North Macedonia, Bosnia and Herzegovina, Montenegro and Kosovo have very weak economic structures and high unemployment rates. However, the unemployment rate in Croatia, which is a member of the EU, is increasing. Approximately one urban population from the regional states migrates to the Western European states for jobs and better living opportunities (Brljavac,

2020). The brain drain from the countries of the region to Western Europe has a significant impact on the region. Developing countries that are members of the European Union in its neighboring geography have a very competitive structure. Legislation and national tax systems regulating innovation and other entrepreneurship issues in a significant part of the countries in the region have a rather complex structure. The economic crisis experienced throughout the world and Europe causes the economies of the countries in the region to slow down. Due to the increasing elderly population, public finances are experiencing difficulties in terms of social security. There are significant shortcomings in the qualified and expert workforce in the countries of the region. There are significant problems in vocational education in the labor market (Isbitiren, 2018).

5.2 PESTEL Analysis

5.2.1 Political factors

In the region, there is disagreement over the border between Serbia and Kosovo. The name issue of North Macedonia, which has been going on for a long time between Greece and North Macedonia, has resulted in reconciliation. Subsequently, a series of agreements were made between the two countries on political and economic issues. The most important factor in resolving such conflicts among SEECP countries is the elimination of ethnic problems within and between countries. In relations with the countries of the region, Germany plays the economic trump card and the USA the NATO trump card. SEECP countries have to bow to the states that can provide these two elements in order to ensure political and economic stability in their countries. This process contributes economically to the countries of the region. Because the citizens of the countries that have reached an agreement can get a visa to the European Union countries and find a job in these countries (Maskan, 2019). Political instability is an important problem in SEECP countries Isbitiren, 2018).

5.2.2 Economic factors

In terms of per capita income, the countries with the highest income level among the Southeast European Union Countries are Slovenia and Greece with approximately 20 thousand dollars. While the per capita income of Turkey, Romania and Croatia is over 10 thousand dollars, the income of Kosovo and Albania is below 5 thousand dollars (Institute of Strategic Thinking (2018). In the states in the region, workers' wages are low, economic conditions are quite heavy, and corruption rates are quite high (Brljavac, 2020).

Spending the R&D budget allocated from the GDP is necessary to ensure R&D-based economic development. Although the relationship between R&D expenditures and economic development is not very strong, it contributes significantly to internal economic growth (Aghion and Howitt, 1992). There is a strong positive relationship between GDP and innovation. R&D investments support innovation (Ulku, 2004).

In the long run, there is a one-way relationship between R&D investments and economic growth. The direction of this relationship is from R&D investments to economic growth (Yaylali et al., 2010). Knowledge and innovation have a great impact on the economic growth of countries. Innovation policy and R&D have a very important place in the European strategy, which includes the 2020s (Capello and Lenzi, 2014).

5.2.3 Social factors

In the geography of Southeast Europe, there are 13 states, and many ethnic groups, beliefs, religions and sects are intertwined in the region. Southeastern Europe is a strategic region due to the great diversity of languages, religions and ethnicities. The ethnic structure in the region is in the form of a mosaic. This mosaic is very mixed, especially in terms of religious belief. There are great conflicts in terms of religions and sects as well as ethnic origins and languages (Institute of Strategic Thinking, 2018).

The geopolitics of the region, located between Europe and Asia, will gain increasing importance as the transit route of the trade and energy line, which is increasingly advancing in the east-west direction, to Central and Western Europe, together with the benefits of the logistics-based opportunities offered to the countries of the region by the geography it is in (Institute of Strategic Thinking, 2018).

The total population of the countries of the region is approximately 150 million (Institute of Strategic Thinking, 2018). However, the increasing immigration to Western European Countries and the demographic changes faced by Southeast European countries pose a danger to the future of the countries in the region. Due to the fact that the people of the region can easily adapt to the environment they are in and the cost of qualified labor is quite low, Western

European states prefer people from the countries of the region in their migrant worker preferences (Brljavac, 2020).

5.2.4 Technological factors

In the global world, there is a great competition between countries in the fields of industry, science and technology. In this context, the technology infrastructure gains great importance with the R&D studies carried out by the countries and the widespread use of communication and information technologies. Developed countries increase the quality and standard of their goods and services by transferring large budgets to R&D and innovation and can produce at lower costs (Gocer, 2013).

There is a positive correlation between the trend in R&D practices of enterprises and the increase in productivity level. R&D practices include budgets spent on information, advanced technology developments, and efficient use of existing material and human resources (Erkitlioglu, 2013). According to the OECD definition, R&D is the advancement of innovation practices that increase human, social and cultural knowledge based on a systematic basis and the use of existing knowledge in new initiatives (Manuel, 2002). Innovation has become a mandatory element in many areas where change, transformation, progress and enrichment are discussed as a subject. Innovative attitudes that fit into the content of the innovation concept will find a place as a concept on the basis of the people and companies, will provide positive effects on the economies of the states. R&D budgets increase the global competitiveness and increase the economic development levels of countries by bringing innovative accumulation, high technology products and manufacturing methods to countries (Wensley and Warda, 2007).

5.2.5 Legal factors

After the disintegration of Yugoslavia in Southeastern Europe, the 1990s went through wars and massacres in the countries of the region. Attempts made to end the turmoil in question did not resolve the conflicts that caused the events, but only froze them. The aforementioned problems, which re-emerge with each passing day, simultaneously cause other problems in the region. The political system of Bosnia and Herzegovina was designed with the Dayton Agreement. This system is the biggest reason for the unstable structure in the country. In 2008, Kosovo gained its independence, but it could not complete the statehood process in a healthy way. Serbia did not recognize the independence of Kosovo. A definitive peace between the two countries does not seem easy. Macedonia succumbed to Greek pressure and changed the official name of the country to North Macedonia. Greece ignores the human rights of tens of thousands of immigrants, especially Turks and Albanians, who use the country as a transit point to the West. Legal problems in the states of the region destroy the hopes of the people for the future and cause them to migrate to developed countries by giving up hope from their countries (Emin, 2020). States provide additional opportunities such as investment land allocations, tax exemptions, loans, support and incentives, permits and fundamental rights in order to direct foreign entrepreneurs who will produce high-tech products to their own states (Gocer and Peker, 2014). There is a need for important regulations in the judicial systems in the countries of the region (Isbitiren, 2018).

5.2.6 Environmental factors

An important issue concerning interstate relations in the region of Southeast European Countries is the environmental issue. Cooperation efforts aimed at protecting the environment, reducing the current pollution level, and establishing the necessary measures for the future constitute the main issues required for the final solution. The existing border relations between the countries of the region and the necessity of using the Danube River together require them to produce solutions together in terms of the environment. A pollution that may occur in the Danube River also threatens the Black Sea and the Marmara Sea. In addition, oil tankers passing through the Straits threaten a significant part of the countries in the region in terms of pollution in a possible accident. Nuclear power plants in the region also cause potential environmental problems (Sihmantepe, 2009). Failure to comply with environmental conditions in investments in the countries of the region is an important problem (Isbitiren, 2018).

6. FINDINGS

The Southeast European Cooperation Process (SEECP) process, which was determined as the scope of the research, was formed with the participation of 13 countries.

Considering the gross domestic product (GDP) of the countries in the region, Slovenia ranks at the top with its

income of over 20 thousand dollars. Slovenia is followed by Greece with its income approaching 20 thousand dollars. The incomes of the three countries Croatia, Romania and Turkey are over 10 thousand dollars. Albania and Kosovo are in the last place with their incomes below 5 thousand dollars.

In terms of global innovation ranking, Slovenia is 30th with an average of approximately 47 points, Bulgaria is 39th with an average of approximately 42 points, Croatia is 42nd with an average of approximately 40 points, Greece is 45th with an average of approximately 39 points, and Moldova is 48th with an average of approximately 39 points, Romania and Montenegro are 49th with an average of approximately 38 points, Turkey is 52nd with an average of approximately 38 points, Serbia is 60th with an average of approximately 36 points, North Macedonia is 61st with an average of approximately 36 points, and Bosnia and Herzegovina is 79th with an average of approximately 32 points, Albania ranked 89th with an average of around 30 points. Data on Kosovo could not be obtained.

In terms of patent application numbers, Turkey averages 8.361 applications, Romania averages 1.302 applications, Greece averages 1.178 applications, Slovenia averages 738 applications, Bulgaria averages 465 applications, Serbia averages 292 applications, Croatia averages 283 applications, Moldova averages 115 applications, Bosnia-Herzegovina average 61 applications, North Macedonia average 48 applications, Albania average 22 applications, Montenegro average 19 applications. Data on Kosovo could not be obtained.

In terms of the number of utility model applications, Turkey averages 3.229 applications, Bulgaria averages 326 applications, Moldova averages 157 applications, Croatia averages 73 applications, Serbia averages 71 applications, Romania averages 57 applications, Greece averages 24 applications, Albania averages 3 applications. Data for Bosnia and Herzegovina, Montenegro, Kosovo, North Macedonia and Slovenia were not available.

In terms of the number of trademark applications, Turkey averages 289.148 applications, Romania averages 80.244 applications, Bulgaria averages 72.679 applications, Croatia averages 19.673 applications, Serbia averages 13.230 applications, Slovenia averages 10.864 applications, North Macedonia averages 8.349 applications, Montenegro averages 7.142 applications, Moldova averages 4.338 applications, Greece averages 2.804 applications, Albania averages 1.894 applications, Bosnia and Herzegovina averages 1.958 applications. Data on Kosovo could not be obtained.

In terms of the number of industrial design applications, Turkey averages 57.676 applications, Bulgaria averages 21.938 applications, Greece averages 11.398 applications, Romania averages 10.278 applications, Croatia averages 3.375 applications, Serbia averages 1.601 applications, Slovenia averages 1.562 applications, Moldova 899 applications, Albania averages 858 applications, Bosnia and Herzegovina averages 693 applications, North Macedonia averages 396 applications, Montenegro averages 155 applications. Data on Kosovo could not be obtained.

Gross Domestic Product amounts in 2017 with constant values it is listed as Turkey approximately $2 trillion 122 billion, Romania approximately $505 billion, Greece approximately $313 billion, Bulgaria approximately $146 billion, Serbia approximately $115 billion, Croatia approximately $107 billion, Slovenia approximately $73 billion, Bosnia and Herzegovina approximately $45 billion, Albania approximately $37 billion, North Macedonia approximately $32 billion, Moldova approximately $31 billion, Montenegro approximately $12 billion and Kosovo approximately $8 billion.

Considering the budgets allocated by the SEECP countries for R&D studies, Turkey is clearly ahead with a budget of over $15 billion. Greece follows Turkey with a budget of over $2 billion. The R&D budgets of Romania and Slovenia are approaching $2 billion. The ranking continues as Bulgaria with a budget of $1 billion, Serbia and Croatia with a budget of approximately $750 million, and North Macedonia, Bosnia and Herzegovina, Moldova, Albania, Montenegro and Kosovo with budgets below $150 million. These figures are far behind the expenditures of countries such as the USA, China, Japan, Germany, which have R&D budgets of hundreds of billions of dollars, and South Korea, France, which have R&D budgets approaching one hundred billion dollars, and countries such as India, the United Kingdom, Brazil, Russia, and Italy that follow them.

Unemployment is the most important problem in SEECP countries. Unemployment causes migration and the population of the region decreases rapidly. With the transition of a significant part of the countries of the region to the free market economy, reasons such as the slowness of the bureaucracy, the inadequacy of the legal system, the non-standard and arbitrary practices, the inability to record the economy, and the inadequacy of the legislation pose an obstacle to foreign investors. The most important sector in their economy is the service sector and its efficiency is quite low. Although the region is very suitable for agriculture and animal husbandry, this sector is quite weak. Low industrial investments are mainly on textiles.

The European Union membership process will be able to encourage foreign investors with the contribution it will

make to the domestic legal systems of the countries in the region. Russia aims to make energy investments and economic cooperation in the countries of the region. Germany has chosen the region as an investment area as a strategic target. When the Road and Belt project carried out by China is implemented, the advantages of the region's natural logistics opportunities will increase the economic development opportunity and welfare of the countries in the region.

7. CONCLUSION AND SUGGESTIONS

Competitiveness is a concept that expresses how much a country has the ability to provide goods and services that meet the expectations of local and international markets under global market conditions.When considered on the basis of countries, a country's ability to compete in international markets requires great efforts in every field and developing new initiatives.Countries develop regional and global partnerships with other countries, such as the EU, EFTA, Shanghai Cooperation Organization, and World Trade Organization, in line with their goals of being able to compete and reaching wider markets.

It will make a great contribution to the countries of the region if they can cooperate in such a way that they can compete on a global basis in their countries located in Southeast Europe, which is an important geography. For this purpose, the Southeast European Cooperation Process was initiated among the countries in the region. The economic efficiency of this process in the global markets in the future will only be possible if the countries in the region reach the level of technology in the developed countries. In this context, it is important to examine the technology levels of the thirteen countries that make up the cooperation process based on different criteria. There is no study in the literature that evaluates the SEECP countries together. This is an area that needs to be studied academically. This study will lead to new studies related to SEECP countries, researching potentials in trade, science and technology, and creating cooperation models will create a new academic field. In the light of the information obtained as a result of these studies, the way for the SEECP countries to carry out joint projects in areas such as commercial relations, science and technology will be paved, and even the infrastructure for regional unity in the fields of economy and science and technology will be formed.

In this research, it is aimed to evaluate the technological performance of the SEECP countries (see Appendix – Table 13). In this research, innovation, patent, utility model, trademark, design application numbers, population and economic indicators of SEECP countries were taken as basis and SWOT and PESTEL Analyzes were used.

It has been observed that the ranking in this table largely overlaps with the findings obtained in the applied SWOT and PESTEL analyzes. In terms of determinations, the weakness and high unemployment rates in the economic structures of Serbia, North Macedonia, Bosnia and Herzegovina, Montenegro and Kosovo, which were determined in the SWOT analysis, and the innovation rankings of the countries show similarities. Among these countries, Montenegro ranks sixth, Serbia ninth, North Macedonia tenth and Bosnia and Herzegovina eleventh. No comment could be made because innovation data on Kosovo could not be obtained.

In terms of GDP, Slovenia and Greece are at a good level compared to other countries in the region, Croatia, Romania and Turkey are at a medium level, and Albania and Kosovo are at a very low level. In terms of global innovation indicators, Slovenia, Bulgaria, Croatia, Greece, Moldova, Montenegro, Romania and Turkey rank in the middle. Bosnia and Herzegovina and Albania rank very low, while Kosovo does not find any place in the list. Similar situations are also valid for parameters affecting innovation data. It has been seen that Slovenia, which is in the first place in terms of economic factors in the PESTEL analysis, is also in the first place in the innovation ranking. On the other hand, Greece, which ranks third in economic factors, ranks fourth in innovation, and among other countries that rank high in economic factors, Croatia ranks third, Romania seventh and Turkey eighth. While Albania and Kosovo were the countries with the most unsuccessful economic factors, Albania took the last place in the innovation ranking. No comment could be made because innovation data on Kosovo could not be obtained.

It is seen that the SEECP countries do not perform well in terms of R&D and innovation on a world scale. It is important to take measures to increase performance. R&D and innovation have a positive effect on economic growth. For a stable and high economic growth, SEECP countries should give much more importance to technology.

First of all, it would be beneficial to increase the training activities about R&D and innovation culture for the entrepreneurs in the region. In this context, education systems should be reconsidered. Incentives and supports given in the region should be increased and academic studies should be encouraged.

A common structure that can increase the technology levels of the countries in the region should be established

and targets and strategies should be determined in this direction. Target sectors should be selected and issues that can be pioneered in the regional and global arena should be addressed.

A larger share of GDP should be allocated to R&D budgets, an infrastructure should be established to carry out high-technology-based manufacturing, and technology transfer should be encouraged. In order to achieve this, instruments such as tax incentives, area allocations, licensing facilities should be applied.

As the scope of the study, population, economic indicators, which are important parameters in terms of determining the technology levels of the member states of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, Moldova, Montenegro, North Macedonia, Romania, Serbia, Slovenia and Turkey, which constitute the SEECP countries, worldwide innovation rankings and scores, and information such as the number of trademarks, patents, utility models and industrial design applications. Different features and needs that may affect the technological levels of countries for different scales and sectors have not been taken into account. It has been accepted that the data obtained from national and international open internet sources are correct.

In future studies, it is important to determine the level of technology available on a sectoral basis by considering the process countries separately, to reveal the actions that can be taken to increase these levels, and to reveal the projection of the SEECP countries to go to a common economic and political union in the future.

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APPENDIX

Table 1. Worldwide Innovation Ranking of Albania and information on Albanian patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	GrossDomestic Product (Constant 2017billion US$)
2013	93	30,9	4	-	1.918	719	33,58
2014	94	30,5	18	1	990	914	34,17
2015	87	30,7	21	1	1.209	855	34,93
2016	92	28,4	52	4	2.639	942	36,09
2017	93	28,9	18	1	2.012	-	37,46
2018	83	30,0	18	2	2.427	-	38,99
2019	83	30,3	24	11	2.064	-	39,85

Source: WIPO World International Property Organization https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 2. Worldwide Innovation Ranking of Bosnia and Herzegovina and information on Bosnia and Herzegovina's patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	65	36,2	15	-	1.485	141	42,08
2014	81	32,4	55	-	885	154	42,56
2015	79	32,3	43	-	1.651	84	43,87
2016	87	29,6	68	-	1.982	201	45,25
2017	86	30,2	92	-	2.491	1.165	46,21
2018	77	31,1	95	-	3.079	842	47,93
2019	76	31,4	61	-	2.132	2.266	49,17

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 3. Innovation Ranking of Bulgaria around the world and information on Bulgarian patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	41	41,3	500	372	59.901	27.140	132,77
2014	44	40,7	467	233	75.522	29.226	135,28
2015	39	42,2	512	272	72.962	25.722	140,68
2016	38	41,4	427	462	76.010	17.216	146,04
2017	36	42,8	425	281	66.918	18.173	151,16
2018	37	42,6	459	210	75.095	15.054	155,83
2019	40	40,4	466	454	82.344	21.036	161,08

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 4. Croatia's Worldwide Innovation Ranking and information on Croatian patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	37	41,9	411	81	18.207	2.561	100,44
2014	42	40,7	259	91	16.637	3.486	100,33
2015	40	41,7	250	75	24.146	3.602	102,78
2016	47	38,3	255	83	18.244	3.188	106,36
2017	41	39,8	280	53	18.649	4.574	109,69
2018	41	40,7	201	70	18.349	2.998	112,65
2019	44	37,8	327	59	23.480	3.213	115,96

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 5. Greece's worldwide Innovation Ranking and information on Greek patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	55	37,7	1.083	27	3.642	13.528	307,87
2014	50	38,9	1.251	33	2.797	5.513	310,15
2015	45	40,3	1.152	16	2.414	8.783	308,79
2016	40	39,8	1.229	23	2.362	9.407	308,20
2017	44	38,8	1.233	16	-	18.584	312,84
2018	42	38,9	1.137	22	-	18.889	318,89
2019	41	38,9	1.164	29	-	5.082	324,86

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 6. Innovation Ranking of Moldova around the world and information on Moldovan patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	45	40,9	144	213	4.073	1.575	28,06
2014	43	40,7	79	158	4.589	356	29,47
2015	44	40,5	98	167	4.113	1.324	29,37
2016	46	38,4	101	156	4.238	615	30,66
2017	54	36,8	103	142	3.982	724	32,10
2018	48	37,6	160	122	4.013	604	33,48
2019	58	35,5	123	138	5.356	1.098	34,64

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 7. Montenegro's Innovation Rankings around the world and information on Montenegro's patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	44	41,0	27	-	9.545	104	10,77
2014	59	37,0	14	-	8.545	44	10,96
2015	41	41,2	30	-	7.550	8	11,33
2016	51	37,4	17	-	7.236	8	11,67
2017	48	38,1	10	-	-	919	12,22
2018	52	36,5	16	-	1.401	1	12,84
2019	45	37,7	18	-	8.573	1	13,30

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 8. Global Innovation Ranking of North Macedonia and information on North Macedonia's patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	51	38,2	49	-	9.476	115	28,90
2014	60	36,9	46	-	8.550	1.728	29,94
2015	56	38,0	-	-	7.526	244	31,10
2016	58	35,4	-	-	7.842	227	31,99
2017	61	35,4	-	-	-	99	32,33
2018	84	29,9	-	-	-	151	33,21
2019	59	35,3	-	-	-	210	34,39

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 9. Innovation Ranking of Romania around the world and information on Romanian patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	48	40,3	1.241	67	61.663	7.349	441,72
2014	55	38,1	1.252	56	69.275	6.106	456,79
2015	54	38,2	1.235	67	75.398	6.880	474,47
2016	48	37,9	1.255	49	78.194	9.739	497,25
2017	42	39,2	1.452	53	83.554	17.444	532,61
2018	49	37,6	1.501	60	88.956	12.249	556,24
2019	50	36,8	1.181	46	104.665	12.178	578,93

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 10. Worldwide Innovation Ranking of Serbia and information on Serbian patents, utility models, trademarks and industrial designs

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	54	37,9	332	77	13.414	1.220	109,90
2014	67	35,9	289	66	9.093	648	108,16
2015	63	36,5	248	64	9.887	824	110,08
2016	65	33,8	279	61	12.174	2.064	113,75
2017	62	35,3	296	75	11.154	2.065	116,09
2018	55	35,5	308	70	17.275	1.947	121,18
2019	57	35,7	290	82	19.613	2.439	126,26

Source: WIPO World International Property Organization
(https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 11. Worldwide Innovation Ranking of Slovenia and information on Slovenian patents, utility models, trademarks and industrial design

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	30	47,3	-	-	3.980	670	66,70
2014	28	47,2	-	-	3.251	519	68,54
2015	28	48,5	-	-	2.934	402	70,06
2016	32	46,0	-	-	2.714	540	72,24
2017	32	45,8	-	-	-	-	75,73
2018	30	46,9	738	-	41.441	5.681	78,85
2019	31	45,3	-	-	-	-	80,78

Source: WIPO World International Property Organization (https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 12. Turkey's Worldwide Innovation Ranking and information on Turkey's patents, utility models, trademarks and industrial design

Year	Rank*	Score*	Patent	Utility Model	Trademark	Industrial Design	Gross Domestic Product (Constant 2017 billion US$)
2013	68	36,0	5.793	3.553	268.007	60.028	1.831,17
2014	54	38,2	6.495	3.569	282.484	62.696	1.925,78
2015	58	37,8	7.296	3.583	274.413	51.640	2.042,98
2016	42	39,0	8.381	3.534	277.219	63.320	2.108,03
2017	43	38,9	11.156	3.320	296.736	55.349	2.265,51
2018	50	37,4	9.360	2.770	285.832	55.138	2.329,55
2019	49	37,0	10.043	2.971	339.345	55.561	2.350,00

Source: WIPO World International Property Organization (https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=TR)
*Global Innovation Index, https://www.globalinnovationindex. org/Home

Table 13. Ranking of the SEECP according to technological performance

Rank	Country	Maximum Rank	Minimum Rank	Maximum Score	Minimum Score	Average Score
1	Slovenia	28	32	48,5	45,3	46,7
2	Bulgaria	36	44	42,8	40,4	41,6
3	Crotia	37	47	41,9	37,8	40,1
4	Greece	40	55	40,3	37,7	39,0
5	Moldova	43	58	40,9	35,5	38,6
6	Montenegro	41	59	41,2	36,5	38,4
7	Romania	42	55	40,3	36,8	38,3
8	Turkey	42	68	36,0	39,0	37,8
9	Serbia	54	67	37,9	33,8	35,8
10	North Macedonia	51	84	38,2	29,9	34,8
11	Bosnia and Herzegovina	65	87	36,2	29,6	31,9
12	Albania	83	94	30,9	28,4	30,0
13	Kosovo	0	0	0	0	0

Source: Author’s calculations