PROMOTING VALUES, STABILITY AND ECONOMIC PROSPERITY OF THE EU IN THE CHANGING WORLD (IN THE GLOBAL CONTEXT)

EU FACING CURRENT CHALLENGES, OPPORTUNITIES, CRISIS & CONFLICTS

Edited by:
Artur Adamczyk, Małgorzata Dziembała,
Agnieszka Kłos, Marta Pachocka

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Contents

From the Editors

The European Union is currently going through a period of turbulence, associated with the internal problems within the organization and the challenges arising from global processes. Initially, we witnessed the euphoria that arose in the early 1990s, when the European Union aspired to the role of being the most important world power, when it consolidated its internal market and promoted the construction of a strong, federal Europe. This European Union radiated other European countries, encouraging them to carry out difficult reforms, and giving hope for membership of this organization.

The structure built on the foundations of democracy, the rule of law, respect for human rights and implementation of the principles of the free market, was identified with the "oasis" of peace, stability and economic prosperity. These features have made membership of the European Union the main goal of most European countries. Also, for the EU itself, the possibility of enlargement meant the stabilization of its environment, the gradual dismantling of potential threats, the expansion of markets and the building of a strong global position. Considering the European Union's great powerful ambitions from the beginning of the 21st century, its demographic, political, economic and territorial potential was (and still is) an important attribute in international activities. Undoubtedly, the enlargement of its structures with 13 new members was a great success for the European Union, thanks to which the EU created a powerful half-billion economic and political organization.

However, the cycle of prosperity for the EU ended with the beginning of the second decade of the 21st century. After the entry of the 13 new countries, the European Union experienced a period of fatigue with its enlargement. Many politicians and part of the old EU's society identified enlargement waves, with a weakening of EU cohesion. Then came the financial crisis in the euro area, which particularly affected southern European countries, mainly Greece, but also Portugal, Spain and Ireland. This crisis has undermined the foundations of European integration and the role and position of the European Union on the international stage.

Another element threatening the European Union was the migration and refugee crisis of 2015, which caused further divisions among the EU members and had a destabilizing effect on the Schengen area. The result of these criseswas the decision of the British, who in a referendum in 2016 expressed their will to leave the European Union. Brexit has therefore become another challenge for the EU.

The environment of the European Union has also become extremely unstable, as evidenced by Russia's expansion policy and the annexation of Crimea in 2014, as well as the very unstable situation on the EU's southeast flank, i.e. in the Middle East. As if that was not enough, in 2017 Donald Trump became the President of the United States, whose policies undermine the credibility of the transatlantic alliance, further weakening the position and role of the European Union in the global dimension. It should also be emphasized that a new global power is growing in strength – China, who is perceived as the main rival to the US, but also competes with European ambitions.

On 27 November 2019, the European Parliament approved the new composition of the European Commission, which began its work on 1 December 2019. In Ursula von der Leyen's speech at the EP Plenary, the new Commissioner promised a new opening for Europe and announced changes that will affect every sphere of life. Among the main priorities for the new EC she mentioned a reform of the asylum system, the dismantling of the business model of human trafficking and a reform of the existing system with emphasis on values, solidarity and responsibility. External borders must be strengthened so that the Schengen area can function properly again. The President of the European Commission also announced plans for sustainable investments in Europe, i.e. increasing investment in innovation and creating a legal framework for the development and use of artificial intelligence.

Authors of articles published in this volumes analyse current EU issues and challenges that the new European Commission will need to face in the coming years, suggesting possible solutions. The authors' approach seems optimistic, as they emphasize the uniqueness of the European integration processes. They argue that consistent cooperation and solidarity can help solve problems and strengthen the EU's international position.

In the first chapter, Aleksandra Borowicz (*Foreign Direct Investment as One of the Factors in Globalisation: Why Does the European Union Need to Pursue an Active Investment Policy?*) discusses the current stance of the European Union towards foreign direct investment. The author argues that foreign direct investment is one of the key elements of globalisation; she

analyses European direct foreign investment and the manner in which it is carried out on the European market.

Kateřina Kočí, Alexandra Madarászová and Miloslav Machoň (*Examining the EU actorness: Code of Conduct for Outer Space Activities*) reflect on the EU's ability to take action within its space policy, putting particular emphasis on the EU's negotiating power at the international level.

Speaking of investments and innovation, one cannot ignore the relationship between the development of knowledge-based economy and the macroeconomic competitiveness of individual countries. Maintaining competitiveness in an increasingly globalized economy is one of the factors that encourage the EU and its individual Member States to strive to develop knowledge-based economy. Authors Monika Mynarzová and Hana Štverková (*Economy Based on Knowledge and Innovation – the Case of European Single Market*) present their analysis of the relationship between the development of knowledge-based economy and the macroeconomic competitiveness of countries using the example of the 28 European Union Member States that operate on the single European market.

The digital single market, which is one of the examples of integration activities, is the topic explored by Mirela Mărcuț (*Building a Stronger Union – Governing the Digital Single Market*).

Challenges faced by the knowledge economy require a greater emphasis on innovation, also in less developed regions, in particular the new Member States. Małgorzata Dziembała (*Innovation in EU Regions and Supporting it under EU Cohesion Policy*) presents a review of innovations in EU regions, including new Member States, and indicates directions of actions that ought to be taken to support innovation as part of the Cohesion Policy, specifically on the basis of the experience of the 2007–2013 financial perspective.

Ioan Horga (*Cross-Border Cooperation (CBC) in Central and Eastern European Countries as a tool to build a stronger a Single Market by boosting jobs and growth) Case studies: Eurometropolis Lille and DEBORA Eurometropolis Project*) points out an important instrument of EU integration, namely cross-border cooperation between marginalized areas of two or more neighbouring countries.

Tadeusz Sporek (*The Innovation Policy of Germany at the Turn of the 20th and 21st Century*) focuses on innovation and presents an analysis of the most innovative branches of the German economy. In contrast, Anna Masloń-Oracz and Olga Pankiv (*The Role of Accelerators in the Development of Start-Ups*) discuss the role of accelerators in the development of start-ups, emphasizing the growing importance of the latter.

The subsequent part of the volume deals with migration and climate policy. In the article entitled '*The Negative Image of Migration as an Element of Migrants' Identity*' Rafał Riedel presents general conclusions from a comparative research project carried out in Opole (Silesia, Poland) and Chemnitz (Saxony, Germany). Diego Caballero Vélez and Marta Pachocka (*Understanding EU Member States Cooperation within the Asylum Regime during the Migration and Refugee Crisis from an IR perspective*) analyse the failure of the Prisoner's Dilemma and Suasion Game in explaining refugee protection burden-sharing cooperation through a literature review of both game-theory models as well as support an alternative to these theoretical models: the Issue Linkage.

The topic of energy and climate policy is discussed in subsequent chapters. Paweł Soroka (*Shaping of the Energy Mix by the Member States within the Framework of the European Union's Energy and Climate Policy*) discusses the consequences of implementing the energy mix by the EU and Poland in the light of the EU energy and climate policy for certain energy-intensive industries. Anna Wójtowicz (*The New Energy and Climate Framework for 2030 and the Financial Instruments of the EU – Challenges for Poland*) analyses the new 2030 energy and climate framework of the EU. Maciej Zalewski examines the matter of regulating hydrological and geochemical cycles in order to boost the sustainable development potential in the face of global challenges.

Papers included in the publication reflect their authors' own opinions and it is the authors who take full responsibility for their texts. We would like to express our gratitude to all the people and institutions who, through their expertise and financial support, have contributed to the commencement of the present publication. Hereby, we would like to express our most sincere gratitude to the Jean Monnet Chair of European Union at SGH Warsaw School of Economics, Centre for Europe of the University of Warsaw, Department of European Integration Research of University of Gdańsk, University of Economics in Katowice, New Vision University in Tbilisi, Faculty of Administration and National Security of the Jacob of Paradies University in Gorzów Wielkopolski, College of Economics and Social Sciences of the Warsaw University of Technology, Konrad Adenauer Stiftung in Poland, the worldwide network of the European Community Studies Association (ECSA World), including the Polish European Community Studies Association (PECSA), ECSA Moldova, ECSA Romania, ECSA Ukraine, ECSA Georgia.

*Aleksandra Borowicz**

Foreign Direct Investment as One of the Factors in Globalisation: Why Does the European Union Need to Pursue an Active Investment Policy?

Abstract

The purpose of the following chapter is to provide an overview of the current European Union (EU) position in terms of Foreign Direct Investment (FDI). Since 2017 there has been a growing push for FDI in the European Union. Foreign Direct Investment implemented in the EU provides the investor with an opportunity to become recognizable and economically active on the markets of 28 Member States (MS). The leading position of the EU in this context is undisputable, but for the past few years there has been a strong trend to secure European investors' position on external markets, while, at the same time, protecting European interests when external FDI is developed in one of the MS. The main purpose of the research to outline the significance of the FDI for the EU economy and, subsequently, to explain the latest actions undertaken by European Union in that field. First, the research presents the FDI as one of the key elements of globalisation, followed by an analysis of European FDI and how FDI on the European market is conducted and, finally, the author investigates and assesses the current measures taken by the European Commission in the field of investment policy, with a particular focus on Foreign Direct Investment.

Key words: foreign direct investment, globalisation, European Union, investment policy

Introduction

Globalisation is a phenomenon which has been observed worldwide since the 1870s. According to Baldwin and Martin (1999), the first wave of globalisation dates back to the period between 1870 and 1914 and the second wave of globalisation encompasses the time since 1960 until

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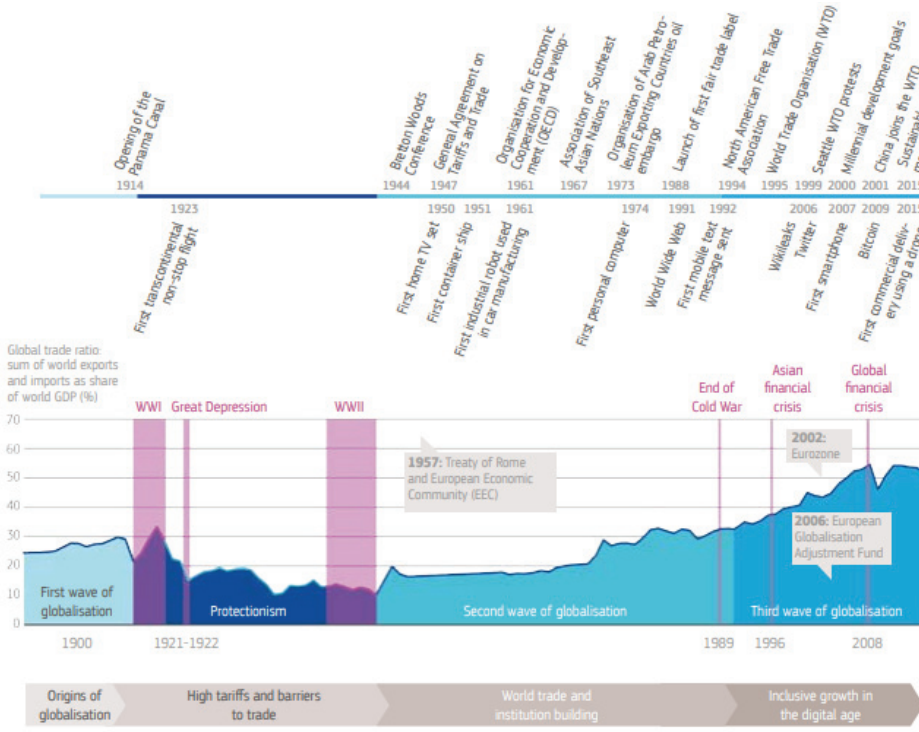
the present day. Baldwin and Martin distinguished these two waves, taking into consideration the level of liberalisation in terms of migration and capital flow, international trade and analysis of aggregated trade to GDP ratio and capital flows to GDP ratio. They point out that these waves of globalisation were interrupted by various factors contributing strongly to the re-emergence of protectionist barriers across the world. The World Bank has identified in its studies a third wave of globalisation dating back to the mid-1980s (World Bank 2002). The division of the post WWII period into two waves is based on the observation of the dynamics of technological advancement in communication and transport. Moreover, it is underlined that now the developing countries are emerging on the global scene in terms of foreign trade and investment. The European Commission shares the view on three waves of globalisation (see Figure 1).

Figure 1. The Waves of Globalisation



Source: European Commission, 2017. Reflection paper on harnessing the globalisation. COM (2017) 240 of 10 May 2017, p. 6.

At the same time it needs to be emphasized that the literature review has demonstrated that researchers do not agree on the clear-cut division into these waves. Individual researchers' views are as different as the factors they take into account (Holton 2005; Martell 2007; Szul 2010). For the purpose of this study I will direct my attention towards one of the three dimensions of globalisation (trade, migration, investment), namely direct investment.

Foreign direct investment is of paramount importance for the European market. The flow of FDI between the EU and third countries brings many positive effects, starting with job creation, through to transfer of technology and knowledge. Multinationals are the hub for spill-over effects as local companies continue to learn from the cooperation with large international organisations. Local business entities serve as suppliers of products and services. Through the learning process they increase their ability to compete on international markets. The synergy between companies creates a unique environment where foreign-owned companies play the role of economic catalysts and the distance between domestic and foreign companies is reduced[1]. However, at the same time, the potential effects of FDI must be analysed with caution, especially when comparing different countries, since the methodology of FDI statistics varies from one country to another (Karaszewski 2016, 25–26). The most substantial and strongly underlined benefits of FDI in the host country may be defined as follows (Karaszewski 2016; Jaworek 2006; Johnson 2006; Lipsey 2002):

- Covering capital deficit,
- Modernization of the economy and transfer of technology thereto,
- Raising international competitiveness of companies through the expansion to foreign markets,
- Job creation,
- Fostering economic ties between local companies and MNEs.

Dunning argues that for FDI to occur, mutual benefits must be present in the economy. The three categories of advantage that need to arise include ownership advantage (O), location advantage (L) and internalization advantage (I). It means that the company entering a new market must be in possession of tangible and intangible assets, needs to be able to exploit the ownership advantage on the international market and gain location advantage through the presence on the local market, which can take the form of new customers, factor prices, and macroeconomic stability of location (Dunning 1981). The arguments above show that foreign direct investment

[1] Studies by Instytut Badań Rynku, Konsumpcji i Koniunktur, Inwestycje zagraniczne w Polsce [*Foreign Investment in Poland*], Warszawa, ISSN 1231-1103

offers a great opportunity for the host country to develop its economy and for the investor to maximize their profits.

Globalisation as such is far from a new phenomenon, but the past few decades have brought to light the dynamics of the changes taking place in the globalisation process. It creates threats, but also opportunities, and this is why the EU's foreign direct investment environment is considered to be one of crucial areas in terms of exploiting the effects of globalisation. FDI has always been at the heart of interest of "European integrators". Foreign direct investment[2] as one of the forms of capital flow constitutes one of the fundamentals of the Single Market. When the European Economic Community was founded, the process of liberalization in the area of capital flow was limited to the areas approved by Member States. Foreign Direct Investment was covered by the provisions of two capital directives dating back to 1960 and 1963. On that basis free movement of capital in the form of FDI, investment in real estate and stock exchange operations were liberalized. Slow liberalisation of capital flow is the result of national interests. First of all, it is crucial to understand that this area is a part of macroeconomic policy within the competence of Member States, and secondly, in the EU there was no coordination of economic policy. The turning point came with the end of the 1980s when it became obvious that the Single Market would come into force and a new challenge emerged, which was the establishment of economic and monetary union (EMU). These were the drivers for accelerating the measures aimed at free movement of capital. In 1990 the Council Directive of 1988 took effect, which ensured largely unrestricted free movement of capital between citizens and the Member States. On the basis of the Treaty of Maastricht the free movement of capital was introduced as one of the four pillars of the Single Market.

The present situation foresees exceptions to free movement of capital, but this is restricted mainly to the movement of capital to or from third countries (TFEU, Art 64). Member States have the right to use selected tools to control the direct investments and other transactions. Article 144

[2] According to the OECD (2008) definition, foreign direct investment "is a category of cross-border investment made by a resident in one economy (the direct investor) with the objective of establishing a lasting interest in an enterprise (the direct investment enterprise) that is resident in an economy other than that of the direct investor. The motivation of the direct investor is a strategic long-term relationship with the direct investment enterprise to ensure a significant degree of influence by the direct investor in the management of the direct investment enterprise. The "lasting interest" is evidenced when the direct investor owns at least 10% of the voting power of the direct investment enterprise."

of TFEU gives the right to non-euro Member States to undertake actions aimed at protecting their balance of payments, if the Single Market is faced with difficulties or an unforeseen crisis.

Is the EU a Global Player in Terms of FDI?

The European Union has built up its position as a global player on the basis of theoretical framework and business practice. Firstly, it guarantees the openness for FDI in Treaty on the Functioning of the European Union, specifically Art. 63 and Art. 206 (Table 1).

Table 1. Articles Governing Free Movement of Capital in the EU and Openness of the EU to FDI

Art. 63 TFEU "1. Within the framework of the provisions set out in this Chapter, all restrictions on the movement of capital between Member States and between Member States and third countries shall be prohibited. 2. Within the framework of the provisions set out in this Chapter, all restrictions on payments between Member States and between Member States and third countries shall be prohibited."
Art. 206 TFEU "By establishing a customs union in accordance with Articles 28 to 32, the Union shall contribute, in the common interest, to the harmonious development of world trade, the progressive abolition of restrictions on international trade and on foreign direct investment, and the lowering of customs and other barriers."

Source: Treaty on the Functioning of the European Union.

In 2018 the global FDI decreased to the level of $1.3 trillion, which indicates a steady downward trend since 2015. The developed countries maintained the leading position of the main investor in terms of FDI. The developed countries accounted for over 70% of global outward FDI. Asia and Oceania held on to their outstanding position as the destination region of FDI, with a share of approx. 33% in 2017 (UNCTAD 2018). It is projected that globally FDI will have risen by 10% in 2019. However, these estimates are rather cautious (UNCTAD 2019, 13–14).

The European Union share in world FDI inward stock is estimated by UNCTAD at the level of 29% in 2016 and 2017. At the same time, the USA achieved the level of 24.8% and increased its share since 2013 by 4.8 percentage points (see Table 2), while the European Union's share declined by 5.7 percentage points. The ongoing globalisation and the

growing importance of Asia do not change the leading position of the EU in world FDI inward stock.

A similar situation can be observed in FDI outward stock. European Union has maintained a dominant position in global FDI outward stock for over two decades. Over the past few years the global economy has seen a growing role of developing economies in terms of world FDI (see Table 3).

Table 2. Selected Countries' Share in World FDI Inward Stock (%)

	1990	2000	2010	2011	2012	2013	2014	2015	2016	2017	2018
EU28	40.2	31.5	36.3	36.6	34.6	33.2	31.3	30.9	29.0	28.9	31.3
Brazil	1.7	*	3.4	3.3	3.2	2.9	2.9	2.2	2.5	2.5	2.1
Canada	5.1	4.4	4.9	4.1	4.2	4.0	3.9	3.1	3.5	3.4	2.8
China	0.9	2.6	2.9	3.4	3.6	3.9	4.3	4.8	4.9	4.7	1.9
India	0.1	0.2	1.0	1.0	1.0	0.9	1.0	1.1	1.2	1.2	1.2
Japan	0.4	0.7	1.1	1.1	0.9	0.7	0.7	0.7	0.7	0.7	0.7
Russian Federation	*	0.4	2.3	1.9	1.9	1.9	1.1	1.0	1.4	1.4	1.3
USA	24.6	37.7	16.9	16.7	17.1	20.0	21.5	22.2	23.7	24.8	23.1

* Lack of available data.
Source: own study based on UNCTAD data accessed on 16.07.2019 and World Investment Report 2019.

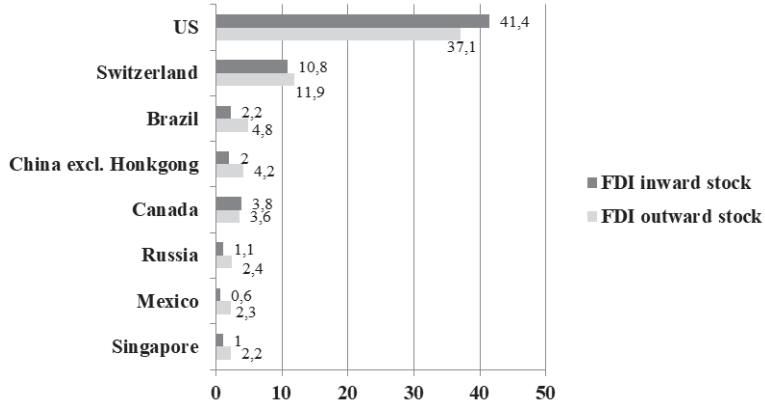
Table 3. Selected Countries' Share in World FDI Outward Stock (%)

	1990	2000	2010	2011	2012	2013	2014	2015	2016	2017	2018
EU28	43.3	39.2	43.5	44.0	40.1	38.3	36.5	36.8	35.3	34.5	37.1
Brazil	1.8	*	0.9	1.0	1.2	1.2	1.3	1.3	1.3	1.2	0.7
Canada	3.8	6.0	4.8	4.2	4.3	4.5	4.5	4.3	4.7	4.8	4.3
China	0.2	0.4	1.5	2.0	2.3	2.6	3.5	4.3	5.1	4.8	6.3
India	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Japan	8.9	3.8	4.0	4.5	4.6	4.5	4.6	4.8	4.9	4.9	5.4
Russian Federation	*	0.3	1.6	1.5	1.5	1.5	1.3	1.1	1.2	1.2	1.1
USA	32.5	36.4	22.9	21.1	22.9	25.1	25.0	23.5	23.7	25.3	20.9

* Lack of available data.
Source: own study based on UNCTAD data accessed on 16.07.2019 and World Investment Report 2019.

The recent World Investment Report estimated that in 2018 the European Union FDI inward stock stood at USD 11,309,164 m while the outward stock reached USD 12,972,401 m. This means that the EU holds a 31.3% share in world FDI inward stock and 37.1% in world FDI outward stock. In the same categories the US achieved 23.1% and 20.9%, respectively. In 2018 the European Union increased its share in world FDI inward stock after years of decline. A similar situation may be observed in terms of FDI outward stock. It emphasizes the global position of the EU in the area of FDI. Not only the EU28 as a whole as a global player in the field of FDI, but also selected individual Member States are the among the top 20 host countries of FDI globally. In 2018 the highest inflow of FDI was recorded in the Netherlands (ranked 5th), the United Kingdom (6th), Spain (10th), France (13th), Germany (15th) and Italy (16th). For several years the US has retained its leading position as one of the main directions of European Foreign Direct Investment (See Figure 2). As one of the largest markets, the European Union creates tremendous opportunities for companies to develop their internal markets, while still playing the dominant role as an investor and host market for FDI.

Figure 2. Composition of EU Inward and Outward Foreign direct Investment Stock by International Partners as at the End of 2015 (%)



Source: own study based on Eurostat data[3].

The European Commission is strongly dedicated to and engaged in securing public order in the EU, and to that end decided to establish an

[3] Data on FDI are presented and published with large delay. Selected data on FDI in EU28 including 2017 was published in 2019.

expert group who analyse the inflow of FDI to the EU. In March 2019 *Commission Staff Working Document on Foreign Direct Investment in the EU* was presented, which consists of an in-depth analysis of FDI conducted from the enterprise-level perspective. The research was based on Foreign Ownership Database[4]. The main conclusion focuses on the fact that only 0.16% of companies from database are listed on EU stock exchange, while representing 20.5% of total assets. From this group 9.3% are foreign-owned with the share of 45% in assets. In terms of size it has been observed that extra-EU-owned companies are bigger than domestic firms. The report confirms that non-EU companies listed on EU stock exchanges have eight times more assets than national companies and seventeen times more in case of unlisted non-EU owned firms.

Table 4. Comparison of EU and non-EU Owned Companies in 2016

	Listed on stock exchange		Unlisted on stock exchange	
	EU	Non-EU owned	EU	Non-EU owned
Share in number of companies	90.7	9.3	97.2	2.8
Share in assets	54.7	45.3	67.2	32.8

Source: EC, Commission Staff Working Document on Foreign Direct Investment in the EU, pp. 6–7.

Since 2007 a trend has been observed which shows that in the EU there is a growing number of extra-EU-owned companies. Both listed and non-listed companies have increased their assets. This may stem from the fact that extra-EU investors are involved in bigger companies not listed on European stock exchanges in comparison to the companies listed on European stock exchanges. In 2017 17% of extra-EU investors executed mergers and acquisitions (M&A), representing 40% of total M&A in the European Union that year.

From the viewpoint of economic stability geographical issues are of particular importance, indicating the origins of the foreign-owned companies in the EU. There are approx. 170 countries investing presently on the European market. As the macro data presented earlier has demonstrated,

[4] The research presented in the following part of the article is based on a document issued by the European Commission *COMMISSION STAFF WORKING DOCUMENT on FOREIGN DIRECT INVESTMENT IN THE EU* Following up on the Commission Communication *Welcoming Foreign Direct Investment while Protecting Essential Interests* of 13 September 2017. SWD (2019)108 final.

the EU deals mainly with investors from the USA, Canada, Norway and Switzerland. However, for the past few years companies owned by extra-EU units have originated from the emerging markets, such as China, Hong-Kong and Macao, which are the fifth largest group taking into account the share of companies and the sixth in terms of foreign-owned assets. In 2007 this group of countries controlled 5000 companies, while in 2017 this number is estimated to have grown to 28,000. For China, the European Union is one of the priorities in the long-term strategy of FDI localization, so that Chinese industry can take over high-tech companies in developed countries, closing the technological gap (Wübbeke et al. 2019, 6). The analysis stresses that countries representing the latter group control bigger companies than investors from the USA, Canada, Norway or Switzerland. A rapid increase in the number of foreign-controlled companies in the EU has been observed, in particular in the case of Indian-controlled companies: in 2007 their number stood at 2000, growing to 12,000 in 2017; with the number of Russian-owned companies growing from 1600 to 12,000, respectively.

The following sectors have been of particular interest to foreign investors since 2007: Chemicals and Pharmaceuticals, Electronic and Electrical Equipment and Machinery, Motor Vehicles and Transport Equipment, Gas and Electricity, Computer and IT services, and Financial Services and Insurance. In 2017 these sectors noted the highest number of acquisitions. Foreign ownership across sectors is dominated by the developed countries, especially the US and Canada. In most cases their strategy involves the diversification of subsectors. Their strong position is determined by long-term cooperation and economic integration. A similar situation may be observed in relation to EFTA countries. The developing countries are reinforcing their presence on the European market and their strategy is more focused, as is the case with China, investing in aircraft manufacturing and specialized machinery, or India, investing in pharmaceuticals.

Between 2007 and 2017 EFTA countries executed the highest number of M&A by state-owned companies, i.e. 99. The Russian Federation reached the level of 93, but their activity has been declining since 2014. Gulf Cooperation Council countries performed 63 M&As between 2014–2017, whereas China, Hong Kong and Macao concluded 40 in the respective period.

To sum up the findings, the European Union has retained the position of leader as a FDI investor and the FDI destination. The strong global position of the European Union in the field is a result of an open market for capital movement and the opportunity to reach other Member State markets within the Single Market. Only 3% of EU companies are controlled by extra-EU

units, but they account for 35% of all assets and create approximately 16 million jobs on the European market. The strong position of developed countries in terms of FDI inward stock, such as the USA, Canada and EFTA countries continues, but over the past decade emerging countries have strengthened their standing on the European market. The rising number of European companies owned by extra-EU companies and the strong engagement of foreign capital in large enterprises leads to the conclusion that in times of instability, there is a clear need to secure European interests in terms of the FDI that reaches European companies, especially in sectors linked to security and public order.

Table 5. M&A Executed in EU28 by non-EU28 Countries by Public Authorities, States and Governments

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
EFTA	7	10	8	16	10	9	5	4	12	8	10	99
China, HNK, Macao	0	3	0	1	6	5	5	8	6	17	9	60
GCC	1	1	1	1	6	7	16	17	17	7	6	80
Russian Fed.	4	4	9	10	12	10	17	8	9	7	3	93
Dev.Asia	0	2	2	1	1	2	1	1	0	1	3	14
RoW	2	1	1	0	1	2	3	1	3	6	2	22
Central and South Africa	0	0	0	0	1	0	1	1	3	3	1	10
USA and CAN	1	0	1	1	0	0	0	0	1	0	0	4
India	0	0	1	0	0	0	0	1	0	1	0	3
Total	15	21	23	30	37	35	48	41	51	50	34	385

Source: EC, Commission Staff Working Document on Foreign Direct Investment in the EU, p. 57.

EU Measures to Support FDI

In 2016 the European Union (EU), being one of the leaders of globalizing economy, announced *A Global Strategy for the European Union's Foreign And Security Policy*, in response to the growing insecurity on the continent regarding migration, economy and politics. The global role of

the European Union is emphasized in all areas. The strategy recognizes that the EU is the biggest investor in developing countries and holds a place among the G3. To maximize the safety and prosperity of European citizens it is crucial to develop investment in order to boost growth and create jobs on the European market. The European Commission underlines in its communications that foreign direct investment is crucial for Single Market development. The external effects of the Single Market take the form of FDI implemented on the European market (European Commission 2018). The Single Market, which includes approx. 512 m consumers and is worth more than 15300 bn euros, attracts trade and investments partners from all over the world[5]. Mutual cooperation and access to the European market generate mutual benefits. To ensure an equal environment for access to third countries' market the European Union puts a lot of emphasis on the new framework for FDI screening. On the other hand, the cooperation must provide European investors with equal treatment on the markets of third countries.

Nevertheless, the interest of "European integrators" in foreign direct investment goes deeper than strategy and common initiatives. On the basis of the Treaty of Lisbon, the FDI became a part of Common Commercial Policy (CCP), which means in practice that the negotiations of agreements in the area of FDI as a competence were forwarded from the national level to the European Union in 2009 when the Treaty of Lisbon came into force. This radical change is discussed in terms of the effects of such action. The decision was based on rational circumstances which focused on the combined power of Member States within the EU (Meunier 2014). The idea to transfer the competences to EU level is dictated by EU's strong position in the area of FDI. According to the information on the EC website, the turbulence on the global scene has forced the EU to take steps to create an investment policy, which aims to:

- "Secure a level playing field so that EU investors abroad are not discriminated or mistreated
- Make it easier to invest by creating a predictable and transparent business environment
- Promote investment that supports sustainable development, respect for human rights and high labour and environmental standards. This includes encouraging corporate social responsibility and responsible business practices

[5] Ibid.

- Attract international investment into the EU, while protecting the EU's essential interests
- Preserve the right of home and host countries to regulate their economies in the public interest".

The European Commission keeps working towards creating favourable conditions for FDI. In September 2015 the European Commission launched its flagship initiative called the *capital markets union*, which is aimed at ensuring entirely free movement of capital within the EU by the end of 2019. A lot of attention is paid by the European Commission to existing bilateral investment agreements (BITs), which are sometimes incompatible with EU law or duplicate it. A good example is the mechanisms of arbitrage, which excluded national courts and European Court of Justice from BITs and makes it impossible to comply with European Union law. Even though in 2012 the European Union adopted the regulation on the rules on the bilateral investment agreements between Member States and third countries, there are approximately 1400 agreements which require adaptation of the rules presented below (see Table 6).

Table 6. Conditions for BITs

" – the agreement is not in conflict with EU law, – the agreement is consistent with the EU's principles and objectives for external action – the Commission did not submit or decided to submit a recommendation to open negotiations with the non-EU country concerned – that the agreement does not create a serious obstacle to the EU negotiating or concluding bilateral investment agreements with non-EU countries".

Source: http://ec.europa.eu/trade/policy/accessing-markets/investment/ [accessed on: 02.07.2019].

As the European Union has the most open system for capital flow, in 2017 the European Commission, taking into account the initiatives from the past, proposed a Regulation which focuses on the creation of a framework for screening Foreign Direct Investment into the European Union. The legislative process was successful and in April 2019 the Regulation entered into force. Another area of active interest of the EC in terms of FDI was an in-depth analysis of the flows of Foreign Direct Investment into the EU in order to define the main concerns, threats and, at the same time, opportunities, which may arise out of FDI. The group of experts within the Commission vested with the task of screening the FDI flowing into the EU commenced their work in May 2018.

The Regulation setting up the *Framework for Screening Foreign Direct Investment* places its emphasis on protecting the European economy and its citizens' best interest. It focuses on the exchange of information between the Member State in which the FDI will take place, the European Commission and other Member States. The process is estimated to last a maximum of 35 days. As the first step, the Member State to become the host country for the FDI, at the request of the Commission and other Member States, prepares the relevant information on investment, defines if the investment is a subject of national screening mechanisms[6] and requests comments or opinions. The information in question consists of a description of investor, company which is the target of FDI, value of the investment, source of funding and timeline of the investments. Such information is handed over to the EC and other Member States. Afterwards, the host country, on the basis of the information in the form of opinions and comments from the Commission and other Member States, independently makes the decision on the possible FDI. The Framework for Screening Foreign Direct Investment in order to secure the EU and public order contains the list of factors to be considered by Member States to assess the effects of FDI, which are as follows: critical infrastructure, critical technologies, the supply of critical inputs, such as energy or raw materials, access to sensitive information or the ability to control information, or the freedom and pluralism of the media. Further, the host country and the European Commission take into consideration if the investor is controlled by the government of third country and what the previous activity of the investor was (EC 2019b, 2).

Conclusions

For decades the European Union has been the leader of FDI both as an investor, as well as a host region. Deep economic integration creates great opportunities for Member States, but also for third countries which are able to fulfil EU requirements as they reach a market consisting of over 512 million consumers. The data obtained and analysed with reference to

[6] In 16 EU countries there are mechanisms of FDI screening: Austria, Denmark, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Spain and the United Kingdom. The Regulation adopted in April 2019 sets a few rules for national mechanisms such as: transparency of rules and procedures, non-discrimination among foreign investors, confidentiality of information exchanged, the possibility of recourse against screening decisions, and measures to identify and prevent circumvention by foreign investors.

FDI demonstrate strong engagement of foreign capital on the European market. globalisation has created many ways of raising competitiveness for developing countries, one of which is FDI. Since the last financial crisis the European Union is striving to secure the financial markets and economies of Member States in order to ensure their sustainable development. This is the main reason why the European Union must be active in terms of establishing a legal framework, but also from the practical point of view in terms of investment policy.

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Examining the EU Actorness: Code of Conduct for Outer Space Activities

Abstract

The decreasing importance of the state has evoked a debate about the role of the EU taking part in negotiation at the international level, even in discussions related to sensitive topics such as space policy. The paper thus assesses the ability of the EU to be an actor, especially taking into consideration its civilian and normative power.

In order to investigate the EU and its ability to act on the international arena, as well as the way the EU behaves during these negotiations, the paper will explore several techniques of persuasive strategies and the concept of the epistemic community to explain the dynamics of political negotiations related to space policy. The EU's space policy initiatives include support for the long-term sustainability of outer space activities introduced in the UN Committee on the Peaceful Uses of Outer Space and promotion of the International Code of Conduct for Outer Space Activities by the EU's and ESA's representatives.

Key words: EU actorness, recognition, persuasive strategies, space policy, Code of Conduct for Outer Space Activities

Introduction

The debate about the European Union (EU) actorness has already lasted several decades and still has no precise results or outcomes to date. In this paper, we contribute to this debate. We also intend to show that the

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approaches that analyse the EU as a global actor are various, but do not always grasp the EU in its complexity. Finally, we also want to explore how effective the EU is as an actor and what tools and techniques to persuade its counterparts the EU, or its representatives, use.

For the analysis, we have chosen the engagement of the EU in space policy. The EU Space Policy (EUSP) is one of the lesser-known and, consequently, little-understood policies of the EU. European cooperation in outer space activities started in the 1960s when the European Space Research Organization and the European Launcher Development Organization were established (EP 2017, 3). Later merging of the organisations led to the establishment of the European Space Agency (ESA) in 1975 that bore responsibility for exploration of outer space by its member states (ESA 2010, 12). The resolution on the synergy between the ESA Council and the Council of the EU reinforced the long-term implementation of peaceful exploration of outer space within the European integration process (ESA 1998, 3). The cooperation enabled participation of the European Commission (EC) in formulating and adopting the European space policy in 2007 (EC 2007a, 3–4). The 2009 Lisbon Treaty recognised it as a shared competence between the EU and its member states, so it confirmed the role of the Council and the EC in the space policy area (EU 2007b, 86–87).

The Code of Conduct for Outer Space Activities (CoC) focuses on the area of disarmament, non-proliferation and arms control policy that the EU and its representatives wished to promote on the global scene. The main aim of this paper is an investigation of the EU's power in the area of space policy, through the prism of a normative and civilian approach. Moreover, the research concept strengthens by the analysis of persuasive techniques which enables us to evaluate the EU's (namely the EC's) coherence and ability to promote security, political and economic goals on the global level (Carbone 2011, 11–30; Ghazani 2016, 631–647).

How to Approach the EU's Actorness?

To grasp the notion of the EU's actorness may be very challenging, and it often leads to passionate discussions. Realists deny the existence of any form of collective will or personality for the international system (Waltz 1979). Wright (2011), on the other hand, emphasises civilian and normative powers and their relation to the international stage. Civilian power consists of three key elements (Maull 1990, 92): co-operation; concentration of economic instruments; and the development of supranational structures

(Wright 2011, 14). The strength instead is based on soft power, engagement and attractiveness.

Finally, the role of the EU and its actorness can be assessed from the normative perspective, that considers the EU as the most effective internationally through the expansion of governance or the development of regulatory regimes. The basis of the normative analysis is thus its view that the EU impacts the international system only by virtue of its existence (Wright 2011, 16).

Interestingly, this means that the formulation of the EU policies may also become an essential requirement for the analysis of the nature of the EU's international actorness. The interaction of internal and external actors with regards to the execution of space policy is even more complicated. In general, each member state pursues own national space policy, though often they co-ordinate their activities through the independent ESA. However, in 2007, the formal EU Space Policy was established by the Resolution on the European Space Policy (ESA 2007) adopted by the Council of the EU and the Council of the ESA.

The normative and civilian perspectives highlight shared interests and common policy objectives by the member states and the EU institutions as fundamental to effective decision-making and international action on the part of the EU (Wright 2011). The EU is thus able to act as a global setter of standards, and in some fields has been successful in exporting laws, standards, norms and ideas that do not force others, but rather persuade them to do what is in their interests (Young, Peterson 2006).

Indeed, the EU's global regulatory influence has even expanded in recent years. The literature has described it as the "global pacesetter" in regulation (Buck 2007, 1), the world's "regulatory superpower" (Bretherton, Vogler 2006, 71) and is accused of "regulatory imperialism" by some in the US (Zielonka 2008, 474). This growth in its regulatory actorness has come as the direct result of internal integration (Wright 2011). The EC often acts on behalf of the community to design, implement, monitor and enforce a series of regulatory regimes covering a wide range of policy areas in all existing and acceding member states. It represents already a significant act of normative, international intervention. With regards to normative and civilian power, the EU uses techniques to persuade other actors.

Persuasive Techniques in Political Discourse

Persuasion is a social influence that works with faith, attitudes, intentions and behaviour of actors, who spread a particular message. These techniques rely mainly on the right choice of words to influence others and to achieve

desired changes (see Table 1). They also represent valuable tools for the EC that have the potential to increase the level of the formal and informal acceptance of the EU by other actors. Moreover, using the persuasive strategies in an adequate way helps create a sense of unity, mainly in the case of consensual decisions, therefore they can foster the perception of the EU as a regulatory power.

Table 1. Persuasive Techniques

Powerful and Powerless language	Powerless speech is language that expresses the uncertainty of the speaker about accurate statements. It can be recognized as the frequent use of hedges and hesitations (Dillard 2014, 177–187). Conversely, persuasive speech raises credibility and beliefs about the truthfulness of the message, which increases recipients' faith in the message.
Hedging	Hedging represents a special kind of powerless language. It is typical in conversations where there are informal expressions, such as I think, kind of, perhaps. It also facilitates discussion and enhances politeness (Jalilifar, Alavi 2011, 43–66). Proper use of these verbs, however, can cause epistemic, emotive, and social commitment of the target audience.
Inclusive/ Exclusive "we"	The main characteristic of its use lies in the incorporation, or exclusion of individuals or group from the reference range (Condor et al. 2013, 262–300). Repeated use of the first pluralistic words in political rhetoric serves to connect the speaker to the audience and create the feeling of unity: the use of nonspecific "we" in the political sense symbolically implies the interest of the whole society.
List of three	Repeating keywords (phrases) convinces the public to accept the ideas and concepts used by the leader. Repetition creates the impression that the idea is urgent. The most effective is the use of the list of three (David 2017). A triple repetition increases the chance that the audience will memorise important points of the message.
Allusion	Allusion consists of indirect, implicit or hidden comparison or reference to a particular historical or literary character or event. It is commonly used for making analogies, which refer to or even cite a secure phrase that the audience probably already knows (Tolstolutskaya et al. 2018, 132–138).
Metaphor and Simile	Metaphor is a particular kind of analogy, which uses the comparison or association of similar phenomena in transferred meaning. It simplifies the message and creates analogies that the audience already knows and can work within the mind or subconscious (David 2017).
Gain and Loss framing	Explaining and defining the problem in different contexts has a significant impact on the recipient's decisions. The critical difference in the loss- and gain-framed conditions is the level of uncertainty. The gain-framing technique is used primarily for reports that highlight desired compliance-related results, while the loss-framing technique emphasises disadvantages of disregarding appeals (Dillard 2014, 177–187).

A Brief Analysis of the Persuasive Techniques in Political Negotiations Relating to the CoC

The analysis of persuasive techniques is based on qualitative data analysis. The text of the Council Decision (CFSP 2015, 33–34) was the starting point for the collection of relevant documents that trace the negotiation process of the CoC. The document coding had two phases. At first, the initial coding broke down the data into discrete parts and compared them for similarities and differences (Saldaña 2016, 115). In the second phase, the axial coding reassembled discrete parts of the data and specified the relations between them, according to the properties of seven persuasive techniques (Saldaña 2016, 244). This investigation encompassed the outputs of different actors, including the EU and the governmental epistemic community. Final evaluation of the persuasive strategies helped to assess the tools the EU used to negotiate the draft CoC and indirectly to understand better the EU's actorness, mainly linked to outer space activities.

Persuasive Techniques of an Epistemic Community

In order to reinforce the multilateral international order, the UN General Assembly (UNGA) called for increased transparency and the importance of confidence-building measures in outer space activities (UN 2005, 1). The statement also recalled the study of a governmental epistemic community gathered in the United Nations Office for Outer Space Affairs (UNOOSA) for the application of confidence-building measures in outer space.

The study focused on the security aspects related to the application of space technologies and possibilities for defining mechanisms of international cooperation. It combined several persuasive techniques. The study preferred the powerful persuasive techniques that raised its relevance and strengthened the belief of the epistemic community, such as simile. At first, the study introduced current uses of outer space, especially emphasising the link between military aspects and the use of satellites in low, medium and high orbits (UN 1993, 17–20). The threat of militarisation and weaponisation of the outer space using the loss-framed technique highlighted, therefore, the presence of uncertainty and increased the probability to gain more attention in the UNGA (UN 1993, 23–27).

Powerless Language of the CoC

The EC responded to the UNGA's calls by submission of the draft CoC in the UN Committee on the Peaceful Uses of Outer Space. In comparison with the study written by the governmental epistemic community gathered in the UNOOSA, the EC's draft signalled powerless language. Although the Council considered the security of outer space activities as an important goal for achieving the security of the EU's member states, the list of three represented the only persuasive strategy used in the draft's preamble (EC 2008, 4). It was limited to three short principles promoting the safety and security in outer space, including freedom of access to space for all for peaceful purposes, preservation of the security and integrity of space objects in orbit and the principle of legitimisation of defence interests of states.

The other persuasive strategies were missing (EC 2008, 3–4). The draft's language was also somewhat powerless. It stated that all states should actively contribute to the promotion and strengthening of international cooperation by signing the draft CoC, however, the draft's preamble did not contain a reference to the UN Charter, norms or rules of the international law. A short summarisation of the existing international treaties related to outer space activities included in the text of the CoC represented the only reference to specific legal sources of international space law (EC 2008, 6).

Persuasive Speech at the Conference on Disarmament

Though the draft's language indicated the level of inconsistency, its credibility increased during the session of the Conference on Disarmament (CD) held in Geneva on 9 March 2015. The speech of the EU representative relating to the CoC showed high persuasive strength. The representative framed the problematics of preservation of a safe and secure space environment and peaceful uses of outer space by the list of three-technique. The conceptualisation of common interest linked to safety, security, and sustainability of outer space activities was a core argument (CD 2015, 1).

Moreover, the EU representative used the gain and loss framing, and the metaphor persuasive technique. The way the EU representative spoke about current challenges of the space environment, including the space debris problem causing destructive collisions, the crowding of satellites in orbits around the Earth, and the growing saturation of the radio-frequency spectrum represented the loss-framing conditions. The challenges framed

the state of the recent space environment as negative information; therefore, the representative's speech had the potential to gain more attention.

The prevention of an arms race in outer space and the strengthening of strategic stability via the development and implementation of transparency and confidence-building measures eliminated the uncertainty. The draft CoC represented the desired compliance-related result, which was strongly supported by the governmental epistemic community because it had the potential to encourage responsibility and peacefulness of outer space activities (UN 2019).

As for the metaphor, the inclusion of idea 'not to be the first to place' (CD 2015, 2) represented an analogy which associated the UNGA's resolution with the concept of no first placement of weapons in outer space (UN 2014, 1). It helped make the EU representative's speech more comprehensive and attractive to other participants, so the chances of conviction increased.

The resolution published in 2014 recognised that the CD had the primary role in the negotiation related to the prevention of an arms race in outer space and should continue further (UN 2014, 1). Since 2015, the EC has led the series of non-public consultations with major spacefaring nations (EU 2019). The consultations aimed at specifying further the text of the draft CoC. Delegates from over 100 countries participated in the non-public meetings.

Unfortunately, the later negotiations indicated two significant procedural shortcomings (Listner 2015). First, the 2015 meetings were held at the UN HQ in New York by the EU without an official UN mandate. Second, the formal framework of the negotiations did not allow other delegations to propose alternative text. Therefore it undermined the UN's principles for multilateral negotiations (Listner 2015). As a result, additional support for finalisation of the CoC was low (Meyer 2015). Furthermore, the USA, Russia and China, the major spacefaring countries, rejected the EU's proposal, because it lacked a broad reflection of national foreign and security priorities (Rose 2018, 5). It resulted in an ultimate failure to reach consensus on the CoC; hence, the EU terminated the series of negotiations in 2017.

Conclusions

This paper focused first on the EU's actorness and its various alternatives. It became clear that the EU being a combination of a normative power (a regulatory power) and a civilian power suited much better to our research. We did not only study the EU through its capabilities but also through the

normative approach, which saw integration as influencing and even changing the underlying choices, preferences and interests of others, not only member states (internally) but also actors on the international arena.

The actorness itself, however, was not the only area of research. Its analysis was a precondition for further investigation of the EU's role in the international system, namely with regards to the emerging EU space policy. We needed to understand what kind of actor the EU was in order to explore how the engagement of the EU in space policy manifested at the international level. As a next step, we analysed the techniques of persuasive strategies that the European representatives and the leading negotiators used.

The analysis of persuasive strategies showed that the EU did not use them sufficiently in order to negotiate and to enforce the draft CoC. In contrast to the use of persuasion strategies by epistemic communities, the emphasis on the different techniques of persuasive strategies was rather weak. In the submitted draft, there was no reference to the UN Charter or a more detailed explanation of the relevance of the document in the context of international cooperation in space. The lack of credibility of the CoC did not improve even after the presentation of the proposal by the EU delegate at the CD, notably since other countries did not support further discussions on the proposal.

To conclude, we can say that even in such a sensitive area as space policy still is, the EU attempts to play a decisive role and uses its regulatory power. Our analysis showed that the EU came already to the point where it tried to assume the role of the leader and to convince others about the basic standards of the outer space activities globally. However, this power decreased over time. Unfortunately, the tools that the EU used were rather insufficient as well as a reflection of national foreign and security priorities of the other spacefaring states and the dialogue between the various players.

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Economy Based on Knowledge and Innovation – the Case of European Single Market

Abstract

Maintaining competitiveness in a globalizing global economy is one of the reasons why the EU and its individual Member States are striving to develop a knowledge e-based economy with increasing intensity. In this context, the Lisbon Strategy and the follow-up Europe 2020 Strategy were presented. This paper highlights the concept of the knowledge economy, an economy where knowledge and innovation are the main engines of economic growth and prerequisite of a competitive economy. Main attention is paid to the role of knowledge and innovation in the context of the transition from an industrial economy to a knowledge-based economy. The aim of this paper is to discuss and analyse the relationship between the development of the knowledge economy and the macroeconomic competitiveness of countries, on the example of 28 European Union Member States participating in the European Single Market. This is evaluated and confirmed by the correlation between the Innovation Index and the Global Competitiveness Index among the EU Member States. The methodology and database of the World Economic Forum were chosen from a number of methodological approaches to measure country competitiveness and the state of the knowledge economy through the prism of innovation as one of the most important aspects of the knowledge-based economy.

Key words: European Union, European Single Market, Innovation, Knowledge Economy

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"Society can only move forward as fast as it innovates. It can only provide lasting prosperity if it makes the most of the knowledge, entrepreneurial spirit and productivity of its people"
(European Commission, 2018b)

Introduction

EU member states are struggling with the retreat of their global economy at the beginning of the 21st century. These European countries have to face significant competitive constraints, not only from traditional rivals: the USA, Japan but also from the low-cost economies of the Third World. As a result of globalisation, they are forced to respond to the circumstances due to increasing competition and weakening the influence of the countries of the old continent. The European Union's attention is therefore increasingly focused on promoting knowledge and innovation, that is generally perceived as a decisive factor for the competitiveness of enterprises and the socio-economic development of regions and countries (Raszková, Klímová 2018) and to create a so-called knowledge and innovation-based economy. An economy based on knowledge and innovation is internationally accepted as a key factor for competitiveness.

The European Union has made a definitive commitment to the concept of a knowledge economy by adopting the Lisbon Strategy. In March 2000, the European Council in Lisbon set out a ten-year strategy to make the European Union *"the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs and greater social cohesion"* (European Parliament 2000). The Lisbon Strategy was born as a European commitment to overcome differences in growth and productivity between the EU and its leading global competitors, the US and Japan. A key objective of the Lisbon Strategy has been to speed up the transition towards a knowledge-driven economy, in which education and training, research and innovation contribute efficiently to growth. The Lisbon approach implies: *information society* (defining a regulatory framework for electronic communications, encouraging the spread of ICTs, creating conditions for e-commerce, supporting European leadership in mobile communications technologies); *research* (setting up of an area of research and innovation, boosting spending on R & D to 3% of GDP, making Europe more attractive for its best brains, and promoting new technologies); *education and human capital* (halving the number of early school leavers,

adapting education and training systems for the knowledge society, fostering lifelong learning for all, promoting and facilitating mobility).

It soon became clear that achieving the Lisbon objectives would be very difficult. In 2004, a report from the High-Level Group chaired by Wim Kok was presented. This group was tasked by the European Commission to assess the mid-term results, help identify the causes of the mediocre advances, and make recommendations on how to proceed in order to meet the Lisbon objectives. The Kok report has proposed that barriers to the implementation of the Lisbon agenda be removed and that the potential of EU countries is fully exploited. In this respect, it recommended that the focus is on priorities in five areas: creating a knowledge society, completing the internal market and promoting competition, favourable business climate, flexible and integrated labour market, environmental protection and sustainable development (European Communities 2004). The Kok report thus confirmed, "the Lisbon Strategy was Europe's best response" to the numerous challenges it faces. One of the key motives for renewing the Lisbon Strategy in 2005 was the perceived inability to improve innovation performance in Europe. The Wim Kok report changed the concept of the Lisbon agenda and proposed institutional changes in relation to the management of the whole process. It has been suggested that the program be reduced to ten priority areas divided into three blocks: Europe is a more attractive place for investment and employment, knowledge and innovation for growth, and creating more and better jobs.

Also, the 2020 Strategy continues emphasis on the elements of the knowledge economy and in particular the importance of innovations for economic and social development. This ten-year EU growth strategy presents three mutually reinforcing priorities: *smart growth*: developing an economy based on knowledge and innovation; *sustainable growth*: promoting a more resource efficient, greener and more competitive economy; *inclusive growth*: supporting a high-employment economy that brings social and territorial cohesion (European Commission 2010). An increase in expenditures on R&D is the main way to improve the innovation performance and competitiveness of the European economies.

The aim of this paper is to discuss and analyze the relationship between the development of the knowledge economy and the macroeconomic competitiveness of countries, on the example of 28 European Union Member States participating in the European Single Market. The authors use the correlation between the Innovation Index and the Global Competitiveness Index among the EU Member States for evaluation. The main attention is

paid to the role of knowledge and innovation in the context of the transition from an industrial economy to a knowledge-based economy in the European Single Market.

Knowledge Economy Concept as and the Modern Phenomenon of State Competitiveness

From the beginning of civilization, through the industrial revolution, until the second half of the 20th century, the economic development of society was mainly connected with material production factors, i.e. with available natural resources, workforce volume and disposable capital. Due to changes in the world economy and rapid technological advances, there has been a relative shift towards more intangible factors, especially the ability to generate and exploit innovation, human resource quality and the ability of economic operators to cooperate in a way that adds value. Traditional production factors are still necessary, but not sufficient for economic competitivenessand economic development of states, regions and cities.

The concept of the knowledge economy is used more often nowadays. The knowledge economy is a relatively new concept and there is no unambiguously accepted definition. The knowledge economy emerged in the context of the relatively long growth phase of the business cycle seen in the United States economy and, to a lesser extent, in the UK and Ireland in the second half of the 1990s (Hrnčárková 2008). Among the authors who contributed significantly to the expansion of the concept of knowledge-based economics are Fritz Machlup (1962) and Peter Drucker (1969), who discussed the transition from industrial to knowledge-based economies. Michael Porter (1990) then elaborates on the idea of a knowledge-based economy and emphasizes that current advanced economies must benefit from a competitive advantage that is based on continuous innovation.

According to OECD (1996), knowledge-based economies can be defined as "economies that are directly based on production, distribution, and use of knowledge and information". Similarly, the Wim Kok report (European Commission, 2004) states that "Europe's future development will depend on its ability to create and develop innovative and research-based sectors, creating high added value and able to compete with the best in the world". A knowledge society is, therefore, more than a mere commitment to strengthening research and development. It covers every aspect of the current economy where knowledge is the basis of added value: from advanced technology and information and communication technologies

to knowledge-intensive services to creative industries such as media and architecture.

A Knowledge Economy is one that utilizes knowledge as the key engine of economic growth. According to World Bank (2006), it is an economy where knowledge is acquired, created, disseminated and used effectively to enhance economic development. It has been found that a successful transition to a knowledge-based economy usually involves elements such as long-term investment in education, the development of innovative skills, and the modernization of information infrastructure and the economic environment that contributes to market transactions. These elements have been identified as the pillars of the knowledge economy and together they form the framework of the knowledge economy. The knowledge economy framework consists of the following four pillars (World Bank 2006):

- an economic stimulus and an institutional regime that provides good economic policies and institutions that enable effective mobilization and resource allocation and stimulate creativity and incentives to effectively build, disseminate and use existing knowledge;
- educated and skilled workers who can continually improve and adapt their skills to create and use knowledge effectively;
- an effective innovation system for businesses, research centres, universities, consultants and other organizations that can keep up with the revolution in knowledge, exploit growing stocks of knowledge, and adapt it to local needs;
- a modern and adequate information infrastructure that can facilitate efficient communication, dissemination and processing of information and knowledge.

The framework of the knowledge economy thus states that the investment in the four pillars of the knowledge economy is essential for the continual creation, adoption, adaptation and use of knowledge in domestic economic output, resulting in higher value-added goods and services. This would tend to increase the likelihood of economic success and thus economic development in the current highly competitive and globalized world economy.

As reported by Mynarzová, Štverková and Kaňa (2017), the knowledge economy is based on the use of knowledge as an economic resource. In the knowledge economy the tertiary and quaternary sector dominates, which includes creation, distribution and commercialization of "know-how". Human resources, especially their creativity, enterprise and flexibility, play the key role. As Paličková (2014) states, the competitiveness of European countries is based on the technological progress and quality, in contrast to

developing countries that have their comparative advantage in lower input prices, especially labour costs. Technological progress depends on access to more knowledge and information. In this economy, new technology infrastructure, research, innovation and education are all interconnected.

If we compare the above definition of the knowledge economy, then it is evident that these definitions emphasize the importance of knowledge and the technological and information environment for economic development. They consider it more important to enter than any other factor of production (Soukup, Rathouský 2017).

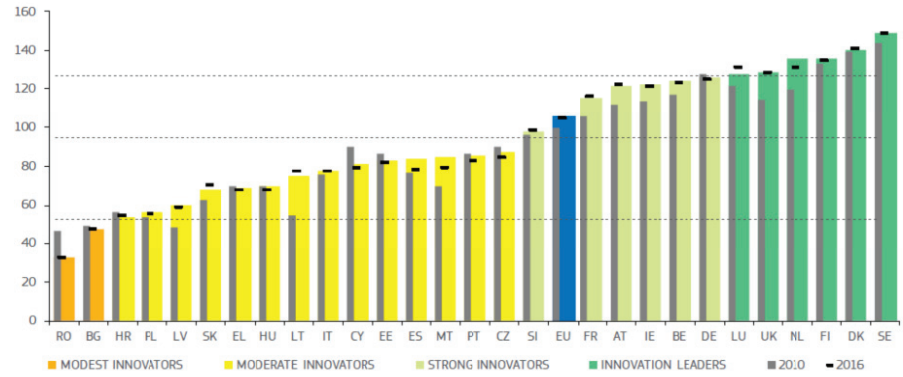
Innovation Performance in EU-28 as an Important Aspect of the Knowledge Economy

Innovation is one of the most important aspects of a knowledge-based economy. For over thirty years, the knowledge, technological progress and innovativeness have been considered crucial factors for sustainable economic development (Lacka 2015). It is a catalyst for development and economic growth of Member States. Despite European Union efforts in terms of cohesion policy, Member States are diversified in the area of economic development. Therefore, they have a different approach to innovation policy and innovation growth (Dziembala 2018). Bearing in mind these discrepancies, it is reasonable to study and monitor this matter continuously.

There are a number of methodological approaches to measuring the country's innovation performance. The innovation performance is in European Innovation Scoreboard measured using a composite indicator, the Summary Innovation Index, which summarizes the performance of a range of different indicators. The EIS distinguishes between four main types of indicators: Framework conditions, Investments, Innovation activities and Impacts and 10 innovation dimensions, capturing in total 27 indicators (European Commission 2018a). According to European Innovation Scoreboard 2018, Sweden is once again the EU innovation leader, followed by Denmark, Finland, the Netherlands, the United Kingdom, and Luxembourg, which joined the top innovator's group in 2018 (see Figure 1). This group includes Member States where performance is more than 20% above the EU average. The second group of *Strong Innovators* includes Member States with performance between 90% and 120% of the EU average. The following countries were included in this group: Austria, Belgium, France, Germany,

Ireland and Slovenia. Group of *Moderate Innovators* include Member States where performance is between 50% and 90% of the EU average. As we can see from the figure 1 to this group belongs Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, the Slovak Republic and Spain. The last group of *Modest Innovators* includes Member States that show a performance level below 50% of the EU average. This group includes Romania and Bulgaria.

Figure 1. Performance of EU Member States' Innovation Systems



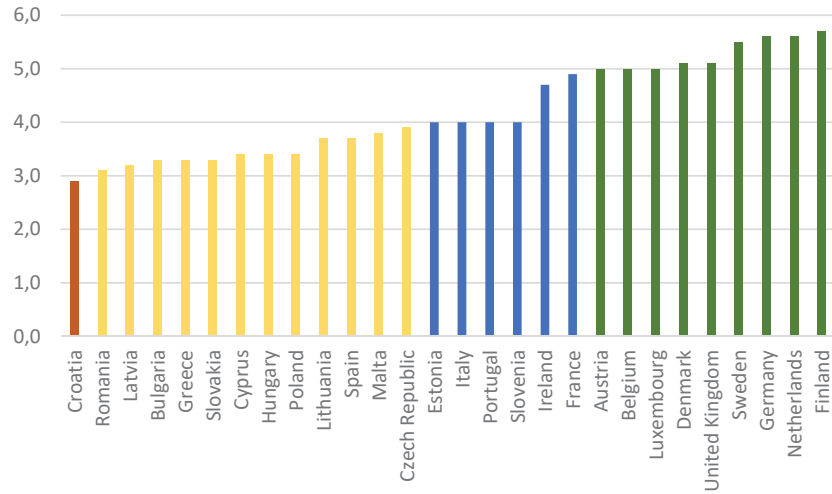
Source: European Commission 2018a.

The World Economic Forum uses a 12th pillar: "Innovation" to measure innovation performance within its methodology. The index has a value ranging from 1 to 7. In the EU, Finland has reached the highest index of 5.7 in 2017 (see Figure 2). The other EU Member States with an innovation score index higher than 5 includes the Netherlands, Germany, Sweden, the United Kingdom, Denmark, Luxembourg, Belgium and Austria. The group of countries with an index in the range 4–5 includes France, Ireland, Slovenia, Portugal, Italy and Estonia. The other EU Member States have achieved an innovation index below 4, namely: the Czech Republic, Malta, Spain, Lithuania, Poland, Hungary, Cyprus, Slovakia, Greece, Bulgaria, Latvia, and Romania. Croatia has achieved the lowest value of the innovation index, 2.9.

Innovation is particularly important for the economy because it is closer to the boundaries of knowledge, and the opportunity to create more value by simply integrating and adapting exogenous technologies tends to disappear. In these economies, companies must design and develop cutting-edge products and processes to maintain a competitive advantage and shifted to activities with higher added value. This procedure requires an environment

conducive to innovation and supported by both the public and private sectors. These include insufficient investment in research and development, especially from the private sector; the presence of high-quality scientific research institutions that can create the basic knowledge needed to build new technologies; extensive cooperation in research and technological development between universities and industry; and intellectual property protection (World Economic Forum 2017).

Figure 2. Innovation Index in EU-28



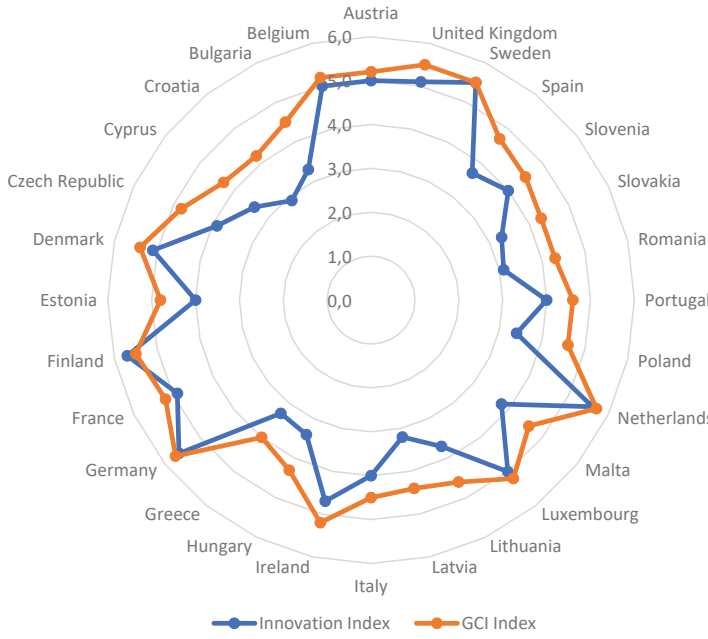
Source: World Economic Forum 2017; own processing.

Current State of the Knowledge Economy and Competitiveness in EU-28

The growing need to measure the Knowledge Economy forced international institutions to develop tools and programs for measuring it in every country/region and also for comparing countries at the international level (Hadad 2017). In this regard, several methodologies for assessing the Knowledge Economy were developed: the most important and broadly used is the one created and applied by the World Bank. The World Bank developed the Knowledge Assessment Methodology: a user-friendly interactive Internet-based tool that provides a basic assessment of countries and regions readiness for the knowledge economy (Chen, Dahlman 2005). The analysis of the four pillars of Knowledge Economy are grouped into two indexes, the

Knowledge Index and Knowledge Economy Index. Unfortunately, indexes are only available until 2012. For this reason, the methodology and database of the World Economic Forum were chosen from a number of other methodological approaches to measure country competitiveness (Dima et al. 2018) and the state of the knowledge economy by the prism of innovation as one of the most important aspects of a knowledge-based economy. Figure 3 illustrates the Global Competitiveness Index and Innovation Index in the EU Member States in 2017.

Figure 3. Global Competitiveness Index and Innovation Index in EU-28 in 2017



Source: World Economic Forum 2017; own processing.

To assess the relationship between the knowledge economy level and national competitiveness, a correlation analysis was conducted between the Innovation Index and the Global Competitiveness Index in the European Union in 2017. A correlation coefficient of 0.963 was thus obtained. Such a high coefficient indicates a very strong correlation between the two monitored variables within the European Union.

In line with the well-known economic theory of stages of development, the World Economic Forum (2017), divides states into several stages: Stage 1:

Factor-driven, Transition from stage 1 to stage 2, Stage 2: *Efficiency-driven*, Transition from stage 2 to stage 3 and Stage 3: *Innovation-driven*. Bulgaria is the only EU Member State to be included in stage 2. In the phase transition between stage 2 and 3 are the following 7 EU countries: Croatia, Hungary, Latvia, Lithuania, Poland, Romania and the Slovak Republic. The remaining 20 EU Member States can be classified into stage 3 as innovation-driven economies: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovenia, Spain, Sweden and the United Kingdom.

Conclusions

The aim of this paper was to discuss and analyse the relationship between the development of the knowledge economy and the macroeconomic competitiveness of countries, on the example of 28 European Union Member States participating in the European Single Market. This was evaluated and confirmed by the correlation between the Innovation Index and the Global Competitiveness Index among the EU Member States. A correlation coefficient of 0.963 indicates a very strong correlation between the two monitored variables.

The European Union, which is constantly searching for competitiveness, recognized more than two decades ago the role and importance of knowledge and innovations and competences to all sectors of the economy, as sources of innovation and modernization, diversification and dynamism for entrepreneurial activities. The concept of the knowledge economy has appeared already in the Lisbon Strategy, which was formulated as a new strategic goal of the EU for the next decade: *"To become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion".* Also in the 2020 Strategy continues accent on the elements of the knowledge economy. The need to strengthen the coherence of the internal market has been underlined since the start of its preparatory phase. The European Commission recommended in 2011 a recapitulation of the twelve main instruments to be used and stressed that another internal market policy cannot avoid building fifth freedom: *the free movement of knowledge* and the creation of a single market for this fundamental knowledge economy. The knowledge economy is a key element that caused the transition from industrial to post-industrial society and will play an increasingly important

role in the economic, social as well as environmental area. The knowledge economy has resulted in a gradual change in the structure of society, not only at the national level but also on a global scale.

When looking ahead to the future of Europe in a globalising world, the contrast is striking between Europe's comparative advantage in producing knowledge, and its comparative disadvantage in turning that knowledge into innovation and growth (European Commission 2017). The EU's ability to lead another wave of innovation will depend on the ability to put together the right mix of policies and instruments. It is essential for Europe to promote competitiveness strategic value chains of the future. Digital Single Market, Industrial Strategies, Energy Union and finally Competition Policy provides a solid framework. Tools such as the Investment Plan, Horizon 2020 and the European Structural and Investment Funds have proven results. A Renewed European Agenda for Research and Innovation discussed at the EU Leaders' meeting in Sofia in May 2018, highlighted the steps needed to ensure Europe's global competitiveness. Europe must focus its approach on three levels (European Commission 2018b): significant investment in scientific and technological research is needed, focusing on major societal and industrial challenges such as security, climate change and the impact of an ageing population; the business environment needs to be more innovative; European citizens must be supported by what will be a rapid and in some cases turbulent transition.

Following the successes and achievements of previous flagship research and innovation programs, the EU Commission presented its proposal for the new Multiannual Financial Framework for 2021–2027. Modernisation is one of the main objectives in this proposal, and this includes an increased emphasis on innovation, which is identified as a crucial driver of productivity and economic growth as well as a key means of addressing societal changes. For this reason, the proposed budget includes the "most ambitious" Research and Innovation programme yet of around €130 billion for 2021–2027 (Clingendael 2019). As part of the next long-term EU budget 2021–2027, the European Commission proposed a new funding programme entitled "Digital Europe Programme", which is part of the "Single Market, Innovation and Digital" chapter of the EU's long-term budget proposal. It builds on the Digital Single Market strategy launched by the Commission in May 2015 and its main objective is to boost Europe's digital transformation to the benefit of citizens and businesses. The Commission's proposal foresees € 9.1 billion over the period 2021–2027 to be spent on five areas: Supercomputers, Artificial intelligence, Cybersecurity and trust, Digital skills and Digital

transformation of public administration and interoperability (European Parliament 2019). The Commission expects that the programme will complement and create synergies with other related Multiannual Financial Framework proposals, in particular, the Connecting Europe Facility and the Horizon Europe programmes (European Commission 2018c).

In the area of the knowledge economy, and in particular its sub-attributes, such as research, development, innovation and, for example, ICT, the participation of private entities is also necessary for addition to public institutions (Horký, Kouba 2014). An important part of the EU institutional environment in this context is the business environment. Therefore, questions arise as to the condition of the individual countries and the whole Union in terms of the quality of the institutional environment and the hypothesis of the connection between the quality of institutions and the degree of development of the knowledge economy. On this issue, we will focus our future research.

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Mirela Mărcuț[*]

Building a Stronger Union – Governing the Digital Single Market

Abstract

The integration efforts of the European Union are still going strong, despite the overall conversation regarding the future of the EU. The Digital Single Market is one example of an integration effort, which aims to unify the digital markets of the Member States, to enable citizens to become digital citizens across the EU, by travelling freely with their data or content.

The main purpose of the article is to emphasize that the DSM requires a flexible governance mechanism. First, the article will analyse the main markers of the current EU governance. Based on this assessment, the paper will continue by explaining the current governance mechanism of the DSM in order to expose its benefits and its challenges. Finally, the paper aims to provide a series of governance proposals for the DSM, based on experimentalist governance theory.

Key words: European Union, governance, Digital Single Market, policy

Introduction

The ontological assumption of this paper is that the European Union acts as a political system with a myriad of actors involved at different levels in creating policies. As such, this is not a study of future EU integration, but rather on ways to improve the current functionalities of the EU in order to become more productive and flexible. In this sense, the tools at our disposal surround the idea of governance, as a flexible means of producing norms when the relations between actors are not strictly defined. This is precisely the case of the European Union, a *sui generis* entity wherein norm production must be resulted from the flexibility of actors, otherwise everything remains

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stuck in a deadlock. These factors influence the governance mechanism of the Digital Single Market.

Governance signals an era of changes within the power structures and the way in which they interact, caused by several factors, such as globalisation. Globalisation has caused certain shifts, which have manifested horizontally, vertically or downward (Levi-Faur 2012, 31). At the same time, researchers provide a preliminary definition of governance as a normative system situated between the constraints of governmental bureaucracy and private interactions (Bartolini 2011, 7).

The spheres of authority resulted from these shifts can either be in competition or working together, according to the same researcher. In case of European governance, the multiplication of the spheres of authority has taken place both upward and downward, as the process of European integration has developed. First, states decided to share their sovereignty with a new entity at the European level. Then, the new European institutions assumed new responsibilities and contributed to the creation of policies, while at the same time they have attempted to empower other levels of authority, such as the regional and local authorities in cohesion policies. In case of European governance, the state has been affected by these transformations, as its traditional role of sole policy-maker is under scrutiny. Is the state obsolete? No, but rather it is an important piece in governance, given that it holds significant control on how policies are decided and implemented in the European Union.

The system of governance of the Union can be framed into "new governance", referring to the innovative aspects of policy-making in the European Union. The term generally describes the creation of horizontal networks which could contribute to the production of norms (Melte Kjaer 2010, 110–111). Other researchers also focus on the innovative character of governance, by describing "new modes of governance". According to the authors, there are two features of these new types of interactions, namely that governments rely more on sectoral regulation either by the players involved, or by independent authorities, and that more issues are shared with private actors, whose expertise is essential in certain policies (Héritier, Lehmkuhl 2011, 49–50). This points to the fact that governance is not only a negotiation between the national and European levels, but they also involve other entities, considering the complicated environment of regulatory policies. They are relevant to this research considering that the Digital Single Market is, by definition, an effort to create a single entity for the digital space of the EU mainly by means of regulation. The

modes of governance mentioned by Héritier and Lehmkuhl (2011) are the following: private dispute resolution, benchmarking, regulatory oversight by independent authorities, tripartite policy-making, self-regulation by private actors, comitology. The results of these types of interaction creates binding or non-binding norms, but the actual communication between them within these forms is not straightforward and subject to a specific law.

The next section aims to delve into the governance architecture of the Digital Single Market (DSM). The DSM entails the involvement of both public and private actors in various decision-making mechanisms in an attempt to replicate the Internal Market program of the 1980s (Mărcuț 2017). However, it has to deal with a complicated regulatory issue to powerful private actors.

Governing the DSM. The Current Movernance mechanism

The DSM is a construction that is superimposed on the Single Market, with its own sets of rules and regulations aimed at building a strong digital economy and empowered digital citizens. It supports the R&D policy, as well as the telecoms and industrial policies. In Juncker's words, it is a horizontal policy (Juncker 2014a). It is focused on three main priorities: ensuring access for citizens and businesses, creating the regulatory framework necessary to its proper functioning and focusing on the growth potential of the data economy (European Commission 2017). Adopted in 2015, it emerged as a strategy from the political priorities of the Juncker Commission.

The DSM strategy differs from previous mechanisms related to the information society in that the Commission and the EU level in general has taken over the leadership, as the whole point is to create a single regulatory framework for all Member States. The core of the DSM is the regulatory system, but there are also priorities where the Commission can act more as a catalyst than a law-maker. For instance, the modernization of the copyright legislation is part of this regulatory effort, but at the same time, the DSM contains proposals contributing to the improvement of digital skills, one of which has been the "digital opportunity" traineeships (European Commission 2017, 14).

In this sense, the governance structure of the DSM is meant to be:

- Flexible enough so as not to exceed the limits set by the principle of subsidiarity
- Strict enough to ensure adoption of legislation at the EU level

These two conditions are challenging, considering that there is no official competence directed to digital issues, as the DSM borrows from the industrial policy, from the internal market, as well as from research and development to help create a regulatory framework that could be accepted and not rejected as an overreach by the Union (Mărcuț 2017). On the other hand, the Commission has no leverage in issues that do not pertain to its direct competence, such as digital skills. Although they do not pertain directly to the DSM framework, issues such as connectivity, digital skills or high innovation are inexorably connected to the overall goal of the structure, namely to boost economic growth and to empower the Union as a major technology player.

The DSM strategy paper highlights the governance structure, which is based on:

- Cooperation between supranational institutions
- The coordinating role of the Commission
- Dialogue with stakeholders on policy advice and support for implementation
- Technical support from advisory groups (European Commission 2015, 17–18)

In the areas where the Commission does not have complete executive power, it does deliver recommendations, action plans, as well as global policy strategies to be followed by the Member States. Also, the Commission does not deliver the legislative proposals without the advisory boards and dialogue with stakeholders, considering the highly technical quality of the legislation.

Does the current governance mechanism of the DSM feature any of the modes of governance mentioned above? First of all, given that it is a multilateral strategy, multiple tools and layers involve both public and private actors, as well as experts and stakeholders. The bottom layer is the one concerned with the regulatory policy-making aspects, especially the interaction via comitology, in case of major legislative proposals that have been extensively negotiated among the three institutions. For instance, the Communications Committee has issued opinions on roaming, the top-level domain .eu or on the European emergency number (European Commission 2013). This committee has members from each Member State, once again pointing to the connection or involvement of the national authorities in the functioning of the European level.

The bottom layer also includes the European decision-making system. Major points of legislation, such as roaming, copyright or the telecommunications code, were directives or regulations and went through the ordi-

nary legislative procedure, which involves the Council and the Parliament deciding together on Commission proposals. Subsequently, the national authorities oversee the implementation of legislation into their own system and, finally, in some cases, the Commission is entrusted to evaluate the progress of implementation, as well as the results of the legislation, in a feedback loop meant improve the system.

Next, these same institutions have responsibility for developing another governance mode for the European Union, namely the independent regulatory authorities. They are new and independent actors, developed via European legislation as new actors in the governance mechanism. Their role is to oversee their field, such as telecommunications, data protection or cybersecurity, and to provide technical and advisory support for decision-makers in their respective areas. Additionally, the regulatory system includes the national regulatory authorities, which monitor cybersecurity incidents, or the telecommunications players or the infringement of data protection rights. The extent to which they get involved is rather different, depending on the area in which they preside. The biggest regulatory authorities in digital policies are the European Union Agency for Cybersecurity (ENISA), the Body of European Regulators for Electronic Communications (BEREC), and the European Data Protection Supervisor and their independence and authority depends on the extent to which Member States allow them to function within the legislation. Currently, the three authorities mentioned do not have the same level of authority:

- A strengthened supervisory role: ENISA, "has operational coordination" powers and is a provider of cybersecurity certification (Council of the European Union 2019)
- An advisory role: BEREC (BEREC 2015)
- A mixed role**:** European Data Protection Supervisor – has a role as a supervisor, as well as advisory (European Data Protection Supervisor 2016)

The roles of these authorities are varied, according to the preferences of Member States and their willingness to provide them powers. In the case of BEREC, the states refused to unify two offices, BEREC and its office for technical assistance, BEREC Office. Moreover, they decided to take away from the proposal its possibility to take binding decisions in the regulation of telecommunications (Council of the European Union 2017a).

Another layer of the governance mechanism of the DSM relates to expert and stakeholder opinions, which the Commission requires in drafting

proposals, but also for the development of future policies. This is a constant challenge for technology issues, considering the unforeseen implications that have yet to unravel in terms of artificial intelligence for instance. They are called high-level expert groups that advise the European institutions on digital policies. Examples include the High-Level Expert Group on Artificial Intelligence (AI), consisting of representatives from academia, industry, as well as civil society, and which delivered recommendations on ethics in AI, as well as certain specific policy recommendations (European Commission. Digital Single Market 2018).

The above-mentioned layers mainly referenced the flexibility of the policy-making system at the European level, with input from experts, as well as tripartite decision-making by the EU institutions. The strictness of the mechanism is another issue to be discussed, but it mostly references the relations between the European and the national authorities. The next section will approach the delicate balance between the two with the help of the experimentalist governance framework.

A Governance Framework for the DSM

The position of this paper is that the Digital Single Market with its adjacent actions is key to the empowerment of the European Union as a global player. It can also contribute to the construction of a stronger EU internally, considering that, slowly, the EU has stepped up the prioritization of these issues. Why is it the key? There are some clues pointing to this idea:

- For the past 15–20 years, *digital* has been part of the conversation on the economic success of the EEC/EU
- For the past 5 years at least, one of the VPs of the Commission has been responsible directly for the DSM
- In the near future, the strategic agenda of the EU (2019–2024) indicates digital transition as a key component for the development of a European economic model for the future (European Council 2019).

There is positive evolution in the direction of more European digital policies, rather than national responses. This should translate into a more flexible DSM governance. The signs are here, namely there is gradual integration towards the digital space – as more key pieces of legislation are pursued at the EU level rather than left at the state level. This is an illustration of the principle of subsidiarity in action.

However, the functioning of the digital/technological policy has not kept pace with the development of technology. There are some reasons for this delay:

- Major research projects (especially in the 1980s) were subjected to national scrutiny, as states were reluctant to give up research budgets to a supranational entity such as the Commission
- The influence of major tech players has been detrimental to some key pieces of legislation:
  - Roaming legislation in the EU (a key idea for the freedom of movement of citizens), which took almost 10 years to reduce tariffs to almost nothing
  - Growing online platforms are reluctant towards regulation: GDPR, copyright, etc.

At the same time, there might be some specificity issues that can affect the governance of the DSM and, hence, its competitiveness:

- The DSM means more regulation (to unify the 27 national regulation systems) each with their own specificity
- The technical issues and aspects of technology in general
- National specificities and specific preferences of users
- Differences in the digital progress of countries

What kind of DSM can the EU have? How can it function and make decisions considering these specificities/differences between MS? The DSM requires a governance style flexible enough to accommodate these ideas and to intervene on the sources of fragmentation. In this sense, the aim of this paper is to contribute to the discussion on the future functioning of the DSM, by proposing certain decision-making mechanisms inspired by experimentalist governance, a theory developed by (Sabel, Zeitlin 2012). It can intervene on some issues highlighted above, namely:

- The regulating aspects of the DSM: how to transform the process and become more flexible
- Technical issues arising from the 28 different national preferences
- Different underlying approaches to digitization

These issues relate to the interaction among actors within the governance of digital policies. On the one hand, regulation requires a culture of compromise, which is difficult to attain with (as of writing) 28 Member States with distinct preferences. On the other hand, the DSM requires a certain national commitment both to the implementation of the regulation and to the digitization process, which is approached differently in MS according to their own profiles. Experimentalist governance could help provide certain answers to the challenges of DSM governance.

Tackling Regulation and Technical Aspects Using Experimentalist Governance Theory

What does experimentalist governance have to do with the governance of the digital policies and the DSM in particular? The assumptions of the theory proposed (Sabel, Zeitlin 2012) are that decision-making in the EU is non-formal, as well as deliberative, considering the many types of actors involved. At the same time, they emphasize the lack of hierarchy among the actors involved. Informal and deliberative discussions are necessary at this level of actors involved across multiple levels of jurisdiction. The interinstitutional negotiations that constantly take place among the three EU institutions are a fine example of this deliberative interaction. For instance, in case of the anti-geo-blocking regulation, there were several instances of compromise and trilogues meant to alleviate concerns of MS with situations, such as those related to price discrimination, so much so that the Presidency of the Council iterated the overall frustration in diplomatic language: "the Presidency invites Member States to be as flexible as possible on its compromise detailed above with a view to progress significantly in the negotiations with the European Parliament on this file. The Presidency stresses that nothing can be considered as finally agreed until everything has been agreed" (Council of the European Union 2018a). Essentially, the European and the national levels dominate decision-making, but the system functions only if the interaction is non-conflictual and non-hierarchical (Sabel, Zeitlin 2012).

The authors define experimentalist governance, as follows: "a recursive process of provisional goal-setting and revision based on learning from the comparison of alternative approaches to advancing them in different contexts" (Sabel, Zeitlin 2012, 3). The mechanism described in the definition is sufficiently flexible to be applied to the EU governance, but also adaptable to the different preferences of the MS.

The theorists of experimentalist governance describe its iterative cycle, considering the abovementioned conditions and decision-making styles. It has four phases, rooted in the idea of a constant learning process and revision of priorities, as well as focused on the autonomy of actors. We apply the cycle for the governance of digital policies to see what improvements can be foreseen.

The first step refers to the establishment of broad goals and metrics as a result of consultations among the central and local units with various stakeholders involved in the process (Sabel, Zeitlin 2012, 3). What metrics

are involved in the DSM? Regarding the level of implementation, the Commission issued a mid-term review of the strategy in 2017, which assessed the progress and introduced new initiatives, such as a planned discussion on online platforms and their influence in the digital environment (European Commission 2017, 7). At the same time, the Commission introduced new types of metrics compared to the DAE indicators in the form of the Digital Economy and Society Index, an abstract metric meant to track the performance of MS in five categories, such as connectivity, integration of digital technology, e-government, human capital and digital skills. Moreover, the performance of each MS is also tracked via a digital progress report, which details on the measures implemented to tackle digital challenges. These metrics measure indirectly the progress towards the DSM using indicators, such as cross-border e-commerce. Regarding the consultations with stakeholders, as mentioned above, the Commission appeals to citizens using online consultations, to academics via the high-level working groups, as well as to private actors using various structures. They usually take place before the Commission sends a proposal.

The results of these consultations are translated into legislation, which requires some time to be approved and implemented, depending on the interaction at the EU level. Some legislation, such as GDPR or Roam like Home rules, took more than two years to be approved. In case of digital policies and the DSM, the first step of the iterative cycle includes the pursuit of legislation, because the overall purpose is to achieve a unified space at the European level. This step extends also to the fact that 'local' units, such as national authorities, have the autonomy to pursue their own goals at the first stage. In case of digital policies, there is sufficient national autonomy to pursue them, given the lack of pure EU competence and to the existence of shared competences, as well as the freedom to apply directives and make certain parts of the regulation country-specific. One case is the General Data Protection Regulation, where MS can also extend some obligations and punishments according to their country specificity (EUR-Lex 2016).

The second step refers to the idea of constant learning and improvement, which means that 'local' units, namely national actors, must report on their progress to the achievement of the goals (Sabel, Zeitlin 2012, 3–4). Each MS is subjected to the DESI evaluation, but they also must report on the implementation of directives. At the same time, the Commission must also report on the implementation of legislation at the European level, within the so-called evaluation process of regulations, such as GDPR or roaming. The purpose of these evaluations is again tied to the constant learning process

necessary in the development of digital policies. This is actually the final step in the iterative cycle of experimentalist governance, where new problems arise, as well as new solutions to current issues. For instance, the fact that the DSM appeared as a standalone strategy can be traced to the Digital Agenda for Europe, which was among the first to detail the fragmentation of the digital markets. The newest digital program of the Union, namely Digital Europe, has arisen as a means to continue the pursuit of the DSM, the digital transformation of the Union: "The Digital Single Market (DSM) Strategy has put in place a robust framework, which must now be matched by an equally robust investment programme" (European Commission 2018, 2). The program provides funding and is focused on more strategic investments, such as artificial intelligence. Hence, the revision of the goals of the DSM revealed the need for more commitment from the EU level, which has translated into the first separate funding mechanism for digital priorities (European Parliament 2018).

What lessons could be derived from experimentalist governance? Firstly, it focused on benchmarking and autonomy of actors, which do exist within digital policies, but their presence is blurred. For instance, DESI is a reporting mechanism, but it does not offer benchmarks. Similarly, the autonomy of actors mostly refers to the autonomy of national authorities, while the European ones still depend on the preferences of the former. A second lesson from experimentalist governance can be that the EU level should require a higher level of autonomy for the higher purpose of achieving the necessary goal of digitizing Europe. In this sense, one can leverage the autonomy of Member States by providing new mechanisms to tackle their specific challenges at home. For some, the challenge is the infrastructure, while for the others the challenge is boosting digital skills or promoting high-tech research. The specificity of actors should be emphasized more in the goal-setting stage. Finally, if the MS are encouraged to tackle their specific issues nationally, they may be willing to give up more on the wider EU regulation framework.

Conclusion

This article has focused on analysing the governance of digital policies of the European Union, starting from the assumption that achieving some type of digital leadership using the Digital Single Market could be one of the boosters of a stronger Union. The analysis explained the struggle between

the national and EU levels in pursuing such policies, as well as the constant development of policy-making. This has culminated in the EU-led Digital Single Market strategy for the Union. The article discussed governance policies using the experimentalist governance framework, which revealed that the autonomy of actors in EU governance should be leveraged to achieve more at the national level, as well as at the EU level.

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Innovation in EU Regions and Supporting it under EU Cohesion Policy

Abstract

Cohesion policy, as one of the EU investment policies, promotes projects with a diversified thematic scope, tailored to the development needs of the regions. Due to the fact that the financial resources under the policy are primarily directed at less developed regions, the support is focused on the development of basic infrastructure. The challenges of the knowledge-based economy make it necessary to promote innovation more intensively, also in less developed regions, in particular in the regions of new Member States. The aim of the study was to present innovation in EU regions, including new Member States, and to identify the course of action towards innovation support under cohesion policy, in particular in the light of the 2007–2013 budgetary period. The regions in new Member States were included in the group of regions with relatively low innovation. In the years 2007–2013, cohesion policy support for RTD and innovation mainly concerned enterprises, which differed according to the group of countries. The greater importance of this course of action was in the EU-15 countries than in new EU Member States.

Key words: cohesion policy, innovative capacity, innovation, taxonomic methods, structural funds, regions

Introduction

Cohesion policy, as one of the EU investment policies, supports a broad range of projects, tailored to the development needs of the particular regions. The financial resources of this policy are primarily aimed at less developed regions where the aid is focused on the development of basic infrastructure. However, the challenges of the knowledge-based economy

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make it necessary to promote innovation more intensively, also in less developed regions, in particular in the regions of new Member States with definitely lower innovation potential than in the regions of the "old" EU. The significance of this kind of support has been emphasized in the Lisbon Strategy and then in the Europe 2020 strategy, defining the objectives of smart, sustainable and inclusive growth, the achievement of which will improve competitiveness and ensure sustainable development of those Member States (European Commission 2010).

In the EU, the differences in innovation still exist not only between the countries but also between particular regions. The EU funds are transferred to support research, technological development, and innovation (RTD), in particular, the support comes from the European Regional Development Fund (ERDF), complementing the actions taken by Member States. In new EU Member States, these funds are a very important source for investment projects financed from public resources, and sometimes they are even predominant.

The scope of undertakings under cohesion policy for research, technological development and innovation (RTD) is diverse. However, the question arises: to what extent are the implemented activities under cohesion policy adequate to the needs of the regions and what should be done to narrow the gap in terms of innovation between the least developed regions and the developed ones. The aim of this study is to present the innovation potential of EU regions, including new Member States, and to identify innovation support methodology under cohesion policy, in particular in the perspective of the 2007–2013 budgetary period. It is claimed that cohesion policy, also in less developed regions, should focus more on fostering their own innovativeness. The following research methods have been used: a critical analysis of the literature on the subject, and statistical multidimensional comparative analysis, according to Hellwig's method.

Innovation in European Regions in the Light of Research

The innovative potential of EU regions is diverse and, therefore, interregional disparities in this area still exist. The innovative potential can be construed as "the ability of a country to produce and commercialize a flow of innovative technology over the long term" (Furman at al. 2002, 899). This definition can also be applied, in regional terms, as the potential that the region has in the area of creating innovation and its commercialization. Different dimensions of innovative potential (innovativeness) have been assessed by

means of selected indicators and synthetic measures, and different methods (Rodríguez-Pose, Wilkie 2019; Boix, Galleto 2009; Zabala-Iturriagagoitia et al. 2007). Such measures include the Regional Innovation Index (RIS). Its individual components are characterized by the regional innovation system. The index includes a total of 17 indicators grouped into four types, which are further subdivided into innovation dimensions: framework conditions (human resources, research systems), investments (R&D funding, corporate investments), innovative activities (innovators, connections and intellectual assets), impact (impact on employment in knowledge-based activities, and for sale) (Regional Innovation Scoreboard 2019).

In RIS 2019, the analysis covered not only EU regions (regions from 23 EU countries), but also regions in Norway, Serbia, and Switzerland, a total of 238 regions. The regions have been classified into four groups, according to their innovative activities: innovative leaders comprising 38 regions, strong innovators grouping 73 regions, 97 regions belonging in moderate innovators, and the modest innovators' group including 30 regions (Regional Innovation Scoreboard 2019, 7–11, 14). The analysis of the geography of the leading regions in terms of innovation shows that the regions referred to as innovation leaders are located in the following countries: Switzerland, Sweden, Finland, Denmark, the Netherlands, the UK, Norway, Germany, and Belgium, which means that seven countries come from the "old" EU (Regional Innovation Scoreboard 2019, 14, 17). Helsinki, followed by Stockholm, Hovedstaden belong in the group of regions of the highest level of innovation. On the other hand, only 1 region (in Czechia, Prague) from EU-13 countries belong in the group of strong innovators, and the remaining regions in this group covered by the analysis have been classified as moderate and modest innovators i.e. Czechia, Slovenia, Lithuania, Slovakia, Hungary, Poland, Bulgaria, Romania, and Croatia (Regional Innovation Scoreboard 2019, 17–18). The average size of indicators for individual groups of regions distinguished in terms of innovation is shown in Figure 1.

The methods used for conducting socio-economic analyses and determining the similarity of the examined objects, as well as their ordering, include taxonomic methods[1]. In order to compare the level of innovation of the CEE (Central and Eastern Europe) regions with other European regions and thus the ordering of the studied regions according to innovation, the method of development pattern created by Z. Hellwig, which is a taxonomic method (Hellwig 1968), was used. This method enables to identifies

[1] See. Balicki 2009, Panek 2009, Sojka 2007.

a certain pattern of development, which in our analysis is a region with "the best" values of individual characteristics (variables) and determines the distance of individual regions from the development pattern of innovation. The data included in RIS 2019 were used for the calculations, taking into account various aspects of innovation. From the potential set of 17 output variables, 2 variables were excluded, due to their strong correlation with other variables. As a result, a set of diagnostic variables covered 15 such variables. The data taken from RIS 2019 was already standardized data, which concerned the following types of innovation indicators (Regional Innovation Scoreboard 2019, 8).

Fig. 1. The Results Achieved by Groups of European Regions with the Similar Innovation Potential in the Light of RIS 2019 (average indicators in relation to the EU average, EU = 100)

Source: Regional Innovation Scoreboard 2019, 14–15.

I. Framework conditions

X_1 – population with tertiary education – percentage of population aged 30–34 having completed tertiary education

X_2 – lifelong learning – the share of population aged 25–64 enrolled in education or training aimed at improving knowledge, skills and competences

X_3 – Scientific publications – international scientific co-publications per million population
X_4 – Most cited publications – scientific publications among the top 10% most cited publications worldwide as percentage of total scientific publications of the country.

Investments
X_5 – R&D expenditure public sector –as percentage of GDP
X_6 – R&D expenditure business sector – as percentage of GDP
X_7 – Non-R&D expenditures – as percentage of total turnover (for SMEs)

Innovation undertakings
X_8 – SMEs innovating in-house – as percentage of SMEs
X_9 – Innovative SMEs collaborating with others –as percentage of SMEs
X_{10} – Public-private co-publications – per million population
X_{11} – PCT patent applications – per billion GDP
X_{12} – Trademark applications – per billion GDP (European trademark applications)
X_{13} – Design applications – per billion GDP (European Design applications)

Influence (impact)
X_{14} – Employment MHT manufacturing&knowledge intensive services as percentage of total employment (employment in medium-high and high-tech manufacturing and knowledge-intensive services)
X_{15} – Sales of new-to-market and new-to-firm innovations – as percentage of total turnover (only for SMEs)

Taking into account the character of each of the adopted diagnostic variables, all those diagnostic variables were stimulants and were used to construct a Hellwig's synthetic indicator of regions' innovation development. There are some stages in this method (Hellwig 1968).

After the selection of diagnostic variables, the standardization of these diagnostic variables (x_{ij}) to eliminate the influence the unit of measure should be applied according to the following formula:

$$z_{ij} = \frac{x_{ij} - \acute{x}_j}{S(x_j)}$$

$i = 1, 2, \ldots, n \qquad j = 1, 2, \ldots, m$
i – number of objects (regions),
j – number of variables,
$S(x_j)$ – standard deviation of variable x_j

Then the abstract object is constructed – a pattern of regional development in the field of innovation according to the following formula[2]:

$$z_{0j} = \max_{i} \{z_{ij}\}$$

z_{ij} – standardized value of the *j*th variable for the *i*th object x_{ij}, constructed for each of the diagnostic variables
The Euclidean distance from the development pattern is constructed.

$$d_{i0} = \left[\sum_{j=1}^{m} (z_{ij} - z_{0j})^2 \right]$$

d_{i0} – Euclidean distance of particular *i* object (region) from taxonomic pattern of development z_{0j}
The value of Hellwig synthetic indicator of development is defined as:

$$d_{i0} = 1 - \frac{d_{i0}}{d_0}, \quad i = 1, 2, \ldots, n$$

where:

$$d_0 = \acute{d}_0 + 3S\left(d \mid \mid 0\right)$$

and:

$$\acute{d}_0 = \frac{1}{n} \sum_{i=1}^{n} d_{i0}$$

$$S\left(d \mid \mid 0\right) = \left[\frac{1}{n} \sum_{i=1}^{n} \left(d_{i0} - \acute{d}_0\right)^2 \right]^{\frac{1}{2}}$$

The values of measure d_i refer to the range [0;1], meaning that higher values for the particular object show that a given object is closer to the reference and the situation of the region is better in terms of innovation.

[2] The application of the Hellwig's method following sources have been used in: Warzecha 2013, Sojka 2007, Pomianek 2010, Krakowiak-Bal 2005, Stec 2011, Namyślak 2015.

Next, all the objects are divided into group and the mean $\acute{d}$ and standard deviation SD(d) of values d_i were applied. 6 classes of objects – regions were distinguished (based on the criteria presented in Table 1):

class I – highest level of innovation,
class II – high level of innovation,
class III – medium high level of innovation,
class IV – medium low level of innovation,
class V – low level of innovation,
class VI – very low level of innovation.

Table 1. Values of Synthetic Variables – Innovation Measure d_i for the Particular Groups of Regions

Class no.	The bases of class determination	Class ranges	Number of regions
I	$d_i > \acute{d} + 2SD(d)$	$d_i > 0{,}6378$	5
II	$\acute{d} + SD(d) < d_i \leq \acute{d} + 2SD(d)$	$0{,}5102 < d_i \leq 0{,}6378$	34
III	$\acute{d} < d_i \leq \acute{d} + SD(d)$	$0{,}3827 < d_i \leq 0{,}5102$	86
IV	$\acute{d} - SD(d) < d_i \leq \acute{d}$	$0{,}2551 < d_i \leq 0{,}3827$	67
V	$\acute{d} - 2SD(d) < d_i \leq \acute{d} - SD(d)$	$0{,}1276 < d_i \leq 0{,}2551$	40
VI	$d_i \leq \acute{d} - 2SD(d)$	$d_i < 0{,}1276$	6

Source: own calculations based on data available at: RIS 2019-database, https://ec.europa.eu/docsroom/documents/36081.

Applying the Hellwig method allowed for the identification of 6 classes of regions with similar innovation potential within each class. The ordering of European regions according to their level of innovation is presented in Table 2.

In the ranking, the highest places in terms of the innovation potential were taken by 5 regions: 1 Danish, 1 Finnish, 1 Swedish and 2 Swiss regions, respectively: Hovedstaden, Helsinki-Uusimaa, Stockholm, Zürich, and Ticino. In class 2, which covers 34 regions, there are German, Swedish, Finnish, Danish, Swiss, Belgian, Dutch, Austrian, French and UK regions. In the third group with medium-high innovation there were only a few regions from the CEE group of countries: western Slovenia, Prague, Bratislava, Sostines region (Lithuania), and Budapest. Group IV with a medium-low level of innovation covered 67 regions, including 5 Polish ones, and group V consists of 12 regions in Poland. Group VI with the lowest level of innovation includes 6 regions, only Romanian ones.

Table 2. Classification of European Regions in Terms of Innovation According to Taxonomic Measure of Development by Z. Hellwig

Class I		Class II		Class III		Class IV		Class V		Class VI	
Position and name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development
Hovedstaden	0,650	Berlin	0,630	Limburg	0,510	Jihovýchod	0,381	Lódzkie	0,255	Nord-Vest	0,127
Helsinki-Uusimaa	0,690	Ostschweiz	0,629	Gelderland	0,506	Vzhodna tSlovenija	0,380	Wielkopolskie	0,252	Centru	0,120
Stockholm	0,660	Nordwest-schweiz	0,625	Etelä-Suomi	0,505	Kentriki Makedonia	0,379	Severozápad	0,248	Nord-Est	0,079
Zürich	0,648	Västsverige	0,620	Köln	0,503	Brandenburg	0,378	Bucuresti - Ilfov	0,248	Sud-Est	0,083
Ticino	0,642	Zentralschweiz	0,616	Braun-schweig	0,502	Warszawski stołeczny	0,378	Slaskie	0,246	Sud - Muntenia	0,068
		Oberbayern	0,595	West Midlands	0,502	Normandie	0,377	Corse	0,243	Sud-Vest Oltenia	0,043
		Sydsverige	0,594	East of England	0,501	Pest	0,373	Sardegna	0,242		
		Midtjylland	0,581	Trøndelag	0,501	Mellersta Norrland	0,372	Ciudad Autónoma de Melilla	0,240		
		South East	0,581	Languedoc-Roussillon - Midi-Pyrénées	0,500	Jihozápad	0,371	Anatoliki Makedonia, Thraki	0,238		
		Région lémanique	0,578	Hamburg	0,497	Kassel	0,370	Nyugat-Dunántúl	0,237		

Table 2. (cont.)

Class I		Class II		Class III		Class IV		Class V		Class VI	
Position and name of region	Measure of devel-opment	Name of region	Measure of devel-opment	Name of region	Measure of devel-opment	Name of region	Measure of devel-opment	Name of region	Measure of devel-opment	Name of region	Measure of devel-opment
		Karlsruhe	0,575	Dresden	0,496	Comunidad Valenciana	0,363	Calabria	0,236		
		Östra Mellansverige	0,571	Pohjois- ja Itä-Suomi	0,496	Střední Morava	0,362	Közép-Dunántúl	0,234		
		Espace Mittelland	0,564	Gießen	0,490	Dytiki Makedonia	0,361	Stredné Slovensko	0,233		
		Utrecht	0,563	Nordjylland	0,489	Střední Cechy	0,356	Dél-Alföld	0,233		
		Westösterreich	0,558	Friuli-Venezia Giulia	0,483	Koblenz	0,355	Castilla-la Mancha	0,231		
		Tübingen	0,558	East Midlands	0,483	Abruzzo	0,355	Opolskie	0,227		
		Oslo og Akershus	0,554	Vestlandet	0,482	Ipeiros	0,352	Dél-Dunántúl	0,227		
		Noord-Brabant	0,549	Småland med öarna	0,478	Nord-Pas de Calais - Picardie	0,350	Peloponnisos	0,224		
		Länsi-Suomi	0,547	Scotland	0,477	Aragón	0,349	Észak-Alföld	0,224		
		Vlaams Gewest	0,544	Yorkshire and The Humber	0,476	Niederbayern	0,348	Świętokrzyskie	0,224		
		Südösterreich	0,542	Overijssel	0,473	Malopolskie	0,347	Észak-Magyarország	0,220		

		London	0,540	Övre Norrland	0,473	Mecklenburg-Vorpommern	0,347	Lubuskie	0,219		
		Mittelfranken	0,539	Provence-Alpes-Côte d'Azur	0,466	Moravskoslezsko	0,345	Jadranska Hrvatska	0,219		
		Ostösterreich	0,535	Emilia-Romagna	0,466	Sachsen-Anhalt	0,344	Kujawsko-Pomorskie	0,219		
		Île de France	0,532	Unterfranken	0,466	Zeeland	0,344	Southern and Eastern Serbia	0,217		
		Rheinhessen-Pfalz	0,530	Oberfranken	0,465	Liguria	0,342	Mazowiecki regionalny	0,215		
		Stuttgart	0,530	Zahodna Slovenija	0,463	Åland	0,341	Lubelskie	0,212		
		South West	0,530	North West	0,459	Lüneburg	0,339	Extremadura	0,208		
		Darmstadt	0,529	Lombardia	0,458	La Rioja	0,337	Severen tsentralen	0,208		
		Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	0,529	Groningen	0,449	Provincia Autonoma Bolzano/ Bozen	0,334	Podlaskie	0,204		
		Noord-Holland	0,528	Praha	0,448	Friesland	0,334	Zachodniopomorskie	0,201		
		Freiburg	0,526	Région Wallonne	0,447	Hedmark og Oppland	0,327	Yuzhen tsentralen	0,200		
		Auvergne - Rhône-Alpes	0,524	Flevoland	0,444	Região Autónoma da Madeira	0,320	Severoiztochen	0,198		

Table 2. (cont.)

Class I		Class II		Class III		Class IV		Class V		Class VI	
Position and name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development
		Zuid-Holland	0,523	Syddanmark	0,443	Campania	0,318	Šumadija and Western Serbia	0,197		
				Leipzig	0,443	Dytiki Ellada	0,318	Yugoiztochen	0,194		
				Kriti	0,438	Valle d'Aosta/ Vallée d'Aoste	0,316	Notio Aigaio	0,187		
				Bremen	0,438	Região Autónoma dos Açores	0,311	Warminsko-Mazurskie	0,177		
				North East	0,438	Yugozapaden	0,310	Ciudad Autónoma de Ceuta	0,171		
				País Vasco	0,437	Canarias	0,310	Severozapaden	0,160		
				Veneto	0,436	Cantabria	0,309	Vest	0,135		
				Bretagne	0,435	Basilicata	0,309				
				Oberpfalz	0,435	Belgrade	0,308				
				Hannover	0,433	Región de Murcia	0,308				
				Eastern and Midland	0,433	Weser-Ems	0,308				
				Agder og Rogaland	0,433	Algarve	0,307				

				Düsseldorf	0,433	Principado de Asturias	0,306						
				Wales	0,432	Kontinentalna Hrvatska	0,303						
				Detmold	0,429	Ionia Nisia	0,302						
				Thüringen	0,428	Puglia	0,300						
				Aquitaine - Limousin - Poitou-Charentes	0,428	Galicia	0,291						
				Southern	0,425	Vidurio ir vakarų Lietuvos regionas	0,288						
				Provincia Autonoma Trento	0,425	Régions ultra-périphériques françaises	0,286						
				Toscana	0,423	Pomorskie	0,285						
				Cataluña	0,423	Dolnoslaskie	0,284						
				Münster	0,422	Thessalia	0,284						
				Sjælland	0,421	Sterea Ellada	0,284						
				Lisboa	0,421	Vojvodina	0,282						
				Sør-Østlandet	0,419	Molise	0,281						
				Schwaben	0,419	Podkarpackie	0,279						

Table 2. (cont.)

Class I		Class II		Class III		Class IV		Class V		Class VI	
Position and name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development	Name of region	Measure of development
				Marche	0,418	Voreio Aigaio	0,278				
				Arnsberg	0,418	Castilla y León	0,274				
				Pays de la Loire	0,417	Alentejo	0,271				
				Norte	0,416	Sicilia	0,270				
				Piemonte	0,415	Illes Balears	0,265				
				Northern and Western	0,413	Andalucía	0,265				
				Alsace - Champagne-Ardenne - Lorraine	0,411	Západné Slovensko	0,259				
				Attiki	0,411	Východné Slovensko	0,257				
				Comunidad Foral de Navarra	0,410						
				Bourgogne - Franche-Comté	0,409						
				Bratislavský kraj	0,406						

				Severový-chod	0,402						
				Umbria	0,400						
				Centro	0,400						
				Trier	0,399						
				Centre - Val de Loire	0,396						
				Comunidad de Madrid	0,396						
				Chemnitz	0,396						
				Northern Ireland	0,395						
				Norra Mel-lansverige	0,389						
				Saarland	0,389						
				Sostinės regionas	0,389						
				Nord-Norge	0,386						
				Drenthe	0,385						
				Budapest	0,385						
				Lazio	0,384						
				Schleswig-Holstein	0,383						

Source: own calculations based on data available at: RIS 2019-database, https://ec.europa.eu/docsroom/documents/36081.

According to the data presented, the CEE regions are characterized by the low level of innovation, both in the light of the results of RIS 2019, as well as the ordering according to the Hellwig method. They were, to a large extent, in the group of regions with medium-low, low and very low levels of innovation. Only 5 regions in CEE countries were in the group of regions with medium-high innovation and these were the regions in which the capital cities are located. It also means that the development of the regional innovation systems in these countries and the proper targeting of interventions are necessary. EU funds are an important source of funding for this kind of intervention, also in the field of innovation, as indicated by the results of support within the 2007–2013 programme period.

Supporting Regional Innovativeness in the Years 2007–2013 and 2014–2020 under Cohesion Policy Budget

The basic and treaty goal of cohesion policy is to reduce existing inequalities. In order to achieve it, funds are made available through which interventions are carried out in various areas. The total budget under cohesion policy in 2007–2013 was €346.5 billion, 78% of which came from ERDF and Cohesion Fund resources, i.e. €269.9 billion.

Over 80% of the total allocation of these two funds went to the convergence objective programmes, and 2/3 of the same funds went to the EU-12 countries. The instrument financing the interventions in this period was also the European Social Fund supporting the convergence objective of €52.7 billion, for which 69% of the total allocation of the fund was used (W1: Synthesis report, 10–11, 90–91).

Other objectives of cohesion policy were also supported: regional competitiveness and employment, and European territorial cooperation. However, support methods vary depending on the level of economic development of particular countries and their regions, because in the countries representing a relatively lower level of development in relation to the EU average, the interventions within the framework of cohesion policy supplement existing infrastructural shortages. In the years 2007–2013, in the EU-12 countries, the dominant support method from the ERDF and the Cohesion Fund was to finance various types of infrastructure (in particular transport or environment), for which about 70% of the allocation of these funds was used or even more. Similar support methods were implemented in the EU-15 regions in order to achieve convergence, i.e. to a large extent in four EU countries of the South. As part of cohesion policy, funds were also

allocated to support RTD, innovation and enterprises. The total share of support for RTD and innovation from these two funds accounted for around 17% in the EU-27, with the share in the EU-15 countries being 23%, while in the EU-12, 12.8% (Table 3). If we take additional funds (ERDF, Cohesion Fund) aimed at supporting enterprises into account, comprising innovation, then the total allocation for the cohesion policy support for the RTD

Table 3. Areas of ERDF and Cohesion Fund Support in the Years 2007–2013 (as % of the total allocation) in EU Countries and According to Cohesion Policy Objectives

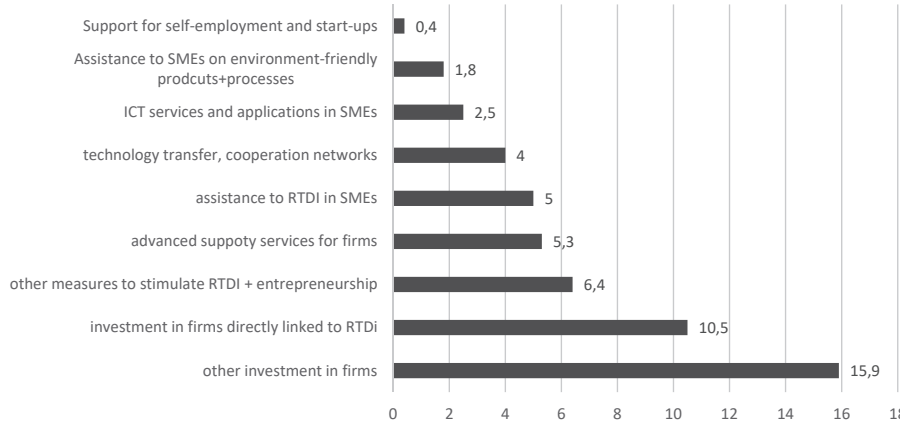
	EU12	EU15			EU27	
	Total	Conver-gence	Competitiveness and employment	Total	Conver-gence	Competitiveness and employment
RTD and innovation	12.8	16.7	34.9	23.0	14.0	33.6
Entrepreneurship	1.5	2.3	5.8	3.2	1.8	5.5
Other investment in enterprises	4.4	8.3	9.2	8.4	5.8	9.2
ICT for citizens + business	4.1	3.7	6.3	4.5	3.6	6.1
Environment	17.6	16.2	9.2	13.8	17.2	9.1
Energy	4.5	3.9	7.0	4.4	4.4	6.6
Broadband	0.8	0.8	1.7	1.1	0.8	1.6
Roads	21.1	13.1	1.0	9.9	18.6	1.9
Rail	9.8	9.5	2.7	7.4	10.0	2.5
Other transport	6.5	5.5	5.2	5.3	6.3	5.3
Human capital	0.2	0.0	0.5	0.2	0.1	0.5
Labour market	0.1	0.1	1.0	0.3	0.1	0.9
Culture+social	9.5	10.7	4.1	9.0	9.7	5.2
Social inclusion	0	0.1	0.1	0.1	0.0	0.1
Territorial dimension	4	6.7	8.8	7.0	4.8	8.9
Capacity building	0.2	0.2	0.3	0.2	0.2	0.3
Technical assistance	2.9	2.1	2.3	2.2	2.6	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: W1: Synthesis report, 92.

and innovation was 26%, and the support for this area for EU-15 regions with their regional competitiveness and employment goals, amounted to 50%, whereas in EU-12, that was 19% of the allocation (W1: Synthesis report, 11, 90–91)[3].

As the evaluation report shows, support from ERDF for SMEs in the amount of €51.9 billion was allocated, to a large extent, to stimulate research and innovation through diversified tools starting from support for technology transfer or start-ups (W1: Synthesis report, 13, 118). The methods of supporting enterprises financed by ERDF in the 2007–2013 programme period are shown in Figure 2.

Fig. 2. Methods of Support from ERDF SMEs in 2007–2013 in the EU-27, in €billion



Source: modified fig. 3.1. in: W1: Synthesis report, 119.

ERDF supported companies in the field of RTD and innovation, during the financial and economic downturn, when companies usually reduce such expenditures. It co-financed investments that contributed to, among others, a turnover increase, profitability, export growth, as well as changes in the behaviour of SMEs managers, because SME owners were more willing to take risks and innovative activities. It also led to a positive impact on other companies. However, about 56% of SME in manufacturing that received support (regardless of the support methods) were in manufacturing low-tech companies (W1: Synthesis report, 126).

The conclusions resulting from the above-mentioned report indicate that SMEs with the necessary managerial capacity receive the greatest benefits

[3] Unless otherwise stated, 2.1 has been based on: W1: Synthesis report.

from supporting SMEs; the policy tools (measures) are more effective and the results are better when they are adjusted to existing circumstances. It is important to involve intermediaries who have knowledge of the local situation and the use of tools. Support instruments, on the other hand, should be tailored to the local context, including the anticipated/triggered changes that they may cause (W1: Synthesis report, 127–128).

Support for RTD and innovation was also intended for organizations such as universities and research centres, i. e, constituting approximately 6% of the total ERDF allocation, to a large extent, to entities located in the Convergence Objective regions and in urban areas. This was an important method of support, also in the context of support received from the 7th Framework Programme. However, funding from the Framework Programme was allocated in different ways due to the objectives it was supposed to achieve, focusing on more prosperous regions with better innovation potential (W1: Synthesis report, 128–129).

Large enterprises also received support (about 20% of direct support for enterprises), in particular as grants or loans (W1: Synthesis report, 13, 131). Financial instruments supporting enterprises were also available, and the volume of this type of support systematically increased in subsequent programming periods, amounting to €1 billion in the 2000–2006 programme period financed by ERDF, while in the next period it amounted to €11.5 billion. Funds were channelled through loans, equities, venture capital, and guarantees. Financial resources launched through venture capital funds also supported enterprises operating in high technology industries and in knowledge-based services (Ex-post evaluation, 24–26).

However, a question about the effectiveness of interventions in this area arises. While assessing regional policy interventions in the field of research, technological development and innovation (RTD and innovation) (accounting for 5.4% of expenditure in such regions) in the 2000–2006 programme period in Objective 1 for EU-15 regions, Ferrara and others point out that activities related to innovation increased, which is reflected in an increase of patent applications (per 1 million inhabitants in a given region) (Ferrara et al.). Also, the results of the evaluation of the potential impact of cohesion policies in the 2007–2013 budgetary period using the Quest model are positive. This model involved various methods of intervention, including all expenditures on research, technological development, and innovation, including creating networks and partnerships in the field of business and research institutions. A positive impact on GDP in the 2007–2023 programme period is emphasized, in particular in the EU-12 countries.

However, initially, there is a negative impact on GDP connected with the relocation of highly qualified employees in the production of final goods and related to the growth of R&D activity. There are effects on the increase in the number of patents (related to fostering innovative processes) (Monfort et al. 2017, 12–13, 33). It is emphasized that the main effects of investments made in this area will be reflected in the long run when positive effects related to an increase in productivity are visible; the effects will become tangible soon after withdrawing the support (Monfort et al. 2017, 13, 25).

However, the positive effects of cohesion policy in terms of economic growth and employment are not evenly allocated, and therefore its effects are heterogeneous in particular EU countries (Monfort et al. 2017). Crescenzi and Giua stress that there are diversified effects of financial aid provided to regions, also in terms of its various aspects (Crescenzi, Giua 2018).

Emphasizing the role of innovation as the causative factor of inclusive growth, at the same time attention is paid to the concentration and tendency to concentrate innovative activity in several leading regions, however, innovation does not always spread (OECD 2015).

A great difficulty in bridging regional innovation gaps is the occurrence of regional innovation paradox, which means that less-favoured regions with relatively higher needs for expenditure on innovation are characterized by a lower potential for absorption of public funds in this area. Even if the means are available, those regions have a greater difficulty in absorbing them than the more developed regions. This makes it necessary to pay more attention to activities aimed at increasing the potential of these less-favoured regions to absorb the funds for innovation. Recommended policies should include measures stimulating the growth of supply and demand and increasing the private and public sector investment in innovation. Also, the integration of technology and industrial policy should be ensured in terms of increased spending on innovation (Oughton at al. 2002).

In the new 2014–2020 programme period, promoting innovation is an important part of support, which is still ERDF funded with an allocation of €54.4 billion, mainly supporting enterprises in this area, also from the Horizon 2020 programme: €74.8 billion, other funds under ESI Funds, which have supported research, innovation and ICT (My region… 2017, 187). However, in terms of emerging challenges and the need to promote a new growth model at the regional level, the following challenges have been identified that need to be addressed: further reforms of innovation and research systems in the regions, increased cooperation concerning investment in regional innovation,

leveraging effects in research and innovation in less developed or transition regions, as well as the use of synergy and complementarity between policies and instruments (European Commission 2017, 4). A precondition for using funds under cohesion policy in this period was specified in a strategy for smart specializations which is defined as "the capacity of an economic system (a region, for example) to generate new specialties through the discovery of new domains of opportunity and the local concentration and agglomeration of resources and competences in these domains" (Foray 2015, 1).

Conclusions

To sum up, regional disparities in innovation in the EU still occur, and the regions in new Member States belong in the group of regions with relatively low level of innovation. The results of putting regions into groups obtained by the Hellwig method showed that the regions of new EU member states were classified into one of the groups: medium-low, low and very low level of innovation, and few of them belong in the group with a medium-high level of innovation. In the group of EU-12 regions, the highest places in the ranking were taken by those regions where the capital cities are located and there is a concentration of R&D and innovation activities. The regions with the lowest level of innovation are in Romania. Further on, research should be carried out to identify the changes in the position of regions in the ranking in terms of their innovation potential occurring over a certain period of time.

In 2007–2013, support for RTD and innovation under cohesion policy was mainly aimed at enterprises which varied from country to country. In the EU-15 countries, the share of allocations from the ERDF and the Cohesion Fund for this method of support was larger than in the EU-12 countries. This also resulted from the problems that new EU member states were facing and the need to fill the gaps in basic infrastructure. In the 2014–2020 budgetary period, it was necessary to prepare smart specializations in order to obtain support under cohesion policy.

The assessments indicate the positive effects of cohesion policy investment on R&D and innovation, but not all the regions have the right potential despite the actual needs to accept and use this assistance. Emphasizing the importance of public aid in the field of RTD and innovation, some activities are needed to develop the potential for its effective use.

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Ioan Horga[*]

Cross-Border Cooperation (CBC) in Central and Eastern European Countries as a Tool to Build a Stronger a Single Market by Boosting Jobs and Growth. Case Studies: Eurometropolis Lille and DEBORA Eurometropolis Project

Abstract

The paper will seek, on one side, to usequantitative data to answer the question: "How does Cross-Border Cooperation as an instrument of EU integration of the communities from marginalized areas from two or more neighboring states evolve from peripheral communities to borderland proximity communities in order to work in direction of a stronger Single market boosting jobs and growth?" On the other hand, using a qualitative perspective, it will try to answer the question: "How do CBC proximity communities evolve towards CBC communities, through an ample integration process – especially endogenous – tending to Eurometropole, Eurocities etc.?" The approach is based on the comparative analysis of two examples of crossborder cooperation structures, one with a very high degree of integration, Eurometropolis Lille-Kortrijk-Tournai, and the other in the process of development, DEBORA Eurometropolis Project (Debrecen-Oradea).

Key words: Cross-Border Cooperation (CBC), Single market, Eurometropolis Lille-Kortrijk-Tournai, DEBORA Eurometropolis Project

Introduction

In a global economy which is more and more competitive, EU must improve the Single Market to face these challenges, using all the opportunities the market has. In a global economy that is more and more digitalized, the market is not any longer limited by state borders.

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The creation of the cross-border city networks is part of the European integration process. Linking towns, cities, metropolitan areas and their hinterlands with each other via infrastructure and strategic cooperation, and forming polycentric urban regions represents the EU's answer to global competition. In terms of city competition for attracting capital investment and improving the position within the international urban hierarchy, transnational and cross-border urban networks, are just as applicable in Central and Eastern Europe as elsewhere in the world (Pichler-Milanović 2005, 1).

The practice of cross-border cooperation, especially in Western Europe, showed that borders are opportunities for development, but they are not fully explored at the whole EU level. Even if important steps have been made in this direction in 60 years of cross-border cooperation (Groenedjik 2018, 311–322) there are still a lot of opportunities and advantages that haven't been explored.

The cities in Central and Eastern Europe are "path dependent" on their pre-socialist well as their socialist-period legacies. Also we must add the effects of the opening up of cities to wider European and global forces through the adoption of more market-orientated principles and practices, leading to their greater or lesser integration or re-integration into a broader European and world urban system (Pichler-Milanović 2005, 3). These elements, in the case of cities from borders area are veiled in the coat of a vision predominant national upon the role these localities have in marking the state territory.

Of course, with EU accession and the opportunity of applying for European funds for cross-border cooperation, the actors from big border cities have changed.

An example of the level these can reach in using the opportunities offered by CBC as a tool to build a stronger a Single Market, with a big impact in creating growth, are the successful examples from the borders of states in Western Europe: Regio Basiliensis or Eurometropolis Lille-Kortrijk-Tournai. Concerning the present potential, we can speak also the shy achievements in this field from Central and Eastern Europe (CEEC), and as well about the existence of potential actors that can be involved. Talking about CBC in CEEC it must be said that here we have to deal with a deconstruction of the memory and behavior of national type, which maintain these regions on a waiting phase, but also an inertia in assuming cross-border projects that can be engines for the construction of new communities which can overpass the statute of proximity communities (Horga 2018, 189–199; Haselberger, Benneworth 2010, 229–254) which can be met now at the borders between these states.

Starting from this stage, in the present paper we try to analyze and formulate some observations regarding the role that Cross-Border Cooperation (CBC) can have as an instrument to build a stronger a Single Market by boosting jobs and growth in Border Regions of the EU. That's why the paper will try, on one hand, using quantitative data to answer the question: How does Cross-Border Cooperation as an instrument of EU integration of the communities from marginalized areas from two or more neighboring states evolve from peripheral communities, to borderland proximity communities in order to work in direction of a stronger Single Market boosting jobs and growth? On the other hand, using a qualitative perspective, the paper will try to answer the question: How do CBC proximity communities evolve towards CBC communities, through an ample integration process, especially endogenous – tending to Eurometropole, Eurocities etc.? The approach is based on a comparative analysis of two examples of structure of crossborder cooperation, one with a high degree of integration, Eurometropolis Lille-Kortrijk-Tournai, the other in the process of construction: the DEBORA EurometropolisEurometropolis Project (Debrecen-Oradea) (Suli-Zakar 2009, 139–147).

Cross-Border Cooperation as an Instrument of EU Integration in Order to Work in Direction of a Stronger Single Market Boosting Jobs and Growth

The last decade made Europeans, and especially people from Eastern Europe, face an important dilemma. On the one hand, they expect to see a mature reality in terms of borders – the suppression of any border controls, the development of cross-border cooperation poles according to the western model, the development of integrated border areas and not based on socio-economic differences on each side of the border. On the other hand, they have the feeling that are in front of a resurrection of *hardware* instead of *software* at all EU internal borders, an alienation from the cross-border enthusiasm of the previous decade; the emergence of new borders as a result of successive crises after 2008.

There are a number of general elements that explain this situation. First of all, the kind of model adopted by the Central and Eastern European states on their way to accession. According to Schimmelfennig and Sedelmeier, three models have occurred in this process:he external incentives model, the social learning model and the lesson-drawing model (Schimmelfennig,

Sedelmeier 2004, 675), which gave a certain perception on borders and cross-border cooperation, different according to the model of influence.

Secondly, a major impact in this process was the survival of *old governance*: a hierarchical and vertical process of command, control, and steering by the state–which restricted the local or regional initiative possibilities either by a self-censorship behavior, or as a result of some recentralization tendencies (Horga 2017, 63–79) present in the Central Europe space, in the version of illiberalism or authority of a sovereign (Horga, Feier 2018, 13–34). In our opinion, a symptom of blockage of cross-border cooperation in Central and Eastern Europe is that the European initiative: *European Grouping of Territorial Cooperation* (EGTC) (Toca 2010, 90) was not successful.

EGTC is a specific instrument of *new governance*: horizontal co-ordination and co-operation, negotiated in decentralized settings between public and private actors. The role of the EGTC is to organize and administer cross-border, transnational or interregional cooperation measures with or without financial support from the EU.

Thirdly, once the economic-financial crisis led to the forming of several types of borders between the Member States. First, it is about a general crisis of the European social-model. This general crisis appears to be the first border between the states that were strongly anchored in the preservation of the European social-model (Whyman et al. 2012, 217; Kundera, Marcut 2013, 253) and those who amended it with neo-liberal measures. Although these borders have the meaning of splitting, they marked the general perspective on borders as well.

The reduction of the activity of the Western Europe during the economic crisis or its orientation compared to the world states with emerging economies will have devastating effects in Central and Eastern Europe, which marked a process of internalizing of this unbalance.

Finally, the security crisis from the last 10 years seems to have reopened the frontiers in Europe, between the Old and the New Europe, between the North and the South.

These economic and security developments at the level of the European Union, which fuelled the feeling that the new EU Member States are second-tier countries, to which is added the affirmation of Russia that the European Union, through its relations with the Eastern Partnership states threatens the future of this great power, makes Russia return to power plays in Central and Eastern Europe. The lack of a coherent European security and common defence policy coupled with the national interests of some Member States created the conditions for Russia to return to the

CEEC scene and to resume the importance of the border topic in CEECs (Dolghi 2014, 18).

We believe in the some way as Christophe Sohn said "in Central and EasternEurope we assist more and more to the development of two models of the borders. One is *'geo-economic'*, based on the mobilization of the border as a differential benefit and aims to generate value out of asymmetric cross-border interactions. Such a process of functional integration implies the perpetuation of the border as a source of revenue. The second model, called *'territorial project'*, emphasizes the border resources that involve a convergence of both sides of a border, either through a process of hybridization or via the symbolic recognition borders entail" (Sohn 2014, 587–608).

Even if important steps have been made in development of territorial cooperation in Central and Eastern Europe, especially from the point of view of the "geo-economic" model we consider that the model of the "territorial project", which is a solution to transcend some historic-political levels, is still a goal that waits to be assumed and implemented, so that the opportunity of cross-border cooperation to be a source of development between small and medium cities in Europe (Decoville et al. 2015). A claim in favour of our assertion is the comparative analysis that we realize in the next subchapter between the successful example of a CBC *territorial project*, that of Eurometropolis Lille-Kortrijk-Tournai and the one in the process of development namely, DEBORA Eurometropolis Project/Debrecen-Oradea (Horga, Toca 2008, 73–83).

The Case Studies for this Paper

For our analysis we made two tables with information that allow us to make a comparison between the two projects. Our analysis will focus on two sets of criteria: Quantitative Criteria and Qualitative Criteria.

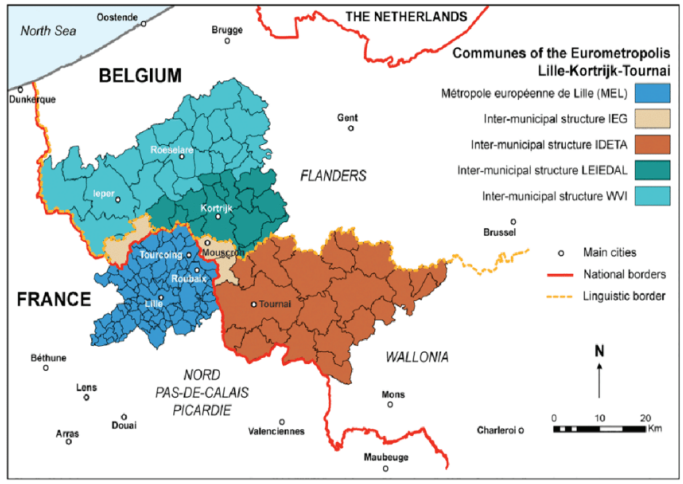
Quantitative Criteria

In the table 1 we inserted some quantitative data (Decoville et al. 2015).

Analysing the data, together with the map we can notice that Lille-Kortrijk-Tournai (F/B) is an integrated structure, that benefits from several advantages. On the one hand from a demographic point of view it is represented by the urban eurometropolitan concentration parte, Lille-Roubaix-Tourcoing, which, on the other hand, is doubled by cross-border inter-cities cross border structures.

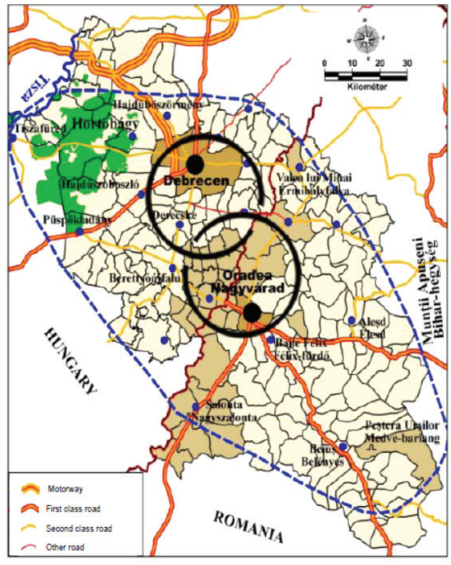
Table 1.

Quantitative Criteria	Eurometropolis Lille-Kortrijk-Tournai (F/B)	DEBORA Project (Debrecen-Oradea Eurometropolis)
Demographic	21 million	700,000
Distance between the borders of cities (Brakman and all 2010, 20)	10–40 km	15–50 km
Time distance between main centers	25–30 minutes	60–70 minutes
Principal CBC structures: a) Status of cooperation b) Other CBC structures	Eurometropole Lille-Kotrijk-Tournai EGTC NO	Euroregion Bihor/Hajdu Bihar Associations NO
CBC Integration context a) Type of border b) Currency c) Transport infrastructure – Motorway – Direct Route – Train – airport – Public transport	 Schengen Border Euro 3 – Paris, London, Brussels 4 Roads TGV – Paris, London, Brussels Intercity train 1 with – 53 destinations –4.4 million passengers (2018) Metro, buses	 Non-Schengen Border Forint HU/Leu RO 1 – Budapest 2 Roads NO NO Debrecen – with 9 destinations – 400.000 passengers (2018) Oradea – with 6 destinations – 260.000 passengers (2018) 2 connections daily
Business Infrastructure – Business Zones – Center of High Innovation – Clusters	 More than 50 2 1	 6 in Debrecen; 7 Oradea NO NO



The cross-border urban integration is sustained through a very rich infrastructure, represented on one hand by the transport infrastructure: connections with three European metropolises, Brussels, London and Paris by highways and TGV; inter-metropolitan connections: roads, railways, subways; as well as international connections with 53 destinations and over 4 million passengers in 2018. On the other hand, the cross-border urban integration benefits from a strong Business Infrastructure, represented by those over 50 Business Zones, 3 Centers of High Innovation and 2 Clusters. This cross-border urban integration would not have been possible without the existence of several conditions. On the one hand, we discuss about a cross-border urban structure crossed by an *integration border* (Brakman et al. 2010, 12) of two member states of the Schengen zone and eurozone. On the other hand, we discuss a cross-border structure which was the first to create a European Grouping Territorial Cooperation, in 2008.

Analysing by comparison the quantitative data refering to Eurometropolis Lille-Kortrijk-Tournai with those of the DEBORA project, several similar points can be noticed that are also defining elements from the perspective of the project's success: a demographic and community basis, with potential even if it is spread; the proximity of the two cross-border urban poles Debrecen and Oradea; the possibility of development of an infrastructure providing intermetropolitan connection, but also the connection with other poles of economic growth.



Debrecen-Oradea cross-border eurometropolis (2007–2013)

Worksgroups:

- regional and urban development
- development poles
- human resources
- accessibility
- infrastructure development
- migration
- tourism
- environmental health
- region and urban marketing
- security
- identity, inter-ethnic relationship
- CBC cross-border connections

Goal: establishment of joint education-research-development-health tourism (innovative) cluster of Debrecen-Oradea

Border of the Debrecen-Oradea agglomeration

Hajdú-Bihar – Bihor Euroregion

Bihar-Bihor Euroregion

Small and middle towns belongigng to the agglomeration

Hortobágy National Park

The crossborder urban integration between Oradea and Debrecen is still at the beginning, only in 2021 there will be a highway that links the two cities, and the time to get from one city to another will be reduced to 35–40 minutes. At the same time, this highway will provide a rapid connection with two European metropolises: Budapest (2h); Vienna (4h); regarding other intermetropolitan connection these can be created directly only by road. A rapid railway connection can be achieved only by reopening a railway that links the two cities only in 2020. From the point of view of international air connections there is a strong competition between the two cities, Debrecen and Oradea, each one having an international airport, taking passengers from one another, especially Debrecen, that has more international destinations compared to Oradea, but with a relatively small number of passengers, less than one million in 2018 in total.

From the point of view of Business Infrastructure, Debrecen-Oradea area has begun to be an attractive space for investors, especially after the economic crisis, which exploits the complementarity of the human resources that they find in the area, or they assumed to be integration actors, developing businesses on one side and the other of the border (Pop et al. 2017, 149–168). But, in this area we have only 14 Business Zones, without having a Center of High Innovation or Clusters, that will provide the development of the area by exploiting the advantages of the Knowledge Economy. The cross-border urban integration between Debrecen and Oradea is still not possible as long as we talk about a cross-border urban structure crossed by a border between two member states which on one side are separated by a Schengen border and on the other side are outside the eurozone, which complicates the flow of capital, goods, people and services.

Qualitative Criteria

In the table 2 we gathered some data considered qualitative (Decoville et al. 2015), that try to answer three questions: Which is the level of institutional integration of the two crossborder analyzed entities?; If elements exist to show how the CBC communities have transformed endogenously and exogenously in the CBC proximity communities? Which elements exist to enable us to talk about the existence of CBC communities?

Analysing comparatively the two crossborder entities in the light of the three questions we asked at the beginning of this subchapter, we can notice, first of all, that in the case of *Institutional integration* its level is very high in the case of Eurometropolis Lille-Kortrijk-Tournai (F/B), considering that: the

Coordination of technical staff is done through Integrated Team, which acts based on territorial strategy (CBC White Paper from 2004) and on Institutional Mapping at all levels of administration (local, regional, national).

Table 2.

Qualitative Criteria	Eurometropolis Lille-Kortrijk-Tournai (F/B)	DEBORA Project (Debrecen-Oradea Eurometropolis)
Institutional integration		
a) Level of integration	High	Small
b) Coordination of technical staff	Integrated Team	Coordination at local level
c) Existence of territorial strategy	CBC White Paper (2004)	NO
d) Institutional Mapping	All levels (local, regional, national)	Only local level
CBC proximity communities		
a) Local and regional authorities involved in CBC	French-Belgium Regional Economic Liaison Committee (1960) Franco-Belgian Commission for the development of borders regions (1970) Launch 1991 the Interreg Initiative	Oradea-Debrecen partnership (1992) Associations of Border Communes (1996) Launch Phare CBC HURO (2000–2006) Program HURO (2007–2013) Program ROHU (2014–2020)
a) Business Environment	CBC initiative	NO – business initiative (before 2007)
b) Other actors	Universities integration (1990)	Partnership UO-UD (2000)
CBC communities		
a) Institutional integration	COPIT – first CBC organization (1991) EGCT Eurometropolis – 2008	NO
b) Type of collaboration	– integrated in the strategy of the EGCT	Horizontal Collaboration – police, firefighters, etc
c) CBC mobilities**		
– Cross Borders Commuters	F-BE = 27.360 (2012) Be-F = 5959	RO-HU = 6883 (2012) HU-RO = 423
– CB residential integration	F-BE= 19.162 (2012) BE-F = 47.454	RO-HU = 500–700 (2015) HU-RO – No data
d) CBC in the Education and Science	Universities from Lille more than 1500 students from Belgium Institut TVES Lille	Oradea and Debrecen up to 100 students in mobilities Institute of Euroregional Studies Debrecen Oradea (2006)

By comparison, in the case of DEBORA Project (Debrecen-Oradea Eurometropolis) *Institutional integration* level is very limited, considering that: there is no Coordination of technical staff at the level of cooperation structure, each entity at local level has a technical staff that takes care only about CBC projects, without working on a basis of a territorial strategy and without being part of a system of Institutional Mapping.

Secondly, the following elements show how the communities that compose today Eurometropolis Lille-Kortrijk-Tournai have transformed endogenously and exogenously in the CBC proximity communities: they had at the bottom, on one side, the local and regional authorities initiatives in CBC, which acted within framework programmes (French-Belgium Regional Economic Liaison Committee; Franco-Belgian Commission for the development of borders regions; participation in the Interreg Initiative from 1991.

In case of DEBORA Project the initiatives that were meant to lead to transformed endogenously and exogenously in the CBC proximity communities started with a delay of more than 3 decades, compared to those from the French-Belgium border, only after the fall of communism in the countries from Central and Eastern Europe. The fact that the local and regional authorities understood immediately the opportunity offered by cross-border cooperation is proved by the fact that in 1992 a twinning partnership was signed between Debrecen and Oradea, and in 1996 the Associations of Border Communes was launched, which comprises communes situated on one side and the other of the Romanian-Hungarian border.

If during 2000–2006, the local authorities in this cross-border space had access to limited resources through the programme Phare CBC, when Hungary and Romania entered the EU, the access to European financing that supported integration projects became more consistent.

Analysing the participation of public authorities in Bihor county at the development of the Programme of Cross Border Cooperation Hungary-Romania – HURO (2007–2013) (HURO CBC-KMPG 2013, 138) through the number of projects in eligible fields in conformity with the priorities of the programme and financed ones, we can see that 103 projects were financed, the most related to Environment (26), followed by Tourism (20), road and railway infrastructure 19, business infrastructure 13, job market-8, medical infrastructure-6 and infrastructure in the ITC field-5.

From the point of view of the applicants the majority of projects were won by Oradea Municipality – 17 projects (16% of the total number), out of these 6 in the field of tourism, almost all in the medical field-5, business

infrastrucure and ITC–5 and 2 projects in road infrastructure and cycle path area. In the financial cycle 2007–2013 municipality of Oradea atttracted 5 million euro (16%), out of the total 130 million given to the Romanian part in the entire HURO programme.

In the Programme Interreg V-A Romania-Hungary (ROHU), 2014–2020 several projects for increasing the integration in the crossborder space Debrecen-Oradea were proposed: creation of a Technological Incubator of Businesses in Oradea (IT HUB); the development of an intermodal centre with access facility to the road and railway transport between Biharkestes (H)- Episcopia Bihor (RO); investments in the field of the use of geothermal waters in touristic activities and providing thermal energy on both sides of the border; maximisation of touristic destinations of national and international importance in Bihor County (Oradea, Băile Felix, 1 Mai, Apuseni Mountains area, Ierului Valley) and Hajdu Bihar (Debrecen, Hajdusoboslo), setting up of tracks like *Wine Track*-in the microregion Ierului Valley.

Cooperation developed at the level of the business environment especially after 2007, either between companies situated on both sides of the frontier, or between the Chambers of Commerce and Industry from Debrecen and Oradea, and also the cooperation in the universitary field are encouraging premises for upgrading cooperation. In 2013 the *Integrated Crossborder Strategy* was launched, refering to an analysis of the business environment in Bihor and Hajdú-Bihar County in the cross-border region Romania-Hungary (BHB-Center.ro 2019). Still, the efforts of these actors, the business environment and university environment can't succeed in creating a real integrative input. This is proved by the stagnation of the project launched by the two universities of preparing a common strategy for the long term (till 2030) (Toca 2009, 254) blocked by a certain inertia of local and regional authorities in assuming a large scale project.

Thirdly, talking about the foundations of the existence of a *CBC Community*, in the case of Eurometropolis Lille-Kortrijk-Tournai, *Institutional integration* started in 1991 when COPIT – first CBC organization was created, followed by an upgrade to the next level, that of EGCT Eurometropolis in 2008. The process of cross border urban integration is highlighted through CBC mobilities, and in this case through two indicators (Decoville et al. 2015).

On the one hand it is about *CBC Commuters*, the people that move from one side of the frontier to work, to study or for business in the space Eurometropolis Lille-Kortrijk-Tournai (Decoville et al. 2015, 21). For example, in 2012, 27,360 persons crossed from France to Belgium and from Belgium to France almost 6,000 people. On the other hand it is about

CBC residential integration, people that change the residence to other side of the border. More people from Belgian side of the border lived in France (47,454 people), than French people (19,169 people) (Decoville et al. 2015, 21). There is also a strong integration from the point of view of education and science. In the universities from Lille there were more students from Belgium side. We mention also the Institute of the Territory, Cities and Espaces, whose expertise has been used in the activity of programming and management of Eurometropolis Lille-Kortrijk-Tournai.

When we refer to DEBORA Project from the point of view of the existence of a *CBC Community*, on the one hand we cannot talk about *Institutional integration* because there are no forms of colaboration in synthesis, only horizontal between various actors: police collaboration, firemen collaboration, business environment collaboration which makes the perspective of achievement of a C*BC Community* a long term objective.

Regarding the *CBC Commuters* in the crossborder space of DEBORA Project, at the level of 2012 there were 6883 people that went from Romania to Hungary and only 423 from Hungary to Romania (Decoville et al. 2015, 36). Referring to *CBC residential integration*, in the region next to the border, after 2004 inhabitants from Oradea settled (between 500–1000 people) in Hungary side, creating thus a community of cross-border workers (Popoviciu 2011, 302) and the crosssborder suburbanization (Houtum, Giellis 2002, 195–202).

From the point of view of educational and scientific integration, between the University of Debrecen and University of Oradea there are fruitful exchanges of students and staff which have as a basis only the Erasmus mobility, including up to maximum of 100 persons in an academic year. From the point of view of scientific research there are mixed teams, which work in several projects. The most eloquent example is the Institute of Euroregional Studies, the European Centre of Excellence "Jean Monnet", created in 2006 and which has as a main objective the cross border cooperation in the framework of the DEBORA project (ISER 2006).

From the comparative analysis of the two cases studied, some conclusions can be drawn.

First of all, in order to have in Central and Eastern Europe CBC communities as dynamic as possible the development of a tradition of cross-border cooperation is needed, which can be obtained in time by the development of courageous projects, by the development of an integrated infrastructure of communication in the cross-border space to provide mobility, în addition to creation of an integrated economic, educational and scientific space.

Secondly, it is necessary to achieve a strategy of integrated cooperation through the action of the public authorities, on a long term basis, permanently open to changes, but with a precise focus upon the targeted objective. It is important to mobilize all the actors that can contribute to the achievement of cross-border cooperation.

Conclusions

Cross-border cooperation demonstrated it is one of the most important means of leverage in transcending historical barriers and European integration because it offers multiple opportunities for the creation of a unique market by economic growth that also generates jobs c Looking at the map of interior borders of the EU, one can see that they insufficiently exploited. Even if important steps have been made in this direction in 60 years of cross-border cooperation, there are very many opportunities and advantages that are waiting to be explored. The creation of cross-border city networks is part of this process, which take the shape of eurometropolis projects or eurocities. Linking towns, cities, metropolitan areas and their hinterlands with each other via infrastructure and strategic cooperation, and forming polycentric urban regions represents the EU's answer to the global competition. These cross-border urban agglomeration can be attractive for capital investment and for the creation of a job market, which in conditions of wage asymmetry may have an impact upon the general economic growth in this space, leading to general welfare.

30 years after the fall of the communism, the cities situated on one side and the other of the state borders of Central and Eastern Europe are still path-dependent on their presocialist as well as their socialist-period legacies, which continues to block them from full exploitation of the opportunities they have, being situated at the border.

Of course that with the EU accession and the opportunity of accessing European funds for the development of cross-border cooperation, the actors in the big cities at borders changes their mentality, trying to take advantages of the opportunities created.

About the level that can be reached in capitalization of the opportunities offered by CBC as tool to build a stronger a Single market, with huge impact on the creation of jobs and growth, the successful examples at the borders of states in Western Europe: Regio Basiliensis or Eurometropolis Lille-Kortrijk-Tournai are relevant.

Of course,in Central and Eastern Europe there are examples of successful crosborder cooperation between network of the cities but, one can see an inertia in assuming crossborder projects which can be engines for the creation of new communities, overpassing the proximity statute, towards the long waited for CBC Communities, that are the real support for a genuine integration between the cities with crossborder dimension. From the perspective of the analysis made upon DEBORA Project (Debrecen-Oradea Eurometropolis) one can see that there are many encouraging premises, but the development of the infrastructure necessary to an increasing mobility inside the area is needed, and also the connection with other spaces of European importance, the encouragement of as many projects as possible which create the foundations for future CBC Communities.

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*Tadeusz Sporek**

The Innovation Policy of Germany at the Turn of the 20th and 21st Century

Abstract

German enterprises and scientists successfully participate in the development of all the future key industrial branches. Nanotechnology, which deals with research and construction of very small structures (one nanometer equals one millionth of a millimeter), is regarded to be the most important future technology.

Nanotechnology develops the principles of construction of smaller and smaller data bases of more and more capacity. They are used e.g. in the windows with solar cells, materials for production of ultra light engines and elements of the body in the car industry or artificial joints, which due to the limited nanosurface will be better tolerated by the human organism. According to rough estimates, there is more or less the same number of enterprises connected with nanotechnology in the USA and Europe, with approximately a half of such companies in Europe based in Germany. In the varied field of biotechnology over 600 German enterprises operate successfully, dealing mostly with the elaboration of new methods and procedures in the field of biomedical technologies, examinations of biomaterials and with the food industry (with regard to combating pests), and with innovative research in the chemical and pharmaceutical industry. The total share of German high-quality technology in the world trade constitutes 10.6%. It gives Germany the second place in this field, after the USA. In order to further strengthen this position, the federal government was going to invest 6 billion euros by 2010 in nano- and biotechnology and also in information technology.

Key words: Innovation, Germany, European Union, Innovation System, USA

Measurement Method of the Enterprises' Innovativeness – the Analysis of Analysis

Currently the statistical research on innovation is conducted according to the Oslo Methodology, elaborated by the OECD experts at the turn of the 80s and the 90s. It was published in the international handbook entitled

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the Oslo Manual which is the methodological guideline that concerns the innovation research. In this manual the so-called subject approach is adopted (the subject is the innovation activity of an enterprise as a whole, as opposed to the so-called object approach) (Głodek, Gołębiowski 2006, 54). This approach covers the statistical research of the topics constituting the scope of the innovation issues:

- Outlays on innovation activity (outlays on R&D: purchasing of the ready-for-use technology-patents, licenses, revealing know-how; software; purchasing and assembly of machines, equipment and construction, extension and modernization of buildings which are used to introduce the innovation; personnel training connected with innovation activity; marketing concerning new and modernized products, other preparations to put technical innovations into practice: elaboration of procedures, norms, technical documentation, final tests) according to types of this activity;
- Impact of innovation on the results of the companies' activities (innovation effects and ways of measuring them);
- Sources of information on innovation;
- Goals of innovation activity;
- Obstacles to innovation activity (GUS 2006, 12–13).

In the research using the subject approach the subject of observation is the so-called innovation budget (all current and investments expenditures, irrespective of their source of financing, incurred in the accounting year on all kinds of innovation activity: on works that have been finished successfully, terminated and unfinished (Sporek 2007a, 18–20).

Thus, the major indicator used to assess the innovation activity of the enterprises investigated with the use of the subject approach, is the participation in the said community of innovative enterprises (Sporek 2006b, 67–70).

The Innovation Position of Germany at the Turn of the 20th and 21st Century

Economic development is closely associated with scientific and research activity, in particular with the introduction of technological, organizational, managerial and educational innovations. However, innovations arise as a result of mutual connections both on the local and the international levels between the unit-innovator, the enterprise, scientific and research

organizations, as well as the government and self-government institutions. The connections have at least two dimensions: non-material, consisting in the exchange of information and knowledge, and material: financial and related to property (Weresa 2012, 50–76). Two groups of factors determine the innovation level of economies: internal – resulting from possessing the sources and the ability to put them in motion, and external – connected with intensity and directions of economic connections with foreign countries. Both spheres – the internal and the external – are functioning in such a way that they are interrelated and complement each other within the national innovation system (NIS) of a given country (Weresa 2006, 65).

Although the growth has slowed down in the recent years, the German economy is still one of the biggest economies of the European Union. Germany is also the major economic partner of Poland, therefore this economy deserves particular attention, and the position of this country is essential both for Poland and for the EU as a whole. As stressed in the Lisbon Strategy, innovation capacity is an important source of economic growth and improvement of international competitiveness. This document states explicitly that spreading of innovation, development of research and new technologies bring about significant changes in the economy (Bieliński 2005, 167). The innovation policy in Germany is very important and is treated as a significant factor influencing the enhancement of the country's competitiveness. This policy is carried out both on the governmental and the local level (by the authorities of the lands). This facilitates the stimulation of innovation on the regional level. The innovation policy became particularly important after the unification of Germany in 1989, when the biggest discrepancies in development between the eastern and the western part of the country appeared. At that time the works on the new program, whose aim was to support the eastern lands, were initiated. To this end, the activities were undertaken in order to stimulate the technological progress and entrepreneurship regarding new technologies, in particular in the small and medium-sized enterprises sector (SMEs), the advancement of the research and development infrastructure, stimulating whatever development is important for the industrial region. One of the effects of these activities was the creation of scientific parks, the so-called innovation centers, which were to develop cooperation between research centers and scientific centers, schools of higher education and enterprises (the Berlin Innovation Centre was established as the first unit of this kind). At present they are located in a number of cities, the best known and well prospering are situated near Munich and Stuttgart (Janasz 2005, 65).

Characteristics of the German Innovation System

The scientific and research and development activity in Germany is conducted and financed by many different organizations. Establishing the general rules of the science and innovation policy and creating the legal and institutional frameworks of the scientific, research and development activity are within the competence of the Ministry of Education and Research, functioning on the federal level. The federal authorities are responsible for: legislation concerning higher education, making investments in university infrastructure, distance learning, education concerning law and medicine, R&D promotion, support for young scientists, scientific cooperation with other countries, laws concerning intellectual property. The Ministry of Education and Research has a budget of 10 bln euro. The small funds on science and R&D are also at the disposal of the Ministry of Economy and Labor. The areas that belong to the common responsibility of the federal government and the authorities of the particular lands are as follows: planning the development of education, establishing new universities and expanding the existing ones, supporting the activity of scientific organizations, including scientific associations. The public and private expenditures on R&D amount to an average 55 billion euros over the past five years (Weresa 2006, 75).

The national innovation system of Germany is based upon the research activity of many different organizations. The following major groups of canters involved in R&D activity, conducting R&D activity directly or financing it can be distinguished:

- colleges (universities and higher vocational schools – the so called Fachhlochschulen);
- scientific and research associations;
- scientific associations;
- federal research centers, conducting analyses for ministries;
- the regional centers existing in individual lands;
- academies of science, including Deutsche Akademie der Naturforschert Leopoldia;
- a private scientific foundation (Deutsche Forschungsgemeinschaft);
- enterprises.

These units conduct diversified R&D activity which can be grouped into the following three major categories:

- primary research, i.e. the theoretical and experimental works aimed at extending knowledge;

- applied research, i.e. the research work oriented towards acquiring new knowledge and its practical application;
- developmental work, i.e. the construction, technological and project works as well as experimental work, undertaken in order to apply the existing knowledge into the practical business activity.

The innovation policy of Germany is focused on:

- the improvement of the framework conditions for innovation;
- the assurance of a high level research centers;
- the development of information society;
- international scientific cooperation.

The German government has developed two major strategies to stimulate innovation;

- the improvement of conditions for implementing the innovation through facilitation in the taxation system and through removal of barriers connected with beaurocracy;
- improvement of the educational and scientific system in order to shape the highly qualified labor force and to facilitate access to this kind of employees to the companies.

The SME (Small and mediumsized enerprises) are of particular importance for the development of the German economy. In order to improve the innovation policy as part of the support given to SME, the government undertakes the following activities (www.gazetainnowacje 2007):

- financial support in the form of subsidies (e.g. programs PRO INNO, INNONET, NEMO), credits (e.g. the Innovation Support Programme ERP) and share capital (e.g. BTU program) for the projects oriented towards new technologies;
- improvement of cooperation between the public scientific and research centers and SMEsdue to the supply of highly qualified labor force and setting up SMEs by the employees of theses centers;
- elimination of barriers and creating favorable conditions for SMEs development;
- creation of the information infrastructure for innovative enterprises by providing consultancy services while introducing new technologies.

Apart from numerous universities in Germany, there are four major scientific research centers (www.onfoniemcy 2007);

- Max Planck Institute – these are 80 centers with 4700 scientists conducting research in the fields of technology, engineering and social sciences;
- Fraunhofer Society Institutes – 47 centers with 9000 scientists dealing with technologies and life sciences;

- Hermann von Helmholtz Institutes, which owns 16 research centers and conducts research works on life sciences, in particular biological and biometric research, research on energy, nuclear physics, space, and technological environment;
- Research units "Blue list" – 82 institutes conducting research in the following fields: education, economic sciences, social sciences, regional infrastructure, mathematics, engineering, environmental sciences (Sporek 2014, 118–119).

One of the major programs that support innovativeness in enterprises is the "Knowledge creates markets" program, which aims at improving the knowledge and technology transfer, strengthening the role of higher education, increasing the number of patent offices and encouraging the SMEs to submit patents. The governmental program aimed at strengthening the information and communication technologies sector (ICT) within the development of the information society is essential as well. The IT sector is one of the driving forces stimulating the German economy. Such fields as nanotechnologies, optical technologies and ICT have been regarded as showing a big growth potential. Thus, within these fields, projects that support these areas are conducted. Germany allocates substantial funds to research and development both from the central budget and from municipal budget. However, substantial financial outlays are also made by enterprises.

EU countries can be grouped into 4 groups according to their innovation capacity:

- leading countries: Finland, Sweden, Denmark, Germany,
- average countries: France, Luxemburg, Ireland, the UK, the Netherlands, Belgium, Austria, Italy,
- catching up countries: Slovenia, Hungary, Portugal, Czech Republic, Lithuania, Latvia, Greece, Cyprus, Malta,
- weak countries: Estonia, Spain, Poland, Slovakia, Bulgaria, Romania.

In the abovementioned division, Germany is situated among the leading EU countries. The innovation position of Germany can be summed up using the summary innovation index, which was developed as a result of the assessments made by the European Commission. The below chart shows the position of Germany in terms of the innovation position in relation to the innovation leaders. Poland has also been taken into account. As it is shown, Germany is ranked among the world leaders (Szulc-Fiser 2018, 51–53).

Table 1. Innovation Index (SII) in 2005 and 2015

	Country	Innovation Index	
		2005	2015
1.	Turkey	0,05	0,15
2.	Poland	0,14	0,26
3.	Romania	0,15	0,27
4.	Cyprus	0,17	0,28
5.	Latvia	0,18	0,28
6.	Greece	0,20	0,30
7.	Slovakia	0,24	0,32
8.	Malta	0,25	0,33
9.	Hungary	0,25	0,35
10.	Lithuania	0,25	0,36
11.	Czech Republic	0,27	0,37
12.	Bulgaria	0,28	0,40
13.	Luxemburg	0,29	0,42
14.	Portugal	0,30	0,44
15.	Spain	0,30	0,46
16.	Italy	0,31	0,46
17.	Slovenia	0,32	0,47
18.	Estonia	0,34	0,47
19.	Austria	0,39	0,48
20.	Norway	0,40	0,48
21.	EU-15	0,44	0,52
22.	Ireland	0,44	0,51
23.	Netherlands	0,45	0,51
24.	France	0,46	0,52
25.	Belgium	0,47	0,53
26.	United Kingdom	0,49	0,54

Table 1. (cont.)

	Country	Innovation Index	
		2005	2015
27.	Iceland	0,54	0,64
28.	Denmark	0,54	0,64
29.	Germany	**0,56**	**0,72**
30.	Switzerland	0,68	0,76
31.	USA	0,70	0,78
32.	Finland	0,75	0,78
33.	Sweden	0,76	0,77
34.	Japan	0,77	0,79

Source: European Commission: Commission Staff Working Paper, European Innovation Scoreboard 2005, Comparative Analysis of Innovation Performance, p. 5 and European Innovation Scoreboard 2015. Comparative Analysis of Innovation Performance, PROINO Europe Paper No. 6. February 2016, p. 7.

Poland can be classified into the weakest group in terms of the innovation. This assessment exposes the weakness of the Polish innovation system and in the short term perspective it will not show the improvement. The major problem are low expenditures on R&D in relation to the GDP (Sporek 2007b, 40–45).

The Innovative Sectors

The scientific research is a driving force because Germany is known as a country of high salaries and for German enterprises the quality advantage over their competitors is of particular importance. That is why, at present in Germany 2.5% of GDP is spent on scientific research and development, which distinctly exceeds the EU average (1.9%). Until 2010 the federal government was planning to increase the expenditures in this field up to 3% of GDP. Moreover, Germany is ranked third after the USA and Japan in terms of private expenditures on R&D, which amount to USD 40 billion. The patenting activity hasn't weakened either: only in 2006 18% of the total number of world patents were submitted in Germany. As for many well prospering technologies of high growth rate, Germany also belongs to the leading countries. This group includes: biotechnology, nanotechnology,

IT and many other fields of advanced technology in particular sectors (biometrics, aviation, cosmonautics, electrical engineering, logistics). The German branch of the environmental technology (utilization of wind, solar and biomass energy) holds a good position in global markets as well. The share of the German producers of wind power plants in the global market amounts to 50%. This branch achieves the turnover of 11.5 billion euros and provides 130 thousand work places, 50 thousand of which are dedicated to wind power usage and another 50 thousand to bioenergy utilization. Forecasting the annual growth by 10% by 2020 the enterprises will invest 200 billion euros. At present wind energy covers almost 5% of the total electric energy production in Germany; by 2010 the percentage of the energy achieved from the renewable sources of energy was to increase to 12.5%. The future ideas are also implemented by 7,500 enterprises in 166 German "business incubators", established at the meeting point of the universities and private R&D activity. In the innovation centers which aim at developing new technologies, particularly favorable framework conditions can be found – mostly by young entrepreneurs (www.tatsachen 2007).

Conclusions

The most innovative branches of the German economy are: production of transportation equipment, production of the electric and optical equipment, computer and business services. Meanwhile, the least innovative are: production of food articles and beverages as well as tobacco products, textiles, fabrics and clothes production, trade services, transport and warehousing. The most important reasons for such significant diversification of the level of branch innovativeness in Germany are unequal expenditures on research and development of each given branch, factors connected with employment characteristics and cooperation in the field of innovation activity. Regarding financing expenditures on innovation both by the public sector and the private capital is essential. The relatively highest outlays on R&D in Germany are found in the branches producing transport equipment, chemicals and electric and optical apparatus, so the fields which are characterized by the highest innovation index. Moreover, the participation of enterprises receiving support for innovation activity from public sources is also the highest in these branches. Tendencies regarding expenditures on innovation activity and also expenditures on fixed assets (machinery and equipment) expressed as a percentage of the turnover of

the sector are similar. In both these indices, companies producing electric and optical equipment and motor companies are the leaders. The leading position of the indicated branches in innovativeness is also the result of employment. The percentage of employed people with higher education degrees in the discipline is the highest in branches producing electrical and optical equipment. Whereas, as regards the pace of employment growth – the best performing is the production of means of transport. Another crucial factor of the innovativeness of production activity in Germany is cooperation within the innovation activity. Also in this area the best results were recorded by the companies producing electrical and optical equipment, chemicals and means of transport (Weresa 2006, 153).

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The Role of Accelerators in the Development of Start-Ups

Abstract

This paper aims to study and explore the role of accelerators in the development of start-ups which seems to be very crucial in modern world. Hence it is not yet elaborated enough. Accelerators operate in different sectors, and operation in each of them varies significantly, e.g. impact accelerators[1] have a network of connections with governmental public sector organizations, while commercial accelerators cooperate mainly with private investors and corporations. Accelerators are widely accepted as key entities that facilitate development and increase the success rate of startups (Bank, Kanda 2016). "Accelerators focus not just on a single issue but typically aim to support a broad spectrum of impact enterprise needs as they seek to scale" (Accelerating Impact 2015, p. 2). The aim of this paper is to fill the existing research gap and answer the following research question: what is the role of accelerators in the development of startups?

Key words: accelerator, start-up, development, incubator, business model

Introduction

The history of accelerators is very short. It is almost 15 years old, but during that time over 250 have been created all over the world. The accelerator model was formed on the basis of experience gained by entrepreneurs and investors during the dot-com boom. The market involved large investments in single companies. That was the principle of start-up incubators work for information technology companies in the late 1990s.

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[1] Impact accelerators – any intermediary organization or platform working to scale impact enterprises by providing support for multiple impact enterprise needs, Accelerating Impact 2015.

The crisis of technology companies demonstrated the inconsistency of this model. The financial losses of incubators brought them the sarcastic name "incinerators" described by John Doerr (Kleiner Perkins Caufield & Byers).

Conceptualization of the Term Accelerator

Accelerators support start-ups and strive to accelerate the early stage of their development by providing time-intensive programs, usually lasting three months. During this period, new companies meet with mentors and develop new products or services. Most accelerators' managers have big experience in business and investments. Instead of accelerator services and financing, new companies usually need to provide a 6 to 10% equity stake in their own business.

Majority programs finish with a demonstration day on which the founders present their business concept to a wide range of investors.

The accelerator gives developing companies access to mentoring, investors and other support that helps them to become stable, self-sufficient enterprises. Companies using business accelerators are usually start-up companies that have gone beyond the earliest stages of creation. Basically, they have entered a stage where they can already function independently, but they still need guidance and support to grow in strength and gain pace for development.

In the start-up community, acceleration is a very broad term and not easy to conceptualize. However, there are several features that distinguish accelerators from incubators, investors or other participants in the start-up ecosystem.

Therefore, accelerators should not be confused with entities such as business incubators, teamwork spaces, business angels, entrepreneurship courses, hackathons, spaces for creators, mentoring programs or social academies. Accelerators are usually small organizations with few employees, but they have access to useful data in many processes and start-up development.

Paul Miller and Kirsten Bound present 5 aspects that distinguish accelerators from business incubators:

"1. An application process that is open to all, yet highly competitive
2. Provision of pre-seed investment, usually in exchange for equity
3. A focus on small teams not individual founders

4. Time-limited support comprising programmed events and intensive mentoring
5. Cohorts or 'classes' of startups rather than individual companies" (Miller, Bound 2011).

Table 1. Differences between Incubators, Angel Investors and Accelerators

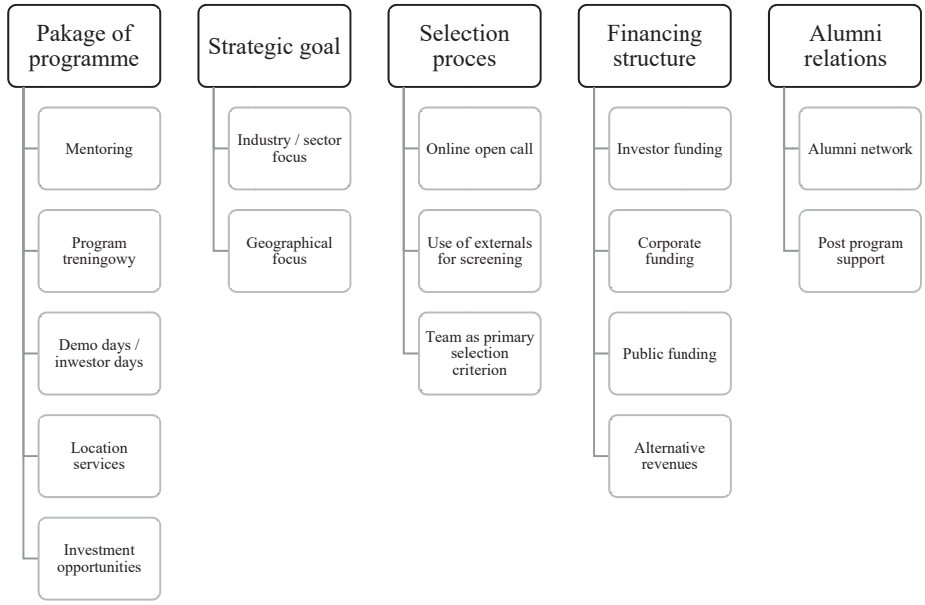
	Incubators	Angel Investors	Accelerators
Duration	1 to 5 years	Ongoing	**3 months**
Cohorts	No	No	**Yes**
Business Model	Rent; non-profit	Investment	**Investment, can also be non-profit**
Selection	Non-competitive	Competitive, ongoing	**Competitive, cyclical**
Venture stage	Early, or late	Early	**Early**
Education	Ad hoc, human resources, legal, etc	None	**Seminars**
Mentorship	Minimal, tactical	As needed, by investor	**Intense, by self and others**
Venture location	On site	Off site	**On site**

Source: Susan Cohen, Key Differences between Incubators, Investors, and Accelerators, 2013.

The key elements of the accelerator programme analyzed by Pauwels are presented in the figure below (Figure 1). These elements include the program package, strategic goals, selection process, funding structure and alumni relationships. The selection of projects for the accelerator is carried out on a competitive basis. In addition, the duration is fixed, the programme is foreseen in advance and mentors monitor its progress. The final goal of the programme is to receive investment and transform the startup into a profitable company.

In different literature accelerators are compared to business incubators. "Accelerator . derives many of its characteristics from the business incubator" (Barrehag et al. 2012). Christiansen (2009) describes business incubators and accelerators as "dramatic difference in business model[s]". Yet Li et al (2012) captures the situation stating "the distinction between business incubators and accelerators is subtle and, at times, ambiguous."

Figure 1. Key Elements of Acceleration Programs



Source: Charlotte Pauwels, Bart Clarysse, Mike Wright, Jonas Van Hove, Understanding a new generation incubation model: The accelerator, *Technovations*, 2015.

Accelerators Friendly Ecosystem

The most friendly area for new start-ups is the United States, where investors through incubators and accelerators finance investments in new companies. Europe does not have such a well-developed system, besides investors show less risk behaviour than in the United States (Table 2).

In 2019 CEOWorld Magazine (CEOWorld 2019) has published a list of the most start-up friendly countries that consists of 62 countries with the best ecosystem for young technology companies. This ranking of the most start-up friendly countries was based on five important elements: human capital investments, research and development, entrepreneurial infrastructure, technical workforce, and policy dynamics. The ranking is based on surveys from 194,976 people from 95 countries in the world.

Table 2. Cities Global Ranking of Stapt-Up Ecosystem by StartupBlink Ranks

2019 Rank	2017 Rank	City Name
1	1	San Francisco Bay, United Stated
2	2	New York, United States
3	3	London, United Kingdom
4	4	Los Angeles, United States
5	6	Boston Area, United States
6	7	Tel Aviv Area, Israel
7	5	Berlin, Germany
8	8	Chicago, United States
9	9	Seattle, United States
10	14	Moscow, Russia
11	21	Bangalore, India
12	10	Paris, France
13	12	Austin, United States
14	29	Tokyo, Japan
15	11	Toronto, Canada

Source: on the basis of the StartupBlink date (access on: 3.08.2019).

The United States is on the first place in the ranking. Silicon Valley becomes a mecca for innovation, technology, entrepreneurship with more than 40% of employees with a university degree. It is located near Stanford University, the University of California, Berkeley and many research centres. More than 50% of start-ups were founded by immigrants and 1/3 of scientists and engineers are also immigrants. The United States is a magnet to attract creative people with new ideas and advanced skills from all over the world. The second place goes to the United Kingdom and the third place to Canada. The next counties in the ranking list are Israel, India, Germany, Poland, Malaysia, Sweden and Denmark (Table 3).

Another feature of accelerators is their high selectivity. For example, on average, members of the Global Accelerator Network (GAN) receive 450 applications per year and only accept 2.1% of them.

Table 3. Most Startup Friendly Countries In The World, 2019

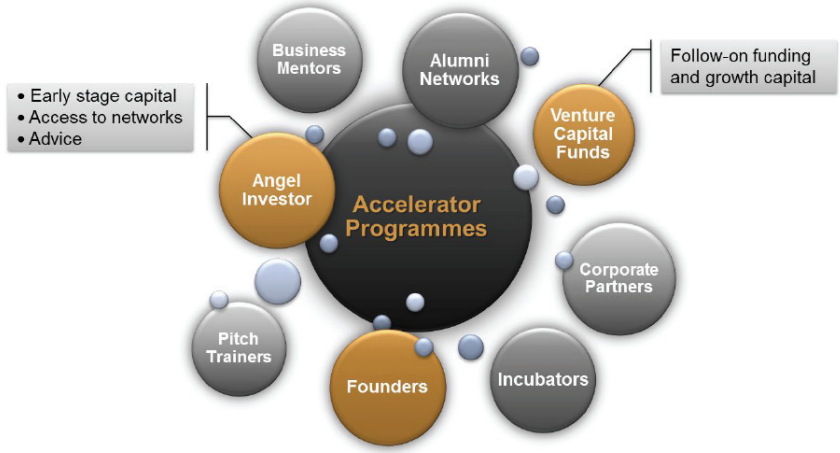
Rank	Country	Score	Human Capital Investment	Research & Development	Entrepreneurial Infrastructure	Technical Workforce	Policy Dynamics
1	United States	92	84	88	92	87	84
2	United Kingdom	91	83	87	91	86	83
3	Canada	90	82	86	90	85	82
4	Israel	89	81	85	89	84	81
5	India	88	80	84	88	83	80
6	Germany	87	79	83	87	82	79
7	Poland	86	78	82	86	81	78
8	Malaysia	85	77	81	85	80	77
9	Sweden	84	76	80	84	79	76
10	Denmark	83	75	79	83	78	75
11	Switzerland	82	74	78	82	77	74
12	France	81	73	77	81	76	73
13	Singapore	80	72	76	80	75	72
14	Australia	79	71	75	79	74	71
15	China	78	70	74	78	73	73

Source: General Methodology of the CEOWorld magazine's. Most Startup Friendly Countries In The World, 2019 Rankings.

Accelerators are a very important part of the entrepreneurial ecosystem. Principal actors in the accelerator ecosystem are indicated in Figure 2 below.

The top ranked accelerator programs are: Y Combinator, StartX, AngelPad, Amplify LA, MuckerLab, Techstars, 500 Startups, Dreanit, and SkyDeck.

Figure 2. Principal Actors in the Accelerator Ecosystem



Source: Birdsall, Michael, Clare Jones, Craig Lee, Charles Somerset, and Sarah Takaki. Business Accelerators: The Evolution of a Rapidly Growing Industry. Rep. N.p.: U of Cambridge, Judge Business School, 2013, p. 9.

Accelerators' presence in the business environment was already marked in 2005. It all began when the pioneer among accelerators, **Y Combinator** was started by Paul Graham in Cambridge, Massachusetts and moved to Silicon Valley later. Y Combinator began a new model for funding early stage start-ups. Its strategy is to invest a small amount of money to a large number of start-ups. "…get you to the point where you've built something impressive enough to raise money on a larger scale. Then we can introduce you to later stage investors – or occasionally even acquirers" (Ycombinator 2019).

TechStars was founded by David Cohen, Brad Feld, David Brown and Jared Polias in Boulder, Colorado in 2006. Techstars runs its programs in Germany, Great Britain, Israel, Canada, USA and Australia. They have already invested over $ 4 billion in more than 1,200 start-ups. It has a very high success rate: approximately 76% of enterprises that have gone through the program succeeded on the market. TechStar wants to provide high quality service and choose only 10 start-ups for each acceleration program, which is less than 1% of all reported startups. Most of the accelerator programme had a structure similar to that of TechStars (Table 4).

Table 4. Structure of TechStars Accelerator Programme

Timing	3 month / 13 weeks
Seed Funding	€10,000–€50,000
Equity	5%–15%
Class Size	6–10 companies / class
Network	Strong mentor connections
Training	Pitch practice + Office Hours
Deadline	Demo Day
Office Services	Shared workspace, corp. partners

Source: Michael Birdsall, Clare Jones, Craig Lee, Charles Somerset, and Sarah Takaki, "Business Accelerators: The Evolution of a Rapidly Growing Industry". Rep. N.p.: U of Cambridge, Judge Business School, 2013.

AngelPad was founded in 2010 by former Google employees in San Francisco and later moved to New York. The acceleration program takes place twice a year and lasts for up to 10 weeks. Only 15 star-ups from around 2000 usually pass the selection process. More than 150 companies got support from AngelPad since 2010.

The concept of accelerators has its opponents and supporters. Some argue that an accelerator is the best option for fast-growing companies that want to attract investors in the shortest possible time (Dahl 2011). There are also observations that many acceleration programs do not have a significant impact on graduates. According to D. Isabelle, there are five main factors that can determine the success of cooperation between star-up and accelerator:

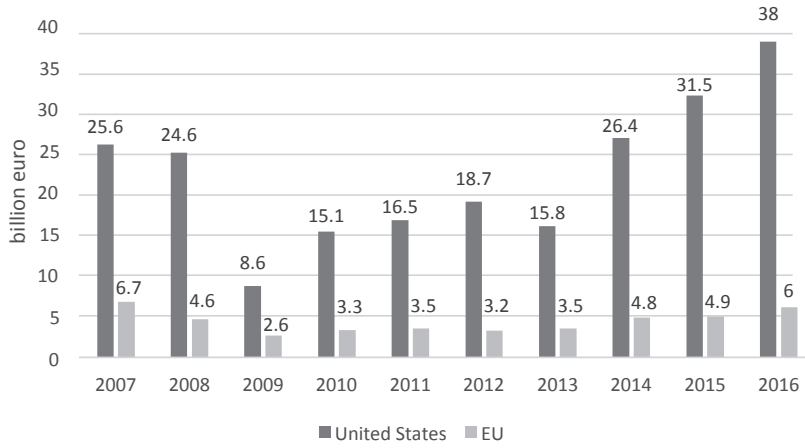
"1. Stage of the new venture
2. Fit between the entrepreneur's needs and incubator's mission, purpose, and sector focus
3. Selection and graduation policies
4. Nature and extent of services
5. The network of partners" (Isabelle 2013).

Startups gain access to financing, business and product consulting, contacts with future investors, validation, peer support group, pressure and discipline. Accelerators not only provide services for startups but also investors. During the acceleration process, accelerators recognize and capture new talents. Afterwards, they filter them into professional teams and provide a concentration of well-developed ideas for advisors and investors to save their time and resources.

European Union Effort to Support Accelerators

European Union does not have such a well-developed system of venture capital as the United States. The Figure 3 below present venture capital flows at EU and US.

Figure 3. Financing Gap: Venture Capital US vs EU



Source: European Innovation Council, EIC Accelerator, conference materials, Brussels, October 2019.

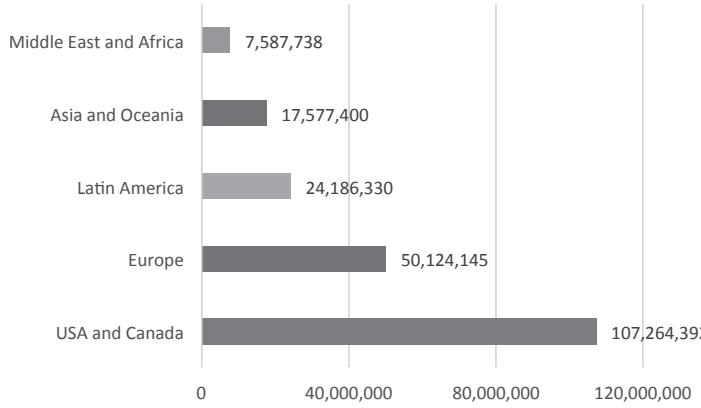
One of the most crucial instruments supporting the creation of new start-ups are European Union Funds. The most important instrument is the Horizon 2020 program aimed to support the development of science, new technologies and innovation. As part of the SME Innovation tool, the European Union co-finances the most promising start-ups that show high potential to grow and supports (consulting, coaching, etc.) as well as funds. These programs help to increase their competitiveness on the global market for new technologies.

The proposed innovative solution should address a specific problem or gap in the market. Preference is also given to solutions with high rank in the Technology Readiness Level scale – «Product demonstration – demonstrations were carried out in near-real conditions». Individual SMEs can apply as well as national or international SMEs consortia.

Globally 579 acceleration programs (Global Accelerator Report 2016) worldwide have invested over USD 206,740,005 in 11,305 startups. Figures below show that 3701 startups in Europe have been co-financed by 193

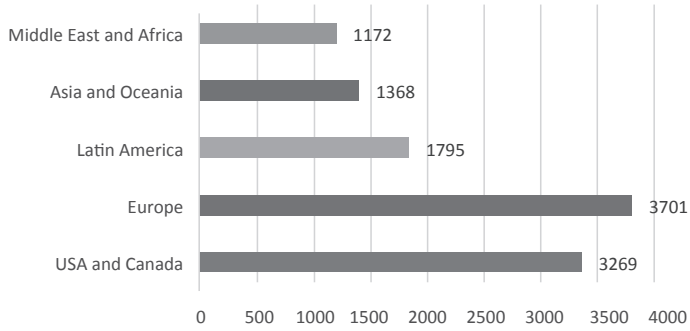
accelerators for USD 50,124,145. For example, in the US and Canada, 3269 startups have been co-financed by 178 accelerators for the total amount of USD 107,264,392.

Figure 4. Investments in USD by Region in 2016



Source: based on the date from "The Global Accelerator Report 2016".

Figure 5. Startups Accelerated by Region in 2016



Source: based on data from "The Global Accelerator Report 2016".

There are more startups and accelerators in Europe than in the USA and Canada. However, the USA and Canada have twice as many investments as Europe. Such a difference may be due to the fact that investors in Europe show less risk-tolerant behaviour than in the United States.

Among the top ranked accelerators in Europe are H-FARM, Founders Factory, High Hech XL, Startupbootcamp, Sting, Station F, Maria 01,

Startup Lab, Lisbon Challenge, Kickstart, Accelerace, APX, and Techstart London. The Table 5 below shows top ranked accelerate programs with supporting information for startups in Europe.

Table 5. Startup Accelerator Programs in the European Union

Programme	Location	Investment	Duration
Accelerace	Copenhagen, Denmark	Mentoring, coaching & access to investors	6–8 Months
APX	Berlin, Germany	€ 50,000 for 5% equity	3 Months
Barclays Accelerator	London, UK	up to $ 120,000	13 Weeks
Bethnal Green Ventures	London, UK	£ 20,000 for 6% equity	3 Months
DCU Ryan Academy	Dublin, Ireland	Mentoring, coaching & access to clients	10–12 Weeks
Distill Ventures	London, UK	£ 150,000	6 Months
Emerge Education	London, UK	£ 40,000 –£ 100,000	Unlimited
Entrepreneur First	London, UK	£ 15,000 + monthly allowance for 8% equity	6 Months
The Birdhouse	Gent & Antwerp, Belgium	Mentoring, coaching & access to investors	6 Months
H-FARM	Roncade, Italy	€ 20,000	3 Months
Lisbon Challenge	Lisbon, Portugal	€ 10,000 for 1.5% equity	10 Weeks
Rebelbio	Cork, Ireland	$ 250,000	3 Months
MassChallenge	Switzerland	Mentoring & coaching	4 Months
Microsoft Accelerator	Berlin, Germany	Mentoring & coaching	up to 6 Months
NDRC LaunchPad	Dublin, Ireland	up to € 100,000	12 to 24 Weeks
Nextstars	Paris, France	€ 10,000	4 Months
PANDO Ventures	Frankfurt, Germany	Mentoring, coaching & access to investors	12 Weeks
ProSienbenSat.1 Accelerator	Berlin, Germany	up to € 225,000	3 Months
Rockstart Accelerator (Artificial Intelligence Program)	‘s-Hertogenbosch, The Netherlands	€ 20,000	6 Months

Programme	Location	Investment	Duration
Rockstart Accelerator (Digital Health)	Nijmegen, The Netherlands	€ 20,000	6 Months
Rockstart Energy Program	Amsterdam, The Netherlands	€ 20,000	6 Months
SeedRocket	Barcelona, Spain	€ 150,000	3 Months
Startup Reykjavik	Reykjavik, Iceland	$ 23,500	10 Weeks
Startup Wise Guys	Tallinn, Estonia	€ 30,000	12 Weeks
Startupbootcamp Smart City Amsterdam	Amsterdam, The Netherlands	€ 15,000 for 8% equity	3 Months
Startupbootcamp Smart Transportation & Energy Berlin	Berlin, Germany	€ 15,000 for 8% equity	3 Months
Startupbootcamp Internet of Things and Big Data Barcelona	Barcelona, Spain	€ 15,000 for 8% equity	3 Months
Startupbootcamp Insurance London	London, UK	€ 15,000 for 8% equity	3 Months
Sting Accelerate	Stockholm, Sweden	€ 30,000	5 months
Techstars London	London, UK	$ 20,000 for 6% equity + $100,000 convertible note	3 Months

Source: the Alphagamma 2019, "Enterpreneurship" https://www.alphagamma.eu/ entrepreneurship/ best-startup-accelerator-programs-europe [accessed on: 01.10.2019].

The platform **Startup Europe Club** is the virtual community for the startup ecosystem in Europe. It started in 2011 and aims to support digital market with a healthy startup ecosystem across the European Union. This platform provides a virtual place for information searching, investment opportunities, networking among the startup world. It is dedicated to investors, entrepreneurs, startups' stakeholders and everyone who wants to find out trusted information about startup ecosystem. It also connects entrepreneurs to build their position in the EU and raise awareness about the importance of entrepreneurs in the creativity growth at the global market. Startup Europe provides support with the top ranked group of advisors from startup ecosystem. These advisors come from the successful companies with extensive experience in leadership, investments, innovations and entrepreneurship.

Conclusions

Accelerators belong to key actors at the start-up ecosystem. It is well known that about 75% of start-ups fail (Blank 2013) and many try to find resources and connections that will help them develop their ideas and commercialization. On the other hand, it is important to remember that accelerators are a young creation in the entrepreneurial ecosystem. The key elements accelerating the development of startups are networking, personal consulting, assistance in the field of innovation, synergy from other startups and credibility obtained by completing a well-known accelerator. It should be noted that although the elements seem similar, the network, mentors and other elements of the program are very different for each accelerator. The average accelerator usually lasts about three years, and its experience is not very significant (Hochberg et al. 2016). Moreover, a literature review shows that the main focus is on the ICT area while less is known about other areas, for instance, life science. These gaps need to be developed in future research.

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*Rafał Riedel**

The Negative Image of Migration as an Element of Migrants' Identity

Abstract

This chapter delivers the general conclusions that stem from the research project conducted comparatively in Opole (Silesia/Poland) and Chemnitz (Saxony/Germany) that the sources and determinants of the negative image of migration are very similar in both analysed locations and contexts. Both the opinions expressed by the receiving population about the migrants and the migrants' opinions about the local population and other migrants were very similar. The analysis positively verifies the hypothesis claiming that the image of the migrants and migration is determined by the media discourse, since the local population receives information about the migrants predominantly form the media. The available data shows that the cultural, linguistic or economic contexts are not decisive in this regard. Moreover the analysis proves that the negative image of the migrants is also influenced by other migrants' stereotypes. The migrants themselves have negative stereotypes about other migration groups or even about themselves – it is not only the receiving population that shares the negative image of the migrant. It is also the migrants themselves that are the carriers of negative stereotypes on migrants and migration.

Key words: migration, migrants, identity, image

Introduction

Migration belongs to the type of social processes that is connected with re-construction of social identity. Construction and re-construction of identity is very strongly socially determined – individuals and groups define themselves in relation to other individuals and groups. Here, it is also evident how relational this process is. Therefore, it is crucially impotant how other individuals and groups perceive the migrant, group of migrants or migration as a phenomenon. Migration, connected with changing place

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of living, means – for many – transfer to a culturally strange world, and is connected with radical decisionmaking, meaning participation in the process of de-socialization and new socialization leading to absorption of new norms, values, social relations, habits, etc. (Polakowska-Kujawa 2006, 126).

Migrants face a double challenge in this sense. Not only that they struggle with fundamental changes in their social, professional and (frequently also) private lives. Apart from this, which is the essence of the identity re-construction, they also need to face the problem of the negative image of migration and migrants (Georgescu 2011). In today's, crisis-driven Europe most of the economies suffer high rates of unemployment and therefore the local populations have a very skeptical attitude towards the new-comers. However even without this element, migration and migrants receive rather negative perceptions. This statement is true even in the case of countries and societies that were built of migrants (like the United States of America) or have a historical record of colonialism (like the United Kingdom or the French Republic).

This negative attitude towards the migrants is the starting point in the presented research. Why such a negative image of migrants? The question was reformulated into a more scientifically friendly research question: what determines the negative image of migrants and migration? In the form of a seminar with a group of young researchers, this initial general question was unpacked in a scholarly manner. First, a literature overview allowed us to generate some hypothetical statements (for details, see the research design section). Consequently the hypotheses were discussed in a brainstorm debate and were selected. The remained were operationalised into the form of a series of questions that found themselves into a semi-structured interview scenario which allowed the verification of the hypothesis. Interviews were conducted in late 2014 and early 2015 in Poland and Germany among migration groups of the regions of Saxony and Silesia. This exercise allowed us to formulate some interesting conclusions in a comparative manner, identifying similarities as well as differences between the two societies and migration groups.

As a result, the structure of the article proceeds as follows: first some theoretical background is discussed in relation to the main line of the argument, secondly, empirical data is presented in a narrative form, and finally some conclusions are drawn from it. The point of gravity of this text is empirical however. The added value stems from delivering and debating some un-published data collected in a form of a semi-structured in-depth interviews

Theoretical Background

Research on migration for a long time has been carried mainly based on theoretical inspirations that limited the problem to reasons of migration and then migrants' assimilation, integration and acculturation. (Polakowska-Kujawa 2006, 116). Nowadays, more and more often we observe intensified scientific interest in investigating the correlations between migration and identity building. This article positions itself in the stream of research on identity determinants, especially the relations between the local population and the migrants.

The last waves of European Union enlargement (in 2004, 2007, 2013) brought about massive migration flows from the new member states to those old ones that had decided to open their labour markets without implementing 2+3+2 year transition periods[1]. It is also important to notice that European Union enlargement (of new Central and Eastern European countries) had its own implications from the point of view of European identity evolution. The new member states have a specific perspective on identity issues, different from the one of old Europe (EU15). Many of the CEE states are undergoing a parallel process of reconstruction of national identity and European identity, with a strong correlation of both of them. Migration outflow from those countries (its scale and intensity) has made this phenomenon an important point in the political agenda, not only from demographic perspective, but also from the point of view of the supranational concept of statehood.

Contemporary characteristics of migration take into account globalisation that impacts the migration process to a large extent. It is assumed that the fast and growing pace of migration processes is induced by developments in global political, economic, technical, information and social spheres. Another characteristic is also the existence of the so called global labour market (constituted by the rich countries). There is a constant inflow to the centres from peripheries and semi-peripheries (reservoirs of needed resources).[2] Additionally world-wide, there is a growing category of proactive migrants, who have a choice of decision and decide to migrate. Therefore the distinction between stable and temporary migration seems to be less and less accurate, as is also true of distinguishing between sending and welcoming

[1] First the United Kingdom, Ireland and Sweden, later on, also: Finland, Portugal, Spain, Greece and Holland and other members of the European Union as well as the European Economic Area.

[2] Legal and illegal migrations have been treated as a component of the world economical system

countries. However when debating about migration, the most influential are those arguments that are promoted by welcoming states, which take care of their own citizens. Instrumental treatment of migrants is dominant over the ethics of symmetry (Slany 2004, 400). The migration policy of welcoming states is aimed at solving their population and labour problems. In the era of societies' aging, low or negative demographic growth in developed countries, migration is a method of compensating for demographic shortages (Slany 2004, 389–390). Th contemporary world is individualistic orientation friendly. New cosmopolitan identity for which polyvalence of cultures is acceptable, makes the "one-way" national identification less attractive and supports adaptation of migrants.[3]

It is impossible to reconstruct the full scholarly debate on migration theories, therefore here, it is only selectively chosen, these elements of migration theorising which are interesting from the point of view of the research questions. It was Samuel N. Eisenstadt who paid special attention to some major determinants of social integration of the migrants as well as participating in more and more fields of social life. Eisenstadt analyzed certain levels of identification of the migrants with the welcoming society He pointed out a number of phases in the process of migrants' integration:

- the "adaptive integration"phase, characterized with demonstrating the competence to perform the basic social roles, connected with participation in the social life;
- the "instrumental integration"phase, is related with participation of the new migrants into the economic life, which makes it possible for them to answer their existential needs themselves;
- the "identification and solidarity"phase:the migrant becomes aware of being a member of the welcoming society. Accepting the system of values of the welcoming society is typical for this phase;
- the "cultural integration" phase accepting symbolic culture, internalisation of norms, patterns of behaviour.

Notably, Eisenstadt belongs to those theoreticians who claim that the migration process is not always a success story. This is dependant both on a number of factors on the side of the migrant as well as the welcoming society (Polakowska-Kujawa 2006, 130). Therefore both the negative images of migrants and migration among the local, welcoming society is important as

[3] On the other side (what we observe in some Post-Soviet area states) transition from industrial societies to post-modern as well as nation states to multicultural states is occuring, which may result in the renaissance of ethnic nationalisms (for example in Russia).

well as the negative stereotypes among the migrants themselves, determining the attitude towards other migrants, but also towards the local population. Eisenstadt's conceptualisations are reflected to some extend in the research design which comprises of many elements of his analytical matrix.

An especially important risk of migration from the point of view of identity building is marginalisation. In general marginalisation and the feeling of alienation are more natural in communities with poor social capital. It may be understood as lack of participation[4] (individuals or groups) in the spheres of life, in which, according to established criteria and rules participation is expected. Marginalisation in one of the sub-systems does not automatically involve marginalisation in other spheres. However there is a tendency to accumulate spheres in which an indivdual does not participate (for example: being jobless limits one's access to culture, some areas of consumption, security, etc.) Marginalised groups should not be treated as categories placed outside of social structure: they are an element of it. Migration as a strategy is (most frequently) chosen by people who have little to lose – to a large extent they are marginalised already when the migration decission is taken. This marginalisation is both the cause and an effect of some negative image, related to stereotypes correlated with the social role of the migrant.

Another important element which needs to be discussed here is the political context. As previously mentioned, migration is also an important determinant of identity building process. Some populist parties argue for protection of cultural identity (especially a national one), as they claim to protect their electorate from "cultural dangers" being brought by the foreigners. Populists' strategy is based mainly on blaming the scapegoats for all real and imagined threats. They present a sad picture of a multi-cultural future and their proposed instruments aim at keeping a ethnically "clean" cultural identity. National identity – according to this logic – is often understood in easy and well performed contrast: "us" versus "them".

To appeal to the "us" group, the nation group, firstly it is needed to define others, the real or imagined "them". Using such slogans as: "eigen volk eerst" (our nation first), "Osterreich zuerst" (first Austria) and "les francais d'abord" (first the French) in populist rhetorics suggest national and cultural advantage, which might be useful when pointing out the problems caused by migrants, refugees or national minorities. "The boat is full" is the most frequent motto used in politics, to built or sustain negative opinion towards

[4] Participation meaning fulfilling social roles in certain systems and sub-systems (family, political system, production).

those who do not have the citizenship of the state, especially guest-workers and asylum seekers. This "we" versus "they" division line naturally creates two different narratives which stimulate the potential negative image of migration and migrants.

Research Design, Methods and Results of the Empirical Material

In order to answer the key question of the analysis: what determines the negative image of migrants, the participants of the dedicated seminar, in a brainstorm discussion, generated a number of hypotheses. Then they went through a critical debate which excluded these hypothesis that were too distant from the main research problem or could not be verified in the further research process. Among the most important ones were the following:

- the image of the migrant is determined by the media discourse, since the local population receives information about the migrants predominantly from the media,
- the image is negative due to the lack of communication (for example due to linguistic barriers),
- both the local population and the migrants have strong stereotypes about each other
- the more (frequent and intense) direct contacts and interaction among the locals and migrants, the less stereotypical perceptions of one another,
- the image of the migrants is also influenced by other migrants' stereotypes

Based on the selected hypotheses, the final version of the questionnaire for the locals and separately for incoming migrants were created and then the interviews were conducted in Chemnitz (Germany) and Opole (Poland). Ultimately it was comprised of 27 questions. How and if they were asked was decided during the course of the interview. To get a good overview of the many aspects of the possible opinions on migration the questionnaire was divided into several main topics, in which some more detailed questions were asked.

Finally there were 29 transcribed interviews collected. The interviews were led anonymously, however there was collected some data on age, education, sex, family status, occupation and time they lived in the local place. This data was collected to have a better chance to compare the statements afterward in different social groups.

Of those 29 finally completed interviews, there were 15 men 14 women, which makes a pretty even result. However it doesn't represent the population of Chemnitz, where there is a slight surplus of women (51.3% to 48.7%). The range of the age of the interviewed people was from 16 to 53, which makes it possible to differentiate opinions on migrants by age group. In total, the average age of the people asked is 31.3 years old.

At the beginning of the interview the participants were asked why "our" place, the region of Chemnitz in Germany, or Opole in Poland, might be attractive to migrants. The answers were quite varied, but primarily they had either an economic or social reference. In Germany many named the advantages of the social welfare and health system and the decent life standards a decisive pull factor. In Poland the migrants had the tendency to focus on the negative sides of the story: the very poor situation in the place of origin.

What kind of future I can offer to my children back in Ukraine? Here it is not easy anyway, but compared to the situation back home – no question.

Since most of the interviews were made at the time of the dramatic developments at the Kiev Maidan which led to the Russian-Ukrainian conflict, some of the interviewees in Poland also pointed to this argument – even though all of them decided to leave Ukraine much earlier. Still however they would focus on the stable political situation far away from war, pursuit and cruelty:

Look what is happening in Ukraine now – war. People are dying on the streets. We have no option to go back, even if we wanted.

By contrast, in Chemnitz they would name other reasons, predominantly the Technical University and great chances for a good education, the cheap cost for living and housing and the geographic location close to Poland and the Czech Republic (that especially attracts people from those countries).

In my region there is no work at all, instead of going to Warsaw, I prefer to come here. The money is the same, and it is closer to home, better connected.

The next question was where the interviewees are collecting their information on migration and migrants on. It shows, that everyone uses at least one type of media to collect information on the topic. The mentioned media are newspapers, TV, internet, radio and media in general. Some mentioned, that it is hard to find reliable objective and not just politically-correct information. Some also gather their information from personal exchange with friends and direct first hand contact with migrants. Even

though if we look at a later question, how frequent their contact with migrants is, most say it is just more or less sporadic at work or university, without any personal connection.

The following questions also referred to the topic of information, whether the interviewees are aware of the legal status of migrants, and that their obligations and opportunities do not not matter if the migrants are EU or non-EU citizens. Due to the fact that the whole process is quite complex and confusing, as one person said, nearly half of the interviewees answered that they are a little bit aware of the legal status, but only a few could give some further information on what they thought to know. Nearly a third admitted that they had absolutely no sound information on the topic, while at least 14% could give a detailed explanation on the different status of migrants. But still 10% of the questioned people gave the answer that they were not interested in the topic at all.

In connection to the previously asked question of where the interviewees got the information on migrants and migration from, a group of people answered that they have first-hand information. We asked if there is a daily contact and whether it is strong, only a small group said that they have a very strong emotional relation to a migrant based on the fact that it either is a relative or a very close friend. Most of the people admit, that the daily contact is limited on the working hours at the job or at university and that it is rather a brief and superficial contact without any exchange of personal information. Mostly it is just seeing each other in passing or a kind of forced interaction due to the migrant being a shop owner.

Another important part of the questionnaire was connected with the interviewees' own children. The intention was to verify whether the children might have friends with a migration background. An additional connected question was focused on what the interviewees think about schools with mixed groups of nationalities. The majority took the view that mixed schools would be a good thing. Due to the curious attitude of children towards new things there would be a win-win situation of both sides. The children with migration background would be integrated better and learn the language faster while the German or Polish pupils would have the chance to meet the people and not to let prejudices grow in their minds. Those are the arguments many people gave supporting the system of mixed classes, and thinking of it as a possibility to have a voluntary contact to migrants. Opponents of the system said that mixed classes would become a problem for the local pupils if the proportion of migrants would be greater than the locals and someone should have an eye on the fact, that all pupils should be on the same level to

keep a good learning atmosphere. So being in class with too many migrants could also provide a separation in two groups and contact would become more forced. As one interviewee said:

The whole situation of the many migrants coming to Germany and the children having the right and duty to go to school presents a big challenge for the schools and teachers.

Related to the education issue was the question what kind of communication or linguistic experiences the interviewees made already with migrants. Nearly one third of the asked people said, that the migrants they met, spoke at least some German or Polish. But some mentioned, that the level of the spoken local language differs between the migrants groups, depending on their country of origin and the length of the stay in the new country. Some stated critically that:

Even though the people were already living in Germany for many years, their German was still too bad to lead a proper conversation with them.

In the Polish part of the study the informants did not pay that much attention to this issue. They would rather mention the language similarities between the Polish or the Ukrainian or Russian (the languages of the dominant migration groups in Opole region). All of these languages belong to one linguistic family and therefore, on everyday basis it is relatively easy to communicate in casual situations. As one of the interviewees put it:

Ukrainian language is somewhere between Polish and Russian, so no problem with communicating.

One of the most fundamental questions was, whether the interviewees fear that they might lose their job to a migrant. At the beginning of the questionnaire many people said already that the migrants are coming here for jobs. Now being questioned directly, nearly 75% said that they don't fear that a migrant might take away their job. Their fear of losing a job is more to lose it to a more qualified person, no matter whether they are a migrant or not. People that fear losing their job, mention that it is because the migrants are said to work for less money and they seem to fear the competition with more qualified migrants.

One of the most critical issues connected with the relationship between the locals and the migrants are the stereotypes. We wanted to know if the interviewees are aware of common stereotypes about migrants and locals and whether they know special names for the two groups. Some

of the people tried to be politically correct and did not name any, while others answered more freely. It is hard to say whether they just named the stereotypes because they were asked to, or if they held a sincere opinion. Most frequenty mentioned was the stereotype that the migrants come to Germany as social tourists, meaning that they just take money, use social benefits and don't want to work at all. Or, if they work, they work for less money than the Germans and take their jobs. If they don't work at all they tend to commit crimes like robbery and drug dealing. Another stereotype mentioned was that the migrants don't want to integrate, that they don't put effort into learning the language and always stick together with people of their culture. Some people still were objective enough to say that there are stereotypes about migrants, but they don't apply to the majority and that every individual may be aware of stereotypes, but that people should be thoughtful enough not to immediately think of migrants in those terms.

After the stereotypes, we wanted to know if the interviewee knew some special names for the migrants. Of the special names for migrants, most often named was "Kanake" as a name for Turkish people, followed by "Polake" for Polish, "Nigger" for black and "Fidschi" or "Schlitzauge" for people from Vietnam or Asia in general. Other names named were "Mulatte", "Japse", "Kanisterkopf", "Schwarzkopf", "Zigeuner", "Froschesser", "Ali", "Mohamed" or other names that are thought to be stereotypical.

On the other side, there was also a question concerning whether respondents knew stereotypes about themselves which others might think about them. That question wasn't answered by all people asked, but those who answered the question, said about the Germans that they are perceived as a punctual, hard working, inventive, organized and strict nation which are not very open to foreign people and are notorious as Nazis. But the Germans are also perceived by foreigners, at least in the opinion of the asked locals, as humorless, beer drinking and sausage eating people with a tendency to bureaucracy in many parts of life. "Potato" or "Kartoffel", "Krauts", "Hans", "Helmut", "Klaus", "Ossi" or "Wessi" are names for the Germans by other nations, at least in the eyes of the people asked. With the stereotypes it was interesting to see that there were both positive and negative ones mentioned. While the stereotypes about the migrants very often have a negative connotation, some of the named stereotypes about the Germans have a rather positive, soft or ironic connotation.

Nearly everyone could give an answer on the question about stereotypes and some confirming that it is not their way of thinking about others, we wanted to know what exactly the opinion of the interviewees is about

people that might have stereotypes about migrants. The answers show that the people have different views about it. Most of the interviewees said that having a stereotypical narrow minded way of thinking is a result of low education and the problem of little contact and own experience with migrants. It is mentioned, that the lack of information about the topic or wrong information are to blame for that unreflecting way of thinking. The only solution to get rid of stereotypes, in their opinion, is to get in touch with the people of another origin and culture. Some people hold the opinion that stereotypes are something totally normal and that everyone tends to think in those terms to make a classification easier but that not everyone thinking in stereotypes idoes so with bad intentions. Some still admit, that they belong to the group which thinks stereotypes and take them for real.

The follow-up question was whether migrants are enriching the local community and society or if they rather represent a threat for the respondent. The big majority of the answers stated that migrants represent an enrichment for the society, for example in terms of expanding the diversity of the community or the growing variety of food in specific restaurants. Also they are an economic factor, the so called "brain drain" in technical areas is mentioned and their will to do jobs others don't want to do. It was also said however, that the fact how the migrants are perceived depends on their will to integrate and whether they try to learn the language. The peaceful growing together is a challenge and assumes a learning process on both sides. Still some people perceive the opinion that the only "enrichment" migrants bring is with crimes and the perception that there are already too many migrants around that might destroy the local culture. Our overall question was to figure out why there is such a negative image of migrants and migration in Germany and Poland. With that question we closed our questionnaire and got a lot of interesting answers on the topic. Many people held the opinion the negative picture might be caused by the migrants themselves, which is meant, that if one person of the group shows a negative behavior the whole group is said to be like that. And through those "black sheep" the stereotypes get proven right. More people had the opinion that the negative perception is caused by the lack of contact between migrants and locals and the lack of information or incorrect information through media or policy. Some might as well just fear the change or the strangeness, which is connected right away with the thought it might be dangerous. Following that, there are people demanding that the migrants should be sent back and the money spent on other things.

The information presented above is only a fragment of a large collection of transcribed interviews which would not be possible to capture in a form

of a paper. Therefore, for the purpose of this paper there were only selected those statements, comments and information that were relevant from the point of view of the line of argumentation: that is, the justification of the negative image of migrants and migration.

Conclusions

The general conclusion that stems from the research project is that the sources and determinants of the negative image of migration are very similar in both analyzed location and contexts. Both the opinions expressed by the receiving population about the migrants and the migrants' opinions about the local population and other migrants were very close in Opole (Silesia/Poland) and Chemnitz (Saxony/Germany). It shows that the cultural, linguistic or economic contexts are not decisive in this regard.

Undoubtedly, it is possible to positively verify the hypothesis claiming that the image of the migrants and migration is determined by the media discourse, since the local population receives information about the migrants predominantly form the media. This statement was proved in many interviews in which the informants pointed to the internet or TV (in general usually electronic media) as the source of information about migration. A related hypothesis was also found true, that the more (frequent and intense) direct contacts and interaction among the locals and migrants, the less stereotypical perceptions of one another. In general, everyday (usually professional) contact helped to build relations between the locals and the migrants. However also contact among the children (for example in one kindergarten group) had a positive impact on the adults' attitudes. Another related statement: the image is negative due to lack of communication (for example due to linguistic barriers). The locals demonstrated very little understanding of the language barrier. They claim that it is the migrants who should learn as soon as possible the local language. This is why where there is a language barrier (much stronger in Germany than in Poland, due to the fact that in Poland the migrants predominantly come from Ukraine and speak a Slavonic language) there are also strong stereotypes. This verifies positively the next hypothesis that both the local population and the migrants have strong stereotypes about each other. What was however interesting to observe in the course of the investigation was the fact that the negative image of the migrants is also influenced by other migrants' stereotypes. The migrants themselves have negative stereotypes about other migration groups or even about themselves. So the interesting finding is

that it is not only the receiving population that shares the negative image of the migrant. It is also the migrants themselves that are the carriers of negative stereotypes on migrants and migration. Not only they are aware of the negative images, they share negative views on other migrants. This was visible in the interviewees' emotional reactions when asked about other migrants: especially coming from different ethnicities (for example Poles about the Russians, Ukrainians about the Vietnamese).

The migration problem is one of the fundamental issues in today's Europe. People have always flowed from one location to another. It is also like this today and it will definitely remain so in the future. No matter if they are refugees or economic migrants, Europe remains under growing migration pressure from the South-East. The urgency of the situation requires reactions which will be sustainable in the long term, respecting human rights and dignity and acceptable for both the local communities and the incoming migrants. This is why the problem of the (negative) image of migration is so crucially important and requires scientific investigation and academic reflection. This paper is a modest contribution to that debate.

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Understanding EU Member States Cooperation within the Asylum Regime During the Migration and Refugee Crisis from an IR Perspective

Abstract

The contribution of this paper is twofold. First, we analyse the failure of the Prisoner's Dilemma and Suasion Game in explaining refugee protection burden-sharing cooperation through a literature review of both game-theory models. Second, the paper also supports an alternative to these theoretical models: the Issue Linkage. This paper is set out in three main parts: first, we provide the background to the 2015 Emergency Relocation Scheme as part of the EU's immediate response to the migration and refugee crisis; second, we review the existing Prisoner's Dilemma and Suasion Game literature on international cooperation in general, and on refugee protection in particular, followed by an Issue Linkage literature review to get some insight into overcoming collective action failure in EU asylum cooperation; third, we apply these theoretical models to explain EU refugee protection burden-sharing through an analysis of Germany's and Poland's approaches to the implementation of the 2015 Emergency Relocation Scheme.

Key words: European Union, EU Member States, Germany, Poland, asylum policy, Prisoner's Dilemma, Suasion Game, Issue Linkage, relocation

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Introduction

One of the main problems in research on asylum and refugee protection in the European Union is understanding the different positions of Member States in cooperating at the EU level. To develop solid policy in this area, national and EU policymakers have to face the reluctance and opposition of some Member States in supporting EU asylum legislation. It was especially visible in September 2015 when the temporary emergency relocation scheme was approved by the Council of the EU in two decisions. The aim of this mechanism was to transfer between 2015 and 2017 a total of up to 160 000 persons in need of international protection from EU Member States most affected by their arrival – Italy and Greece – to other EU countries based on a distribution key. Even if relocation was legally binding for EU members, its implementation was a real challenge from the very beginning, as the countries took different, even polarised stances on it.

Recently, IR literature on responses to forced migration has been examining some dynamics behind refugee cooperation among states (see Cronin 2003; Barnett 2011; Betts, Loescher 2011; Staples 2019; Surhke 1998). Within this theoretical framework, the IR literature identifies two useful game-theory models – the Prisoner's Dilemma[1] and the Suasion Game[2] – to be used to study the abovementioned issues. On the one hand, the Prisoner's Dilemma assumes that actors have symmetrical interests and power (Betts 2009), on the other hand, the Suasion Game captures more the North-South relationship dynamics between the states (Betts 2009). Even though these models have been applied to understand refugee cooperation at the global level, when it comes to understanding recent refugee burden-sharing dynamics in the EU, both theoretical perspectives suffer from shortcomings. Thinking about the problem in this way allows us to reassess the literature with the Prisoner's Dilemma and Suasion Game in order to verify if they may successfully explain refugee protection burden-sharing in the EU.

[1] See Thielemann (2018, 69): "the Prisoner's Dilemma points to a constellation where actors who act solely with the aim of maximizing their own individual utility will produce a result which is contrary to their collective interest".

[2] See Betts (2009, 32): "the Suasion Game is one of the other situation structures (beyond Prisoner's Dilemma) that better capture the dynamics of North–South relations. In this game, in a two-actor model, one player is privileged and must be persuaded to participate and the other has little choice but to cooperate" (Hasenclever et al. 1997, 50; Martin 1993). (…) "In other words, the stronger actor has little to gain and the weaker actor little to lose, undermining the prospects for cooperation".

The contribution of this paper is twofold. First, we analyse the failure of the Prisoner's Dilemma and Suasion Game in explaining refugee protection burden-sharing cooperation through a literature review of both game-theory models. Second, the paper also supports an alternative to these theoretical models: the Issue Linkage. Existing literature on the Issue Linkage has demonstrated how the role of power in determined issues such as state interdependence (Haas 1980) or international alliance negotiations (Poast 2013) are important in institutional agenda-setting (Betts 2009). This paper is set out in three main parts: first, we provide the background of the 2015 Emergency Relocation Scheme as part of the EU's immediate response to the migration and refugee crisis; second, we review the existing Prisoner's Dilemma and Suasion Game literature on international cooperation in general, and on refugee protection in particular, followed by an Issue Linkage literature review to get some insight into overcoming collective action failure in EU asylum cooperation; third, we apply these theoretical models to explain EU refugee protection burden-sharing through an analysis of Germany's and Poland's approaches to the implementation of the 2015 Emergency Relocation Scheme. In our paper, we use different research methods, including critical literature review, analysis of official documents (especially at the EU level), comparative analysis for the three models, and case-study analysis (concerning the relocation scheme with the examples of Germany and Poland).

Background – 2015 Emergency Relocation Scheme as an EU Response to the Migration and Refugee Crisis

In 2015, the EU had to face one of its most significant challenges in recent decades, often described as the migration and refugee crisis to stress its twofold nature, that is, its demographic context reflected in the significant increase in the inflow of migrants coming to Europe and its legal context concerning the status of people involved in this large-scale migration, many of whom were considered or declared to be asylum-seekers (Pachocka 2017, 21). The crisis was complex, with different dimensions and stages, and is well-illustrated by attempts to estimate its scale. For this purpose, one can look through the prism of data corresponding to three aspects of this phenomenon: first, people on the move, crossing the Mediterranean Sea to reach Europe; second, those at the EU's external borders trying to enter EU territory; and, third, those submitting asylum claims in EU Member

States. Applying this approach, in quantitative terms, 2015 and 2016 were the peak years of the crisis, with one million sea arrivals in 2015 (UNHCR data), 1.8 million detected cases of illegal crossing of an EU external border between border crossing points in 2015 (Frontex data), and 1.3 million applications for international protection lodged in 2015–2016 in the EU (EASO and Eurostat data). The migration and refugee crisis impacted EU countries unevenly in terms of numbers and consequences, mostly conditioned by their geographical location. Among EU Member States were frontline, first-entry and first-reception countries (e.g., Greece, Italy), transit countries (e.g., Hungary, Croatia), target countries (e.g., Germany, the UK, Sweden), and those not affected (e.g., Poland, Czech Republic, Slovakia) (Pachocka 2016, 104). The crisis led to political tension over refugee protection and related burden-sharing within the European Union and has posed challenges to the integrity of the Schengen area and free movement of persons in the EU.

On 13 May 2015, the European Commission (EC) published the Communication "European Agenda on Migration" (EAM), which provided a new EU strategic framework for migration management (European Commission 2015). As immediate steps, two were crucial and have given rise to much political discussion among EU Member States, i.e., the relocation and resettlement mechanisms. Relocation was supposed to be an emergency-response system and a temporary distribution scheme for persons in clear need of international protection that provided for the fair and balanced involvement of all EU Member States. The combination of GDP, population size, unemployment rate, and past numbers of asylum-seekers and resettled refugees were considered in the redistribution key (European Commission 2015). This emergency temporary mechanism was to be launched under Article 78(3) of the Treaty on the Functioning of the European Union (TFEU), which stipulates that: "In the event of one or more Member State being confronted with an emergency situation characterised by a sudden inflow of nationals of third countries, the Council, on a proposal from the Commission, may adopt provisional measures for the benefit of the Member State(s) concerned. It shall act after consulting the European Parliament". Article 80 TFEU was also important in this regard, as according to it, EU policies on border checks, asylum and immigration, and their implementation are governed by the principle of solidarity and fair sharing of responsibility, including its financial implications, between the Member States. In its proposal of 27 May 2015, the Commission suggested relocating 40 000 asylum-seekers from two countries – Italy

(24 000) and Greece (16 000) – to other Member States over 24 months, based on a mandatory distribution key. This proposal was followed by the European Commission proposal of 9 September 2015 to transfer another 120 000 persons in need of international protection from Italy (15 600), Greece (50 400), and Hungary (54 000) to other Member States over two years based on a compulsory distribution key. Hungary withdrew from this scheme. In September 2015, two Decisions concerning the temporary emergency relocation scheme based on the EC proposals were adopted by the Council (Council of the European Union, 2015a, 2015b). They assumed that a total of 160 000 asylum-seekers from Italy and Greece (and from other Member States if relevant) should be relocated by September 2017 to other EU Member States to undergo the asylum procedure. The first Council Decision (EU) 2015/1523 of 14 September 2015 concerning 40 000 asylum-seekers was adopted by unanimous vote while the second one, Council Decision (EU) 2015/1601 of 22 September 2015, involving 120 000 asylum-seekers to relocate, was adopted by a qualified-majority vote (Slovakia, the Czech Republic, Romania, and Hungary voting against, and Finland abstaining). The UK and Ireland (opt-in clause) and Denmark (opt-out clause) were not involved in the emergency relocation scheme while Poland, the Czech Republic, and Hungary – obliged by EU law – decided not to participate. Progress in the implementation of relocation was monitored by the European Commission. As of March 2019, of the assumed number of 160 000 asylum-seekers to be relocated between 2015 and 2017, only 34 710 had been effectively transferred from Italy and Greece to other EU Member States (European Commission 2019, 1).

The Prisoner's Dilemma, Suasion Game, and Issue Linkage

In general, if we take the Breckinridge (1997) assumption of the EU's important characteristics as a political regime, and specifically that the EU as an institution is built on different or multiple policy areas considered regimes themselves, i.e., the common trade policy regime, this paper follows the research line of assuming EU asylum and migration policy area as a regime (see El-Enany 2013; Pastore, Henry 2016). Accordingly, accounting for success and failure in regime-building has been explored based on the likelihood of cooperation among actors through game-theory reasoning (Hasenclever et al. 1997). In this regard, Zürn (1992) formulates the hypothesis that the more a cooperation problem worsens, the more likely a regime is to be created. In this case, Zangl (1994) argues that when

analysing collaboration situations, on the one hand, the Suasion Game is more likely to explain which states are very adverse to cooperate while, on the other hand, the Prisoner's Dilemma may explain which states are more conducive to cooperate, and, finally, the Issue Linkage may give interesting explanations in coordination situations among states. In this context and in order to understand the development problems of the EU asylum and migration regime in general and the failure of the cooperation among the EU Member States under 2015 Emergency Relocation Scheme in particular, the Prisoner's Dilemma, Suasion Game, and Issue Linkage have been taken as methodological models.

When it comes to the roots of the Prisoner's Dilemma, in 1950, Melvin Dresher and Merrill Flood from RAND Corporation devised a number of examples about the equilibria of non-zero-sum games. Sometime later, Tucker took these examples and developed a payoff matrix used later in Stanford's department talk about game theory explaining the difficulty of analysing non-zero-sum games with the example of the story about two prisoners (Straffin 1993). In the beginning, the Prisoner's Dilemma was of interest to psychologists in analysing human behaviour in social situations (Straffin 1993) and only later it started to be applied by political sciences scholars in order to explain actors' self-interest behaviour in international situations. As Axelrod (1980, 6) claims: "many of the best developed models of important political, social, and economic processes have the Prisoner's Dilemma as their foundation".

In IR theory, Prisoner's Dilemma is identified by collective action failure, that is to say, this two-actor model is based on two different actors' rational interests, which may lead to the pursuit of a non-cooperation attitude. According to Betts' words (2009, 28): "the dilemma is derived from the analogy of two prisoners who have been arrested and accused of a crime but are detained and interrogated separately from one another", as illustrated in Figure 1.

Figure 1. Payoff Matrix for each Move of the Prisoner's Dilemma

		COLUMN PLAYER	
		C (Cooperate)	D (Defect)
ROW PLAYER	C (Cooperate)	3.3	0.5
	D (Defect)	5.0	*1.1
The payoff to the row player is given first in each pair of numbers.			

Source: Axelrod (1980, 5).

In Figure 1, the Prisoner's Dilemma is represented by a two-actor scenario in which "actors would be states preferring mutual cooperation (CC) rather than mutual defection (DD), yet a state may be better off by benefiting from the unrequired cooperation from the other state (DC). The least desirable outcome for both states would be that one of them enhances cooperation without any reciprocal response (DC). According to this, the perfect sequence of states would be: DC > CC > DD > CD. In normal state relations, one may argue that both states have a common interest in achieving the CC outcome, nevertheless acting by their own, they will reach the suboptimal DD outcome" (Hasenclever et al. 1997; as cited in Betts 2009, 28). The DD result in Figure 1 is marked with an asterisk (*). This model has been applied to explain IR rational-choice dynamics in international cooperation. On the one hand, it may be useful to explain hegemony in some specific areas in which actors have symmetrical relation of power and interests; on the other hand, it does not further explain collective action failure in every case of international cooperation as normally not every state has the same power and interests in a certain circumstance.

When it comes to applying this model to refugee protection, recent literature has sought to analyse the refugee cooperation dynamics among states at the global level. Accordingly, Suhrke's (1998) pioneer work on refugee protection and collective action showed how the Prisoner's Dilemma may be applied in refugee protection dynamics for explaining collective action failure. The main shortcoming of this model lies in the assumption of a linear relationship of power and interests among the states. In the refugee protection case, this model may give some interesting insights in a context in which states have similar perceptions towards migration and/or refugee issues.

The second game theory model refers to the Suasion Game, developed to overcome the issue of the Prisoner's Dilemma power symmetry among states (Hasenclever et al. 1997). To do it, it focuses on primarily the role of North-South relations[3]. In this case, the difference in the power of the actors led to a difference in interests (Betts 2009). As in the Prisoner's Dilemma, the Suasion Game is based on a two-actor model in which one

[3] In politics, North-South division is often used to reflect the income-gap difference between the richest and poorest nations (see Maddison 1995, 2001; Pritchett 1997 and O'Rourke 2001, as cited in Moon 2007). Accordingly, as income and development rate is one of the factors that causes migration (see Castles 2009; Martin 1992); in the refugee and migration studies, the North-South line can be referred to the division among the Least Developed Countries (LDCs) and More Developed Countries (MDCs), in which, in terms of migration, LDCs are identified as "sending" countries and MDCs as "receiving" countries (Appleyard 1989).

state is stronger and has little incentive in cooperating, and the other one is weaker and needs to cooperate. This structure model has been applied in international cooperation area in order to understand to what extent states assigned to the global North use their coercive power to obtain what they want from Southern states. Nevertheless, unlike in the case of the Prisoner's Dilemma, suasion problems "have equilibrium outcomes that leave one actor dissatisfied" (Martin 1992, 778). In Figure 2, the Suasion Game is explained in a two-actor structure model: we may consider actor A the stronger one, actor B the weaker one. In the first case, the stronger actor (A) has a strategy to cooperate (C), and the weakest actor (B) may achieve its most preferred outcome by defecting (D) (Martin 1992). In this case, the most likely result is CD, in which actor A may exploit actor B. Another result might be that stronger actor (A) has a strategy to reluctantly cooperate, so weaker actor (B) should cooperate in order to avoid a fatal outcome (DC) (Betts 2009).

Figure 2. Suasion Game Matrix

		Actor B	
		C	D
Actor A	C	4.3	3.4*
	D	2.2	1.1

Source: Martin (1992, 778).

When it comes to applying the Suasion Game to the EU asylum regime, it may give some interesting insight. It is important to point out the level of analysis. In some cases, the Suasion Game may be useful in analysing refugee protection from an EU-level perspective as focused on a North-South orientation. From this perspective, on a global scale, the most important factor in using the Suasion Game to understand how states cooperate with each other in the provision of refugee protection is the fact that Southern European states are frontline and often the first-reception countries for asylum-seekers and refugees. Within the EU context, Central-Eastern and Northern EU Member States may have little incentive to cooperate in refugee protection, and on the contrary, Southern EU Member States may be more willing to cooperate. In this context, asymmetric power among EU Member States is evidenced by the North-South relation.

We have already presented a literature overview of the main characteristics and shortcomings of the Prisoner's Dilemma and Suasion Game. First of all,

Suasion Game seeks to overcome the Prisoner's Dilemma's shortcoming by adding the North-South relation analysis. In this impasse, this is the model of Issue Linkage (see Aggarwal 1998; Haas 1980; Keohane 1982; Martin 1992), which may be a third way. It focuses on "the simultaneous discussion of two or more issues for joint settlement as a bargaining tactic used by states to achieve two objectives" (Poast 2013, 287). Accordingly, at the same time, the Issue Linkage seeks to overcome the North-South issue in explaining certain collective action situations. The Issue Linkage literature explores to what extent institutional bargaining among states is set up into negotiations and policymaking (Aggarwal 1998; Haas 1990). That is to say, when more powerful states have less incentive to cooperate, the Issue Linkage perspective may help in identifying some issues from which states have different incentives to cooperate, so the importance of how this issue is important for both states (more powerful and less powerful) is crucial in understanding the cooperation from both parties.

When it comes to refugee protection, the Issue Linkage approach may be useful in explaining some cooperation dynamics. Often, despite EU binding norms, refugee burden-sharing and cooperation lead states to cooperate according to issue-related interests. In this context, when it comes to a refugee protection related-issue on which states agree, they may enhance *ad-hoc* measures. Some of these issues, such as terrorism, security, and stability, have been analysed under Issue-Linkage bargaining (see Carraro et al. 2005).

Germany and Poland: the 2015 Emergency Relocation Scheme

The migration and refugee crisis became an important challenge to EU Member States in how to cooperate in the area of asylum policy and the implementation of specific solutions regarding refugee protection, such as temporary relocation and resettlement. Although the issue of solidarity and burden-sharing in the EU asylum policy is relatively old (see Barutciski, Suhrke 2001; Fonteyne 1983; Thielemann, Dewan 2006), the massive influx of asylum-seekers and refugees to Europe since 2015 set the dilemma to migration researchers on how to identify and examine factors that may influence EU Member States' different approaches to and actions concerning refugee protection. Large-scale forced migration to Italy and Greece as European frontline and first-entrance countries resulted in their increased willingness to cooperate in burden-sharing of refugee protection-

related responsibility at the EU level. In addition, Northern and Central EU Member States, including Germany, supported the Commission's plan to launch a relocation scheme (Trauner 2016), later approved and introduced by two Council decisions in September 2015. The strongest opposition to the Commission's relocation proposal came from the Central-Eastern EU Member States[4], including Visegrad Group countries (the Czech Republic, Hungary, Poland, and Slovakia) (Pachocka 2016; Trauner 2016). The German approach to the refugee crisis can be symbolically expressed in the famous words of Chancellor Angela Merkel, "I put it simply, Germany is a strong country ... we have managed so many things – we can do this" (*"Wir haben so vieles geschafft – wir schaffen das"*), first said on 31 August 2015 at a press conference and then repeated on other occasions (Delcker 2016). This message followed Merkel's decision to suspend the Dublin rules on 25 August, which allowed asylum-seekers to submit their applications for international protection directly in Germany and not in the country of first entry into the EU, as required by the Dublin regime (Mushaben 2017, 527). It meant that Germany confirmed its capacity to receive many more forced migrants, mostly from Syria, than other European countries to reduce migration pressure on the continent and provide them with adequate reception conditions, asylum procedure, and integration into society. This was understood as confirmation of the German open-door asylum and reception policy. In her 2016 New Year's address, Merkel said: "I am convinced that if we tackle the huge task posed by the influx and integration of so many people in the right way today, then this will represent an opportunity for us tomorrow" (BBC 2015). As a result, Germany recorded the largest number of non-EU asylum applications in 2015–2018 among EU Member States – 1.8 million, which corresponds to 40% of the total asylum claims submitted in the EU. In Poland, on the other hand, this number was only 41 700, or 1% of the total EU applications (Eurostat 2019). Such a small number resulted from a combination of various factors: Poland was not located on the main migration routes of the 2015 refugee crisis and the asylum-seekers reaching it came mostly from the areas of the former USSR (e.g., Russia, Ukraine, Georgia, Armenia, Tajikistan), and, on the other hand, as the Law and Justice party – populist and conservative – came to power, the asylum policy practices changed significantly (the pushback phenomenon on the eastern border of Poland, difficulties in access to submit applications,

[4] For the purpose of this paper and analysis, we consider the Visegrad Group countries, including Poland, to be Central-Eastern EU Member States or Central-Eastern European countries.

detention centres), but also political and public media narratives became anti-refugee and anti-migrant. The phenomenon of migration became strongly politicised and a prime subject of the new government's internal political game. The politics of fear of "the other" was developed in society (see Górak-Sosnowska, Pachocka 2019; Szulecka et al. 2018). Finally, it is important to say that while Germany relocated the most asylum-seekers under the relocation scheme, relocations to Poland amounted to zero. As Poland, Hungary, and the Czech Republic refused to implement relocation at all, the European Commission initiated a Treaty-infringement procedure in July 2016. In December 2017, it referred these three EU Member States to the Court of Justice of the EU, as they remained in breach of their legal obligations rooted in Council Decisions (EU) 2015/1523 and (EU) 2015/1601.

To verify how the Prisoner's Dilemma and Suasion Game fail to help with an understanding of refugee protection and burden-sharing in the EU, we analyse how Germany and Poland approached the 2015 emergency relocation scheme and its implementation in each. Germany can be considered the powerful state while Poland the weaker one. When it comes to analysing both countries in the context of the refugee crisis and the relocation scheme, they have different roles in power and interests. On the one hand, Germany exercises a powerful position within EU institutional policymaking and has a strong interest in accepting refugees on its territory to fulfil humanitarian and EU legal norms; on the other hand, although Poland has much influence within the Central European region, after its opposition to the relocation scheme, it lost some reputation with EU institutions. According to these assumptions, due to their significant differences in positions and role of power in the asylum area among EU Member States, the Prisoner's Dilemma may fail to give some explanations for this collective action failure. When it comes to understanding some burden-sharing dynamics within the European asylum regime, one may argue that Member States exercise different soft power in EU institutional policymaking so this asymmetrical power relation leads to a failure of the Prisoner's Dilemma in explaining EU asylum cooperation dynamics in general, and refugee protection and burden-sharing in particular.

With a Suasion Game, it is interesting to analyse the case of Southern EU Member States and Northern ones. The main concern is that most EU Member States reluctant to cooperate under the 2015 refugee relocation scheme were from the Visegrad Group. The Suasion Game assumes that Northern states have less incentive to cooperate and Southern ones are

more willing because, geographically, they are in a first-entry position for asylum-seekers. Figure 3 shows how Suasion Game can be applied to a refugee-protection and burden-sharing situation:

Figure 3. Suasion Game. Number left (right) of comma refers to A/B's preference order (1 = worst outcome; 4 = best outcome; * = equilibrium)

		Northern donor state (actor B)	
		C (*burden-sharing*)	D (*no burden-sharing*)
Southern Host State (actor A)	C (*asylum*)	4.3	3.4*
	D *(no asylum)*	2.2	1.1

Source: Betts, Loescher (2011, 59).

In the case of the Northern state, its cooperative strategy (C) is burden-sharing while its defecting one (D) is not opting for burden-sharing; on the contrary, the Southern state strategy for cooperation (C) is providing asylum, and its defecting one (D) is to not provide asylum (Betts 2009). The most likely outcome of the game is unrequited cooperation (CD), marked with an asterisk (*). Nevertheless, it is important to note that this Suasion Game has only one equilibrium outcome that satisfies only one actor (Betts 2009).

In the case of the 2015 relocation mechanism, the Germany-Poland interaction cannot be explained by the Suasion Game, as Poland is neither a Southern nor refugee first-entrance Member State. On the contrary, for instance, if we take Italy as a case study, it may provide some interesting insight. During the relocation period, Germany (actor B) was willing to cooperate in refugee burden-sharing while Italy (actor A) was reluctant to provide asylum. In this case, we have a common outcome (CD) that explains the failure in collective action in burden-sharing cooperation, that is, Germany opening its territory for burden-sharing while Italy remains reluctant to accept asylum requests.

As mentioned above, the main shortcoming in Suasion Game dynamics is the focus on the North-South relation. In the EU, Central-Eastern Member States have played a crucial role in European institutional policymaking within asylum policy. In this case, Suasion Game fails to explain the Central-

Eastern Member States' reluctance to cooperate in refugee protection and burden-sharing.

Last but not least, Issue Linkage can be shown to be a theoretical alternative in the analysis of Germany-Poland burden-sharing dynamics in the 2015 relocation scheme. In recent years, the Issue Linkage perspective has been used to explain policymaking in different contexts in political science and international relations. In the case of the refugee regime, events such as the terrorist attacks of 11 September 2001 are led to a link between forced migration and different issues, such as public security/safety and the threat of terrorism. Accordingly, refugee regimes are composed of different issues interacting with each other. Among them, we may find security, stability, border control, etc., as important issues that may condition cooperation in refugee protection among the states.

In the case of the 2015 relocation scheme, one important issue that explains the reluctance of some Central-Eastern EU Member States in cooperating is security. In the EU, security has been linked to categorise migrants as irregular or regular, and it has had real effects in the way politicians choose their policies in the asylum area. In 2015, if we take the issue of security to explain Germany's and Poland's different positions on asylum-seeker burden-sharing, we may see how their perceptions of refugees are much different and how this issue has affected agenda-setting in these countries. That is to say, investigating refugee protection and burden-sharing by Issue Linkage overcomes both the Prisoner's Dilemma's and Suasion Game's shortcomings – symmetry of power and interests and the North-South orientation. Nevertheless, like the Prisoner's Dilemma and Suasion Game, the Issue Linkage approach has its own shortcoming, mainly the difficulty in analysing a case study empirically; in other words, Issue Linkage seeks to outline the importance of linking refugee protection issues to understand cooperation among states but does not specify how that linkage may influence the way states set up their policy agendas in this area.

Conclusions

To this end, the conducted analysis allowed us to formulate the following conclusions:

- Prisoner's Dilemma fails to explain refugee protection cooperation because EU Member States have different roles in power and interests.

- Suasion Game may give some interesting insight into refugee protection cooperation between Northern and Southern European countries but fails to explain Western and Central-Eastern European countries' cooperation.
- Issue Linkage may explain ad-hoc cooperation between states, but its main shortcoming is in determining the role of power within a specific EU policy, so it is difficult to analyse it at the EU level.
- When it comes to analysing EU cooperation dynamics from an IR game theory perspective, it is difficult to obtain consistent results, because the EU Member States have different interests, power roles, and geographical positions.

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*Paweł Soroka**

Shaping of the Energy Mix by the Member States within the Framework of the European Union's Energy and Climate Policy

Abstract

In this paper the concept of the 'Energy mix' is defined and discussed along with the presentation of conditions for shaping it in particular EU states. The energy mix of the EU and Poland is shown with reference to the EU energy and climate policy. The article presents the consequences of implementing this policy for some energy-intensive industrial sectors. The author of the paper specifies the division of competences between the EU and the member states with regard to the activities which change their energy mix stating that the choice of components in the energy mix rests with the member states which, however, must meet the requirements set by the EU. According to the author, in negotiations that work out decisions concerning the EU energy policy which aim at among other factors, determining the timeline for particular member states with regard to their meeting the requirements resulting from the EU regulations, Poland should enter into alliances with states which have a similar energy mix. He also highlighted the need for realism in shaping the energy mix, which should be manifested in harmonising the aims of the energy and climate policy with the economic and social goals of the EU member states.

Key words: energy mix, energy and climate policy, fossil fuels, renewable energy, energy efficiency, CO_2 emission reduction

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Introduction

This paper aims at defining the concept of the 'Energy mix' and presenting the conditions for shaping such a mix in specific states. The energy mix of the EU and Poland will be presented with reference to the energy and climate policy of the EU. The consequences of this policy for certain energy-intensive industry sectors will be shown. The gradual departure from carbon and the development of renewable energy sources (RES) are unavoidable, whereas the rate and the costs of this process remain an open question. Various barriers characterised in this article stand in the way. The choice of energy balance components belongs to the member states which must, however, consider the requirements set by the EU. In negotiations that work out decisions concerning the EU energy policy, *i.a.* aiming at fixing the timeline for particular member states with regard to their meeting the requirements resulting from the EU regulations, Poland should enter into alliances with states which have a similar energy mix. It means that such decisions should not be made based on pressures and activities of the leading states in the EU, whose energy mix is different from the energy mix of Poland, *i.e.* Germany and France.

The Concept of the Energy Mix and the Conditions Shaping it

The energy mix is a structure of energy production and consumption according to the criterion of energy carriers or ways of energy production. The shape of energy mix is caused by different conditions of energy production in particular states, differing in the production by the share of carbon and other energy carriers. Influence on the shape of energy mix is exerted mainly by the natural conditions of a given state, and in particular by disposing of an actor's own energy resources located at depths which allow for their economically profitable extraction. The percentage share of specific energy sources in domestic consumption depends also on technological resources of a given country, the economic potential and the level of economic development as well as on the accepted objectives of energy policy (Pronińska 2012, 26) It should be emphasized that from *circa* 200 states belonging to the UNO, only 12–15 have sufficient resources of energy materials (Chmielewski 2099, 10) Generally, economic growth goes in line with the growth in energy consumption.

An example of a state which methodologically aims at shaping its energy mix is Germany. A valid reason for that is the imports dependency of

this state as regards three biggest energy materials: crude oil, carbon and natural gas. From among the EU states, Germany is the biggest importer of energy carriers from Russia. In the case of crude oil and natural gas, it is a consequence of insufficient resources, and in the case of carbon, the reason lies in its high production costs. In this situation, Germany set up as a target to depart from fossil fuels and nuclear energy, and to create a low-emission energy system, as well as to improve energy efficiency. The most important role in the German energy mix was assigned to renewable energy sources, mainly from wind and photovoltaic sources). At the same time, the construction of gas power plants is assumed, since they are evaluated as a better complement to renewable energy sources than coal-fired power plants due to lower costs, faster amortisation, lower CO_2 emission and operational efficiency allowing for activation during the periods of increased power consumption (Ćwiek-Karpowicz 2012, 11) To achieve these goals, the energy transformation called the *Energiewende* (Ulatowski 2016, 72–96; Gawlikowska-Fyk 2012, 29–30) was initiated.

The Energy Mix of the EU and Poland

Nowadays, on the whole territory of the EU, the dominant role is still played by the fossil fuels: crude oil and natural gas, which jointly provide more than 60% of energy production. And, in spite of the fact that their share in the EU energy balance is slowly decreasing, all the indications suggest that the dominance of these two kinds of fuels will be retained over the nearest coming decades (Kaczmarski 2010, 36). The consumption of carbon and lignite is decreasing, which results from replacing the power plants that utilize carbon with nuclear power plants and those based on gas. In the European Union the nuclear power industry is present in 15 EU states, in total there are over 140 nuclear power plants on the territory of the EU (Kaczmarski 2010, 37). However, a few states have already started certain actions or consider a total withdrawal from the functioning nuclear power plants, taking into account environmental protection. However, according to data published by Eurostat, in 2017 the share of renewable energy in energy consumption in power engineering, heating and transport in the European Union increased by 0.5 percentage points to 17.5%.[1] Bioenergy dominates among renewable energy sources, and its production systematically grows.

[1] https://www.gramwzielone.pl/trendy/34423/udzial-oze-w-zuzyciu-energii-w-polsce-najnizszy-od-kilku-lat (Eng. *RES share in energy consumption in Poland has been the lowest for several years*).

The biggest annual growth is recorded in wind power, and a stable position is held by hydroelectric power (Leszczyński 2009, 191). At the same time it must be noticed that the dependency of most member states on the import of fossil fuels is growing.

In comparison with other European Union countries, the share of carbon in the structure of energy balance in Poland is still very big. In 2018 the share of carbon and lignite in the production of electrical energy was similar to the share as of 2017 (78.2% against 78.4%).[2] It guarantees that Poland enjoys great self-sufficiency and a low level of dependency on the import of energy carriers. It was stated in the document "Energy policy of Poland till 2030" adopted by the Council of Ministers on 10 November 2010 that the domestic carbon resources and costs related to the acquisition and processing, as well as the simplicity of carbon storage mean that till 2030 carbon will retain its dominant role in the raw material and energy balance of Poland (Council of Ministers 2009). The consumption of natural gas and crude oil will grow. However, the share of renewable energy in the final gross energy consumption in Poland amounted to 11% in 2017 (GUS 2017).

The Influence of the EU Energy and Climate Policy on the Energy Mix of the Member States

The Energy and Climate Policy of European Union is increasingly influencing the energy mix of specific member states. As early as in 2007, being under the strong influence of Angela Merkel, the EU states accepted in 2007 a package "3 times 20". It stipulated that by 2020 three main goals will have been achieved:

- A 20% share of energy from renewable sources in the total energy consumption in the EU;
- Increasing the energy efficiency by 20%;
- Limiting the greenhouse gases emission by 20% (in relation to 1990 levels) (Godlewski 2018).

At the summit of the European Council on 24 October 2014 concerning energy and climate policy, the European Council moved forward and

[2] We are more and more dependent on the supplies from Russia. A record-size import of carbon- the newest report -https://tvn24bis.pl/z-kraju,74/zrodla-energii-w-polsce-w-2019-roku-raport-o-polskiej-energetyce,925909.html (access: 11th May 2019) [Eng. *Energy Sources in Poland in 2019, a report on Polish energy industry*].

accepted a binding obligation, referred to as the second Climate and Energy Package, to reduce the emissions of greenhouse gases till 2030 by at least 40% in comparison with the 1990 level. The Council accepted additionally two other goals of energy policy by 2030: to ensure at least 27% renewable energy share in EU energy consumption and further improvement of energy efficiency, at least by 27%. Recently, the European Commission has been forcing changes to the fuel mix by popularising electric drives.

For a time, the public debate has been increasing on topics such as energy and climate policy of the European Union, the costs and benefits resulting from the implementation as well as the consequences. In particular, the circles that represent industry question the directions that were set out for this policy, highlighting its extremely high costs.[3] It is sufficient to say, that in all analyses it is indicated that the policy of decarbonization, *i.e.* consisting of eliminating carbon as energy carrier, triggers the increase of investment expenditures, and at the same time the costs of energy production, both for industrial purposes and the households, and it simultaneously contributes to the decrease of GDP in the whole European Union. It all adversely affects particularly the high-energy consumption industries, which by their nature utilize large amounts of electricity, such as iron and steel industry or cement industry, glass industry and ceramics industry which will have to incur additional considerable costs in connection with the increase of electrical energy prices. The EU requirements concerning the reduction of carbon dioxide emission hit also the refining industry on the territory of the European Union. Its functioning and modernization require increased expenditures, among others to meet rigorous requirements concerning environmental protection. It results from the expert opinion of Małgorzata Burchard-Dziubińska and Danuta Lipińska, elaborated on the basis of surveys, that the enterprises from these industries take into account the considerable loss of market share in favour of the installations located outside the EU which do not undertake considerable actions to reduce emission. In connection with that, many of them are considering the option to move the production abroad, outside the territory of the EU (Burchard-Dziubińska, Lipińska 2008, 355–413).

In the long run, such a policy will be difficult to continue in the situation when on the one hand the prices of gas are decreasing on the energy

[3] In Poland the voice of criticism regarding the EU climate policy was expressed many times by such organizations as National Chamber of Commerce, Polish Industrial Lobby and Secretariat of Mine and Energy Industry Trade Union NSZZ "Solidarity".

markets, and on the other hand, Europe has to face the growing competition of industries from BRICS countries which in their policy do not follow the requirements that the European Commission imposed on the EU member states. Therefore, much is said about the need for realism in the energy and climate policy of the European Union and about making corrections as regards its goals. Hence, the European Union should redefine its climate policy for better harmonising its aims with economic and social targets, and it means that the EU should not aim at total elimination of fossil fuels from the EU energy mix, and instead of that – support investments in technologies which lead to decreasing the CO_2 emission (Siemiończyk 2014). Tomasz Motowidlak is right in saying that the only possibility to reconcile the interests of the opponents and supporters of using carbon for energy purposes is the development of Clean Coal Technologies (CCT), involving mostly Carbon Capture and Storage technologies (CCS), the process of capturing and storage of CO_2, and coal gasification, CGCC, since the functioning of power plants combusting carbon and lignite would stay within the boundaries of EU emission reduction plan, should they apply to a large extent the CSS installations. Fixing these installations would allow for retaining the significant position of carbon in the energy balance of Poland (Motowidlak 2013, 163–164). It means that the coal technologies applicable in energy industry require constant modernization taking into account the efficiency and pollution of the natural environment Bożyk 2013, 197).

Personally, I tend to support equal treatment of energy carriers as opposed to the approach which is subordinating the use of the original, fossil energy carriers to the requirements of environmental protection. As accurately presented by Paweł Bożyk, such an approach is supported by a marginal share of the European Union states in the global pollution emission (circa 14%). More than 70% of the global pollution emissions are generated by China, the United States of America, India and the Republic of South Africa (Bożyk 2013, 197). In the case of Poland, the most realistic scenario is a gradual, reasonable growth of power lying in renewable energy sources. The desired change in the shape of energy balance of Poland can be effected also through the increased role of hydrocarbon raw materials; the reason being the fact that according to forecasts the demand for natural gas in Poland will be on the increase. It is used in industry, especially chemical industry and industry manufacturing artificial fertilizers, in service industry and in households. It should be expected that along with diversification of the sources of its deliveries, which will be the effect of increasing the

capacity of Gazoport, and the decisions in this matter have already been taken, and along with the building of the Baltic Pipe gas pipeline allowing for gas deliveries from Norway, new power plants and power units will be constructed that are fueled by gas.

Considering the growing threats connected with the global warming and environmental pollution, it goes without saying that the changes in the energy mix of the states excessively dependent on traditional, fossil energy carriers are indispensable. All the more so, since it is predicted that in the nearest years the prices of additional rights to emit carbon dioxide will be increasing, and it will trigger the increase of prices of energy generated from carbon.

As far as Poland is concerned, the above considerations as well as the growing need for liquid fuels and the requirements connected with environmental protection cause that the need appears to decrease the level of dependency of our economy on carbon. This need results also from the fact that the costs of coal extraction will be growing, which relates to acquiring coal from greater depths, especially in Silesia. It causes the situation that the coal purchased in the East, for example in Russia is cheaper than Polish. For this reason, such import of coal into Poland grows. In 2017 the size of all import amounted to 13.3 m tonnes, whereas in the same year the coal extraction in Polish coal mines decreased to the amount of 65.8 m tonnes (Maciążek 2018, 141). Apart from that, the climate policy of the EU as a result of which the additional rights to emit carbon dioxide must be purchased at increasingly high rates means that banks are not willing to finance the construction of new carbon-fueled power stations and power units.

Barriers in the Process of the Energy Mix Changes

However, the changes in energy mix meet certain barriers. Faster changes in the existing energy mix are hampered by existing industrial infrastructure which is adjusted, as a result of many years of investments, to concentrated power engineering based to a large extent on fossil fuels, and not dispersed, the latter being the one connected with renewable resources. The qualitative and quantitative change of this infrastructure requires time and large expenditures, especially in the initial stage when the infrastructure is created that ensures the acquisition and processing of e.g. renewable energies into electrical energy. They involve in Poland biomass energy, wind

energy, solar energy and hydropower. According to the Energy and Climate Package, nowadays the installations needed to produce renewable energy sources, especially utilising sun and wind are very expensive, therefore the European Union subsidises them. However, their production is gradually growing in the world, which due to the effect of scale makes them cheaper. This may in future lead to a situation that in terms of prices they will become competitive in relation to conventional sources from carbon and gas. As a result, they will be gradually crowding out conventional carriers. In Poland, the biggest increase of power in the field of renewable energy was reported in wind sector (Baca-Pogorzelska 2013).

In the case of gas, it should be remembered that for this raw material, due to the necessity of building capital-intensive transmission and receiving infrastructure, long-term contracts are concluded, as the costs of building gas pipelines are returned only after many years. Owing to that, small and stable deliveries of this carrier of energy are possible, but it is more difficult here to change the energy mix.

Another serious barrier impeding changes in the energy mix is the social barrier. The existing shape of energy industry is linked with the specific employment structure in the entities that render related services, from extraction through transmission to distribution. Employment is particularly big in the mining sector which is additionally concentrated in the carbon and lignite extraction districts. Restructuring this workforce cannot be done overnight. First of all, new workplaces must be created in place of the liquidated ones, which in turn requires that the people who are in working-age population change their qualifications.

The barrier can also be influential interest groups which for a long time of the functioning of the existing structure of energy production have gained in strength and try to influence the decision-makers trying to change the existing energy mix by diversifying the structure of energy materials. These groups consist of both the employers of energy industry and the trade unions representing the employees, as well as the scientific circles constituting the research and development background of the industry that extracts and processes the fossil energy carriers.

The development of renewable energies meets with the public resistance; in particular the case concerns the development of wind power. Large wind turbines pose a threat to birds and, apart from that, they exert an adverse impact on the well-being of people living in their vicinity, which causes social protests in some places.

The Division of Competences between the EU and the Member States with Regard to Activities Changing the Energy Mix

The request that "the scale of emission reduction and the rules of the EU system of trading in emissions should take into consideration the economic differences between the specific states of Central Europe" (Olechnowicz 2013) must be perceived as fully justified and rational. In other words, the plans of reducing the carbon dioxide forced by the European Union should take into consideration the energy mix, *i.e.* different energy production conditions in particular member states, differing in the share of carbon and other energy carriers in this production. All the more so, since the Lisbon Treaty guaranteed the member states the right to individually shape the energy mix, describing energy as a sphere of competence divided between the member states and the European Union. In Article 176 of this Treaty, goals of the energy policy were written that involve building the common energy market, ensuring the security of deliveries, supporting the energy efficiency and energy savings as well as supporting the development of new, renewable energy forms and supporting mutual connections between the energy networks. It is known that the states where the share of carbon is still large and where it will remain large for a long time will have to incur much higher costs, which will weaken the competitiveness of their economies and impede the development of industrial potential (Gierek 2012, 25; The Energy and Climate Package 2008).[4]

The energy sector is dominated by strong national policies and a significant role of the state. Therefore, a new energy policy is formulated and introduced by the European Union via the European Commission in close cooperation with the member states. However, "the creation of European energy policy is still dominated by divisions" (Kaczmarski 2010, 143). For instance, renewable energy sources are promoted mainly by the EU member states from the western part of Europe (Kaczmarski 2010, 141), and most of the Central and Eastern Europe States base to a greater extent on fossil energy sources, which is principally the heritage of the energy-intensive socialist economy in which heavy industry was predominant. All of this means that the process of building a single energy policy is hard and long-lasting (Gawlikowska-Fyk 2012, 21).

[4] The EU MP prof. Adam Gierek stated, that the EU regulations aiming at a far-fetching decarbonization of the economy cause the result that nowadays the construction of a power plant in Poland, fueled by coal, even of considerably increased efficiency, *i.e.* over 50%, is impossible without applying expensive CCS technology.

The European Commission is entitled to act in the field of energy industry in the matters related to trade, environmental protection and competition. In the recent years the European Commission concentrated on building the single market for energy, but the selection of the energy mix components belongs to the member states. For this reason, member states still enjoy considerable freedom in shaping their energy mix provided that they implement the energy policy goals determined in Article 176 A of the Lisbon Treaty. It is necessary to confirm the statements of Marcin Kaczmarski that as long as the legal pillars of new energy policy are not created, the issues of energy security will be the result of agreements between the member states, rather ad hoc and on the basis of collective negotiations (Gawlikowska-Fyk 2012, 35). This is also true of the issue of shaping the energy mix. Furthermore, cooperation in working out a common energy policy will deepen in response to threats that arise from advancing globalisation, increasing role of global energy producers and more intense competition for resources (Gawlikowska-Fyk 2012, 26). Decisions in this case are taken in the European Parliament and in the European Council or in the EU Council. A special attention in these cases in the mentioned EU authorities is demonstrated by Germany which consequently aims at internationalization of the energy policy model preferred by themselves (Ulatowski 2016, 181). In the negotiations that work out decisions, among others aiming at setting the timelines of meeting by particular member states the requirements stemming from the EU regulations, Poland should enter into alliances with states which have a similar energy mix. Otherwise, the wording of these decisions will be the result of pressures and activities of the leading states in the EU which have an energy mix different than Poland, *i.e.* from Germany and France. The countries of a similar energy include Estonia, Czech Republic, Bulgaria and Greece, in the case of which the share of carbon in their energy mix is relatively high, though smaller than in Poland.

Conclusions

The paper presented the shaping of the energy mix by the EU member states, including Poland. On the one hand, this mix is contingent upon the availability of state resources of natural carriers or the dependency on import, and on the other hand, on the requirements arising from the EU energy and climate policy. This policy is to a greater or lesser extent taken into account

by the member states in spite of the fact that pursuant to the Lisbon Treaty they have considerable leeway to shape their energy mix provided that they implement the aims of the energy policy stipulated by Article 176 A. of this Treaty. The author advocates the equal treatment of energy carriers in contrast to the approach that makes the utilisation of fossil fuels subordinate to environmental protection requirements. It is also important to consider the need for realism in shaping the energy mix, which should be manifested in harmonising the aims of the energy and climate policy with economic and social goals. This policy strikes at the energy-intensive industrial sectors which provide a significant number of jobs. The gradual departure from carbon and the development of RES are unavoidable, whereas the rate and the costs of this process as yet remains an open question.

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The New Energy and Climate Framework for 2030 and the Financial Instruments of the EU – Challenges for Poland

Abstract

The aim of this article is analyse the new EU energy and climate framework for 2030 and try to answer the question why is it shall prove an enormous challenge for the polish economy. The EU has provided financial assistance to all Member States that wish to support the attainment of these goals and ensure that their attempts at implementing the climate and energy package by 2030 are successful. First, the Plans and objectives of the new 2030 climate and energy framework in Poland and in the European Union was presented. The second part shows the diagnosis of the energy sector in Poland. The last part presents the EU's financial instruments to implement the climate and energy framework. In conclusion the Author underline coal is a non-renewable source of energy that will, at some point, become exhausted. Failure to take action in the Poland will exacerbate Poland's dependence on energy imports in the coming years.

Key words: energy and climate framework, financial instruments, energy sector

Introduction

In the second half of the twentieth century, Western European countries became aware of environmental damage and climate change. In addition, the energy crisis of the 1970s[1] highlighted the weakness of energy sectors in these countries, namely their dependence on energy imports. In view of this situation, the countries of Western Europe were forced to seek alternative

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[1] The 1970s energy crisis was a period when the major industrial countries of the world, faced substantial petroleum shortages, as well as elevated prices.

sources of energy, which has led them to the development of renewable energy sources, a process that began to unfold there much earlier than in Poland.

It was not until the Poland's accession to the European Union (EU) in 2004 that measures were taken to promote the development of sustainable energy sources that would ensure a constant and stable access to energy and a greater competitiveness of the economy without causing further harm to the environment or contributing to climate change. It has, however, proven very difficult, mostly because coal continues to prevail in Poland's energy balance. At present, Poland's energy sector is at a completely different level of development than the energy sectors of Western European countries. Therefore, the climate and energy package for the period 2021–2030 shall prove an enormous challenge for the Polish economy; it requires firm and steady measures aimed at transforming Poland's energy sector. The EU has provided financial assistance to all Member States that wish to support the attainment of these goals and ensure that their attempts at implementing the climate and energy package by 2030 are successful.

Plans and Objectives of the New 2030 Climate and Energy Framework in Poland and in the European Union

The functioning of the energy sector is an important determinant of the country's competitiveness. Uninterrupted access to electricity and other energy products, as well as their cost, are key. In Poland, the energy sector is mainly based on coal. In the second half of the 20th century, Polish energy sector paid no attention to the protection of the climate, natural resources, or the environment. Changes began to take place gradually in the 21st century. In May 2004, Poland became a Member State of the European Union (EU). Since then, together with other Member States and the European Commission, the country has co-shaped the climate and energy policy of the EU. It has proven an incentive for change, as it has required an update of Poland's energy policy.

In January 2008, the European Commission presented a package of documents, mainly legislative, named 'climate and energy package'. These documents present measures aimed at meeting the targets set by the European Council in 2007 and aimed at tackling climate change. According to these documents, by 2020, the European Union was to (Ea Energy Analyses 2012, 17):

- reduce greenhouse gas emissions by 20% compared to 1990 emission levels;
- increase the share of renewable energy sources in final energy consumption to 20%;
- increase energy efficiency by 20%, compared to predictions for 2020;
- increase the share of biofuels in the general consumption of transport fuels at least to 10%.

In October 2014, The European Council agreed on a new 2030 climate and energy framework, setting EU-wide targets for the period between 2020 and 2030 (European Commission, 2014):

- a binding EU target of reducing by at least 40% greenhouse gas emissions by 2030, as compared to 1990;
- a binding EU-level target of increasing the share of renewable energy in total energy consumption to at least 27% by 2030;
- an indicative EU-level target of improving energy efficiency by at least 27% by 2030;
- supporting the completion of the internal energy market by achieving the existing electricity interconnection target of 10% as a matter of urgency no later than in 2020, in particular for the Baltic States and the Iberian Peninsula, with the final target of 15% to be reached by 2030.

Targets concerning renewables and energy efficiency were revised upwards in 2018. As a result of further evolution of EU targets – on the basis of a consensus reached by the European Parliament, the European Council and the European Commission – the share of RES was increased to a level of 32% and the energy efficiency target to 32.5%.

The adoption of higher common targets will surely require Poland to make more ambitious national commitments. Furthermore, European emission reduction targets provide strong grounds to believe that, after 2030, commitments made at the national level will continue to involve increased energy efficiency and the use of RES.

As evidenced in Table 2, According to the draft National Energy and Climate Plan (NECP), Poland plans to reduce greenhouse gas emissions (in the non-ETS sectors) by 7% in 2030, as compared with its 2005 level. In addition, Poland plans to increase the share of renewable energy sources in the final energy consumption to 21% by 2030, and to raise the energy efficiency target to 23% with respect to primary energy consumption as forecast by PRIMES 2007. The level of energy consumption in 2030 is estimated at 91.33 Mtoe (primary energy) and 66.18 Mtoe (final energy).

Table 1. The Draft National Energy and Climate Plan (NECP)

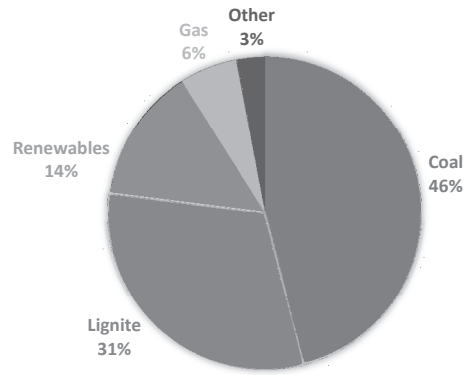
Renewable Energy share to 2030	Greenhouse gas target 2030	Energy efficiency
21%	- 7% compared to 2005	23% with respect to the primary energy consumption as forecast by PRIMES 2007
Reduction of the share of coal in electricity production to 60% in 2030 and futher decreasing trend until 2040		

Sources: Ministry of Energy 2019, 17–21.

Diagnosing the Energy Sector in Poland

Achieving the objectives of the energy and climate package in Poland is extremely difficult, as the vast majority of electricity production comes from coal and lignite. In 2017, as much as 46% of electricity production was generated from coal, and 31% from lignite. Only 14% of electricity is produced on the basis of renewable sources. The Electricity production structure in Poland in 2017 is presented in Figure 1.

Figure 1. Electricity Production Structure in Poland (2017), % share

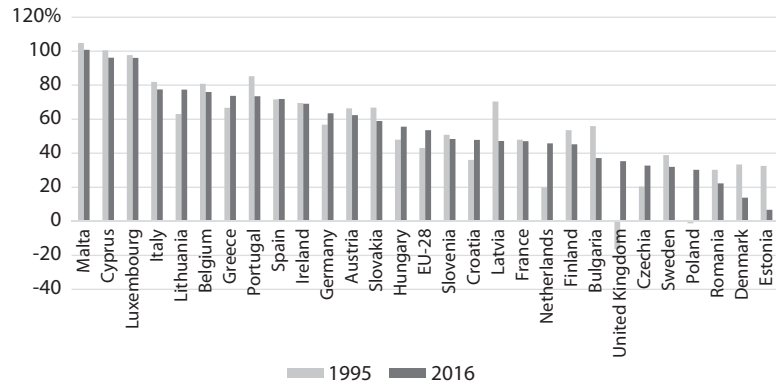


Sources: Ministry of Energy 2019, 6.

As evidenced in Figure 2, Poland's considerable coal resources translate into one of the lowest levels of dependency on energy imports in the EU.

In 2016, Estonia (6.8%), Denmark (13.9%) and Romania (22.3%) were the EU countries least dependent on energy imports. Poland (30.3%), Sweden (32.0%) and the Czech Republic (32.7%) also import less than a third of their energy. The EU Member States that depended most on energy imports were Malta (over 100%), Cyprus (96.2%) and Luxembourg (96.1%).

Figure 2. Import Dependency – All Fuels (%)

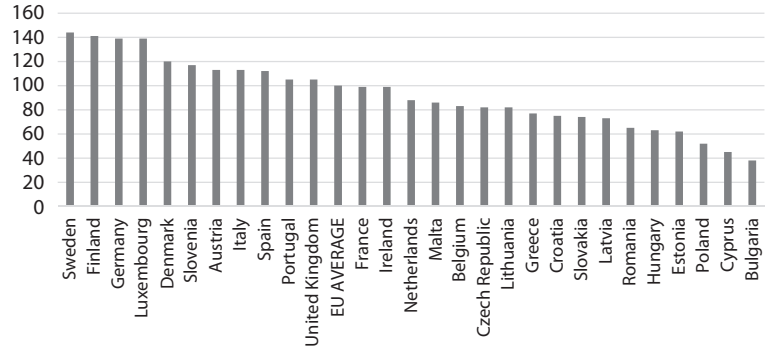


Sources: European Commission 2018, 66.

Figure 3 presents the eco-innovation index that illustrates eco-innovation performance across the EU Member States. It aims to capture different aspects of eco-innovation in five dimensions: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency and social economic outcomes. Poland has one of the lowest eco-innovation indicators in the EU-28. The level of investment in energy sector development directly affects the country's attainment of objectives related to the EU climate and energy package.

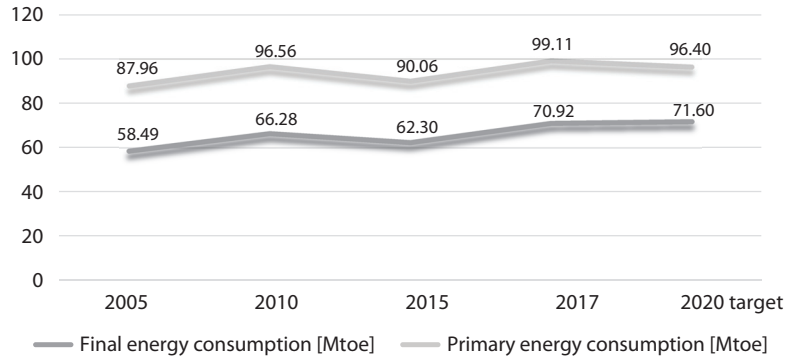
Poland has set an indicative national energy efficiency target of 13.6 Mtoe (million tons of oil equivalent) as primary energy savings in 2020. Reaching a 2020 level of 96.4 Mtoe of primary energy consumption and 71.6 Mtoe of final energy consumption. Figure 4 presents the level of reduction of energy consumption in Poland. In 2017, Poland's primary energy consumption reached 99.11 Mtoe, exceeding its 2020 indicative target. Final energy consumption – 70.92 Mtoe – was slightly below the 2020 indicative target.

Figure 3. Eco-Innovation Index, 2017



Sources: European Commission 2019.

Figure 4. Energy Efficiency: Reduction of Energy Consumption in Poland

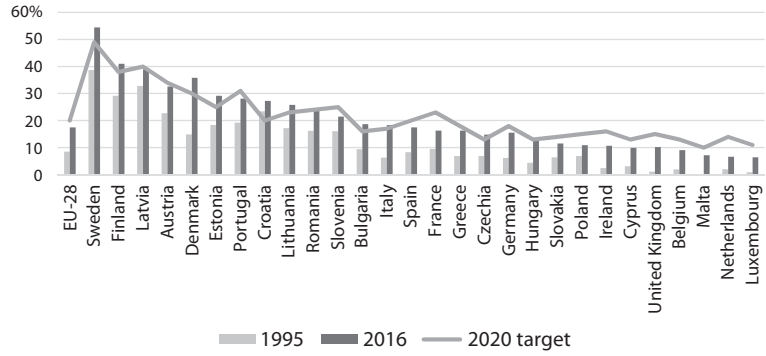


Sources: Eurostat 2018.

The EU seeks to ensure that 20% of its gross final energy consumption shall be generated from renewable sources by 2020; this target is distributed between the EU Member States with national action plans designed to trace a pathway for the development of renewable energy sources in each Member State. Many EU-28 countries have already achieved the required goal for 2020. Unfortunately, Poland still lags behind and remains far from the required target of 15%. With more than half (54.5%) of energy generated from renewable sources in its gross final consumption of energy, Sweden had by far the highest share among all EU Member States in

2017, ahead of Finland (41.0%), Latvia (39.0%), Denmark (35.8%) and Austria (32.6%). At the opposite end of the scale, the lowest proportions of renewables were registered in Luxembourg (6.4%), the Netherlands (6.6%) and Malta (7.2%). The share of energy from renewable sources in gross final consumption of energy in Member States is presented in Figure 5.

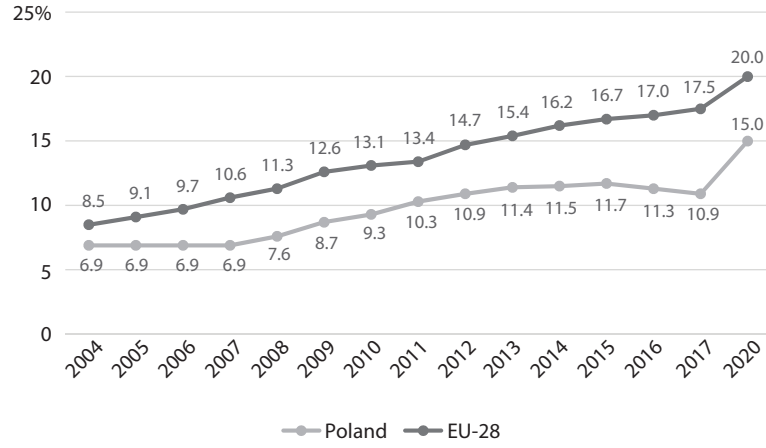
Figure 5. Share of Energy from Renewable Sources in Gross Final Consumption of Energy (%), 2004 and 2017



Sources: Eurostat 2019.

In 2017, the share of renewables in gross final energy consumption declined to 10.9%. Investment in new renewable energy capacity has slowed down, presenting a challenge for the achievement of the 2020 renewables target of 15%. This can be predominantly attributed to changes in the regulation on wind farms (European Commission, 2018). In mid-2018, the legislative framework for on-shore wind improved, but significant barriers remain, such as strict rules on minimal distances between wind farms and local buildings, as well as procedural uncertainty concerning permits and connecting agreements. The potential for solar energy remains largely untapped. Poland has potential, thus far unused, for geothermal energy. A new programme aimed at exploiting this potential has been launched. The share of energy from renewable sources in the final gross consumption of energy in Poland and the EU-28 is presented in Figure 6.

Figure 6. Share of Energy from Renewable Sources in gross Final Consumption of Energy (%), Poland and EU-28, 2004–2017



Sources: Eurostat 2019.

EU's Financial Instruments to Implement the Climate and Energy Framework

The EU budget is an important element in supporting the implementation of the Union's policies and priorities. Although the amount is limited and represents only around 2% of all public spending in the Union, it complements national budgets and has a clear focus on investment.

Climate action is one of the priorities for the Commission and it has been set out in the Europe 2020 Strategy. To meet the challenges and investment needs associated with climate measures, the European Commission proposed the inclusion of climate action in the Multiannual Financial Framework for 2014–2020 (MFF) and ensure that at least 20% of EU expenditure is climate-related. This approach was endorsed by the European Council on 8 February 2013 and, subsequently, confirmed by the European Parliament in its resolution of 13 March 2013 in the MFF 2014–2020. Through including this issue in different policies, at least 20% of the EU budget spending in the MFF for 2014–2020 should be climate-related. Related to financing climate action, consolidated and updated information on the 2014–2020 programming period is presented in Table 2.

Table 2. Financing Climate Action – Consolidated Updated Information on the 2014–2020 Programming Period (millions of EUR, commitment appropriations)

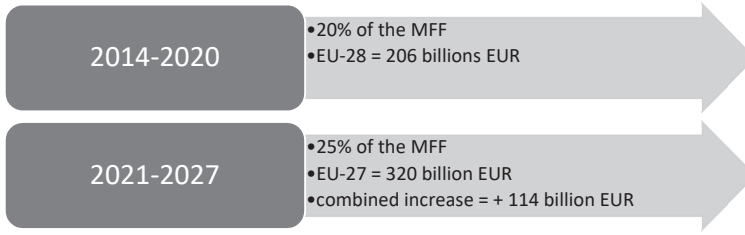
Programme	2014–2017				2018–2020 estimates			Total 2014–2020
	2014	2015	2016	2017	2018	2019	2020	
Total EU Budget	118 054.4	158 606.8	151 498.4	154 507.1	156 623.4	160 553.9	164 880.1	1 064 724
Climate Change finance	16 098.3	27 451.8	31 738.1	29,792.9	30 481.2	31 956	32 606.7	200 124.8
Share of climate	13.6%	17.3%	20.9%	19.3%	19.5%	19.9%	19.8%	18.8%

Sources: European Commission 2017, 106.

Climate action defined in the MFF 2014–2020 ensures that at least 20% of EU expenditure is climate-related. It is estimated that EUR 206 billion shall be spent on combating climate change during this period. For 2021–2027, the European Commission proposes to set a more ambitious goal for climate mainstreaming across all EU programmes, with a target of 25% of the EU expenditure contributing to meeting climate objectives. It means an increase in spending related to climate change by EUR 114 billion, to EUR 320 billion.

Climate Mainstreaming – contributing to climate change is presented in Figure 7.

Figure 7. Climate Mainstreaming – Contributing to Climate Change



Sources: European Commission 2018b.

This ambitious goal is supported by the Commission who suggests to strengthen climate action in key areas, such as agriculture, rural development and external action. The implementation of the objectives shall be supported by the following financial programmes:

I. The new LIFE programme: investing more in environment and climate action

The Commission proposes to strengthen and pursue the well-established programme for environment and climate action, LIFE, which will also support measures promoting clean energy and energy efficiency. In order to supplement targeted nature preservation efforts, the Commission additionally strengthens synergies with the Cohesion Policy and the Common Agricultural Policy to finance investment in nature and biodiversity (European Commission 2018c, 13). According to the proposal of the new LIFE programme for 2021–2027, the EC intends to allocate EUR 5.45 billion to projects supporting environment and climate action. This is an increase by EUR 1.95 billion compared to the 2014–2020 programme.

The new LIFE programme shall encompass two main fields of action, environment and climate action, as well as four sub-programmes (European Commission 2018d, 1–2):

- nature and biodiversity (EUR 2.15 billion),
- circular economy and quality of life (EUR 1.35 billion),
- climate change mitigation and adaptation (EUR 0.95 billion),
- clean energy transition (EUR 1 billion).

II. Modernising and simplifying the Common Agricultural Policy (CAP)

Farmers already play an important role in tackling climate change and in environmental protection. The new CAP shall set the bar even higher. In addition to ambitious mandatory requirements, farmers will receive additional support through various voluntary schemes. for example, 40% of the CAP's overall budget is expected to contribute to climate action. In 2021–2027, the total budget for CAP will be EUR 365 billion (European Commission 2018e, 1–3).

III. The European Maritime and Fisheries Fund (EMFF)

The EMFF supports the EU's role as an international leader in sustainable ocean management, through sustainable EU fisheries and maritime sectors. The proposed EMFF budget amounts to EUR 6.14 billion in the period between 2021 and 2027 (European Commission 2018f, 1–2).

In addition, it is worth mentioning the Horizon Europe programme, which is the new European research programme that will help Europe remain at the forefront of global research and innovation. The programme is a continuation of EUROPA 2020.

With the reformed instrument of Connecting Europe Facility, the European Union will continue to invest in trans-European digital, transport and energy networks. The future programme will better exploit synergies

between transport, digital and energy infrastructure, for example, through developing alternative fuel infrastructure. In order to implement this instrument, part of the Cohesion Fund (EUR 11.3 billion) shall be transferred to the Connecting Europe Facility (European Commission 2018c, 6–7).

Conclusions

Since Poland's accession to the EU, the latter's common climate and energy policy has remained a considerable challenge for the Polish energy sector. Coal continues to predominate in Poland's energy balance which, on the one hand, has a catastrophic impact on the climate and, on the other hand, makes Poland rank among the EU-28 Member States with the lowest index of dependence on energy imports. Due to insufficient investments in energy, the Polish energy sector has one of the lowest eco-innovation indicators in the EU. Since 2016, the growth of energy production from renewable sources has been halted. Consequently, Poland struggles with the implementation of the EU's climate and energy objectives set for 2020, and will certainly fail to achieve the goal regarding the share of RES in final energy consumption.

In 2014, the EU set new goals for the climate and energy package for 2021–2030. However, if Poland is to implement them, additional measures must be taken, as the current level of development of Polish energy policy will not guarantee the achievement of these goals. As in previous years, the EU has planned a number of financial instruments that Member States, including Poland, will be able to use in order to achieve the set goals effectively and efficiently. The total value of financial instruments planned for 2021–2027 is 5% higher than in 2014–2020.

Poland ought to make every effort in order to meet the objectives of the climate and energy package for 2021–2030, and to make the most of the financial assistance made available to Member States by the EU. Coal is a non-renewable source of energy that will, at some point, become exhausted. Failure to take action will exacerbate Poland's dependence on energy imports in the coming years. Although these goals are ambitious and shall certainly prove difficult for Poland to achieve, they are worth pursuing, as in the future, they will positively affect Poland's energy security (through RES development) when combined with an effective and competitive development of the energy sector that does not pose a threat to the natural environment.

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*Maciej Zalewski**

Ecohydrology – Regulation of Hydrological and Geochemical Cycles towards Enhancement of Sustainability Potential in the Face of Global Challenges

Abstract

The increasing symptoms of climate change: water resources decline and soil degradation rise the general consciousness of the necessity to change the man-biosphere interplay which means change of paradigm from mechanistic to ecosystem-evolutionary. This means we have to start considering biosphere not like a unit of limited resources but rather as a super-organism (Lovelock's Gaya Theory) with its homeostatic equilibrium depending on the form of our activities. Considering that as far as water is a key factor of ecosystem productivity (biodiversity and ecosystem services) the understanding and use of hydrological and geochemical cycles as a templet for engineering harmony between humanity and biosphere is necessary. This is a major tenant of ecohydrology theory and principles.

Key words: ecohydrology, geochemical cycles, global challenges

European security and stability has to be considered in a two-dimensional context. The first dimension is Anthropocene, which signifies the recently emergent dominant role of humanity in shaping the evolution of biosphere. Unfortunately, due to rising population and increasing consumption we presently face over-exploitation and degradation of ecosystems. The synthetic indicator of anthropogenic pressure – the ecological footprint, with a recently estimated value of 1.7, means that we would need two planets

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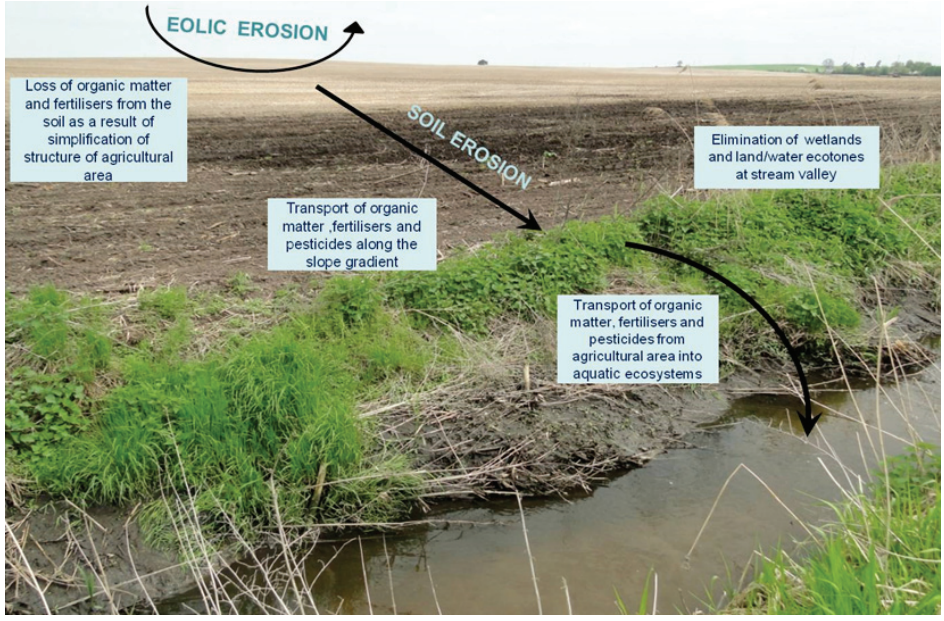
to cover our needs. The second dimension is globalisation, which brings not only a transfer of information, capital and people at an unprecedented scale, but combined with the decline of resources and varied demographic dynamics across continents and regions creates the "patchiness of tensions", which can reduce security and stability.

With this highly complex combination of stressors and the resources becoming more and more limited, the perspectives of European security and stability will to a great extent be dependent on societies' sustainability consciousness and their attitudes towards natural resources, which are in turn dependent on education and economic status. It seems that in the era of limited resources one can expect a dramatic increase in social tensions, introduced a long time ago as the "tragedy of the commons". On the other hand, in the societies that are able to accept the priority of common values and goods it is much easier to reduce exploitative pressure on the environment and change the natural resources paradigm from mechanistic to evolutionary (holistic). Such a change of the scientific paradigm creates a background for systemic solutions necessary to solve highly complex problems occurring in the relations between the man and the environment (Zalewski 2014a). The proposed holistic approach relies on reduction of consumption rates supported by the circular economy approach integrated with the low-cost nature-based solutions (NBS) in the framework of Ecohydrology (Zalewski 2000, 2014a; Zalewski et al. 2018). This is not only rooted in the European philosophy and policy, but has been implemented in the framework of European Directives and transferred step by step into the Member States' legislative systems.

However, the fundamental question still concerns the hierarchy of factors determining sustainability. There is no doubt that water and food were the reason for the Syrian war, where a sequence of dry years stimulated the rural society's migrations to the cities and increased tensions between two different ethnic groups. Both groups depend on environmental status, because degradation of the ecosystem structure reduces water retentiveness and in the long term organic matter content in the soil, thus decreasing food production potential. The so-called industrial agriculture, dramatically reduces water retentiveness and organic matter contents in the soils (Figure 1) in agricultural catchments, thus limiting the potential of sustainable use of the resources.

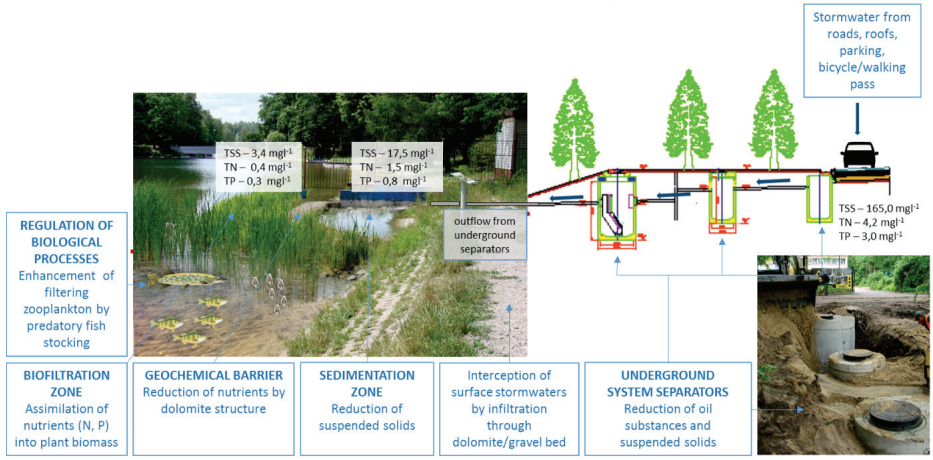
Figure 1. Loss of organic matter and nutrients from an agricultural landscape with degraded land-water ecotones (Central Poland – Pilica River Catchment). Loss of organic/mineral matter and fertilizers (OMMF) due to wind erosion; transfer of OMMF down the slope due to uniformity of the landscape; transfer of OMMF through the degraded land-water ecotone into the river; transfer of OMMF along the river continuum to reservoirs, marine coastal zones where the structure and deep sediments causes toxic algal blooms and drastically reduces ecosystem services for society



Sourses: Zalewski 2014b.

To reverse such sustainability, security and stability threatening processes, the industrialized world, including Europe as the leader, has to develop and disseminate modern low-cost nature-based systemic solutions, based on the knowledge of ecosystem processes and their use as **innovative management tools** (Figure 2). While the water cycle plays the primary importance in the majority of tension areas in Africa and Middle East, ecohydrology provides the holistic perspective and methodological framework for adaptation, development and integration of various nature-based solutions with hydrotechnical infrastructure to provide **hybrid solutions** in which the hydrotechnical infrastructure has been enhanced by NBSs.

Figure 2. A hybrid system for purification of stormwater from urban areas in upper Bzura catchment – an integration of ecohydrological biotechnologies with hydroengineering infrastructure (Project EU LIFE+ EH-REK: Ecohydrologic rehabilitation of recreational reservoirs "Arturówek" (Łódź) as a model approach to rehabilitation of urban reservoirs



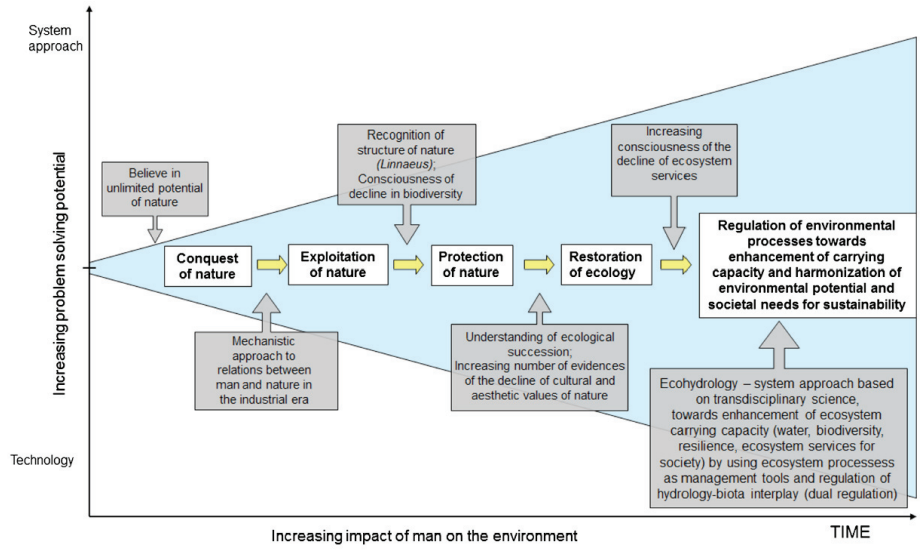
Sourses: www.en.arturowek.pl.

Considering its security and stability, the humanitarian and cultural values it acknowledges, and the historical obligations Europe should take the lead in the development of the new evolutionary paradigm in natural resources management, as well as in the development and implementation of the low-cost advanced solutions, i.e. the **ecohydrology nature-based solutions (EH-NBS)**. This should be the background to harmonize environmental (ecosystem) and social needs for water resources, environmental and social needs. Only an evolutionary paradigm based on profound understanding of water-ecosystems interplay can assure sustainable use of water for society, agriculture and industry, which we have to refer to in defining priorities of water management (Figure 3).

This especially refers to an urgent need for the support of the **transfer of knowledge and solutions** to Africa (Figure 4), which has been exploding in sense of demographic processes combined with climate change and has been amplifying pressures on natural resources, which may lead to the "tragedy of the commons". This can be done by joint scientific programs and implementation of their results, focused on reducing the gap between the poor and the rich (Figure 2). This should be supported not only by science and technology, but also by an analysis of social interactions, which in turn should be a background for society's education and involvement. The final critical step for success

in implementing the new, biogeochemical evolution-based sustainability paradigm should be the new environmental law and its enforcement. The environmental law which consists not only of restrictions, but also promotes actions for the enhancement of sustainability potential using as a framework the evolutionary paradigm, has to be considered and enforced.

Figure 3. Evolution of the human approach towards usage of natural resources, starting from the belief of unlimited potential of nature to the recent awareness of the necessity for regulation of ecological processes for the enhancement of ecosystem carrying capacity



Sourses: Zalewski 2014a, courtesy of UNESCO 2012.

Figure 4. A sequential sedimentation-biofiltration system (SSBS) above the Burkitu reservoir in Assela Valley, Ethiopia (left) and the usage of sediments from SSBS as fertilizer

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"This book is valuable result of the JM Centre of Excellence Project (CEWSE) and much-needed addition to the field of European Integration. The Authors explore the key issues concerning the current challenges of EU in a well-written and comprehensive manner. Their expertise and diverse point of views on the main elements of EU integration were invaluable to create this considerable volume."

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