

Consumer Rights, Competition and Intellectual Property Protection Regimes in the EaP Countries at the Cross Roads: EU Requirements and Reality

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Abstract

Unlike the protection of the intellectual property or competition, the cooperation of the EU with the EaP countries in consumer protection matters belongs to the topics which are not prioritized by the bilateral and multilateral cooperation agenda and fora. Rooted in different contractual framework, the cooperation in consumer protection matters, in the cases of the competition and intellectual property rights protection, is linked mainly to the approximation of legislation and regulatory practices used by the EaP countries to fulfil their obligations. This article aims to compare the EaP countries practices dealing with the consumer protection, competition protection and intellectual property protection regimes in order to identify the potential impact the properly ensured competition and effectively enforced intellectual property rights can cause on the level of the consumer protection as an effect of the proper and due approximation of the relevant legislation to the EU standards.

Key words: consumer protection, competition, intellectual property, EaP countries, approximation of legislation

JEL Code: K33, O34, N44

1. Introduction

The cooperation between the EU and the EaP countries can be traced back to the contractual frameworks of the cooperation with the Soviet Union. After

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the Soviet Union collapsed in 1991 and newly independent states appeared on the international arena, they developed their own visions and policies towards the European integration, and thus the EU policies towards them developed consequently. The need to face the diverse priorities of the states on the post-Soviet space was considered under the Eastern Partnership initiative, focusing especially on the countries bordering the EU directly.

Despite the EaP countries face economic and political difficulties, each of them pursues its own national policy towards the EU. The economic difficulties caused by the internal economic problems and influenced by global economic developments (e.g. unemployment, poor economic climate and distrust in the state authorities) followed by political turbulences (raising authoritarian political regimes, human rights violations, corruption, malfunctioning public administration, frozen conflicts etc.) make the cooperation between them and the EU more complicated.

Nevertheless, ensuring the economic development is an ultimate goal, which is prioritized both by the EaP countries government and their citizens. The support for economic development of the EaP countries as an opportunity to maintain peace and prosperity in Europe in wider terms is the underground idea of the ENP and remains a key subject-matter of the bilateral cooperation between the EU and the EaP countries.

Beyond the trade and liberalization of economic cooperation as the key instruments, ability of fostering the economic development and boosting national economies, the competition protection and protection of the intellectual property rights are very often considered as important contributors to the stable and sustainable economic progress, whereas the consumer protection, not the consumption as such, is not considered in the debate on ensuring stable economic development. In fact, both intellectual property protection and competition protection regimes aim to support consumers and their welfare, however the levels of their operation and instruments used are different. An efficient and effective intellectual property regime helps consumers to establish the link between the product or service and the enterprise it produces, the region and the right company it comes from. In a wider perspective it ensures the right choice according to the consumer's will and enables a certain level of the protection from unfair marketing and misleading practices, which mainly available to

businesses or the state and not to the consumers. The competition law operates as well on business-to-business and business-to-state levels, since it deals primarily with distortion of competition by competitors on the market. Although the competition law helps consumers to get to the market through detecting and sanctioning anti-competitive practices, including cartels, the abuse of market power, uncontrolled mergers and bid-rigging in public procurement (law enforcement instruments) and advocacy instruments, in the cases of the violation of competition the consumer protection nexus is not dominating the debate as well.

The intellectual property rights protection regime as well as the competition protection and consumer protection regimes developed reflecting the peculiarities of real economy in contrast to the digital economy which is developing rapidly. Thus, classical consumer rights as the right to replace, return, repair and refund gain new forms (such as the consumer's right to information, the right to remedy and the right to compensation for damage) in the virtual economic environment paving the way to the key positions in the consumer rights lists.

The protection of intellectual property and effective enforcement of intellectual property rights was a subject to the framework regulation contained in the *Agreement between the European Economic Community and the European Atomic Energy Community and the Union of Soviet Socialist Republics on trade and commercial and economic cooperation (hereafter – the Agreement 1989)* and remains today a priority for the bilateral cooperation between the EU and the EaP countries. The competition and consumer protection as well as the approximation of the domestic legislation to the EU standards have been included in the cooperation framework already when the partnership and cooperation agreements were negotiated, concluded and implemented.

The new contractual cooperation framework – the Association Agreements with Georgia, Moldova and Ukraine and the new generation partnership and cooperation agreement with Armenia contain extended commitments in these areas. Moreover, the commitments there are genuinely linked to the international obligations arising from different international instruments like WTO and WIPO. Whereas all EaP countries joined the WIPO (Ukraine and Belarus became members already in 1970, whereas Georgia and Moldova accessed the WIPO in 1991, Armenia joined the WIPO in 1993 and

Azerbaijan accession to the WIPO took place in 2005), the history with the WTO membership is more complicated: Georgia has been the WTO member since 2000, the Republic of Moldova joined the WTO in 2001; Armenia accessed the WTO in 2003 and Ukraine joined the WTO in 2008. Belarus and Azerbaijan established the accession working parties in 1993 and 1997 respectively, both being in the middle of the WTO accession process with more progress for Belarus, where the last accession working party meeting was conducted in 2019.

According to the Global Innovation Index in 2020 the EaP countries are coming closely to the middle scores with Ukraine as a for-runner on 45-th place, followed by Moldova at 59, Armenia at 61, Georgia at 63, Belarus at 64 and Azerbaijan at 82 positions respectively, however their economic and innovation potential remains largely unused (Global Innovation Index, 2020).

2. Literature review

The research on the interconnections between the intellectual property rights and consumer protection regimes on the interdependencies between the consumer competition and consumer protection as well as on the links between the intellectual property rights regimes and competition protection is presented in the academic debate (e.g. Stazi, 2009; Mathis, 2015; Torti, 2016 and others), but as Hovenkamp (2014) rightfully noted that relatively little publications focus on the intersections between the competition, consumer and intellectual property rights protection and address very often the economic dimensions of this complex interplay when the role of competition law and intellectual property protection law in the promotion of the economic welfare is addressed. The legal analysis of the intellectual property protection, consumer protection and competition protection regimes are rarely conducted as well. This research focuses on the provisions of the agreements concluded between the EU and the EaP countries, the wider international regulatory framework of Belarus, Azerbaijan, Georgia, Moldova, Ukraine and Armenia on the above-mentioned issues accompanied by the analysis of the domestic legislation of Belarus, Azerbaijan, Georgia, Moldova, Ukraine and Armenia.

3. Data and Methodology

The aim of this paper is to compare the EaP countries practices dealing with the consumer protection, competition protection and intellectual property protection regimes in order to identify the potential impact the properly ensured competition and effectively enforced intellectual property rights can cause on the level of the consumer protection as an effect of the proper and due approximation of the relevant legislation to the EU standards.

This contribution is based on the desk-top research of the available legislative framework for the intellectual property, consumer and competition protection regulation in the EaP countries focusing primarily upon the contractual framework regulating the cooperation between the EU and Belarus, Azerbaijan, Georgia, Moldova, Ukraine and Armenia in the above-mentioned areas. It includes the comparison of national constitutional provisions regarding the application of international treaties and domestic legislation on intellectual property rights, consumer and competition protection in the EaP countries aiming to give the outlook on the current state of the cooperation between these countries and the EU. The paper's structure is linked to the analysis of the cooperation between the EU and Belarus, Azerbaijan, Georgia, Moldova, Ukraine, and Armenia in these areas and their approaches to the implementation of the contractual obligations arising from their most recent contractual framework with the EU.

4. Cooperation between the EU and Belarus in the intellectual property, competition and consumer protection: general characteristics

After Belarus became independent in 1991, the mutual relations between it and the EU were established on the fact of the recognition of Belarus independence by the European Economic Community, following at first the cooperation paradigm deployed by the EU to deal with the CIS countries. However, after 1994 when Aleksandr Lukashenko became the president of the country, the cooperation between the EU and Belarus worsened. In 1995, after the President Aleksandr Lukashenko came into power, the EU and Belarus negotiated and signed the Partnership and Cooperation Agreement, which never entered into force due to its missing ratification by the EU because of the

lacking commitment of the Belorussian authorities to the democracy, rule of law and civic engagement.

The contemporary relations between the EU and Belarus are based on the Agreement 1989 and on the Council Conclusions (Council Conclusions, 2016) which contain the framework of rules for the parties mainly in the area of trade. Continuous difficulties with the maintenance of democratic institutions, rule of law and civic participation in Belarus, the EU follows the policy of *critical engagement* in bilateral relations, maintaining the necessary cooperation in economic and social relations with lacking adequate dialogue on the governmental level. After the presidential elections in 2020 the EU increased the sanction coverage in response to constant and severe violations of human rights in the country.

The USSR Economic Cooperation Agreement 1989 provided the most-favourite nation treatment in commercial and trade relations, as well as enhanced cooperation in customs matters, trade-related taxation, trade-related transfers and payments and introduced the prohibition of quantitative restrictions on import of goods originating from the EU. This agreement highlights areas of mutual interest for the cooperation between the counterparts, especially avoiding the trade conflicts and imposing the safeguard measures. The provisions of this Agreement contain framework regulations and commitments, thus require comprehensive implementation efforts from the counterparts.

Having economic and commercial cooperation as the primary goal of the regulation, the Agreement 1989 does not deal either with the competition protection matters or with the consumer protection issues. The approximation of the legislation and regulatory practices are excluded as well from the scope of the regulation. Although the Agreement 1989 does not cover the competition and the consumer protection dimensions of the bilateral relations, in area of the intellectual property regulation the parties agreed to provide the adequate protection of the industrial, commercial and intellectual property rights according to the relevant international commitments at the interstate level followed by the intent to ensure the due IPR protection while conducting business inside the Contracting Parties. The implementation of the Agreement 1989 is based on the constitutional provisions, which determine the applicability of international legal norms in the domestic legal order and

contains the prohibition of conclusion of international treaties if they contradict the Constitution (the Constitution of Belarus, 1994, Art.8).

The Constitution establishes the priority of recognized principles of international law over the domestic legislation, leaving open the debate on the legal status of the international law in the domestic legal order. Unlike constitutions of other EaP countries, the Constitution of Belarus regulates its cooperation and membership in the international organizations and sets clearly the right to enter the international organizations as well as to leave them (the Constitution of Belarus, 1994, Art.8, Art.61). These constitutional provisions form, in fact, the legal basis for the cooperation between Belarus and the Eurasian Economic Union, as well as they are applicable to the relations between Belarus and the EU.

The contemporary cooperation between Belarus and the EU in the area of the intellectual property rights, competition and consumer protection varies: whereas the cooperation in the area of the intellectual property rights protection develops in the framework of the cooperation with the WIPO, the competition and consumer protection areas remain more fragmented. Since Belarus is not the WTO member, the application of the WTO provisions in the relations between the EU and Belarus in trade and trade-related matters is actually based on Agreement 1989, which contains only framework obligations for parties so far.

The intellectual property rights protection regime in Belarus is based on the Soviet legacy, where the legal regime for industrial property, commercial property and intellectual property and related rights is regulated by laws and is accompanied by secondary legislation. Besides globally recognized commitments in the IPR protection, Belarus at the regional level holds full membership at the Eurasian Economic Union (EEU). Within the EEU regulatory framework on Belarus is a member to IPR-relevant commitments arising *inter alia* from the EEU Protocol on the protection and enforcement of intellectual property rights and the Agreement on a single customs register of intellectual property objects of the Member States of the Eurasian Customs Union, the EEU Agreement on Cooperation in the Area of Legal Protection of Intellectual Property and on Establishment of Interstate Council on Legal Protection of Intellectual Property and the Eurasian Patent Convention.

The competition protection regime in Belarus in the global dimension is linked to the UNCTAD standards on the competition. At the regional level the impact of the EEU membership is essential: Belarus signed the Annex 19 to the Treaty on the Eurasian Economic Union - Protocol on General Principles and Rules of Competition, as well as it recognizes the EEU rules and practices for investigating the competition in the EEU-relevant transboundary markets. Its recent domestic competition protection legislation is based on the Law «On the counteraction to monopolistic activities and promotion of competition» (Law of the Republic of Belarus nr. 94-3, 2013), which was adopted in 2013 and modernizes slightly the competition protection regime in the country.

The consumer protection is regulated by the national Consumer Protection Act (Law of the Republic of Belarus nr 90-z, 2001), which contains consumer rights regime, which reflects the Soviet traditions where the consumer rights enforcement depended on the domestic civil and commercial law legislation. Unlike the intellectual property and competition protection regimes, the international dimension of the consumer protection is not that much developed. There is lack of systematic cooperation between the EU and Belarus in this area as well, however the EU acts through external cooperation project, e.g. examining the possibility to align the consumer rights protection on financial markets to the EU standards within the Twinning project with the National Bank of Belarus.

Thus, the cooperation between the EU and Belarus in this area follows the general path of the policy of critical engagement at the side of the European Union. The cooperation in the areas of intellectual property rights and competition protection has become more complicated due to Belarus membership in the EEU, its adherence to the standards developed within this framework. Unlike to the cooperation in competition and IPR matters Belarus' international commitments for the area of the consumer protection is available more flexibility and space for the development of the cooperation with the EU. Unlike other EaP countries, Belarus does not have a unilateral commitment to align its legislation to the EU standards, thus the compatibility of the Belarussian legislation and its alignment to the EU *acquis* is not discussed in the context of the approximation discourse. The widening of the cooperation perspectives with Belarus in these selected areas is nevertheless subject to the

democracy, rule of law and human rights discourses and depend very much upon the decrease of the authoritarianism in Belarus.

5. General framework of the relations between the EU and Azerbaijan in the intellectual property, competition and consumer protection matters

The EU-Azerbaijan relations started to develop after the country became independent in 1991. Being promising at the start, the country though started to introduce the restrictions and limitations to human rights and civil society institutions and the EU faced the need to find a new denominator for the bilateral cooperation preventing its stagnation.

In 2004 Azerbaijan joined the European Neighbourhood Policy and in 2009 it became the EaP member. The contractual relations between the EU and Azerbaijan are more extensively developed as compared to Belarus. The EU and Azerbaijan signed a visa facilitation and readmission agreement in 2013. In 2014 countries signed a Protocol to the PCA allowing Azerbaijan to participate in selected EU programs and agencies.

Despite the cooperation between the EU and Azerbaijan is quite active, legally it is based on the Partnership and Cooperation Agreement (hereafter PCA 1996), signed in 1996 and came in force in 1999. The national policy on the issues of the approximation of the domestic legislation is linked to the constitutional provisions which determine that state powers in the country can only be limited either by law or by the international treaty to which Azerbaijan is a party (the Constitution of the Republic of Azerbaijan: Art. 7(II)). It also stipulates those international treaties form integral part of the international order of the country (the Constitution of the Republic of Azerbaijan: Art. 148(II)) and in case of contradiction between the domestic legislation (except the Constitution itself and legal acts adopted by referenda) and the international treaties the last shall prevail (the Constitution of the Republic of Azerbaijan (1995): Art. 151). The Constitution of Azerbaijan does not contain the provisions on the direct applicability of international treaties. In 2006 the draft National Programme on Legal Approximation of the Legislation of the Republic of Azerbaijan with the EU Acquis for Implementation of the Partnership and Cooperation Agreement between the European Union and

Member States and the Republic of Azerbaijan was proposed, however the approximation results are not presenting the holistic picture as to the practices applied and results achieved. Being a key strategic partner for the EU on energy sector, in 2017 the EU and Azerbaijan started negotiations on a new cooperation and partnership agreement initiated by Azerbaijan.

The cooperation in the intellectual property rights matters is regulated by Art.42 of the PCA 1996 containing framework obligation to ensure the intellectual property protection by Azerbaijan as the ultimate bilateral cooperation goal. In the area of consumer protection, the parties' commitments are of similar nature (PCA, 1996: Art. 66) defining fostering of the cooperation as a general cooperation goal. The cooperation between the EU and Azerbaijan in competition matters is not separately regulated by the PCA as focal point of interests, however all these issues are covered by article 43 of the PCA, which contains the provisions of legislative and regulatory approximation between the EU and Azerbaijan.

Despite Azerbaijan's intellectual property protection regime is linked to the membership in WIPO, the enforcement of the intellectual property rights in the country is reported to be poor. The cooperation with the CIS countries in these matters is crucial: Azerbaijan has been a member of the Eurasian Patent Convention and the Eurasian Patent Organization since 1995 as well as a member of the Agreement on Mutual Preservation of Inter-State Secrets in the Area of Legal Protection of Inventions and the Agreement on Cooperation in the Repression of Offenses in the Field of Intellectual Property, governing the cooperation among the EEU countries in the area of intellectual property protection on the post-Soviet area. Thus, the country needs a strategy to be developed as to the compatibility of the EEU's and EU standards to be complied with.

In Azerbaijan, the consumer and competition protection legislation are based upon Soviet legal tradition. Azerbaijan's consumer protection legislation is based on the national Consumer Protection Act of 1995 (Law of the Republic of Azerbaijan nr. 1113, 1995), being not aligned with the EU requirements on the consumer protection *expressis verbis* in its text. The competition protection legislation is based on rules, which were also developed in 1993-1995, being substantially amended, e.g. in 2009, when the substantial powers in the area

competition and consumer protection were given to a single institution – the State Service for Antimonopoly Policy and Protection of Consumers' Rights under the Ministry of Economic Development of the Azerbaijan Republic, uniting the consumer protection and fight against competition distortion under the auspices of a sole regulator.

To sum up, Azerbaijan's is not EEU full member, its cooperation with the EU is more advanced even so there are difficulties that arise on the political level. Moreover, Azerbaijan follows selective and pragmatic approach towards the cooperation with the EU in sectoral matters. Such situation seems to be caused by its internal political discussions about Azerbaijan's future relations with the EU and the EEU, where the latter are key political actors in the region.

6. The cooperation in intellectual property, competition and consumer protection between the EU and Associated Countries

Georgia, Moldova and Ukraine, despite having different priorities in their national political discourses with the regard to the relations with European Union, have a similar legal framework for their bilateral cooperation – the Association Agreements. Georgia and Moldova signed and ratified the Association Agreement in 2014 without hard societal challenges inside the countries. The signature of the Association Agreement between the EU and Ukraine took place in 2014 after the Euromaidan Revolution, which was followed by the annexation of the Crimea by the Russian Federation. At first the Deep and Comprehensive Free Trade Area (hereafter DCFTA) provisions were provisionally applied in the relations between the EU and Ukraine. The complete ratification of the EU-Ukraine Association Agreement took place in 2017, thus the legal framework for the relations between the EU and Georgia, Moldova and Ukraine became similarly organized. All these Agreements include provisions on establishing a free trade area with the EU and so-called approximation clauses, which include unilateral obligations of the Associated countries to approximate their legislation to the EU, including intellectual property rights, competition and consumer protection.

The cooperation between the EU and the associated countries in the area of intellectual property rights is regulated *expressis verbis* in the Association

Agreements in quite detailed manner, highlighting the importance of the effective enforcement of the intellectual property rights in the bilateral economic relations for the proper functioning of the DCFTA. It is also openly linked to legislative and regulatory approximation discourses and practices, regulated in general terms by the Association Agreements (e.g. in clauses defining the gradual integration to the EU Internal Market for all countries as a particular association aim (EU-Georgia AA, 2014, Art.2 (h); EU-Moldova AA 2014, Art.2 (g); EU-Ukraine AA, 2014, Art.2 (d)). It is worth pointing out that these approximation discourses are very often similarly regulated, however Georgia and Moldova see market access and regulatory approximation as the key means to achieve this goal, while Ukraine sets additionally a more ambitious aim – to seek the EU support for the transition to a market economy based upon progressive legislative approximation to the EU law.

Georgia, Moldova and Ukraine have also a similar framework of international commitments in the area on intellectual property rights protection: all of them are WIPO and WTO members, thus the relevant universal regulatory framework is applicable here and is detrimental for the enhancing the cooperation with the EU. After the Soviet Union collapsed in 1991, almost all post-Soviet countries, except Georgia and Ukraine, established the Eurasian Patent Organization in 1994 aiming to ensure the unified protection regime for industrial property. After Moldova ceased its membership in this organization and denounced the Eurasian Patent Convention in 2012, it still has a particular cooperation framework based on the Agreement between Government of the Republic of Moldova and Eurasian Patent Organization on legal protection of inventions on the territory of the Republic of Moldova.

Moreover, these countries differ in their approaches to the implementation of the Association Agreements in their domestic legal order: whereas Georgia and Moldova recognize the direct effect of international treaties on their domestic legal order either on constitutional level (The Constitution of Georgia, 1995, Art. 4 (5)) or in the statutory legislation (Law of Moldova nr. 595-XIV, 1999, Art.20), Ukraine does not follow this pattern and does not recognize the direct effect of international treaties on its national legal system if a treaty is signed and duly ratified by its parliament (The Constitution of Ukraine, 1996, Art.9). As a result, the possibility to apply the Associated

Agreement provisions directly is very limited in Ukraine and consequently needs legislative efforts to introduce the relevant legal regulation in the national legal system. In broader terms these different approaches towards the general legislative and regulatory approximation discourses in Georgia, Moldova and Ukraine seem also to influence negatively the fulfilment of the Association Agreement implementation in Ukraine, which currently experiences huge backlogs in the rapprochement its legal and regulatory framework to the EU *acquis*.

The obligation to ensure the intellectual property rights protection by the associated countries is based on extensive legislative and regulatory approximation clauses contained both in the general approximation clauses (EU-Georgia AA, 2014, Art.2 (h); EU-Moldova AA, 2014, Art.2 (g); EU-Ukraine AA, 2014, Art.2 (d) and a particular subject-matter related regulation (EU-Georgia AA, 2014, Art. 150-202; EU-Moldova AA, 2014, Art.277-332; EU-Ukraine AA, Art. 157-252). They encompass clear provisions on the protection of trademarks, geographical names, producers and performers rights, etc. with the lately regulated framework in the EU-Georgia Agreement and the most detailed regulation in this area in the EU-Ukraine Association Agreement. While fulfilling their commitments based on these provision countries introduce changes to the domestic legislation aimed to strengthen the institutional capacities and enforcement practices. Moreover, all these countries are WIPO and WTO members with the consequence that cooperation in this matter has also the international-law-based track, so that the fulfilment of the obligations under the intellectual property rights protection clauses is also double-checked against the globally recognized commitments in the bilateral relations between the EU and Associated Countries.

The cooperation between the EU and Georgia, Moldova and Ukraine in competition protection is similarly organized: the cooperation between Georgia and the EU contains very fragmented basic regulation aiming to ensure the application of the antitrust and merger legislation, transparency and recognize importance of the competition for trade relations between the parties (EU-Georgia AA, 2014, Art. 203-209) and the standstill rule on subsidies (EU-Georgia AA, 2014, Art. 206). The EU-Moldova Association Agreement contains more precise regulation both on competition protection (EU-Moldova AA, 2014, Art.333-338 AA) and rules on state aid (EU-Moldova AA, 2014,

Art. 339-344), which lead to the modernization of the competition protection regime in Moldova based on the achievements of the implementation of the Partnership and Cooperation Agreement between the EU and Moldova (Bologan, 2015). The EU-Ukraine Association Agreements contains a detailed regulation on actions as non-compatible with the AA competition provisions (EU-Ukraine AA, 2014, Art.253-261) and prohibited state aid practices (EU-Ukraine AA, 2014, Art.253 – 261), introducing the elements of the EU-based competition protection regime in the treaty text *expressis verbis*. As Smyrnova (2017) argues, Ukraine undertook a particular type of commitments in the area of competition protection on alignment of its competition protection legislation to the EU *acquis*, where the EU *acquis* scope is defined in the main treaty text with the consequence that the scope of this obligations can be changes while involving the treaty-changing procedures. Moreover, the cooperation between the EU and these countries is also WTO-based, so that international rules on trade and e.g. subsidies, anti-dumping policies etc. come into play as an ultimately recognized international cooperation framework.

The cooperation between the EU and Georgia, Moldova and Ukraine in the consumer protection area is aimed towards two interconnected goals: a high level of consumer protection and the compatibility of the consumer protection systems with the EU requirements, both requiring the adjustment of the regulatory framework in consumer matters of these countries to the EU standards and rules (EU-Georgia AA, 2014, Art.345; EU-Moldova AA, 2014, art.38; EU-Ukraine AA, 2014, art.415). The EU consumer *acquis* and regulatory practices have become a part of the domestic legal systems of these countries in a most obvious way – through the approximation clauses in the AAs, marking the contractual basis of the extraterritorial application of the EU consumer protection standards in these countries, being based rather on the framework character sectoral regulation unlike in the case of the intellectual property rights protection or the competition protection, as regulated by the Association Agreement between the EU and Ukraine. In consumer protection matters the level of the approximation of the domestic legislation to the EU consumer *acquis* is different with Moldova being a front-runner with almost fully completed legislative approximation phase. Georgia and Ukraine have rather moderate achievements here: in Ukraine, e.g. the new Consumer

Protection Act has not been adopted yet, despite the need to renew the legislative regulation is quite high (Holovko-Havrysheva, 2020, p. 78). In Georgia, the renewal of the consumer protection legislation also faces a number of challenges connected to the need to look for compromise between the libertarian approaches towards the development of Georgian economy and the need to ensure social disruptions following from and resulting in very fragmented legislative framework on the consumer protection (Gvelesiani, 2017). The international cooperation in the area of the consumer protection at the universal level, does not seem not to have mandatory rules, unlike in the cases of the intellectual property rights and competition protection, where WIPO and WTO play essential role in shaping the domestic legal regimes in the above-mentioned cases. As a result, the consumer protection globally faces fragmented approaches and practices, being based rather on domestic or regionally developed instruments, where the EU's approach is rather determining the consumer protection policies in the EaP countries.

Thus, even though Georgia, Moldova and Ukraine have a quite similar conventional basis for the regulation of their relations with the EU – the Association Agreements, as this overview analysis shows the scope of obligations of Georgia, Moldova and Ukraine addressing the intellectual property, competition and consumer protection is differently regulated in their association agreements with the EU and thus, leading to the result that the approximation practices applied by the countries and their achievements are different as well. Georgia, Moldova and Ukraine have different levels of the compatibility of their legislation with the EU acquis, with Moldova as a for-runner in the legislative approximation process. However, the biggest challenges these countries face now lies in the area of regulatory approximation, where the domestic administrative practices need to be aligned with the developed legislation and, thus, the EU standards.

7. EU-Armenia relations in the fields of intellectual property, competition and consumer protection: an overview

Armenia is the EaP country, where the bilateral relations are regulated on the new type of the partnership and cooperation agreements – Comprehensive

and Enhanced Partnership Agreement (CEPA, 2017), which reflects the recent achievement in the bilateral cooperation and replaces the partnership and cooperation agreement of 1996 (in force since 1999) which entered into force on 1 March 2021. Armenia, like Belarus, became the member of the Eurasian Union in 2013, so for the development of the cooperation with the EU this fact pointed out the need to discuss the compatibility of the commitments of Armenia with regard to the establishment of the concurring trade regimes under the EEU auspices and arising from the cooperation with the EU. Armenian policy approach trying to bridge the EU and EEU is controversial inside the society and brings rather doubtful political benefits.

Like other EaP countries, except Belarus, Armenia has a unilateral obligation to adjust its domestic legislation under the newly signed partnership and cooperation agreement. As in other cases, the domestic practices on the application of the international legal norms within the country play a crucial role. The constitutional provisions on the international treaties and the application of the international law in the country are detrimental in this case. The constitutional provisions on the international treaties in the country contain rules on the supremacy of the international treaties over the domestic legislation but not the Constitution (the Constitution of the Republic of Armenia, 1995, art. 5(3)); it also provides clear rules on ratification, revocation and suspension of international treaties and contains the prohibition on the ratification of international treaties if they contradict the Constitution (the Constitution of the Republic of Armenia, 1995, art. 116). However, the practices of the constitutional regulation on these issues are similar applied by the EaP countries, thus having as the result insufficient level of the compatibility of the domestic regulations to the internationally agreed rules and standards. The Constitution of Armenia, like constitutions of Ukraine, Belarus, Moldova and Azerbaijan does not contain provisions on direct applicability of international law.

Armenia has also been the member of the Eurasian Patent Organization since 1996, similarly to Belarus and Azerbaijan. The membership in the WIPO and WTO sets also clear lines and principles aiming to enhance intellectual property protection and establish clear and fair-trading rules both for businesses and consumers.

The competition protection contractual framework contains regulations similar to the provision of the Association Agreement between the EU and Georgia, however has extensive rules on state aid and subsidies (CEPA, 2017, art. 290-296). The competition protection regime of Armenia is based on the legislation on the protection of economic competition of 2002. The consumer protection as a matter of the bilateral cooperation is addressed in very general terms in the treaty itself, providing for gradual approximation between the parties (CEPA, 2017, art. 81-83). The consumer protection regime in the country is based on the Consumer Rights Protection Act of 2001 (Law of Armenia ZR-197, 2001), which reflects the traditional Soviet legacy in the organization of the consumer rights protection regime. The key provisions of the consumer protection legislation of Armenia regulated the basic consumer rights to be protected in real, non-virtual economic relations, therefore there is the need for further amendments to take into consideration the rapid developments in consumer behaviour because of the digitalization of the business life.

The cooperation between the EU and Armenia in the area of the intellectual property rights protection is regulated quite extensively *expressis verbis* in the text of the new agreement (CEPA, 2017, art. 209-268). As compared to the legislative framework on consumer and competition protection in Armenia, the intellectual property protection regime is developed quite intensively, however the low enforcement of the legislation in all areas is a challenge which undermines the efficiency of the regulatory efforts.

Like in the countries, analyzed before with the exception of Belarus, the efficiency of the cooperation in the areas of the intellectual property rights, competition and consumer protection are linked to the issues of approximation of the legislation and general practices of the implementation of international treaties in Armenia. The general obligation of Armenia to align its legislation to the EU legislation is embedded in the Art. 370 of the CEPA, which reflects the general EU practice of introducing the gradual approximation rhetoric in the treaty text. The CEPA provides rules on the dynamic approximation (CEPA, 2017, art.371) and the approximation monitoring mechanism (CEPA, 2017, art.372-373), which are similar to the Association Agreements regulations.

8. Conclusions

Unlike the intellectual property protection issues, where the international legal framework has been essentially developed since the XIXth century, or the competition protection, where the international legal framework started to develop in the XXth century, the consumer protection issues are paid less attention on the global agenda, that results in the absence of the mandatory international recognized standards for the consumer protection – United Nations Guidelines on Consumer Protection (adopted in 1985 for the first time by the UN General Assembly) are rather soft-law instrument developed to foster the cooperation agenda universally.

Comparing the conventional backgrounds of the cooperation between the EU and the EaP countries in the presented areas a number of differences with the regard to the scope of the countries obligations and domestic approximation practices can be observed. First of all, it needs to be mentioned that the treaty-based regulations on the protection of the intellectual property rights seems to be the priority field of cooperation of the EU with all EaP countries, including Belarus, where the conventional basis for the relation with the EU steams from Soviet times. Moreover, in the cases of the Association Agreements with Georgia, Moldova and Ukraine and the Comprehensive and Enhanced Cooperation Agreement with Armenia the treaty provisions are formulated in a clear and precise manner, opening the possibility of their direct applicability and effect in the domestic legal orders of the states, which recognize direct applicability of international law either on the constitutional level (Georgia) or on the level of the statutory legislation (Moldova).

Secondly, the legal regulation of the cooperation between the EU and the EaP countries on the competition protection is less precisely regulated as compared to the regulation on the protection of the intellectual property. The consumer protection in any case seems to be the area which is not prioritized on the bilateral relations, so the treaty-based cooperation between the EU and the EaP member states has here the framework character.

Thirdly, although the intensity and scope of the regulations differs both in the subject area and from country to country, the cooperation between the EU and the EaP countries is also dependent on the domestically developed provisions

and practices with the regard to the implementation of international treaties and approximation of legislation and regulatory practices with exception of Belarus.

Fourthly, all the EaP countries face the acute need to modernize their intellectual property, competition and consumer protection legislation, however in the EaP countries there is competition between EU and EEU regimes, which influences also the approximation debate. Moreover, the scope of their commitments arising from the contractual relations with the EU differs and the practices among the countries deployed to ensure the compatibility of their legislation (besides Belarus) and the real state of the implementation of the relevant treaties in their domestic legal orders also differ.

Thus, the EaP countries in intellectual property, competition and consumer protection are facing the need to develop sound and comprehensive strategies to address these issues, especially taking into consideration the digitalization as a key global trend influencing economy, politics and law.

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Exceptions and limitations to copyright and related rights in the light of the caselaw of the Court of Justice of the European Union

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Abstract

Exceptions and limitations are an integral part of any effective copyright systems, they play a crucial role in striking a fair balance between the interests of the creators and rightholders, on the one hand, and those of the users of the protected works, on the other. The exceptions and limitations serve to secure such fundamental values as freedom of expression and information, freedom of art, science, research and education. Since the exceptions and limitations are not fully harmonised in the European Union, the lack of legal certainty is being cured by the caselaw of the Court of Justice. The role of the Court preliminary rulings in interpreting the relevant legal provisions and providing clarifications as to their application cannot be overemphasised. Moreover, in recent cases the Court of Justice considered the exceptions and limitations to copyright in the light of the European Convention on Human Rights and the settled caselaw of the European Court of Human Rights. Therefore, it is an opportunity for us to observe the growing attention of the Court of Justice to the human rights and fundamental freedoms protected by the European Convention.

Keywords: copyright, exceptions and limitations, European Union, Court of Justice, caselaw

JEL Code: O30, O39, K38

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1. Introduction

Exceptions and limitations are crucial to any copyright system since they ensure such constitutional values as freedom of expression and information, freedom of art, science, research and education, they also pursue the public interest. An effective system of exceptions allows to strike a fair balance between the interests of authors and users of protected works. On the one hand, exceptions and limitations play an important role in ensuring access to information and cultural heritage, on the other hand, they stimulate creativity, as new works often arise from existing works, as in the case of caricature or parody (European Copyright Society, 2015).

As stated in the preamble to Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society (Directive 2001/29/EC), a harmonised legal framework on copyright and related rights, through increased legal certainty and while providing for a high level of protection of intellectual property, will foster substantial investment in creativity and innovation. However, Member States should be able to provide, in certain cases, for the exceptions or limitations to exclusive rights, in particular for educational and scientific purposes, in favour of non-profit organizations, such as libraries and archives, for news reporting, citation, for persons with disabilities. physical capabilities, public safety, use in administrative and judicial proceedings (Cопока, 2019, p. 183).

It should be noted that the exceptions and limitations system is not fully harmonised in the European Union. Therefore, some scholars rightly recognize that the goal of a uniform application of the exceptions and limitations has not yet been achieved. In such circumstances, the lack of legal certainty is rectified by the caselaw of the Court of Justice through the development of the EU concept of the exceptions and limitations and interpretation of the relevant provisions of European Union law. Obviously, the authors and rightholders are interested in a comprehensive and harmonised legal framework. This would significantly increase the amount of the legal cross-border online exploitation of their works. On the other hand, users also need a clear, simple and accessible legal framework on the lawful free use of protected works. In other words, harmonisation of the exceptions and limitations serve a two-fold purpose,

namely: first, to ensure legal certainty; second, to allow room of flexibility so that the copyright system could adapt to new circumstances and social needs (European Copyright Society, 2014).

2. General characteristics of the exceptions and limitations

2.1. Mandatory exception under art. 5(1) of the Directive 2001/29/EC

Directive 2001/29/EC provides for two kinds of exceptions: a mandatory exception for temporary acts of reproduction and optional exceptions and limitations to the reproduction right and the right of communication to the public. The purpose of introducing a mandatory exception under art. 5 (1) of the Directive was to allow certain temporary acts of reproduction which are transient or incidental [and] an integral and essential part of a technological process and whose sole purpose is to enable: (a) a transmission in a network between third parties by an intermediary, or (b) a lawful use of a work or other subject-matter to be made, and which have no independent economic significance (Directive 2001/29/EC). A use should be considered lawful where it is authorised by the copyright rightholder or not restricted by law.

Temporary acts of reproduction play an important role in information technology, since the acts of converting works into a digital form and their further exploitation are an integral part of automatic processes. In addition, these acts greatly facilitate internet browsing, otherwise it would be rather difficult to cope with the increasing amount of information and data transmitted online what would result in substantial efficiency decrease of the processes and they would not be able to function properly. The introducing of free temporary reproduction would enable access to information, knowledge and cultural heritage for internet users through "a slight weakening of certain rights of copyright holders" (Троцька, Петренко, 2015, p. 40).

2.2. Optional exceptions under art. 5(2) and art. 5 (3) of the Directive 2001/29/EC

With regard to optional exceptions, art. 5 (2) of the Directive establishes an exhaustive list of exceptions or limitations to the right of reproduction for

private use; use by publicly accessible libraries, educational establishments, museums, archives; reproduction of broadcasts by social institutions pursuing non-commercial purposes, such as hospitals or prisons; ephemeral recordings of works made by broadcasting organisations by means of their own facilities and for their own broadcasts (Directive 2001/29/EC).

Furthermore, art. 5 (3) of the Directive authorizes Member States to provide for exceptions or limitations to the rights of reproduction and communication to the public. The list of exceptions is exhausted and contains fifteen items, including the free use of works for the purpose of illustration for teaching or scientific research; for the benefit of people with a disability; reproduction by the press, communication to the public or making available of published articles on current economic, political or religious topics; quotations for purposes such as criticism or review; for the purposes of public security or to ensure the proper performance or reporting of administrative, parliamentary or judicial proceedings; during religious celebrations or official events organised by a public authority; for the purpose of caricature, parody or pastiche; communication or making available, for the purpose of research or private study, to individual members of the public by dedicated terminals on the premises of the publicly accessible libraries, educational establishments, museums, archives etc (Directive 2001/29/EC).

In certain cases of exceptions and limitations, namely reproductions on paper or any similar medium, effected by the use of any kind of photographic technique; reproductions made by a natural person for private use; reproductions of broadcasts made by social institutions pursuing non-commercial purposes rightholders should receive fair compensation to remunerate them for the use made of their works.

Furthermore, art. 5 (5) of Directive 2001/29/EC provides for a so-called "three-step test", according to which the exceptions and limitations shall only be applied in certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the copyright holders (Directive 2001/29/EC). This rule is borrowed from art. 9 (2) of the Berne Convention for the Protection of Literary and Artistic Works, and establishes the general principle for application of the exceptions. This provision is rather defining the external limits of exceptions

than further narrowing their scope (Cопока, 2019, p. 186).

The Court of Justice issued preliminary rulings on the mandatory exception for temporary acts of reproduction in cases *Infopaq I*, *Infopaq II*, *PRCA v Newspaper Licensing Agency*. What concerns optional exceptions, the Court of Justice ruled on free use for the purposes of public security as well as quotations for purposes such as criticism or review (*Painer, Pelham*), ephemeral recordings of works made by broadcasting organisations by means of their own facilities (*TV2 Danmark v NCB*), for the purpose of parody (*Deckmyn*), communication for the purpose of research or private study, to individual members of the public by dedicated terminals (*TU Darmstadt v Ulmer*), reproduction by the press of published articles on current economic, political or religious topics (*Spiegel, Funke Medien*).

3. Exceptions and limitations as autonomous concept of the European union law

According to the settled caselaw of the Court of Justice the exceptions and limitations are an autonomous concept of the European Union law, so, they should be interpreted autonomously and uniformly. Indeed, the scope for Member States in implementing exceptions is not unlimited, but should be subject to the principle of proportionality and the three-step test under art. 5 (5) of the Directive 2001/29/EC. This approach prevents an uncontrolled expansion of the existing exceptions. However, Member States are not precluded from imposing stricter standards for the application of the optional exceptions. According to the German scholar M. Leistner, such optional catalogue only sets a maximum limit to possible rules on exceptions and limitations, which leaves the Member States at liberty to exercise these options. However, Member States' discretion in transposing the optional exceptions in national law is limited by the principle of autonomous interpretation, and in particular the objective of the Directive to arrive at a coherent application of the exceptions to and limitations on copyright (Leistner, 2014, p. 586).

For instance, in *Padawan* concerning private copying exception the Court of Justice stated that the objective of Directive 2001/29/EC intended to ensure a proper functioning of the internal market requires the elaboration of autonomous concepts of European Union law. The European Union

legislature's aim of achieving the uniform interpretation of Directive calls on the Member States to arrive at a coherent application of the exceptions to and limitations (Padawan, para. 35). In another case *TV2 Danmark v NCB* concerning the ephemeral recordings of works made by broadcasting organisations the Court of Justice stressed that a situation where Member States have introduced an exception into their domestic law, and are free to determine, in an un-harmonised manner, the limits thereof, would be contrary to the objective of the directive, inasmuch as the limits of that exception could vary from one Member State to another and would therefore give rise to potential inconsistencies (TV2, pp. 35-36). Moreover, the Court of Justice concluded in *Deckmyn* that the concept of 'parody' must be regarded as an autonomous concept of EU law and interpreted uniformly throughout the European Union. That conclusion is confirmed by the aim of the Directive itself, which provides for an exhaustive enumeration of exceptions and limitations to the reproduction right and the right of communication to the public, taking account of the different legal traditions in Member States, while ensuring a functioning internal market. Therefore, Member States should arrive at a coherent application of these exceptions and limitations (Deckmyn, pp. 15-16).

4. Member States' discretion in the implementation of exceptions and limitations

The issue of the Member States' discretion in the transposition into national law of a particular exception or limitation was addressed in the most recent rulings of the Court of Justice in the cases *Spiegel* and *Funke Medien*. The Court departed in *Spiegel* from the principle of primacy of EU law, which is an essential feature of the EU legal order, according to which rules of national law, even of a constitutional order, cannot be allowed to undermine the effectiveness of EU law in the territory of that State. On the Court's view, the level of protection of fundamental rights provided for in the Charter of Fundamental Rights of the European Union (the Charter) must be achieved in such a transposition, irrespective of the Member States' discretion. The Court ruled that national authorities and courts remain free to apply national standards of protection of fundamental rights, provided that the level of protection provided for by the Charter, as interpreted by the Court, and the primacy, unity

and effectiveness of EU law are not thereby compromised (Spiegel, pp. 19-21).

It is clear from the case-law of the Court of Justice that the scope of the Member States' discretion in the transposition into national law of a particular exception or limitation must be determined on a case-by-case basis, in particular, according to the wording of the relevant provision, the degree of the harmonisation of the exceptions and limitations intended by the EU legislature being based on their impact on the smooth functioning of the internal market (Spiegel, pp. 25, 28), (Funke Medien, pp. 40, 43).

According to the Court's position, the Member States' discretion in the implementation of the exceptions and limitations is circumscribed in several regards. The Court imposed four conditions in this connection. First, such discretion must be exercised within the limits imposed by EU law, which means that the Member States are not in every case free to determine, in an unharmonised manner, the parameters governing those exceptions or limitations. They are required to comply with the general principles of EU law, including the principle of proportionality, from which it follows that such measures must be appropriate for attaining their objective and must not go beyond what is necessary to achieve it. Second, the discretion enjoyed by the Member States cannot be used so as to compromise the objectives of the directive that consist in establishing a high level of protection for authors and in ensuring the proper functioning of the internal market. Third, the Member States' discretion is also circumscribed by art. 5(5) of the directive, which makes those exceptions or limitations subject to a three-step test. Fourth, the Member States are bound by the principles enshrined in the Charter. It is therefore for the Member States, in transposing the exceptions and limitations to ensure that they rely on an interpretation of the directive which allows a fair balance to be struck between the various fundamental rights protected by the European Union legal order (Spiegel, pp. 30-38), (Funke Medien, pp. 45-53).

Another issue connected with Member states' discretion was whether a Member State may, in its national law, lay down an exception or limitation, other than those provided for in art. 5 of Directive. The Court of Justice addressed this issue in *Pelham* case. The Court departed from the fact that the list of exceptions and limitations contained in art. 5 of that directive is exhaustive. The fundamental rights now enshrined in the Charter draw

inspiration from the constitutional traditions common to the Member States and from the guidelines supplied by international instruments for the protection of human rights to which they are signatories. In that context, in the Court's view, to allow each Member State to derogate from an author's exclusive rights beyond the exceptions and limitations exhaustively set out in art. 5 of that directive, would endanger the effectiveness of the harmonisation of copyright as well as the objective of legal certainty. The requirement of consistency could not be ensured if the Member States were free to provide for such exceptions and limitations beyond those expressly set out in Directive 2001/29/EC since no provision of the Directive envisages the possibility for the scope of such exceptions or limitations to be extended by the Member States. Therefore, the Court ruled that a Member State cannot, in its national law, lay down an exception or limitation other than those provided for in art. 5 of Directive 2001/29/EC (Pelham, pp. 61-64). The Court of Justice reached similar conclusions in *Spiegel* and *Funke Medien* and ruled that the freedom of information and freedom of the press enshrined in art. 11 of the Charter are not capable of justifying a derogation from the author's exclusive rights of reproduction and of communication to the public, beyond the exceptions or limitations provided for in art. 5(2) and (3) of Directive 2001/29/EC (*Spiegel*, pp. 40-49), (*Funke Medien*, pp. 55-64).

5. Requirement of a strict interpretation of the exceptions and limitations

In the first preliminary ruling in *Infopaq* the Court of Justice applied an approach under which exceptions and limitations are a derogation from the general rule namely the requirement of authorisation from the copyright holder for any reproduction of his work; so, they must be interpreted strictly. The Court of Justice specifically stated that according to settled case-law, the provisions of a directive which derogate from a general principle established by that directive must be interpreted strictly. This holds true for the exemption provided for in art. 5 (1) of Directive 2001/29/EC, which is a derogation from the general principle. Moreover, the exemption must be interpreted in the light of article 5 (5) of Directive 2001/29/EC, under which that exemption is to be applied only in certain special cases which do not conflict with a normal

exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder. Finally, the exception must also be interpreted in the light of the need for legal certainty for authors with regard to the protection of their works (Infopaq, pp. 56-59).

The Court further stated in *FAPL* that derogations from the principle of free movement can be allowed only to the extent to which they are justified for the purpose of safeguarding the intellectual property rights. It is clear from the case-law that the conditions of the application of an exception must be interpreted strictly, because art. 5(1) of the Directive is a derogation from the general rule established by that directive (*FAPL*, pp. 106, 162). The requirement of a strict interpretation of the exceptions and limitations was reiterated in most subsequent cases, particularly in *Spiegel* and *Funke Medien*.

6. Criteria of effectiveness of the exceptions and observance of their purpose

In subsequent caselaw, the principle of a strict interpretation of the exceptions and limitations originally formulated by the Court of Justice was supplemented by the criteria of their effectiveness and observance of their purpose, as well as the principle of proportionality.

The origins of this concept can be found in *FAPL*, the Court of Justice stated specifically that exceptions must allow and ensure the development and operation of new technologies and safeguard a fair balance between the rights and interests of rightholders, on the one hand, and of users of protected works who wish to avail themselves of those new technologies, on the other. The Court stressed that the interpretation of the exception should enable its effectiveness and observance of its purpose (*FAPL*, pp. 163, 164).

In the next case *Painer* concerning the quotations exception for purposes such as criticism or review the Court of Justice reaffirmed the need for a strict interpretation. Nevertheless, the Court emphasised that interpretation of those conditions must also enable the effectiveness of the exception to be safeguarded and its purpose to be observed. The court clarified that art. 5(3)(d) of Directive 2001/29/EC is intended to strike a fair balance between the right to freedom of expression of users of a work and the reproduction right conferred on authors. That fair balance is struck, in this case, by favouring the exercise of the users'

right to freedom of expression over the interest of the author in authorising reproduction of extracts from his work (Painer, pp. 133-135).

Furthermore, in *Deckmyn* the Court stated again that the concept of parody must enable the effectiveness of the exception to be safeguarded and its purpose to be observed. As regards the objective, the Court referred to the objectives of the directive in general, namely a harmonisation which will help to implement the four freedoms of the internal market and which relates to observance of the fundamental principles of law and especially of property, including intellectual property, and freedom of expression and the public interest (*Deckmyn*, pp. 23, 25).

7. Developing concepts

The Court of Justice also plays an important role in remedying legal gaps and developing concepts in cases when directive provides for an exception or limitation but does not give its legal definition, particularly in cases of parody and quotations.

7.1. *Concept of parody*

The case *Deckmyn* related to the exception for parody provided for in the art. 5(3)(k) of Directive 2001/29/EC. Since the directive gives no definition at all of the concept of parody, the meaning and scope of that term must, according to the settled case-law of the Court, be determined by considering its usual meaning in everyday language, while also taking into account the context in which it occurs and the purposes of the rules of which it is part. With regard to the usual meaning of the term ‘parody’ in everyday language, in the Court's view, the essential characteristics of parody are, first, to evoke an existing work while being noticeably different from it, and, secondly, to constitute an expression of humour or mockery. The interpretation of the concept of parody must also enable the effectiveness of this exception to be safeguarded and its purpose to be observed. As it was mentioned above the directive aims to insure a harmonisation which will help to implement the four freedoms of the internal market and which relates to observance of the fundamental principles of law and especially intellectual property, and freedom of expression (obviously, parody is an appropriate way to express an opinion) and the public interest (*Deckmyn*, pp. 19-20, 23-25).

7.2. Concept of quotation

One of the most recent cases considered by the Court of Justice relates to the exception for quotations for purposes such as criticism or review provided for in art. 5(3)(d) of Directive 2001/29/EC. The Court applied the similar reasoning, namely that in the absence of the definition of the term 'quotation' in the Directive 2001/29/EC its meaning and scope must be determined by considering its usual meaning in everyday language, while also taking into account the legislative context in which it occurs and the purposes of the rules of which it is part. As regards the usual meaning of the word 'quotation' in everyday language, the Court stated that the essential characteristics of a quotation are the use, by a user other than the copyright holder, of an extract from a work for the purposes of illustrating an assertion, of defending an opinion or of allowing an intellectual comparison between that work and the assertions of that user, since the user of a protected work wishing to rely on the quotation exception must therefore have the intention of *entering into 'dialogue'* with that work. In particular, where the creator of a new musical work uses a sound sample taken from a phonogram which is recognisable to the ear in that new work, the use of that sample may amount to a 'quotation', on the basis of art. 5(3)(d) of Directive 2001/29/EC read in the light of art. 13 of the Charter, provided that that use has the intention of entering into dialogue with the work from which the sample was taken. Obviously, there can be no such dialogue where it is not possible to identify the work concerned by the quotation at issue. Therefore, the Court ruled that the concept of 'quotations' does not extend to a situation in which it is not possible to identify the work concerned by the quotation (Pelham, pp. 70-74).

8. Balancing fundamental rights

The recent rulings of the Court of Justice demonstrate a tendency to consider exceptions and limitations as "rights" of users of protected works (*Deckmyn, TU Darmstadt v Ulmer, Padawan, Painer*). The very idea of "user rights" as equivalent rights to be protected was recently analysed in the context of the responsibility of Internet service providers, specifically in cases

Promusicae, Scarlet, Sabam, UPC Telekabel, Mc Fadden, Bastei Lübbe.

The Court traditionally emphasises that the right of intellectual property is not inviolable and must not be absolutely protected. In the light of the settled caselaw the protection of the fundamental right to property, which includes the rights to intellectual property, must be balanced against the protection of other fundamental rights. In the context of measures adopted to protect copyright holders, national authorities and courts must strike a fair balance between the protection of copyright and the protection of the fundamental rights of individuals who are affected by such measures, namely that of the freedom to conduct a business pursuant to art. 16 of the Charter. Moreover, such measures may also infringe the fundamental rights of customers, namely their right to protection of their personal data and their freedom to receive or impart information, which are rights safeguarded by art. 8 and art. 11 of the Charter respectively (Scarlet, pp. 43-46).

In *Promusicae* the Court of Justice assumed that the fundamental right to property, which includes copyright, and the fundamental right to effective judicial protection as well as the respect for private life constitute general principles of Community law recognised in particular by the Charter. Art. 7 of the Charter substantially reproduces art. 8 of the European Convention for the Protection of Human Rights and Fundamental Freedoms which guarantees the right to respect for private life, and art. 8 of the Charter expressly proclaims the right to protection of personal data. Once again, the Court underlined the importance of reconciling the requirements of the protection of different fundamental rights, namely the right to respect for private life, on the one hand, and the rights to protection of property and to an effective remedy, on the other (*Promusicae*, pp. 62-65).

In the next case *Scarlet* relating to a system for filtering electronic communications to prevent file sharing infringing copyright the Court concluded that in adopting the injunction requiring to install such filtering system, the national court would not be respecting the requirement that a fair balance be struck between the right to intellectual property, on the one hand, and the freedom to conduct business, the right to protection of personal data and the freedom to receive or impart information, on the other (Scarlet, pp. 43-46, 50, 53). The Court came to similar conclusions in *Sabam* concerning the

injunction requiring the hosting service provider to install the information filtering system (Sabam, pp. 41-44, 48, 51).

In *Mc Fadden* the Court of Justice gave an interesting ruling concerning measures securing WLAN connection*. With regard to the password-securing of an internet connection the Court noticed that this measure is capable of restricting both the freedom to conduct a business of the provider supplying the service of access to a communication network and the right to freedom of information of the recipients of that service. However, the Court emphasised that such a measure does not damage the essence of the right to freedom to conduct its business; and does not undermine the essence of the right to freedom of information of the recipients of an internet network access service since it is limited to request a password. Moreover, the measure must be strictly targeted, in the sense that it must serve to bring an end to a third party's infringement of copyright but without thereby affecting the possibility of internet users lawfully accessing information using the provider's services. Failing that, the provider's interference in the freedom of information of those users would be unjustified in the light of the objective pursued. Finally, the Court stressed that such measures taken by the addressee of an injunction must have the effect of preventing unauthorised access to the protected subject matter or, at least, of making it difficult to achieve and of seriously discouraging internet users from accessing works in breach of that fundamental right (Mc Fadden, pp. 81-83, 90-95).

In *Bastei Lübbe* the Court referred to art. 52 (1) of the Charter according to which any limitation on the exercise of the rights and freedoms recognised by the Charter must respect the essence of those rights and freedoms. On the other hand, a measure which results in serious infringement of a right protected by the Charter is to be regarded as not respecting the requirement that such a fair balance be struck between the fundamental rights. If a national law would always make the right to private life prevail over the right to intellectual

¹ Actually, the Court of Justice analysed three measures, namely monitoring all of the information transmitted, terminating the internet connection completely and password-protecting an internet connection. With regard to first two measures the Court ruled that they cannot be regarded as complying with the requirements of ensuring a fair balance between the fundamental rights. With regard to third measure, in the Court's opinion, it is capable of restricting both the freedom to conduct a business of the provider supplying the service of access to a communication network and the right to freedom of information of the recipients of that service. However, such a measure does not damage the essence of these rights

property in infringement proceedings, then this national legislation would make it practically impossible to obtain evidence on an alleged infringement of copyright, and therefore fail to ensure the effective enforcement of intellectual property rights (Bastei Lübbe, pp. 46, 51-52).

9. Increasing attention to the European Convention on Human Rights

As it was mentioned before, the Court of Justice has repeatedly noted that intellectual property right under art. 17 (2) of the Charter is not absolute. The functional nature of intellectual property rights also follows from the Convention for the Protection of Human Rights and Fundamental Freedoms (the European Convention), to which the Member States are parties and to which the European Union will, hopefully, soon to accede.

According to art. 52 (3) of the Charter, insofar as the Charter contains rights which correspond to rights guaranteed by the European Convention, the meaning and scope of those rights shall be the same as those laid down by the said Convention. However, this provision shall not prevent Union law providing more extensive protection what logically means that the scope of these right should be the same or more extended as those enshrined in the European Convention.

In contrast to the Court of Justice, the European Court of Human Rights (ECtHR) is targeted at human rights and fundamental freedoms, namely right to respect for private and family life (art. 8), freedom of expression (art. 10), right to an effective remedy (art. 13), so it considers copyright as an exception to these rights. According to the settled caselaw of the ECtHR, the exception to the right to freedom of expression, in particular for the protection of copyright, must be "narrowly interpreted" and "the need for any restrictions must be convincingly proven" (cases *Szél and Others v. Hungary* [2014]; *Wille v. Liechtenstein [GC]* [1999]; *Observer and Guardian v. the United Kingdom* [1991]).

The Court of Justice firstly referred to the European Convention in the context of exceptions and limitations to copyright in *Promusicae*. The Court briefly mentioned that art. 7 of the Charter substantially reproduces art. 8 of the European Convention which guarantees the right to respect for private life.

The recent cases are indicative of the growing attention of the Court of Justice to the European Convention as well as caselaw of the European Court of Human Rights.

In *Pelham* the Court of Justice reiterated that the harmonisation effected by the Directive 2001/29/EC aims to safeguard, in particular in the electronic environment, a fair balance between the interest of the copyright holders and related rights in the protection of their intellectual property rights and the protection of the interests and fundamental rights of users as well as of the public interest. A balance must be struck between that right and other fundamental rights, including freedom of the arts, enshrined in art. 13 of the Charter, which, in so far as it falls within the scope of freedom of expression, enshrined in art. 11 of the Charter and in art. 10 (1) of the European Convention affords the opportunity to take part in the public exchange of cultural, political and social information and ideas of all kinds (see ECtHR, 24 May 1988, *Müller and Others v. Switzerland*, CE:ECHR:1988:0524JUD001073784, § 27, and ECtHR, 8 July 1999, *Karataş v. Turkey*, CE:ECHR:1999:0708JUD002316894, § 49) (*Pelham*, p. 32-34).

Two other cases *Spiegel* and *Funke Medien* relate to the exceptions provided for in art. 5 (3) (c) and (d) of the Directive 2001/29/EC concerning reproduction by the press, communication to the public of published articles on current economic, political or religious topics as well as quotations for purposes such as criticism or review. In both cases the Court of Justice referred to art. 52(3) of the Charter and emphasized that the meaning and scope of the rights provided for in the Charter shall be the same as those laid down by the European Convention.

The Court of Justice also noticed that the exceptions and limitations to copyright closely correlate with rights of users. The Court proceeded from the principle that any derogation from a general rule must be interpreted strictly. Although art. 5 of Directive is expressly entitled 'Exceptions and limitations', it should be noted that those exceptions or limitations do themselves confer rights on the users of works. In addition, that article is specifically intended to ensure a fair balance between, on the one hand, the rights and interests of rightholders, which must themselves be given a broad interpretation and, on the other, the rights and interests of users. It follows that the interpretation of the exceptions and limitations must allow their effectiveness to be safeguarded and their purpose to be observed, since such a requirement is of particular importance where those exceptions and limitations aim to ensure observance of fundamental freedoms. According to the settled caselaw, the protection of

intellectual property is not inviolable and must not be protected as an absolute right. On the other hand, art. 5(3)(c) and (d) is aimed at favouring the exercise of the right to freedom of expression by the users of protected subject matter and to freedom of the press by virtue of art. 11 of the Charter. In so far as the Charter contains rights which correspond to those guaranteed by the European Convention, article 52(3) of the Charter seeks to ensure the necessary consistency between the rights contained in it and the corresponding rights guaranteed by the European Convention, without thereby adversely affecting the autonomy of EU law and that of the Court of Justice. Thus, art. 11 of the Charter contains rights which correspond to those guaranteed by art. 10(1) of the European Convention. In addressing the issue of striking a balance between copyright and the right to freedom of expression the Court of Justice referred to the case-law of the ECtHR, particularly, to the need to take into account the fact that the nature of the 'speech' or information at issue is of particular importance, inter alia in political discourse and discourse concerning matters of the public interest (see, to that effect, ECtHR, 10 January 2013, *Ashby Donald and Others v. France*, CE:ECHR:2013:0110JUD003676908, § 39) (Spiegel, pp. 50, 51, 53-58), (Funke Medien, pp. 65-74).

10. Conclusions

The Directive 2001/29/EC aims to resolve a very complicated and ambitious goal of harmonising exceptions and limitations to copyright and related rights throughout the European Union. However, taking into account a wide variety of such exceptions as well as different legal traditions and approaches of Member States, the system of the exceptions and limitations cannot be deemed as fully harmonised in the European Union. In such circumstances, the lack of legal certainty is being cured by the caselaw of the Court of Justice. It is difficult to overestimate the importance of the Court's activities in interpreting the relevant provisions of European Union law, developing autonomous concepts with the ultimate aim of striking a fair balance between the interests of the creators and rightholders, on the one hand, and those of the users of the protected works, on the other.

From the very first rulings in this field the Court of Justice stressed that exceptions and limitations are an autonomous concept of the European Union

law, so, they should be interpreted autonomously and uniformly. Since the exceptions derogate from the general principle of authorisation of copyright holder to any acts of exploitation of his work, they should be interpreted strictly. The requirement of a strict interpretation of the exceptions and limitations was supplemented in subsequent caselaw by the criteria of their effectiveness and observance of their purpose. Meanwhile, besides this general concept, the Court of Justice developed concepts for those exceptions which lack legal definition and uniform understanding, particularly in cases of parody and quotations.

Furthermore, the recent rulings show a growing attention of the Court of Justice to the European Convention and caselaw of the ECtHR. Based on art. 52 (3) of the Charter, the Court of Justice considers the exceptions and limitations to copyright in the light of human rights and fundamental freedoms protected by the European Convention and its recent rulings reflect the approach of the ECtHR, particularly with regard to the freedom of expression and freedom of press enshrined in art. 10 (1) of the European Convention.

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Industrial Property and Investment in the Research in the Business Sector – Comparative Study Czech Republic and Poland

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Abstract

The authors analyzed data on the topic with using descriptive statistics method for answers five research questions which are in line with the aim of the article. The aim of the paper is to perform a comparative study in the field of intellectual property and investment in research in the business sector in the Czech Republic and Poland. Data were drawn from statistical offices in the Czech Republic and Poland. In the Czech Republic. Data was processed using descriptive statistics. The number of patents and utility models has been declining in recent years, while in Poland their number is growing. On the other hand, there is a growing trend of companies investing in science and research, both in the Czech Republic and in Poland. The impulse for companies to invest in R&D is also part of long-term innovation strategies in both countries. In the Czech Republic, it is the strategy of the Czech Republic Country For The Future 2019 - 2030 and in Poland, it is the Long-term national development strategy. The article is important for making a comparison of the issue. This will be the basis for initiating academic research cooperation using tools from the long-term development strategies of both countries, which will bring implicit added value.

Keywords: patent, utility model, investment, research and development, Czech Republic, Poland.

JEL Code: O31, O32

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1. Introduction

Entrepreneurs and societies are aware that investment in the protection of the intellectual property is necessary both with regard to the elimination of future risks and in terms of increasing the value of the company's assets and thus the overall value of the company. This in turn contributes to the country's competitiveness. On the one hand, there are statistical indicators measuring financial and human resources entering to research, development and innovation, and on the other hand, there are indicators of own production of new knowledge in the form of outputs usable in practical applications, which can be protected by granting a patent or utility model. Patent data provide information on the results of research, development and innovation activities in the form of new trends in selected areas of technology and the dissemination of scientific knowledge. They also tell about the country in terms of its economic attractiveness to foreign investors.

Inventions, the creative abilities of subjects and innovations, which are reflected in practice, are important predictors of the development of companies and subsequently the development of national economies. Governments seek to implement mechanisms, forms of support and tools in their long-term strategies that should support innovation actors. In their contribution, the authors asked questions about intellectual property, companies' investments in research and their share in GDP in the Czech Republic and Poland. They analyzed data from statistical offices in the Czech Republic and Poland for the years 2015-2019. The aim of the paper is to perform a comparative study in the field of intellectual property and investment in research in the business sector in the Czech Republic and Poland. In accordance with the achievement of the goal, the authors identified five research questions (RQ1, RQ2, RQ3, RQ4, RQ5), which would lead to aim setting. The research questions are as follows:

- RQ1: What is the quantity of granted patents and utility models in the Czech Republic and Poland?
- RQ2: Which applicants are mainly granted patents and utility models?
- RQ3: What percentage of GDP does R&D investment in the Czech Republic and Poland in 2015-2019?
- RQ4: Which workplace participates in R&D?

- RQ5: Which sector is mainly involved in investing in R&D?

The ambition of the article is to initiate cooperation between the Czech and Polish academic spheres with the connection of the business environment and state authorities, which would contribute to the applicability of the invention to the practice of the economies of the countries. Make maximum using synergy effects from incentives and long-term strategies in international cooperation.

The paper is structured into four parts. The Introduction is followed by a Literature Search, Data and Methodology, Findings and Conclusion, which summarizes the findings and possible direction of future research are suggested.

2. Literature review

Intellectual property (IP) is understood in relation to the mind, creativity and creative activity. IPs are protected by law with goods such as patents, copyrights, trademarks. Intellectual property issues have a broad context. According to Sherman (2021), if for intellectual property blemishes it includes a formal distinction between three main categories - copyright, patents and trademarks - then the author says that intellectual property is a meaningful umbrella. The debate and rhetoric about creation, ownership, theft, fair rewards and stolen value flows across legal boundaries. According Sullivan (2020) one of the important issues for the involvement of states in the world economy, trade and international finance is intellectual property rights. Direct issues of intellectual property issues also extend to the political sphere. It is important to have a substantial, comprehensible analysis of highly technical economic, financial and political issues. By dividing the problem of intellectual property rights into its components - patents, copyrights and trademarks, the basic framework for monitoring the formulation of state policy in each of these three thematic areas (economic, financial, political) can be seen. This is followed by an inside view of policy implementation involving complex and sometimes conflicting arguments from government and commercial actors and agencies.

Legal protection allows and consents s to gain recognition or financial benefit from what is invented and created. IP at the commercial level and subsequently implemented in practice allows creators to differentiate themselves from the competition. In the case of a strong and stable brand, we

speak of the protection of business identity with the possibility and potential of generating a profit and increasing the prestige of the organization (Beynon, 2018). Assets are not primarily directly linked to IP but exist independently of the medium, which has a different legal regime than the tangible asset. As an economic attribute, an intangible asset has undeniable importance (Osman, 2020). „The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations“ (WTO, 1995).

IP considerations and inventions are key in a globalized world and ongoing process and are often a decisive factor in determining whether a product or service can be successfully established in the market (Poticha, Duncan, 2019). Whether it is possible to ensure the creator's competitiveness and stability to enter, succeed and stay in the market. IP in terms of licences and patents grant can also be seen as a tool of government policy (Manu, 2017). Intellectual property law can be linked to a degree of industrial culture and thus to industrialization, where hopes for the future are embedded in new technologies and products as a tool to achieve economic growth (Ford, 2017). The economy of industrialised countries moves away from being based on a multiplicity of independent innovators towards to one that is characterised by cross-licensing and the pooling of intellectual property rights (Beiter, 2021).

Investment in R&D is the driving force behind economic growth and development. Entities involved in research and development can be public institutions and universities, governments, as well as the private sector in the form of companies that can be actively motivated (Galindo-Rueda, Appelt, González-Cabral, 2018). Investment in R&D is significantly dependent on companies' internal cash flows (Hu, Zhu, 2017). Specific investments in R&D leads to the growth of regions and subsequently to the growth of the country's GDP (Jin et al. 2019).

3.Data and Methodology

3.1 Main items

A patent is an authentic instrument issued by a competent patent office that provides legal protection for an invention for up to 20 years (if maintenance fees are paid) in the territory for which it has been granted by that office. A patent is applied for by filing a patent application with the relevant patent office. Patents are granted for inventions that are new, the result of inventive step and are industrially applicable (Český statistický úřad, 2021).

The technical solution of the utility model, which forms its essence, which is protected after the issuance of the registration certificate, does not have to reach the creative level of the patentable invention. However, it is required to go beyond mere professional skill, not to be a mere product design, and to be industrially applicable. The utility model is not examined for eligibility for protection - ie the utility model is always registered if it meets the registration conditions set by law. A utility model cannot protect production processes. About 40 states provide utility model protection.

The inventor (the originator) is the one who created it with his own creative work. Only a natural person can be the inventor or co-inventor. This person has the right to origin (it is a personal right, not transferable to third parties). The person of the inventor is mentioned in the application for the invention and in the patent document, and the data on the inventor is entered in the patent register.

The applicant may be the inventor or his legal successor. The person of the applicant is also mentioned in the application for the invention, in the patent document and the data on the applicant are entered in the patent register. By granting a patent, the applicant becomes the owner of the patent. The patent owner has the exclusive right to use the invention, to give consent to its use to other persons (licenses) or to transfer the patent to them by a written contract. The main types of applicants are as follows: public university; public research institution; state governmental and public organizations; businesses; hospital; associations and non-profit organizations; an organizational unit of the association; natural person (Český statistický úřad, 2021; Główny Urząd Statystyczny, 2021)

3.2 Data

The Czech Statistical Office in cooperation with the Industrial Property Office of the Czech Republic, as well as the Polish Statistical Office in cooperation with the Polish Patent Office, publish detailed patent statistics in various classifications, according to the OECD Patent Manual, 2009. The aim of this activity is to make information about level of patent activity of entities operating in the Czech Republic and Poland.

Data for the research were obtained from the public database of the country, they are external secondary data. Data from the Czech Republic were obtained from the database of the Czech Statistical Office, Czech Republic. Data from Poland were obtained from the database Polish Patent Office, Statistics Poland, Statistical Office in Szczecin, Eurostat. The authors were chosen a short time series of 2015-2019.

The methodological option in this case was determined on the basis of a systematic review of the literature in order to answer research questions, fulfill the goal, discuss the results and draw a conclusion. Based on the obtained data, the method of descriptive statistics was used for their processing.

3.3 Research method

The basic method of descriptive statistics is a method called measurements in descriptive statistics. Measurement is the process by which one statistical unit of a sample statistical set (with a range of n statistical units) is assigned one of the k elements of the scale x_1, x_2, \dots, x_k . The measurement results are the finding that the element of the scale x_i ($i = 1, 2, \dots, k$) was measured n_i times. The sum of all values of n_i ($i = 1, 2, \dots, k$), which is called absolute frequency, must be equal to the range n of the sample statistic.

The possible measurement results x_i ($i = 1, 2, \dots, k$) can be evaluated according to how likely they are to occur during the measurement. The statistical definition of probability is based on n times independently performed measurements (the number of measurements n corresponds to the range of the selected statistical set) and on the determined absolute frequencies n_i of possible measurement results. The statistical probability $p(x_i)$ of the result x_i is

then given by the so-called relative frequency n_i / n . The sum of all relative frequencies must be equal to 1 (Záškodný et al., 2011, p. 19).

In statistical research, we are interested in mass phenomena and processes, in which we examine the regularities that manifest themselves in a large number of elements. The elements of research are statistical units. For these units, we monitor the properties of statistical units, variables. The sum of characters and quantities forms data. The measurement method and variables must meet the conditions of validity (whether what is to be measured is measured), reliability (reproducibility of the measurement) and objectivity (whether different assessors will measure statistical units in the same way). Measurement results must be arranged, graphically expressed and parameterized with suitable empirical parameters. These tasks can be accomplished using basic statistical processing. The result of elementary statistical processing is an empirical picture of the examined sample statistical set. Elementary statistical processing also completes the group of basic statistical methods that can be called descriptive statistics (Záškodný et al, 2011, p. 20, 22).

4.Findings

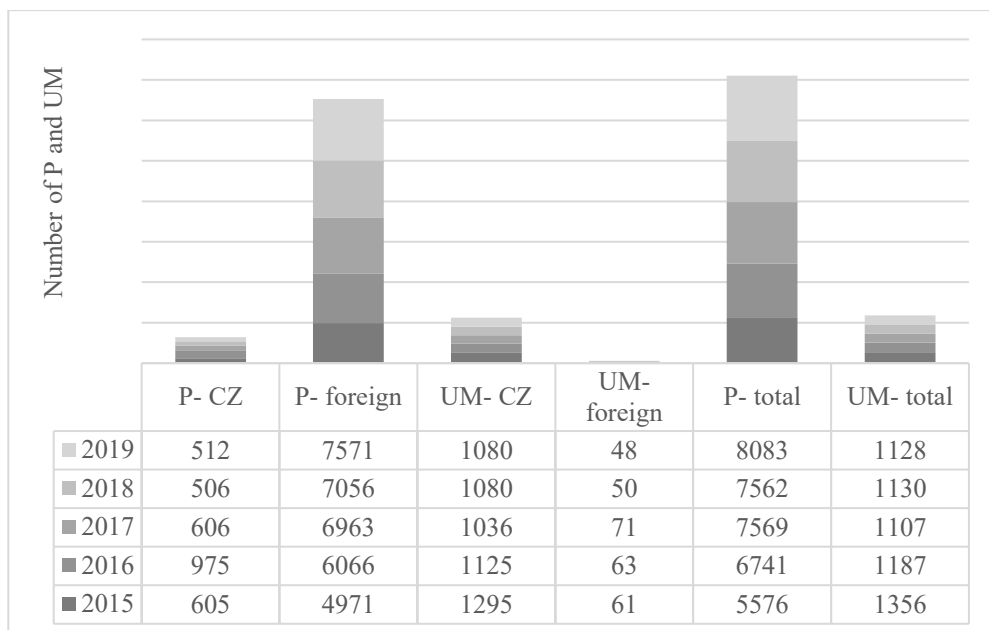
This chapter presents the results of the research based on a critical evaluation of secondary data obtained from statistical offices of the Czech Republic and Poland for the years 2015-2019.

4.1 Patents and utility models

From the above Figure 1 it can be seen a declining trend of granted patents of Czech applicants. The situation is completely opposite for foreign applicants. In the years 2015-2019, this is almost a 10% annual increase. Compared to domestic, Czech entities, foreign applicants have eight to ten times more patents. In 2019, it is even fifteen times more for patents. Foreign applicants were mostly from Slovakia, Germany, then Austria and Poland. In 2019, domestic applicants were granted a total of 512 of their patents for protection by the Industrial Property Office of the Czech Republic, ie only 6 more than in the previous year. From 2015 to 2019, 3204 patents were granted

to domestic entities and 32627 to foreign entities, with the most granted in 2019 (7571) to foreign entities and the least in 2018 (506) to domestic entities.

Figure 1. Patents and Utility Models with effects in the Czech Republic by country of applicant by year of grant, 2015-2019



Source: Elaborated by authors based on the Czech Statistical Office, available at: https://www.czso.cz/csu/czso/patentova_statistika [visited on 05.03.2021].
Note: P - Patent, UM - Utility Model.

Since 2017, the number of patents granted to domestic entities has been declining. In 2016, the most patents were granted to domestic entities, namely 975. This is different in the case of utility models. The award of utility models is more than twenty times more for domestic applicants than for foreign applicants. In the years 2015-2019, 5616 utility models were awarded to domestic entities and 293 to foreign entities. The sum of the most granted patents was in 2019 (8083) and utility models in 2018 (1130). It is clear that there are significantly more utility models than granted patents. This fact is due to the fact that obtaining a utility model is a significantly simpler, faster and cheaper method of protection than in the case of a patent. However, in the case

of a patent, this is a stronger form of protection. Although patents as a legal protection of technical solutions and inventions are among the traditional and at the same time most important institutes worldwide in the field of industrial property. In the Czech Republic, since the introduction of the utility model institute in 1993, an increasing share of technical solutions has been protected through this legal protection.

As in the Czech Republic, the number of registered patents in Poland is higher than in utility models. However, there are differences. In contrast to the Czech Republic, in the analyzed period 2015-2019, domestic applicants predominated in Poland. The data are shown in the following Figure 2, number of granted patents and utility models by applicant's country in 2015-2019, Poland.

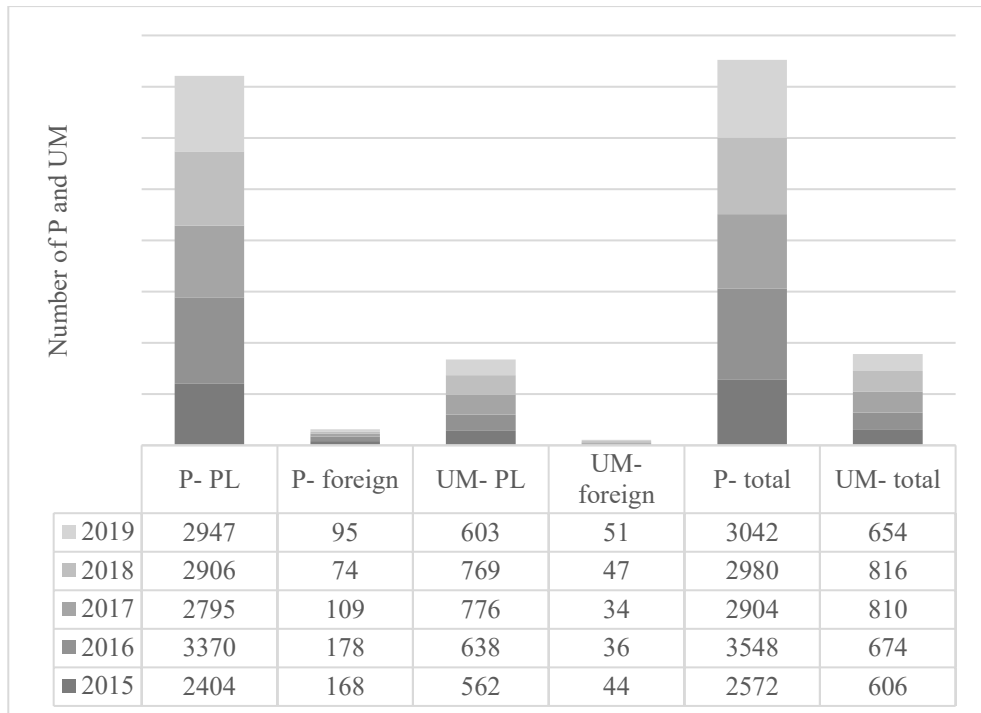
According to the Figure 2, granted patents and utility models represented for more than 90 % of the previous year. Regarding patents granted by the Polish Patent Office to foreign entities, for the years 2015–2019 they represented for 7 %, 5 %, 4 %, 2 %, 3% of the total number of patents. It was similar with utility models granted to foreign entities, for the years 2015 - 2019 they were 7 %, 5 %, 4 %, 6 %, 8 %. Here, the tendency of utility models granted to foreign entities is growing. However, when analyzing the data, it can be noted that in the following years there was a significant downward trend in the number of patents granted to foreign entities. 168 were awarded in 2015, 176 in 2016, but only 76 in 2018 and slightly more in 2019, ie 95. In terms of the number of utility models granted, there were even fewer in absolute numbers than granted patents, although the declining trend after 2017 has been reversed. In 2019, 51 utility models were awarded and their number was the highest during the analyzed period 2015-2019.

Analysis of data for both countries on the number of patents and utility models shows large differences between the two countries. In the case of patents granted to foreign entities in the Czech Republic, their number was several times higher than in Poland, with a growing tendency.

In 2015-2019, there were almost 30, 34, 64, 95, 80 times more. On the other hand, in the case of patents granted to domestic entities, this difference in favor of Poland was largely increasing. In the years 2015-2019, there were approximately 4, 4, 5, 6, 6 times more. In the case of utility models granted in both countries to domestic and foreign entities, the differences are no longer so great. More were awarded in the Czech Republic than in Poland. In the case of

domestic entities, this difference in 2015–2019 in the Czech Republic was approximately 130 %, 76 %, 33 %, 40 %, 79 % higher than in Poland.

Figure 2. Patents and Utility Models with effects in the Poland by country of applicant by year of grant, 2015-2019



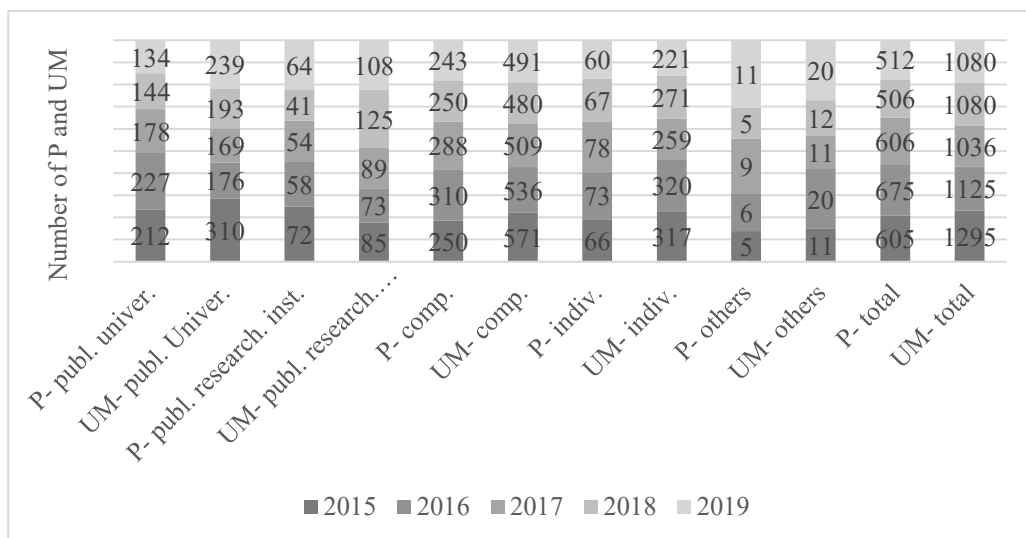
Source: Elaborated by authors based on Polish Patent Office, available at: <https://uprp.gov.pl/sites/default/files/inlinefiles/Annual%20Report%202019.pdf> [visited on 07.03.2021]. Note: P - Patent, UM - Utility Model.

While in the years 2015-2018 it was also higher in the Czech Republic in the following years by approximately 53 %, 75 %, 109 %, 6 %, but in 2019 it was already 6 % lower. The trend in 2018 began to turn in favor of Poland.

Based on the above discussion, it is possible to answer RQ1: What is the quantity of granted patents and utility models in the Czech Republic and Poland? - In the analyzed years 2015-2019 in the Czech Republic and Poland, the number of granted patents predominates over utility models. Domestic applicants predominate in Poland, but foreign applicants in the Czech Republic.

There is a time lag between the filing of the application and the grant of the patent, when the average time from the filing of the application to the grant of the patent is about 5 years. At the same time, the patent is not granted to all applicants, the success rate is around 45 %. Below is an overview of applicants by type of applicant, see Figure 3.

Figure 3. Patents and Utility Models registered for applicants from the Czech Republic by type of applicant, 2015-2019



Source: Elaborated by authors based on the Czech Statistical Office, available at: https://www.czso.cz/csu/czso/patentova_statistika [visited on 02.03.2021].
Note: P - Patent, UM - Utility Model.

It has already been mentioned above that utility models predominate over patents. In the Czech Republic, according to the type of applicant, the predominant entity is enterprises, natural persons and public universities. In the case of patents, in the monitored years 2015-2019 there is a decreasing tendency for all subjects except the subject other (which includes, for example, hospitals). In the case of utility models, in the monitored years 2015-2019 there is a declining trend in public universities, companies, and individuals. On the contrary, there is an upward trend in public research institutions. A total of 2904 patents were registered between 2015-2019, the most in 2016 (675), the least in

2019 (512) and the utility models in total 5616, the most in 2015 (1295) and the least in 2017 (1036).

In Poland, according to the type of applicant, the predominant subjects in terms of the number of registered patents, similarly to the Czech Republic, are enterprises, followed by public universities, natural persons, research centers, and the Polish Academy of Sciences scientific units. In terms of registered utility models, companies predominate. They registered more than 4 times as many utility models compared to individuals. This was followed by public universities, research centers, the Polish Academy of Sciences and scientific units. This last institution were a several-fold increase in registered utility models to 15 in 2019 (previously only 1 to 4), but this still did not improve its position. In the case of patents, in the monitored years 2015-2019 there is a variable trend for all entities, with the exception of companies, where there is a constant decrease in granted patents from 2112 in 2015 to 1665 in 2019 (27.5%). In the case of utility models, in the monitored years 2015–2019, in contrast to the Czech Republic, a variable trend is observed in all subjects. A total of 20,956 patents were granted in 2015-2019 (18,052 more than in the Czech Republic), the most in 2015 (4,679), and in the Czech Republic in 2016. The least in 2019 (3,887), similar to in the Czech Republic, and for utility models a total of 4,829 (787 less than in the Czech Republic), the most in 2016 (1,084), the most in the Czech Republic in 2015 (1295). The smallest number was in 2019 (855), in the Czech Republic it was the least in 2017 (1036). The data discussed for Poland are shown in Figure 4 below.

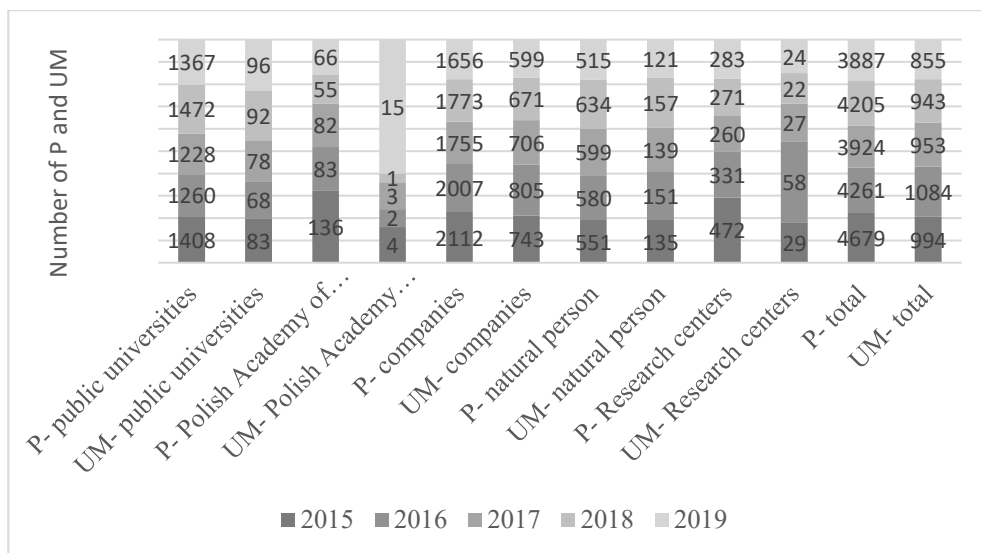
Based on the above discussion and the overview of Figure 3 and Figure 4, it is now possible to answer RQ2: Which applicants were granted patents and utility models in particular? In the Czech Republic, according to the type of applicant, the predominant subjects are companies, natural persons and public universities. In Poland, according to the type of applicant, the predominant subjects, similarly to the Czech Republic, are companies, followed by public universities, natural persons and research centers.

3.2 Research expenditures

The Office of the Government of the Czech Republic prepares an Analysis of the State of Research, Development and Innovation in the Czech

Republic. The analysis is divided into nine chapters describing the key topics of the R&D system, including the focus on the innovation performance of the Czech Republic.

Figure 4. Patents and Utility Models registered for applicants from the Poland by type of applicant, 2015-2019



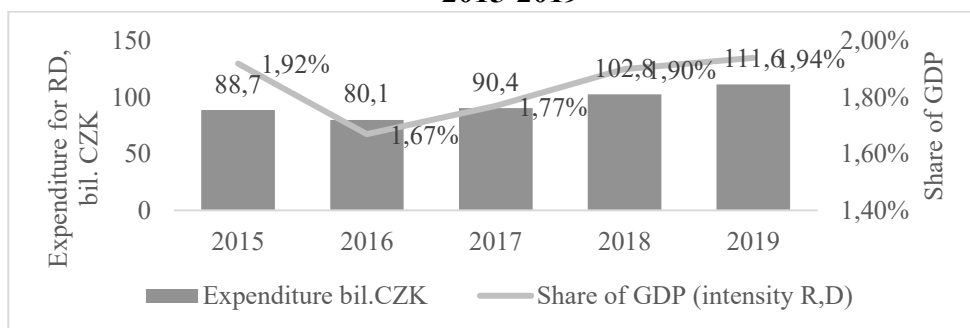
Source: Elaborated by authors based on Polish Patent Office, available at: <https://uprp.gov.pl/sites/default/files/inlinefiles/Annual%20Report%202019.pdf> [visited on 07.03.2021]. Note: P - Patent, UM - Utility Model.

The main chapters of the analysis are devoted to financial flows in R&D, financing of research and development from the state budget, support of research, development and innovation in the Czech Republic from European funds, implementation of the National Research and Innovation Strategy for smart specialization of the Czech Republic, human resources in research and development, research infrastructures, research and development results, innovation performance of the Czech economy and its international comparison, and international cooperation in R&D and innovation.

There has been a long-term increase in expenditure on R&D in the Czech Republic. In 2019, for the second year in a row, expenditures exceeded CZK 100 billion. It spent CZK 102.8 billion on R&D in 2018 and CZK 111.6 billion

in 2019. In relation to GDP, R&D expenditure in 2018 increased from 1.9 % to 1.94 % in 2019, see Figure 5 below. The Czech Republic thus approached the EU average. Within the EU countries, it ranks tenth behind the Netherlands and Slovenia, but surprisingly, for example, ahead of the United Kingdom. Ten years ago, the Czech Republic was sixteenth in this statistic. However, the Czech Republic is still losing out to the most developed European countries. The European goal – to spend more than 3 % of GDP on R&D – is currently met only by Sweden, Austria, Germany and Denmark (Věda a výzkum.cz, 2020). Below Figure 5 Expenditures on R&D and share in GDP in 2015-2019 in the Czech Republic.

Figure 5. Expenditures on R&D and share in GDP, Czech Republic, 2015-2019

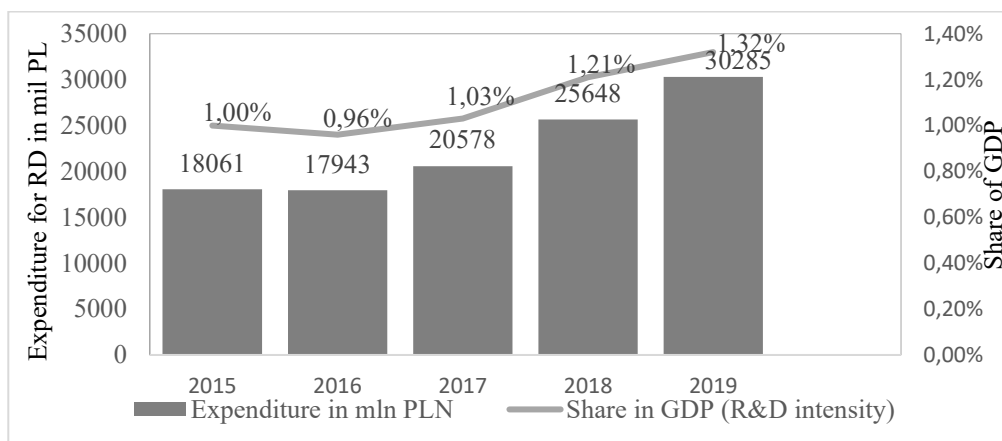


Source: Elaborated by authors based on Věda a výzkum.cz, available at: <https://vedavyzkum.cz/politika-vyzkumu-a-vyvoje/politika-vyzkumu-a-vyvoje/vydaje-na-vyzkum-a-vyvoj-podruhe-v-rade-prekonaly-stomiliardovou-hranici> [visited on 02.03.2021]

In Poland, as well as in the Czech Republic, an analysis of the situation of research, development and innovation is being prepared. This analysis is prepared by the Central Statistical Office. The analysis includes state budget expenditures on R&D, their impact on employment and includes four sectors: the government sector, the corporate sector, the higher education sector, the private non-commercial institutions sector. A comparative analysis of data on R&D expenditures and their share in GDP in 2015–2019 in Poland and the Czech Republic shows that these expenditures are increasing in both countries. Expenditure on R&D and their share in GDP in Poland in 2015–2019 is shown

in the following Figure 6 below. In 2015–2019, R&D expenditure for the following years was: 1 %; 0.96 %; 1.03 %; 1.21 %; 1.32 % of GDP expenditure. In 2016, expenditure on R&D was slightly lower than in 2015 (less than 1 percent), but since 2016 it has been constantly increasing. In 2019, they were almost 69 % higher than in 2016. In the same period, the increase in expenditure in the Czech Republic was more than 39 %, ie it was lower than in Poland.

Figure 6. Expenditure on R&D and the share of GDP, Poland, 2015-2019



Source: Elaborated by authors based on Główny Urząd Statystyczny, available at: <https://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/nauka-i-technika/dzialalnosc-badawcza-i-rozwojowa-w-polsce-w-2019-roku,15,4.html> [visited on 02.03.2021]

In the Czech Republic, however, it represents a larger share of expenditure in GDP. In 2015–2019 it was higher by 0.92 %; 0.71 %; 0.74 %; 0.59 %; 0.62 %.

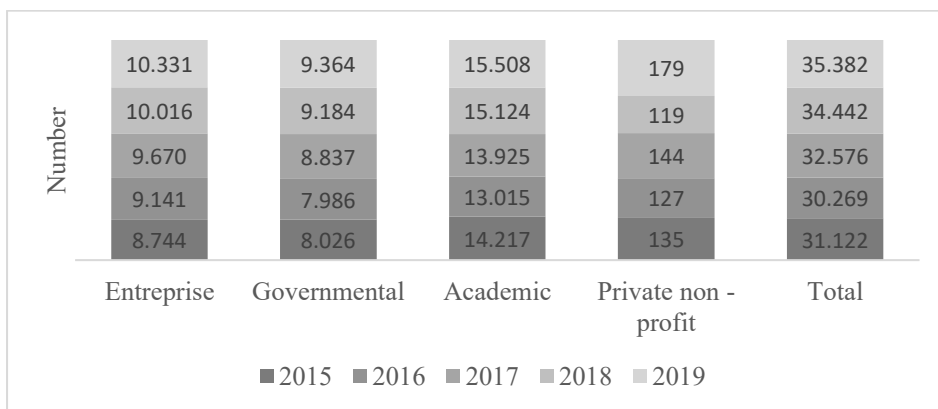
Based on the above discussion and Figure 5 and Figure 6, it is possible to answer RQ3: What percentage of GDP is invested in R&D in the Czech Republic and Poland in 2015-2019? - In relation to GDP, R&D expenditure increased in 2018 from 1.9 % to 1.94 % in 2019. In 2015, the share was 1.92 %, followed by a decrease to 1.67 % in 2016 and from 2017 the percentage share of R&D investment in GDP is already growing. In Poland, as in the Czech Republic, there is an upward trend in investment in R&D. The share of these investments in relation to GDP was still 1.03 % in 2017, but in 2019 it reached

1.32 %. The Czech Republic is growing faster than in Poland, with an upward trend in both countries.

For many years, it has been the case that business resources have the largest share in the financing of R&D in the Czech Republic. Last year it was 58 %. In 2019, companies invested almost CZK 65 billion in R&D activities from their sources, mainly in their own in-house R&D. According to statistics from the Czech Statistical Office, CZK 37.5 billion was spent from public domestic sources in 2019, which is CZK 2.5 billion more than in 2018. The state budget accounted for about one third of R&D and public foreign resources accounted for about 7 % of total R&D expenditure. Finance from the state budget has been growing significantly since 2016, and in terms of the share of public expenditure on R&D in GDP, the Czech Republic is above the EU average (ČSÚ, 2021).

Regarding R&D workplaces in R&D workers in sectors, academic entities predominate, followed by enterprise sector and governmental sector. In the monitored years 2015-2019, an upward trend in the number of R&D workplaces in all sectors can be seen. It can be concluded that the upward investment rate will be reflected in an increasing trend in the number of utility models and patents over a number of years, see Figure 7.

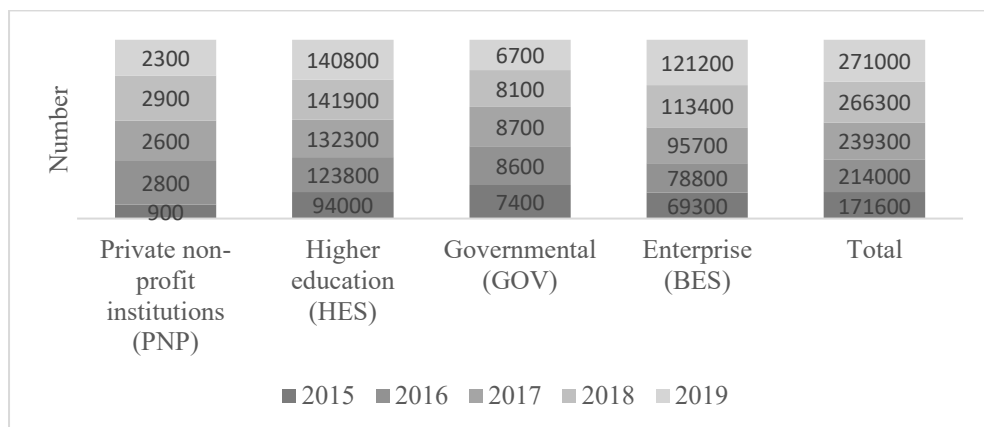
Figure 7. R&D workers in sectors, Czech Republic, 2015-2019



Source: Elaborated by authors based on the Czech Statistical Office, available at: https://www.czso.cz/csu/czso/statistika_vyzkumu_a_vyvoje [visited on 02.03.2021]

As in the Czech Republic, R&D expenditures contribute to employment growth in this area. In the analyzed years 2015-2019, according to the data of the Central Statistical Office mentioned in Figure 8 below, an upward trend in the total number of jobs in R&D can be observed.

Figure 8: R&D workers in sectors, Poland, 2015-2019



Source: Elaborated by authors based on Główny Urząd Statystyczny, available at: <https://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/nauka-i-technika/dzialalnosc-badawcza-i-rozwojowa-w-polsce-w-2019-roku,15,4.html> [visited on 02.03.2021]

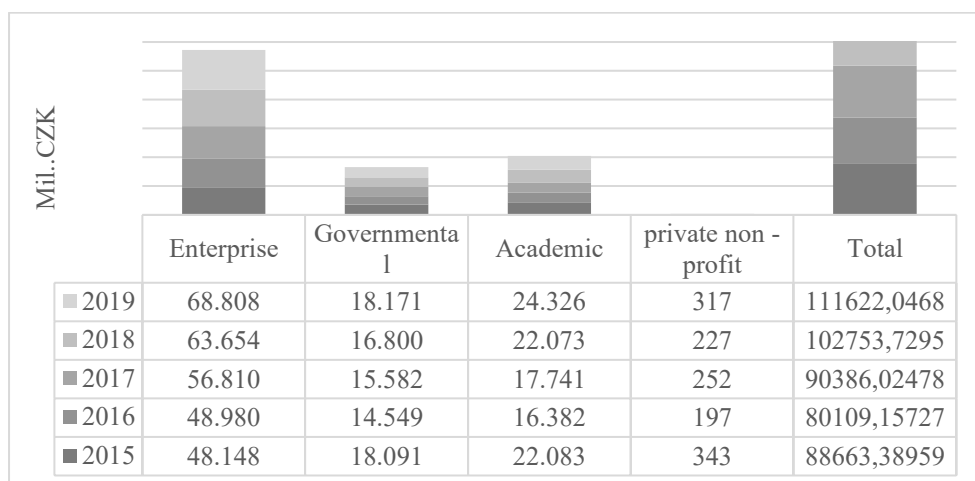
Looking at the Figure 8 data, it can be seen that the pace of R&D investment by workplace is increasing. It is clear that the increasing pace of R&D expenditure in recent years has resulted in an increase in the employment of R&D personnel in the Higher education (HES) and Enterprise (BES) sectors. However, this pace was not proportional to the increase in internal R&D funding. This could be a sign of better use of R&D actors. Overall, from 2016 to 2019, the growth rate of employees employed in R&D increased by 27 %. The situation by sector is as follows: an increase of 54% in the business sector (BES), an increase of 14% in the higher education sector (HES), while a decrease of 18% in the private non-profit institution (PNP) sector and 22% in the general government sector. In the latter sector, there was also a 15% decrease in internal R&D funding in the analyzed period 2015-2019.

Based on Figure 7 and Figure 8 can be answered RQ4: Which workplace participates in R&D? In Poland, as well as in the Czech Republic, in the analyzed years 2015-2019, the number of workplaces in R&D in higher

education (HES) and the business (BES) sectors are growing. In both sectors, R&D funding is increasing at a faster rate compared to the number of workers involved in R&D. This should be assessed positively, as it may indicate, among other things, better use of employees (their knowledge and skills) or a proper assessment of their qualifications. This is also confirmed by the growing number of patents and utility models granted to Polish entities. It should be borne in mind that, given the growing R&D expenditure in recent years, the implications and effects of creating many patents and utility models will be visible in the coming years. Obviously, their creation requires a long time horizon. One of the factors influencing economic development is R&D expenditure, without this one no economy will be innovative.

Simultaneously with the number of R&D workplaces in companies, investments of companies in research have been increasing in recent years, below Figure 9. In the Czech Republic, the business sector participates in R&D expenditures. Expenditures have increased mainly since 2017. The academic sector follows, where expenditures on R&D have increased significantly since 2018. In the general government sector, R&D investment declined over the next three years in 2015. The growth did not occur until 2019, when it leveled off in 2019. Investments in R&D in the private non-profit sector are quite minimal.

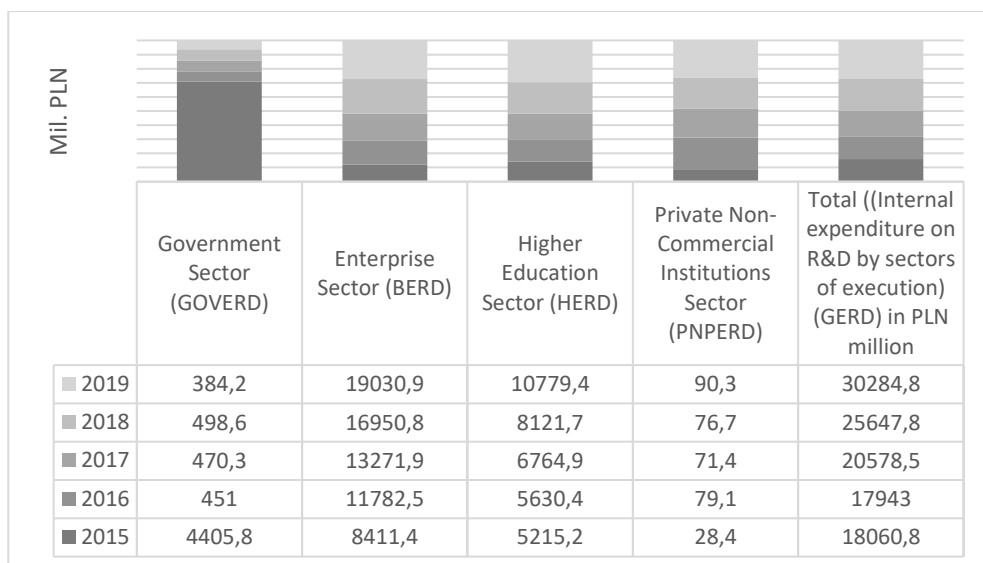
Figure 9. R&D expenditure in sectors, Czech Republic, 2015-2019



Source: Elaborated by authors based on the Czech Statistical Office, available at: https://www.czso.cz/csu/czso/statistika_vyzkumu_a_vyvoje [visited on 05.03.2021]

In Poland, as in the Czech Republic, resources from the business sector have had the largest share in R&D funding in recent years, see Figure 10. In 2015, they were for almost 47%, but in the following years more than 60% per year. In 2019, they were for almost 63% and were 5% higher than in the Czech business sector. The share of higher education in R&D funding has exceeded 30 % in the last four years. On the other hand, the general government sector has not exceeded 3 % over the last four years (with the exception of 2015, when expenditure was 24.4 %) and the private non-commercial institutions (PNPERD) sector has not exceeded 1 % since 2015, education accounts for more than 90 % of internal R&D funding. The growth rate of funds allocated to internal R&D financing over the last four years was recorded in three sectors: by 91 % in the higher education sector (HERD), by 62 % in the business sector (BERD), by 14 % in the private non-commercial institutions sector (PNPERD), while a decrease of 15 % was recorded in the general government sector (GOVERD). Overall, for the period 2015-2019, the increase in internal R&D funding was 69 %, see Figure 10 below.

Figure 10. R&D expenditure in sectors, Poland, 2015-2019



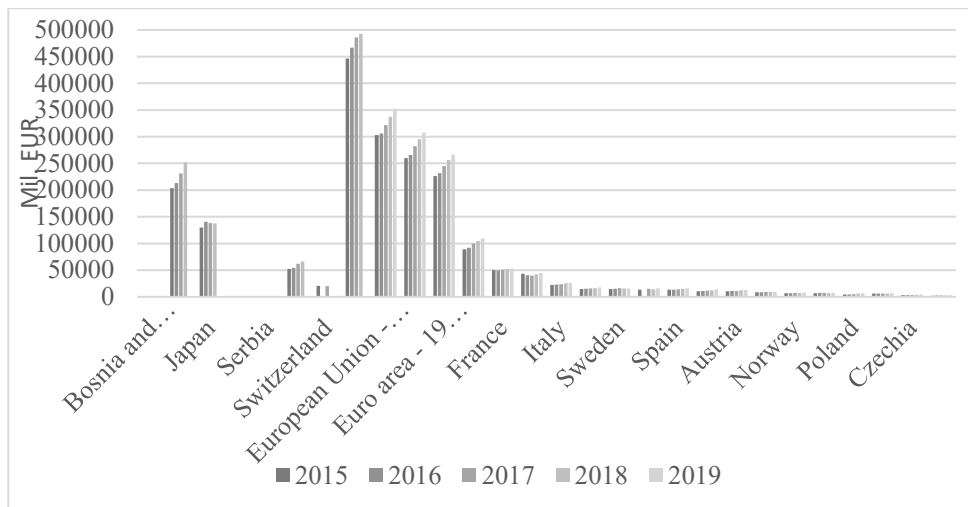
Source: Elaborated by authors based on Główny Urząd Statystyczny, available at: <https://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/nauka-i-technika/dzialalnosc-badawcza-i-rozwojowa-w-polsce-w-2019-roku,15,4.html> [visited on 02.03.2021]

Based on the previous discussion and Figure 9 and Figure 10, it is possible to answer RQ5: Which sector is mainly involved in investing in R&D? Regarding investments in R&D sector in the Czech Republic, businesses entities predominate, followed by academic and governmental entities. In the case of Poland, as in the Czech Republic, the business sector predominates and the higher education sector also has a high share.

A stable business environment of the country and its clear long-term strategy is essential for companies' investments in research. The Innovation Strategy of the Czech Republic 2019 - 2030 Czech Republic Country For The Future is set in the Czech Republic, which has 9 main pillars. The first pillar is the Financing and evaluation of research and development. The aim of the Strategy is, among other things, to prepare a fundamental amendment to the Act on the Support of Research, Experimental Development and Innovation, which would better reflect the level that the Czech Republic wants to achieve, and significantly strengthen funding for research, development and innovation from 1.79 % of GDP in 2019 to 3 % of GDP in 2030 (Country for the future, 2021).

It is important to realize that innovation is one of the conditions influencing the improvement of the international position of Polish companies, which means that they can participate more effectively in the market economy. Therefore, it is necessary to increase spending on R&D, which means the involvement of the state and businesses. Face to international competition in R&D is one of the key challenges for Polish development policy in the next two decades. In 2013, the Polish government developed a strategy that envisages a gradual increase in the level of expenditure on science, R&D (DSRK PL2030, 2013). Although R&D expenditures in Poland and the Czech Republic are growing every year, they still have a low volume of investments and a percentage share of these expenditures in relation to GDP compared to the EU average. According to the analysis of Eurostat data in Poland and the Czech Republic, expenditure on internal R&D (GERD) increases in both countries in 2015-2019, Fig. 11.

As mentioned above, in terms of R&D expenditure as a share of GDP, the Czech Republic invested 1.94 % in R&D in 2019 in terms of its share of GDP, while Poland invested 1.32 % of GDP in R&D. According to Eurostat data (2021), the share of 1.94 % of GDP ranks the Czech Republic 10th in the EU and Poland 18th. The amount of R&D allocations has increased in most European countries.

Figure 11. Intramural R&D expenditure, selected countries, 2015 - 2019

Source: Elaborated by authors based on Eurostat; Intramural R&D expenditure (GERD) by sectors of performance and type of costs - Products Datasets - Eurostat, available at: https://ec.europa.eu/eurostat/web/products-datasets/-/rd_e_gerdcost [visited on 07.03.2021].

The Association of Small and Medium-Sized Enterprises and Self-Employed Persons in the Czech Republic conducted a survey in 2020 on a sample of 300 SMEs, which concerned innovations in domestic companies. The results of the survey are as follows. Most companies plan to innovate in the next 12 months. On the contrary, 6 % of respondents do not plan to invest. This is a classic development, companies know that they cannot afford stagnation, but unfortunately in recent years investment in innovation has been hampered by high wages and a lack of a capable workforce. In what areas will innovation be directed? Innovation will most often be aimed at strengthening overall competitiveness (52 %), expanding products and services (46 %), regular investment in business development and product and service development (30 %), automation and digitization (29 %) and addressing shortcomings. workforce (27 %). The issue of labor shortages is long-term. The Czech Republic has a low unemployment rate. How will the innovations be financed? Enterprises use mainly their own resources (79 %), bank loans (35 %), subsidies (27 %), intercompany loans (7 %) and foreign capital or the entry

of a Czech investor (3 %) (Asociace malých a středních podniků a živnostníků, 2020).

5. Conclusion

Utility and industrial design, patent, trademark or copyright are increasingly inflected terms not only of large companies, but are increasingly becoming a natural vocabulary of small and medium-sized companies. The approach of companies to new knowledge is one of the key factors in the innovation process. The approach to knowledge through technological cooperation with other companies is also important, as well as interaction with knowledge providers such as research institutions and universities.

These entities are important applicants for patents and utility models in the Czech Republic and Poland. In the Czech Republic and Poland, the number of granted patents prevails over the number of utility models. Domestic applicants predominate in Poland and foreign applicants in the Czech Republic. In the Czech Republic, according to the type of applicant, the predominant subjects are companies, natural persons and public universities. In Poland, according to the type of applicant, the predominant subjects, similarly to the Czech Republic, are companies, followed by public universities, natural persons and research centers. In the Czech Republic and Poland, the number of R&D workplaces in the business sector is increasing. Nevertheless, the industry lacks innovation, the development of new technologies and a focus on research. This in turn hinders the development of industry for value-added production.

In the Czech Republic, in relation to GDP, R&D expenditure increased in 2018 from 1.9 % to 1.94 % in 2019. In Poland, as in the Czech Republic, there is an upward trend in investment in R&D. The share of these investments in relation to GDP was 1.03 % in 2017, but in 2019 it reached 1.32 %.

Investment in research and development in relation to competitive activity and new opportunities are pragmatic reasons why entrepreneurs today consider the management of the intellectual property as one of their priorities and implement it in their strategic plans. Regarding investments in R&D in the sector in the Czech Republic, businesses entities predominate, followed by academic sector and governmental sector. In the case of Poland, as in the Czech Republic, the business sector predominates and the higher education sector also has a high share. Most companies expect an increase in investment in research and development in 2021. Possible reasons why companies plan to invest in

research in the future may be as follows. The limited availability of qualified staff is one of the most significant obstacles to the development of research and innovation activities of Czech companies. In addition, investments in the development of public sector research capacities made in recent years may lead to an outflow of some highly skilled workers who might otherwise be involved in technological research in private companies. The potential for growth of private investment in public research lies in fields with a strong research base, innovative capacities of companies and existing links. It is important to realize that investment in R&D is a prerequisite for improving the international position of companies.

Therefore, it is necessary to increase expenditure on research and development. Although expenditure on R&D in Poland and the Czech Republic is growing every year, they still have a low volume of investment and a percentage of this expenditure in relation to GDP compared to the EU average. In 2013, the Polish government developed a strategy for Poland 2030, The Third Wave of Modernity. Long - term national development strategy, which assumes a gradual increase in the level of expenditure on science, research. The long-term strategy of the Czech Republic Country For The Future 2019 - 2030 has the help of the growth of investments in the field of science and research in the case of the Czech Republic. States implement incentive mechanisms, forms of support and instruments into their long-term strategies.

The results and cooperation of authors from two countries have the ambition to initiate cooperation between the Czech and Polish academic spheres with the interconnection of the business environment and state authorities, which would contribute to the applicability of the invention to the practice of national economies. Make maximum use of synergy effects from long-term strategies of countries within the framework of international cooperation.

Future research recommendations: The authors set this research as an initial stage. In the future, it is planned to draw on the tools of the long-term Strategies of both countries. In particular, draw on programs to support research for the business environment, based on open submissions.

Research limitations: The limitations of research can be found in the issues of different countries. Limits may be due to differences in information and the actual collection of samples and data in national databases, their interpretation and objectivity for comparison.

Acknowledgement: The result was created in solving the student project Intergenerational transfer of family crafts - a challenge for the 4.0 phenomenon, No. 7427/2020/03 using objective oriented support for specific university research of the University of Finance and Administration.

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The Effects of Intellectual Property on Financial Integration in the European Union and Moldova Republic

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Abstract

In order to encourage creative work and prevent possible abuses, the field of intellectual property must be well regulated; from a legislative point of view. This present era which is characterized by continuous technological progress is experiencing a boost in relevance of intellectual property; thereby becoming one of the key elements of industries. This has made players of markets to become aware of the need to ensure protection of intellectual property rights. Hence, financial integration is a key element which can be affected by intellectual property and the innovation process involved. This paper analyses the correlation between international financial integration and intellectual property. Also, the analysis focuses on European Union (EU) member countries and Moldova in assessing the effects of intellectual property and international financial integration. Fixed-effect panel estimation and the ordinary least squares model are used in the analysis. The analysis has been conducted over the last two decades to see the differences that intellectual property has had over financial integration over periods of time that have had extremely different economic oscillations. The results of this research provide an update on the analysis effects of intellectual property on international financial integration and it shows a negative relationship between them. Hence, this depicts that when intellectual property is carefully considered by firms and governmental institutions, it can be a major source of revenue for the stakeholders and the economy at large.

Keywords: *intellectual property, financial integration, development, trademarks, industrial design, patents, financial markets*

JEL Code: *F02, F36, O34*

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1. Introduction

All holders of intellectual property rights must be aware of how such rights are managed and protected. This is an essential aspect which can make an intellectual property lose its value when care is not taken. Intellectual property refers to creations of the mind; inventions, literary and artistic works and symbols, names and images used in commerce. Intellectual property can be classified into several groups. The protection of intellectual property in this era has been on a rise. The need for the protection of intellectual property is backed by several reasons. First of all, humanity's progress and prosperity depend on its creativity in the technical and cultural fields. Second, the legal protection of new creations encourages investment and leads to other innovations. And lastly, the promotion and protection of intellectual property stimulates economic growth, leading to the creation of new jobs and new branches of activity and to the improvement of the quality of life.

An efficient and equitable intellectual property system is a powerful tool for economic development and social and cultural progress. Therefore, such a system can contribute to establishing a balance between the interests of the innovator and the public interest, guaranteeing an environment conducive to both the process of creativity and that of invention.

For an intellectual property to yield great results, the impact of the intellectual property, both home and abroad needs to be considered. An intellectual property which does not have the capacity to serve both the country effectively and efficiently is bound to yield inadequate results in the international market.

Financial market forms one of the bases which is used to assess the extent to which countries are integrated financially. This will be ideal to assess the extent to which intellectual property affects international financial integration. As such, this research is focused on assessing the extent to which intellectual property affects international financial integration. Since the impact of intellectual property is mainly determined by its importance to the global market, the correlation that exists between international financial integration and intellectual property is assessed. Developed countries have capitalized on acquiring more intellectual properties. This serves as a motivation for this research to analyze whether capitalizing on intellectual property (which in this

research consists of trademarks, patents and industrial design) can boost international financial and development in EU countries including Moldova.

2. Literature review

Goldstein and Reese (2008) believe that the main purpose of intellectual property is to encourage the creation of products based on uniqueness or novelty. That said, intellectual property offers consumers temporary access to the information needed for such a creation. The holders of the intellectual property hereby obtain economic incentives. Owners of intellectual property have exclusive rights. This leads to financial stimulation in investing in such products, the only difference being the patents, due to the fact that patents involved the costs associated with research and development in the field (Schroeder & Singer, 2009). Gancia and Bonfiglioli (2008) argues that the relationship between intellectual property and human rights is a complex one, although there are many moral arguments that complement this claim. Their research also clarifies the fact that intellectual property is a measure that will always be explored due to its nature and characteristics. The research of Mossinghoff (1984) also further discusses on the on the importance and the potential of intellectual property.

2.1. Types of intellectual property - an overview

New technologies have created changes in terms of intellectual property by respecting national and international norms and legislation, but also by supporting the creators of knowledge creation (González-González, López, & Barreto, 2017).

Intellectual property is one of the current concerns of WIPO, due to its characteristics and the role that this phenomenon has both nationally and internationally (de Menezes & de Santana Falcão, 2020). An intellectual property is bound to be protected for a long period of time, both during the owner's existence and also after his or her death. This policy is applicable to both individuals and groups that own an intellectual property. The United Kingdom Public General Acts, 1988 elaborated on the policies and procedures on intellectual property including the right of attribution and integrity.

In order to protect and validate a patent (its lifespan may vary up to 20 years or more depending on the legislative jurisdictions of that country or union, etc.) regardless of its destination, it can be registered either nationally or at the international level, which comes along with the payment of fees and sometimes, its translation into a certain language (WIPO, 2013).

In the research of Jones and Smith (1991), they discuss that trademark differ from other types of intellectual property by the characteristics and by the duration of protection they may have. This period may vary due to the possibility of renewal. In this regard, trademarks offer exclusive rights and strengthen the image of products and services which can be registered as the vast majority of intellectual property rights.

Trade secret according to Lin (2013) is a more sensitive type of property being exposed in certain situations by those dishonest behaviors that can endanger the business or the information that makes up that secret. Therefore, those who have hidden information can protect themselves through various more drastic measures, based on medium- and long-term strategies.

Other researchers consider design protection, internet domains, database protection and geographical map as intellectual property. The research and report of Trinder (1992) and EU (2005) shows that industrial designs as intellectual property rights have particularities and limited protection, which may or may not benefit the owner by the options the owner chooses (thus, registration for a limited period of time or non-registration). Internet domains do not offer any special protection as do other intellectual property rights. Therefore, non-registration or incorrect registration may bring with it problems that may be related to other intellectual property rights or by infringing those rights. The protection of databases is based on the content and structure under which they are presented. That said, the rights under which they operate are given by law and copyright. Also, the geographical indications are protected in order to respect the norms of quality and origin of some products. Thus, their protection lies in preventing the inappropriate use or imitation of the name with which they are registered, but also of the characteristics attributed to them.

In order to guarantee intellectual property rights (Emhart, 2019), there is a European Directive 2004/48/CE at European Union level which requires member states to take care of or prevent the occurrence of illegal intellectual

property, but also to ascertain and take the necessary measures at the time which they take place.

2.2. Intellectual property – the effects on financial integration

Intellectual property rights reward creativity and human effort, that is, the engine of human progress. However, there are also demerits of intellectual property viewed from the perspective of financial integration. Such demerits of intellectual property are elaborated below.

- Having identical products or having the same characteristics.
- Creating a logo almost identical to the original, influencing the consumer to believe that he is buying the same product with the same quality as the original or even changing the consumer's perception by believing that the copied product is original.
- Making a patented product with similar specifications or the same as those specified in the original patent without the consent or license of the rightful patent owner.
- Making copies of various creations (musical, artistic, etc.) in order to benefit from large profits without the consent of the rightful owner.

An integrated market has also contributed to the above merits of intellectual property. This where individuals, firms and economies that deem it capable to compete with an already registered intellectual property develop a prototype of the original. As such, the market can be saturated and the true value of the original intellectual property may decrease.

The potential of intellectual property to impact international financial integration is dependent on the extent to which intellectual property is valuable on the international market. Several measures have been put in place which secures and boost the value of intellectual property. Such factors are elaborated below which fall in line with the regulation of International Chamber of Commerce (2016).

- Financial compensation in case of the violation of property rights.
- Giving up or canceling those product orders that use a trademark without authorization and sanctioning the persons in question according to the legislation at national or international level depending on the typology of the trademark.

- Confiscation of the intellectual property right of the persons who produce products that violate its basic rights and principles.

In these circumstances it can be appreciated that the protection of intellectual property rights is extremely important and its purpose is to protect the product of human intelligence and whilst guaranteeing consumers that they can use those products and services since they are compliant and registered according to the legislation Dam (1987).

Most often, the value of an intellectual property appreciates with time. When the value of the intellectual property meets the needs of the international market, the probability is high that it can foster financial integration. This explains the purpose of this research to clarify the effects of intellectual property on international financial integration. The section 3. describes the data and methodology, section 4. describes the model and the findings, section 5. explains the conclusion and ends with a reference section.

3. Data and Methodology

The data used in this research was ascertained from World Development Indicators of the World Bank database and International Financial Statistics of the International Monetary Fund database. The data is an annual data which spans from the years 2000-2018. The span of the data facilitates the analysis of the dependent and independent variables starting from the dot com era. The data ends in 2018 because most of the variables do not have data for the years 2019 and 2020. The data is ascertained for 29 countries; 28 countries which form the European Union (EU) and Moldova. Moldova is added to the sample size due to the keen relationship they have with Romania (economically, culturally and language); their geographical location is ideal to include them in the analysis to find out the role they play and can play. Also, the data is a panel data. The United Kingdom is included in the EU countries since they happen to be part of the EU as at 31st December, 2019. The variables used in this research includes international financial integration (dependent variable), intellectual property (independent variable); net assets, GDP per capita, population, exchange rate regime (control variables). These are key variables that most researchers have assessed to conclude as key determinants for international financial integration. Table 1. describes the variables into details.

Table 1. Detail measures of variables

NOTATION	VARIABLE NAME	COMPUTATION
ifi	International financial integration	The level of financial integration measured by net foreign assets per gross domestic product.
ifieq	International financial integration	The level of financial integration measured by dividing the total of net portfolio equity and net foreign direct investment by GDP.
ip	Intellectual property	Summation of the total number of patent applications, trademarks and interior design.
pat	Patent applications	The number of patent applications through the approved institutional bodies.
indtot	Industrial design	Total number of industrial design application
trdmrk	Trademarks applications	The number of trademark applications through the approved institutional bodies.
netcap	Net capital	Net capital account (balance of payment) expressed in current US dollars.
gdpcap	Gross domestic product per capita	Gross domestic product divided by midyear population.
pop	Total population	Total number of people living in a country.
err	Exchange rate regime	Exchange rate arrangement (classified into dummy variables 1 to 3).*

Source: own computations based on the specialized literature

3.1 Methodology

The main objective of this research is to find the extent to which intellectual property influences international financial integration. Also, the extent to which intellectual property and international financial integration correlate is also analyzed. The main hypotheses for this research are stated below.

In Table 1. All the data is obtained from World Development Indicators of the World Bank database except for exchange rate arrangement which was obtained from International Financial Statistics of the International Monetary Fund database.

* Table 2. describes further the exchange rate arrangement

- H1: There is a positive relationship between intellectual property and international financial integration.
- H2: There is a correlation between intellectual property influences international financial integration.

Table 2. Exchange rate arrangement classification *

CODES	DESCRIPTION
1	Currency bond
1	Currency board arrangement
1	Exchange arrangement with no separate legal tender
1	No separate legal tender
2	Conventional peg
2	Conventional pegged arrangement
2	Crawling band
2	Crawling peg
2	Craw-like arrangement
2	Pegged exchange rate within horizontal bands
2	Stabilized arrangement
3	Floating
3	Free floating
3	Independently floating
3	Managed floating with no pre-determined path for the exchange rate
3	Other managed floating

Source: IMF classification before 1998

Fixed effects and ordinary least square (OLS) models are used in the regression. The fixed effects model follows the approach of Gangl (2010) where this model is ideal for causal inference. Also, several researchers such as

* The codes 1, 2 and 3 denotes fixed, intermediate and floating exchange rate regimes respectively.

Aghion et al (2004), Hinz and Gartner (2005) and (Arránz Becker et al., 2013) have used this model in their research. The modelled equation is stated below.

$$\delta_{i,t} = \alpha + \beta_1(ip_{it}) + \beta_2(v\chi_{it}) + \theta_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\delta_{i,t} = \alpha + \beta_1(pat_{it} * trdmrk_{it} * ind_{it}) + \beta_2(v\chi_{it}) + \theta_{i,t} + \varepsilon_{i,t} \quad (2)$$

where;

i = country

t = year

δ = international financial integration

pat = patents

$trdmrk$ = trademarks

ind = industrial designs

$v\chi$ = vector of control variables

θ = the fixed year-effect/ fixed country-effect

ε = the residual term of the regression

The equation (1) is a model with intellectual property (independent variable) which consists of the aggregate of total number of patents, total number of trademarks and total number of industrial design variables. The equation (2) is a model which considers total number of patents, total number of trademarks and total number of industrial designs (independent variables) whilst finding the interaction that exists among them. The vector of control variables includes variables such as net assets, GDP per capita, population and exchange rate regime.

4. The Model and Findings

Volume-based indicators are used as a measure of international financial integration in this paper; two indicators are used. First, international financial integration is measured by dividing net foreign assets of a country by its gross domestic product. This is used to determine the financial flows of a country in relation to other countries. Below is the equation.

$$IFI_{i,t} = \frac{NFA_{i,t}}{GDP_{i,t}} \quad (3)$$

Secondly, international financial integration is assessed by dividing net portfolio equity and net foreign direct investment by gross domestic product. This approach is used to determine the total foreign capital holding of a country in comparison to other countries. Mathematically, the equation is written as:

$$IFIEQ_{i,t} = \frac{NPEQ_{i,t} + NFDI_{i,t}}{GDP_{i,t}} \quad (4)$$

The below table shows the summary statistics of the variables where log is applied on each variable with the exception of exchange rate regime which is a dummy variable. The data summary statistics depicts that the observations for net assets per GDP as a measure of international financial integration is almost twice that of portfolio equity and foreign direct investment per GDP. This means the results for net assets per GDP as a measure of international financial integration is accurate than the other.

Table 3. Summary statistics of the variables

Variable	Mean	Min	Max	Std. Dev.	Obs
ifi	2.93	-2.82	6.69	1.32	411
ifieq	-3.32	-7.47	2.19	1.83	227
ip	9.25	2.48	12.42	1.52	544
tmtot	9.27	6.40	11.63	1.08	502
ptot	6.84	1.10	11.13	1.93	509
indtot	7.32	0.69	11.38	1.87	311
netcap	19.92	11.98	23.31	1.94	384
gdpcap	9.92	6.09	11.69	0.92	551
pop	15.84	12.87	18.23	1.38	551
trade	0.03	-0.79	1.41	0.47	551
err123	2.44	1	3	0.82	551

Source: own computations based on the data provided by World Bank and International Monetary Fund

Also, among the variables for intellectual property, trademarks exhibit the lowest standard deviation with a value of 1.08. Although the data for trademarks does not differ much, the value each trademark carries is essential to the development of an economy.

Table 4. Shows the correlation among the variables. The correlation that exists between international financial integration and intellectual property shows positive. Nevertheless, the extent to which these variables (intellectual property, patent, trademarks and industrial design) correlate falls below average.

Table 4. Correlation matrix

	ifi	ifieq	ip	tmtot	ptot	indtot	net cap	gdp cap	pop	trade	err123
ifi	1										
ifieq	0.15	1									
ip	0.31	0.16	1								
tmtot	0.26	0.16	0.99	1							
ptot	0.48	0.20	0.91	0.87	1						
indtot	0.30	0.17	0.97	0.95	0.87	1					
netcap	0.11	0.15	0.48	0.51	0.25	0.52	1				
gdpcap	0.32	0.19	0.17	0.13	0.47	0.06	-0.44	1			
pop	0.30	0.21	0.98	0.98	0.89	0.98	0.55	0.10	1		
trade	-0.01	-0.39	-0.69	-0.70	-0.69	-0.65	-0.23	-0.40	-0.70	1	
err123	0.20	-0.03	0.00	0.00	-0.01	0.00	0.22	0.03	0.02	0.03	1

Source: own computations based on the data provided by World Bank and International Monetary Fund

Only patent has a correlation value of 0.48 which appears to be average. Hence, the relationship between international financial integration and intellectual property is not strong enough.

4.1 Findings

Prior to the analysis, log is applied for the variables with the exception of exchange rate arrangements. Then, Hausman test is used to detect whether fixed-effects model or random effects model suits the regression.

Table 5. Results for IFI regression (fixed-effect model)

VARIABLES	(1)	(2)	(3)	(4)
ip	-0.157*	-0.060		
	(0.088)	(0.064)		
tmtot			-2.011	-3.149
			(2.822)	(3.569)
ptot			2.129	-1.117
			(3.261)	(3.699)
tmtot#ptot			-0.157	0.166
			(0.408)	(0.495)
indtot			-2.286	-5.879*
			(2.701)	(3.316)
tmtot#indtot			0.353	0.699
			(0.397)	(0.476)
ptot#indtot			-0.087	0.626
			(0.531)	(0.592)
tmtot#ptot#indtot			-0.003	-0.071
			(0.062)	(0.073)
netcap	-0.074	-0.063	-0.009	0.070
	(0.057)	(0.050)	(0.064)	(0.048)
gdpcap	0.082	-0.718*	0.249	-2.151*
	(0.300)	(0.419)	(0.478)	(1.074)
pop	-4.085	-7.255***	-6.487	-16.379**
	(2.440)	(1.744)	(5.380)	(6.613)
trade	0.588	-1.426*	0.777	-2.763
	(0.642)	(0.699)	(0.865)	(1.608)
err2	0.333	-0.056	0.703	0.046
	(0.213)	(0.306)	(0.435)	(0.365)
err3	0.269	0.076	0.420	-0.122
	(0.184)	(0.266)	(0.336)	(0.341)
Constant	69.162*	125.053***	115.119	301.824**
	(39.680)	(28.163)	(93.903)	(119.221)
Country effect	Yes	No	Yes	No
Year effect	No	Yes	No	Yes
Observations	265	265	169	169
R-squared	0.065	0.240	0.167	0.415
Number of countries	26	26	20	20

Note: ***, ** and * represents statistical significance level at 1%, 5% and 10% respectively.

Source: own computations based on WB and IMF data

The results of the Hausman test shows that fixed effect is applicable since the chi-squared values are 0.007 and 0.0001 for *ifi* and *ifieg* respectively. In using fixed effects, both year and country effects are considered. The option robust is used in the regression. For robustness check, ordinary least square model is used. The results obtained for this regression is shown in Table 5.

In Table 5., intellectual property is significant at 10% significance level in the case where country effects is considered. The effect of intellectual property on international financial integration is negative. Where year effect is applied, intellectual property is not significant but depicts a negative effect of international financial integration. In regression (3) and (4) where the interactions among trademarks, patents and industrial design is considered, the independent variables are not significant.

In Table 6. the regressions (1) and (2), intellectual property is not significantly affecting international financial integration. Nevertheless, intellectual property shows a negative trend.

In regression (3) and (4), trademarks and patents show positive impact on international financial integration at 1% significance level for patents both cases where country and year effects are applied. Trademarks is significant at 5% and 10% where country and year effects are applied respectively. However, the interaction between trademarks and patents is negative at 1% significance level in both cases where country and year effects are applied.

Industrial design only exhibits a positive impact at 5% significance level when year effect is applied. The interaction of trademarks and patents, each with industrial design shows a negative impact though they are significant except when year effect is applied on trademarks and industrial design. Finally, the interaction among trademarks, patents and industrial design are significantly positive on international financial integration at 5% and 10% respectively where country and year effects are applied respectively.

For robustness check, the ordinary least square model is used. Logarithm to the base 10 is applied to the variables prior to the regression. Also, both country-effect and year-effect are used in the regressions.

Table 6. Results for IFIEQ regression (fixed-effect model)

VARIABLES	(1)	(2)	(3)	(4)
ip	-0.128	-0.108		
	(0.142)	(0.150)		
tmtot			10.948**	11.488***
			(3.843)	(3.372)
ptot			24.192***	36.432***
			(5.654)	(9.411)
tmtot#ptot			-2.749***	-3.683***
			(0.644)	(0.804)
indtot			2.885	18.036**
			(6.046)	(8.153)
tmtot#indtot			-0.622	-1.803**
			(0.655)	(0.625)
ptot#indtot			-2.028*	-4.907**
			(0.988)	(1.801)
tmtot#ptot#indtot			0.242**	0.490***
			(0.106)	(0.153)
netcap	0.121	0.113	0.108	0.018
	(0.132)	(0.155)	(0.148)	(0.135)
gdpcap	-0.362	-0.746	1.274	3.392
	(0.670)	(1.271)	(2.216)	(4.774)
pop	0.643	0.342	6.018	43.971*
	(3.866)	(2.596)	(5.651)	(22.401)
trade	2.287	-0.073	0.565	5.478
	(1.386)	(2.228)	(1.124)	(5.868)
err2	0.935***	-1.274*	1.356***	0.691
	(0.307)	(0.675)	(0.336)	(0.648)
err3	-0.514*	-1.283***	0.044	1.269
	(0.291)	(0.280)	(0.485)	(0.802)
Constant	-10.949	-1.986	-204.051	-884.804*
	(60.786)	(40.908)	(127.287)	(416.945)
Country effect	Yes	No	Yes	No
Year effect	No	Yes	No	Yes
Observations	136	136	75	75
R-squared	0.079	0.314	0.447	0.685
No. of countries	23	23	16	16

Note: ***, ** and * represents statistical significance level at 1%, 5% and 10% respectively. Also, standard errors are in parentheses.

Source: own computations based on World Bank and IMF data

The regressions run using the OLS model uses the same variables as used to run the fixed-effect panel estimation. This will help to make comparative analyses of the results. Table 7 shows the results for *ifi* as the dependent variable whilst

Table 7. Results for IFI regression (OLS model)

VARIABLES	(1)	(2)	(3)	(4)
LOGip	-0.157	0.080		
	(0.123)	(0.111)		
LOGtmtot			-2.011	-2.467
			(2.993)	(1.493)
LOGptot			2.129	-3.823**
			(2.335)	(1.928)
c.LOGtmtot#c.LOGptot			-0.157	0.437*
			(0.327)	(0.222)
LOGindtot			-2.286	-3.541***
			(2.779)	(1.116)
c.LOGtmtot#c.LOGindtot			0.353	0.360**
			(0.410)	(0.160)
c.LOGptot#c.LOGindtot			-0.087	0.597***
			(0.423)	(0.205)
c.LOGtmtot#c.LOGptot#c.LOGindtot			-0.003	-0.059***
			(0.052)	(0.019)
LOGnetcap	-0.074	-0.217***	-0.009	-0.175**
	(0.058)	(0.054)	(0.061)	(0.083)
LOGgdpcap	0.082	0.152**	0.249	-0.289*
	(0.183)	(0.077)	(0.312)	(0.151)
LOGpop	-4.085**	0.089	-6.487*	-0.376
	(1.637)	(0.128)	(3.769)	(0.384)
LOGtrade	0.588	1.033***	0.777	0.474
	(0.419)	(0.219)	(0.762)	(0.324)
err2	0.333	-0.496**	0.703*	-0.789**
	(0.219)	(0.228)	(0.384)	(0.313)
err3	0.269*	-0.276	0.420	-0.807***
	(0.157)	(0.202)	(0.274)	(0.267)
Constant	70.942***	2.741**	117.106	33.847***
	(26.950)	(1.291)	(71.20)	(9.748)
Country effect	Yes	No	Yes	No

Year effect	No	Yes		No	Yes
R-squared	0.692	0.261		0.641	0.366
Observations	265	265		169	169

Note: ***, ** and * represents statistical significance level at 1%, 5% and 10% respectively. Also, standard errors are in parentheses.

Source: own computations based on the data provided by World Bank and International Monetary Fund

Table 8 shows the results for *ifieg* as the dependent variable.

Table 8. Results for IFIEQ regression (OLS model)

VARIABLES	(1)	(2)	(3)	(4)
LOGip	-0.128	-0.089		
	(0.180)	(0.153)		
LOGtmtot			10.948**	-0.005
			(5.145)	(2.823)
LOGptot			24.192***	3.702
			(5.979)	(4.629)
c.LOGtmtot#c.LOGptot			-2.749***	-0.324
			(0.692)	(0.490)
LOGindtot			2.885	2.724
			(6.420)	(3.651)
c.LOGtmtot#c.LOGindtot			-0.622	-0.205
			(0.733)	(0.333)
c.LOGptot#c.LOGindtot			-2.028**	-0.637
			(0.884)	(0.591)
c.LOGtmtot#c.LOGptot#c.LOGindtot			0.242**	0.051
			(0.095)	(0.057)
LOGnetcap	0.121	0.098	0.108	0.077
	(0.154)	(0.117)	(0.212)	(0.240)
LOGgdpcap	-0.362	1.763***	1.274	1.375
	(0.721)	(0.438)	(1.835)	(0.992)
LOGpop	0.643	-0.240	6.018	2.072***
	(2.994)	(0.243)	(6.045)	(0.704)
LOGtrade	2.287*	0.950**	0.565	0.105
	(1.286)	(0.435)	(1.627)	(0.776)
err2	0.935***	-1.697**	1.356***	-1.554**
	(0.348)	(0.737)	(0.492)	(0.764)
err3	-0.514	-0.460	0.044	-1.315**

	(0.357)	(0.595)	(0.611)	(0.572)
Constant	-10.489	16.663***	-197.361*	-52.741**
	(46.140)	(5.302)	(117.483)	(24.475)
Country effect	Yes	No	Yes	No
Year effect	No	Yes	No	Yes
R-squared	0.655	0.461	0.621	0.621
Observations	136	136	75	75

Note: ***, ** and * represents statistical significance level at 1%, 5% and 10% respectively. Also, standard errors are in parentheses.

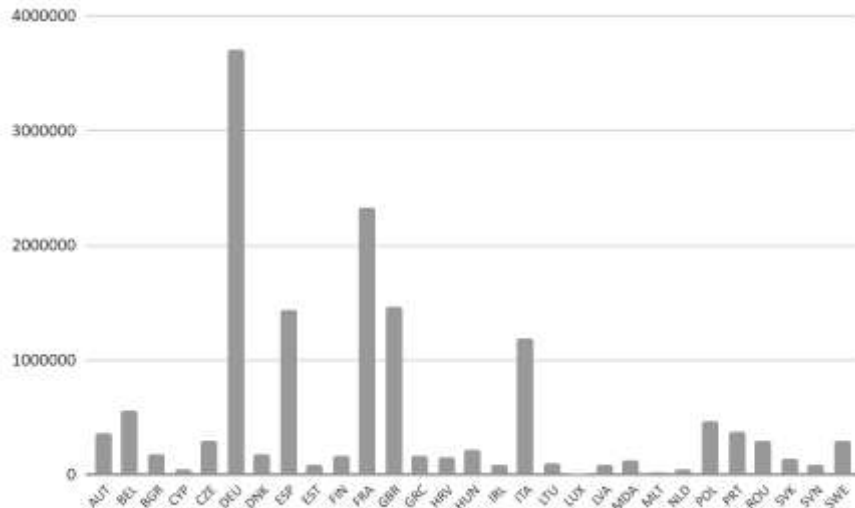
Source: own computations based on the data provided by World Bank and International Monetary Fund

In the following part, how intellectual property has evolved in the member countries of the European Union in the last two decades is analyzed, taking into account all the processes that influence it and the elements that compose it.

Considering the Figure 1., the table shows the aggregate value of intellectual property from the year 2000 to 2018. Intellectual property is substantially high in Germany than the other countries. This is followed by France, Spain, the United Kingdom and Italy. Intellectual property is seen to be high in developed countries, followed by the emerging economies and the developing countries. Moldova exhibits an interesting characteristic. The aggregate value is marginal in comparison to over EU countries such as Cyprus, Estonia, Ireland, Lithuania, Luxembourg, Latvia, Malta, Netherlands and Slovenia. This shows the capability of Moldova to perform better than other EU countries in the near future.

If Moldova has built its intellectual property capacity to this height, then Moldova can perform better than other countries when it joins the EU. This is one of the strong holds of the county which they can capitalize on to fast forward the growth of the country. Although the records of intellectual property counts substantially but its impact is determined mainly by the impact it has on the resident country and also on the global market. Moreover, in order to see the separate evolution of the elements that compose the intellectual property (trademarks, industrial design, patent) we will present in the following the differences that these elements register in the EU member countries.

Figure 1. Evolution of intellectual property in EU in the priod 2000 to 2018

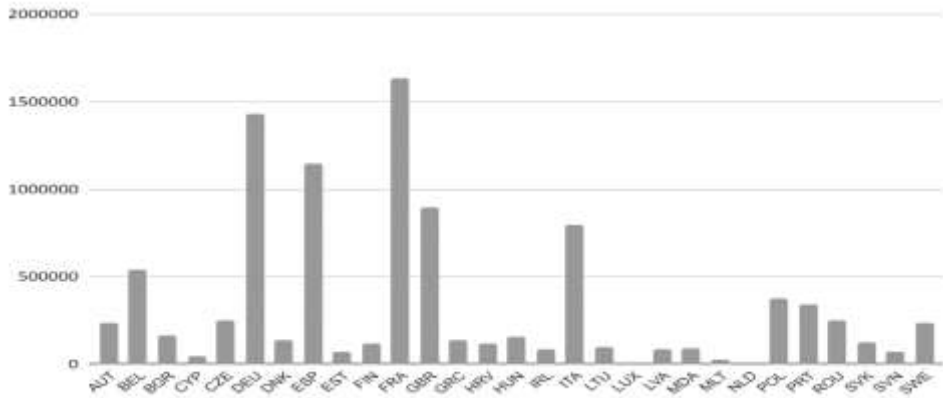


Source: own computations based on the data provided by World Bank and International Monetary Fund

As shown in figure 2, developed countries also exhibit high records of trademarks than the emerging and developing countries. Among the variables which is accumulated to ascertain intellectual property, trademarks have the highest records. This depicts that in most countries, trademarks form a great part of their intellectual property than industrial design or patents.

This can be attributed to the nature of trademarks and role it plays globally. Developed countries still exhibit higher records than the emerging economies and the developing countries. Moldova hereby exhibits a lower record which is similar to several EU countries. Although, the records for patent are generally lower than trademarks and industrial design, one record of patent is prone to have a higher impact on a country and in the international market when compare to trademarks and industrial design.

Figure 2. Values of trademarks for the countries from the year 2000 to 2018



Source: own computations based on the data provided by World Bank and International Monetary Fund

5. Conclusions

Intellectual property remains a key element and its protection will trigger innovation to the apex. Nevertheless, the direction of innovation can foster financial integration or cause financial disintegration. Thus, when the innovated products and services can serve other countries aside from the country of origin, then financial integration can be fostered. Alternatively, if the innovated products and services are unable to serve foreign market, then financial disintegration may occur or may not be fostered. Aside, there are also several factors that can contribute to the extent to which intellectual property affects financial integration. They include quality, cost of production, transportation, among others.

This research is centered on finding the effect of intellectual property on international financial integration. Also, the relationship between international financial integration and intellectual property is analyzed.

Upon a careful analysis, we draw several conclusions which are elaborated below. Firstly, the results show that intellectual property has a positive relationship with international financial integration. Nevertheless, the extent to which they correlate is below average. This depicts that when

intellectual property is carefully considered by firms and governmental institutions, it can be a major source of revenue for the s to stakeholders and the economy at large. Also, the benefits can be reaped by other economies while the origin gains the upper hand of advancing their economy.

Finally, the results show that intellectual property has a transitory effect on international financial integration. This is influenced by the extent to which an intellectual property is relevant in a country and/or in the global market. The core reason behind this outcome can be based on the purpose and potential that lies in the intellectual properties. If the purpose of an intellectual property does not aim to serve the interest of the global economy, international financial integration can be hindered. Also, when an intellectual property lacks the potential to be robust in the global economy, international financial integration will be hindered.

Following the analysis, we can see that there are two types of differences in terms of results. The first difference refers to the type of method used. In the first situation, using the fixed effects method we can see that there is a correlation between financial integration and intellectual property, and in the second situation, using the OLS method we have no changes or a correlation between the two elements.

The second difference refers to the results of the first method used (fixed effects) and we can see that in the first type of regression, there is no positive relationship between intellectual property and financial integration, in which case, the second hypothesis was tested and which relates that there is a correlation between the two elements. Therefore, the second regression was achieved in which financial integration is expressed this time by dividing the total net investment portfolio and net foreign direct investment by gross domestic product. In this case, the results show that there is both a positive link between certain elements of intellectual property taken in correlation with the financial integration process, and a negative link as observed in the situation mentioned above.

Further research can be conducted considering other variables and methodology. Also, in-depth analysis can be made to ascertain the effects of subgroups.

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European Union view on Personal Data in Intellectual Property Rights

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Abstract

The issue under investigation concerns whether personal data or personal information from the point of view of intellectual property constitutes as such a commodity or economic potential, which may be subject to alienation and registration as an object protected by the intellectual property system or represent a non-commercial object, without circulation in civil relations, with a special legal regime, connected to the fundamental human rights and freedoms. Recognition of personal data and other categories of information, related to the person (geolocation data, user-generated content) in terms of intellectual property rights as objects of civil rights, would allow the development of the data market, necessary for the functioning of innovative technologies on big data, cognitive calculations, the Internet of goods, and bringing these technologies into a legal and civilized field. The objective of the article is to appreciate whether personal data is subject to any intellectual property rights by the assessment of EU jurisprudence in line with national legal framework of the Republic of Moldova.

Keywords: personal data; personal information; intellectual property rights, fundamental human rights and freedoms; objects of civil rights; innovative technologies.

JEL COD: P 37(P 48), L 84

1. Introduction

For the effective functioning of the market, the participants of the civil circuit must have full and multifaceted information about the demand and

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supply of goods, works, and services, as well as other socio-economic legal factors that allow civil law subjects to make some decisions. At the same time, the oversaturation of the information market would lead to an economic problem, when people, having access to information at any time and at any time, without any limit would devalue its cost and deprive its owners of competitive priority. In order to solve the issue of transforming information into an economic resource and its effective circulation on the market, which also involves limiting access to information to ensure the possibility of obtaining a profit from its connection to the civil circuit, the private law (Malaurie et al., 2009 p.411-412 Pop, 2013, p.222) and constitutional (Tanase et al., 2017, p.145-146) doctrine and jurisprudence were created many legal regimes for its circulation, such as: trade secret, state secret, copyright, special rights of database holders and others. Information consists of a representation of reality, but also of reflection and projection - which are typical operations of the human intellect - through a well-defined and structured set of symbols - usually accessible to human senses and reason, but also to some of the devices, such as those of automatic calculation.

Given that intellectual property refers to creations of the mind, such as inventions, literary works, works of art, symbols, names, images and designs used in commerce (WIPO), we must recognize that intellectual property rights reward creativity and encourage innovation, including the discovery of new drugs. If intellectual property rights are not protected, creators will be unmotivated, and society will not move forward and consumers will have a limited variety of products.

Meritorious is the opinion after which it is concluded that the works in the industrial field in which human creations are incorporated can be considered works (Lazar, 2002, p.2). However, it is mentioned that the role of aesthetics in the industrial field has increased so much that inventions, brands, designs and industrial models are inextricably linked to quality of life, an important element of consumer orientation and increasing the commercial value of a product; representing, therefore, works of intellectual creation, they (invention, trademark or geographical indication, industrial design) have, along with other works created by people, a vocation for legal protection. However, the separation of intellectual property rights in different categories is done only

based on their regulations through various normative acts (Лазарев, 1994, p.139).

Thus, the development of science and technology, the increase of industrial indices create unprecedented possibilities for the production of various goods and services used by contemporary consumers, but, with it, there is a reduction of natural resources, large-scale intoxication of the environment and these appeared objective limiters must be considered. Therefore, in any social relationship, there is a certain proportion of free human development and a certain proportion of restrictions. If these two reach the essential interests of the personality and the state, then the concrete social relationship falls within the sphere of legal regulation, acquiring legal character. The first (freedom) turns into a subjective right, and the second (restriction) - into an obligation, interdiction, or legal restriction (Лазарев, 1994, p.139).

Because the use of intellectual creations is likely to win customers and help consumers choose products, services, Paul Roubier, in 1935, called this right, the right of customers (Chavanne & Brust, 1993, p.467). It is on the border between personal and real rights, which form the third category of rights. Trademark rights differ from personal rights because they are opposable to all. The holder of the right to intellectual creation may oppose all competitors who use the same objects of intellectual property. This is a property right over the results of the intellectual activity that can be opposed "*erga omnes*" (Domenti, 2016).

In this context, the question remains whether personal data or personal information constitute a commodity or economic potential, which may be subject to alienation or is a non-commercial object, without circulation in civil relations, with a special legal regime, connected to rights and freedoms. fundamental principles of man. Given that the nature of the Internet service cannot have frontier boundaries, and the business models of Internet services provided by US companies that export these services are based on the use of user information, including personal data, they already have become a commodity, being subject to the rules of information circulation.

2. Notions about the legal regime of information and personal information in terms of intellectual property

Information is neither content, nor agent, nor property, nor instruction, nor process, nor method, but information is an independent category, having an abstract and subtle existence - that is, immaterial - that is reflected by states, signals and so on and is an essential element in the process of knowledge. But not all knowledge has the character of information, only those that have a certain value for someone in the process of professional or personal activity. For example, a certain amount for the credit bureaus, which processes the credit history of the customers, presents the information that the data subject has fully paid the installments for the good purchased on credit. Information of a certain value to producers, service providers, and contractors is collected from various sources of information-by-information brokers, is processed according to pre-established criteria, and forms detailed profiles of people (potential consumers), presenting access to this data to concerned people. The activity of the information brokers is based on the agreement of the targeted subject, externalized within several contractual relations with certain targeted subjects - internet services.

Some types of information, even if people are willing to pay the cost, are excluded from the civil circuit, under the pretext of legal-public order and form a state or service secret, trade secret or information that reveals secrets of private life.

According to art. 3 of the Law of the Republic of Moldova on copyright and related rights no. 139 of 02.07.2010 „*database – is a compilation of data or other materials, regardless of whether or not they are protected by copyright or related rights, both in mechanizable and in another form, arranged systematically or methodically and accessible by electronic or other means*”. This legal notion is close, according to its regime, to the generic notion of "data" as information generated by various technical mechanisms or factual data, entered in the computer's memory.

While the information, viewed in the direct sense of the word, is a result of the analysis of factual data with the obtaining from them of a certain meaning and importance forms another data regime (processed or cooked data). We

consider that art.40 of Law no.139 refers specifically to this category of “*processed data*”, since “*The producer of a database that proves that he has made a substantial investment from a qualitative and / or quantitative point of view in obtaining, verifying or presenting its content*”.

The processing of raw data can be manifested, in the opinion of the Moldovan legislator, by selecting, verifying, classifying and presenting the data, i.e. by interposing the factor of their analysis by the human intellect. In the sense of art. 3 of the Law on the protection of personal data no. 133 of 08.07.2011 - personal data represents any information regarding an identified or identifiable natural person (subject of personal data). In other words, these, in conjunction with the provisions of Law no. 139, form a regime of raw data, not subject to intellectual analysis.

According to art.8 of the Law on access to information no.982 of 11.05.2000, “*Personal information is part of the category of official information with limited accessibility and consists of data relating to an identified or identifiable natural person, whose disclosure would constitute a violation of private, intimate and family life*”. The exercise of the right of access to information may be subject only to the restrictions regulated by organic law and which correspond to the needs:

- a) respect for the rights and reputation of another person;
- b) respect for the rights and reputation of another person protection of national security, public order, health protection or protection of society's morals.

The overwhelming mass of raw information, which is important for big data analytics, has no intellectual content and is exclusively informational, such as sensor indicator data, log file servers or subscriber connection information.

However, it can be accepted that the content of users in the form of messages on forums or social networks may contain a certain intellectual product and, in this sense, may become subject to copyright with a certain licensing regime for their users, being an exception, rather than the general rule of the content of the information in the virtual space.

The information community is closely linked to the realization of the principle of freedom of contract (Saveliev, 2016, p.482), which in the field of information technologies is achieved as part of the freedom of identification by

the contracting parties of the objects of *sui generis* civil contracts, and their use of the appropriate legal civil circuit mechanism. patrimonial, personal, corporate, exclusive rights.

It is well known that the operation of free internet services, such as search systems, e-mail, social networks, information services is the possibility of using the data of users of these services. Many of them are personal data. Once connected to the Internet, the Internet user inevitably leaves behind personal data, such as name, surname, address, type of information sought, email address, computer name or domain name to which he belongs. Through *cookies*, created automatically, any internet access results in a collection of personal data.

Considering the technical realities of the functioning of the "Internet", each action of its users can leave a certain mark in the form of a numerical code (*digital finger print*), which allows, in the end, its identification. The use of the corresponding service can only be done by accepting the *click-wrap* or *browse-wrap* agreement. The text of these specified agreements allows providers to use users' personal information and the content they display using this information service. From the point of view of the legislation in force, this condition, even incorporated in a standard agreement, forms the consent of the subject of personal data, ie any manifestation of free will, express and unconditional, in written or electronic form, according to the requirements of the document electronic, by which the subject of personal data accepts to be processed the data concerning him, so it represents a unilateral manifestation of will and is subject to the rules of validity of the special normative act, and not of the civil legislation, regarding consent, established in art. 312 of the Civil Code of the Republic of Moldova "*Consent is the manifestation, externalized, of the will of the person to conclude a legal act*".

Pursuant to the Law on electronic commerce no. 284 of 22.07.2004 "*The offer is an electronic document by which a person proposes the conclusion of a contract and sends to other persons the text of the contract containing the contractual clauses, including the mandatory ones provided by this law*". The mentioned law does not offer the notion of "electronic document", but by the logical research method we deduce that the legal meaning of the electronic document resides in an electronic information, which has no electronic

communication status, having as legal purpose the establishment, modification or termination of civil rights and obligations. In other words, the consent of the subject of personal data in electronic form, by which he agrees to process the data concerning him, is an acceptance by which the acceptor agrees to conclude the contract in compliance with the conditions proposed in the offer. The acceptance conditions are supplemented by art. 18 paragraph (4) of Law 284 with the phrase that *“Acceptance will contain the text of the contract, proposed by the bidder, without modifying its clauses. If the tenderer is sent the acceptance with the modified terms of the contract, such acceptance shall be considered as a new tender”*.

The mere sending of the confirmation of the receipt of the offer or the non-sending, or the non-receipt of the acceptance cannot be considered an acceptance within the meaning of this law and in the regime of the contracts concluded in electronic form.

The person's agreement on the use of personal data is no longer a simple consent, but can be appreciated as offering a property interest to his contractor - provider. In reality, innovative business models, in line with the principle of freedom of contract, have considerably weakened the legal categories in the related branches - the notions of non-patrimonial personal rights and human rights. Information technologies have transformed the person's right to privacy and the secrecy of correspondence into objects of sale in the economic sense, and civil law can no longer oppose this process, only by not recognizing this fact and legally maintaining the incessant nature of personal data. The non-recognition of personal data as an object of the civil circuit cannot solve the problem of fraudulent data processing. To counteract this phenomenon, it is necessary to access the legal-criminal and procedural-criminal mechanisms at the stage of concluding the contract. It is plausible that the Republic of Moldova has ratified the Council of Europe Convention on Cybercrime, adopted in Budapest on 23 November 2001 (Law nr.6-XVI of 02.02.2009 RM). The Law on Preventing and Combating Cybercrime (Law RM nr.20-XVI din 03.02.2009), which regulates the legal relations on preventing and combating cybercrime, was elaborated and adopted; protection and assistance to service providers and users of computer systems; collaboration of public administration authorities with non-governmental organizations and other representatives of

civil society in the activity of preventing and combating cybercrime; cooperation with other states, with international and regional bodies.

It does not constitute a violation of the rights provided by the Romanian Civil Code, which are permitted by law or by international human rights conventions and pacts, to which Romania is a party.

The exercise of constitutional rights and freedoms in good faith and in compliance with the international pacts and conventions to which Romania is a party does not constitute a violation of the rights provided in this section.

If we assume, for a moment, that personal data do not represent a patrimonial value, *i.e.* they do not have a price in the coordinate system of civil law, this fact determines their qualification as personal rights, which does not fully characterize the essence of the perspective of the civil circuit and legal protection. But how do we deal with personal data, as well as other information, related to the person, such as geolocation data, internet user content, which are already part of information technologies and are launched in the civil circuit as objects of the civil circuit? In this legal capacity of objects, invested with the capacity to change the right holders in the circuit, we must recognize not the objects of legal relations, as a functionally materialized substance, but subjective civil rights, including over intangible objects, such as exclusive rights, personal, corporate.

The full recognition of personal data as objects of civil rights also implies some restrictions, related to their civil circuit. Taking into account the existing legal regime of personal data, established by the international conventions to which Romania and the Republic of Moldova have acceded, the activity of information brokers and contracts, which they conclude with users, will be further regulated. In addition, the protection of personal data must be done with the help of technical means, namely, encryption technologies, protection mechanisms, incorporated in the design of the service (*Privacy by Design*), the use of special protocols (*Platform for privacy preferences*). In the field of personal data, European legislation also identifies "sensitive data", which, by their nature and the high risk of infringement of the fundamental rights and freedoms of individuals, cannot be processed without the possibility of collection, registration, disclosure or transfer. Preserving the area of informational privacy is a guarantee of freedom of thought, action and full

manifestation of personality (Jugastru, 2017, p10). Special data indicated in Regulation 2016/679 and Directive 95/46 / EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data " (Directive 95/46 / EC, 1995) are genetic data, biometric data, which lead to the unique identification of the person, and data on sexual orientation, data related to the intimacy of the physical, emotional and social personality. It must be acknowledged that there are personal data that affect little or no privacy of the person, *i.e.* do not lead to the unique identification of the person, and their use by third parties, in a certain security regime for the recipient of such data, would bring only economic and other benefits and advantages to it.

We must start from the presumption that in situations where this is an important aspect of private life, the knowledge of which by the public is not based on a legitimate public interest, the parties request it, and the judges ensure that the decision is anonymized. But if important aspects of privacy are not discussed, can we talk about a reasonable expectation of respecting this right by anonymizing the decision? The Court noted that, in certain circumstances, restrictions on the reproduction of information that has already entered the public domain may be justified, for example, to prevent the continued dissemination of details of the privacy of a person who is not the subject of any public or political debate on a matter of general importance. The analysis of this statement could not lead to the conclusion of the violation of the right to privacy by publishing the names in court decisions. The publication of names in court decisions could lead to a violation of the right to privacy if the press or members of the public distort or misrepresent this information. However, in the event of such a case, the tortious civil liability action of the injured party against a newspaper that published information related to his private life, information taken from court decisions published on the Internet, without a public or political debate on a matter of general importance, could have a chance of success.

We must be aware that the protection of personal data is not an exclusive issue of law, and to the extent that this segment of protection is legal, then it can not be solved by imposing artificial barriers in their recognition as objects

of the civil circuit. such that personal rights, including personal data, are not transferable.

A provision of art.313 of the draft amendment and completion of the Civil Code of the Republic of Moldova: Under the law, any natural person has the right to life, health, physical and mental integrity, free speech, name, honor, professional dignity and reputation, self-image, respect for intimate, family and private life, protection of personal data, respect for his memory and body after death, as well as other such rights recognized by law. These rights are imperceptible and inalienable.

Although governed by various national laws, intellectual property rights (IPR) are also covered by European Union law. Article 118 TFEU provides that, in the context of the establishment and functioning of the internal market, Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall establish measures for the creation of EU intellectual property law to ensure uniform IPR protection in the EU for the establishment of centralized authorization, coordination and control systems at EU level. The European Union's legislative work in this area consists mainly in harmonizing specific aspects of IPR, by creating a single European system, as is the case for the EU trade mark and designs, and will be the case for patents. The European Union Intellectual Property Office (EUIPO) is responsible for managing the EU trademark and EU designs (Intellectual, industrial and commercial property).

From the point of view of computer programs and databases, Directive 91/250 / EEC requires Member States to protect computer programs through copyright, similar to literary works, within the meaning of the Berne Convention for the Protection of Literary and Artistic Works. It has been codified by Directive 2009/24 / EC of the European Parliament and of the Council. Directive 96/9 / EC provides for the legal protection of databases, defined as "a collection of works, data or other independent elements, arranged systematically or methodically and individually accessible by electronic or other means". The Directive provides for the protection of databases both through copyright, for intellectual creation and through *a sui generis* right to protect investments (financial, in human resources, effort and energy) in

obtaining, verifying or presenting the content of databases (Intellectual, industrial and commercial property).

According to the Assessment of the current Copyright Law of the Republic of Moldova, and the draft amendments for harmonisation with EU legislation and International Treaties, it is necessary to restore the tables of concordance for all European directives that will be transposed into national law, being recommended the regulation:

- of some essential notions for copyright and related rights, such as the assignment contract and the command contract;
- of the exclusive right of rebroadcasting, in accordance with the Rome Convention (Articles 3 g), 7 and 13). Rebroadcasting means the simultaneous broadcasting by one broadcasting organization of the broadcast of another broadcasting organization;
- of audiovisual performances in accordance with the provisions of the Beijing Treaty on Audiovisual Interpretations and Performances, which entered into force on 28 April 2020. The authorities of the Republic of Moldova must analyze the possibility of transposing Article 17 of Directive (EU) 2019/790, thus deleting Article 66. Infringement of copyright and related rights through computer networks in Law 139/2010. In this respect, it should be taken into account the clarifications in Recitals 64 and 65 of Directive (EU) 2019/790, on the separate application of the provisions of Directive 2000/31/EC on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market, as well as the provisions of EU Directive 2019/790.

3. Recent jurisprudence of the CJEU in the field of intellectual property versus personal information.

The CJEU confirmed in 2012 in SAS case C-406/10 that, under Directive 91/250 / EEC, only the expression of a computer program is protected by copyright, the ideas and principles underlying it. Logically, algorithms and programming languages are not protected under this Directive (paragraph 32 of the judgment). The Court emphasized that neither the functionality of a computer program nor the programming language and format of the data files used in a computer program for the operation of certain functions thereof

constitute a form of expression of that program within the meaning of Article 1 (2) of Directive 91/250 (paragraph 39).

In its judgment in Case C-160/15 (GS Media BV / Sanoma Media Netherlands BV), the CJEU stated that posting a hyperlink on a website to copyrighted works published without the author's consent on another website does not constitute "Communication to the public" if the person who posted that link does not pursue financial gain and acts without knowing that those works were published illegally.

In its judgment in Case C-484/14 of 15 September 2016, the CJEU considered that making a WI-FI network available to the general public free of charge in order to draw the attention of potential customers to the goods and services of a store is a 'service of information society' within the meaning of Directive 2000/31 / EC and confirms that, under certain conditions, a service provider providing access to a communication network may not be held liable. Therefore, copyright holders are not entitled to claim compensation on the grounds that the network has been used by third parties to infringe their rights. Securing the internet connection through a password ensures a balance between the intellectual property rights of the holders, on the one hand, and the freedom to conduct a business of access providers and the freedom to inform network users, on the other hand.

4. Conclusions

In conclusion, with the exception of a few legislative limits which have been expressly declared mandatory, there are no specific guidelines for determining whether the limits are mandatory or not. In general, it can be said that the limits to copyright are the expression of the express recognition by the legislature of the interests of users in making certain uses of works protected by copyright without having previously received obtained authorization from the right holder. To promote free competition, the standards of public order in particular impose certain restrictions on the contract in order to prevent the use of contracts to erect an economic power and abuse. As part of our research, our emphasis has been placed on national framework and EU jurisprudence, which respectively could be merged for a good practice for Republic of Moldova, as a country in transition to EU values.

By "alienation of personal right" we mean the permission of the holder of this right to use the social conditions of their social identity by others, according to their own vision and interest, but limited, to some extent, by the will of the holder of personal right. Permission to use the identification marks of the holder of the personal right may bring certain advantages, including patrimonial, to the person who uses them, therefore the latter may be obliged to pay a remuneration. In this sense, the realization of any subjective right is to be carried out with respect for the rights and legitimate interests of others, as well as the public interest. Namely, the possibility of harming the rights and legitimate interests of others, as well as the public interest, must be seen as a legal barrier to sanctioning legal acts with personal rights, and not the criterion of the inseparability of certain values from the author.

In order to complete the personal data circuit, we will have to talk about concluding unnamed contracts, which will have as object an unnamed legal category of civil rights - information. As we know, concluding unnamed and complex contracts is one of the opportunities to achieve the principle of freedom of contract. The application by analogy to unnamed contracts for the transmission of information of the rules governing similar types of contracts is possible only in compliance with strict legal conditions.

In the EU legal system, the tension between intellectual property law and contract law is more complex, as in Europe the regulation of contractual intellectual property practices is not uncommon, even if freedom of contract is the general rule, while contractual restriction is the exception (Guibault, 1998). In the EU, the relationship between intellectual property exemptions and use contracts is still quite ambiguous, with a growing market inclination to create private intellectual property protection under contract. Thus, in addition to the mandatory provisions of the Computer Program Directives 91/250/EEC and in databases 96/9/EC, the same IP law suggests "*a small guideline for determining the validity of a contract restricts the legal exercise of a copyright limitation*" (Guibault, 2004).

Acknowledgement: This paper is elaborated in the framework of the Jean Monnet Support to Associations in European Integration and Intellectual Property Protection Studies / EUPROIN, nr. ref. 611344-EPP-1-2019-1-MD-EPPJMO-SUPPA, implemented with financial support of the Erasmus+ programme of the European

Union. *“The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein”*

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The Transition of Economy from Analogue to Digital in the XXI Century by the case of the Republic of Korea

Dok Hee OH^{*}, *Aliaksei DANILCHANKA*^{**}, *Boris ZHALEZKA*^{***}, *Volha SINIAUSKAYA*^{****}

Abstract

The article demonstrates the impact of digitalization on the political system and economy of the Republic of Korea based on the IT-revolution of the XXI century. Research methods used include comparative, system and logical data analysis, and the investigation of the digitalization trends. Data from Korean National Statistical Office and other official open sources are used for the determination of the main digitalization trends in the Korean economy. An analysis of specific phenomena arising in the economy and society as a whole is carried out under conditions of the digital economy. The evolution of the digitalization of hardware and software in the Republic of Korea is presented. The consequences of the transition of the economy from analogue to digital are revealed in such areas as the structure of the economy and business model, economic integration and liberalization, resource allocation and balanced development of regions, the role of government, and the intellectual property system.

Keywords: digital economy, Republic of Korea, liberalization, IT-revolution, high-tech content

JEL Code: M15, O33

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1. Introduction

The development of Information and Communications Technologies (ICT) in the XXI century is the main reason for significant changes not only in the functioning of economic systems, but also social and even political systems of different levels – for example, from the world economy to individual economic entities of internal countries. The transition to a digital economy is a key factor for the development of economic growth of not only national, but also global economies. Under ICT influence, there is a transition from the introduction of all kinds of digital technologies – including Artificial Intelligence (AI) and Internet of Things (IoT) – to the integrated construction of a digital ecosystem of countries.

IT-revolution in the XXI century is not just about advances in science and technology, but a change in the customs, norms and policies that govern a society. Particularly in the digital economy, diversity and openness, as well as liberalization and expansion of ideology, have been led by the private sector. Namely, the role of the private sector is growing in the digital economy.

The research is based on the example of the transition of the Republic of Korea to a digital economy. It is believed that the experience and characteristics of the digital economy of the Republic of Korea can be useful to countries developing their own national strategy of economic policy in the XXI century under modern conditions. The research carried out has the following research objectives: to reveal economic and social consequences of transformation from an analogue to a digital economy using the case of the Republic of Korea.

The paper includes a literature review in the sphere of digital economy, analysis of the main trends of the digitalization of the Korean economy digitalization on the basis of Korean National Statistical Office's data and other open-source data, and investigation of the consequences of the transition from an analogue economy to a digital economy.

2. Literature review

The transition from an analogue to digital economy was an urgent topic of investigation in the world from the end of XX – beginning of the XXI

century. Not only Korean scientists, but also foreign researchers have an interest in the analysis of the phenomena of Korean digital economy emergence, formation and development.

Digital economy emergence and growth in the Republic of Korea in XX century has been deeply investigated by Kim Junmo (2006). He analyzed the infrastructure of the digital economy in Korea between 1989 and 2000 on the basis of data from Bank of Korea and described a unique mechanism of the IT sector development in the Republic of Korea. Digital economy is considered in this paper as “continuum from the existing old economy” (Kim Junmo, 2006). Perspectives of Korean digital economy and high-tech development are revealed by Sung (2018). Kim and Min (2015) analyzed using e-commerce by local governments in Korea.

Digitalization of economic development in Korea aroused interest of foreign scientists with the emphasis on the possibility to use Korean experience in other countries. In particular, the case of the Republic of Korea “was selected for analysis due to high position of the country among others in terms of overall development of components of the digital economy” in the research paper by Russian scientists Ignatov (2019).

Innovativeness of Korean economy has been investigated in the works of Khalipov (2015), Gomboev (2015). In the investigation of Grishin and Timirgaleeva (2019, p. 627), leadership of the Republic of Korea in the sphere of digitalization is also noted. In the work of Barsegyan (2020), Korean experience in economy digitalization is represented as acceptable for application in Russia. Ivanova and Latyshov (2018) investigated the influence of globalization on the foreign trade policy of the Republic of Korea on the base of the KOF Index of Globalization, Digital Evolution Index, and Digital Adoption Index which show a high dynamic of Korean economic integration in the global economy.

The authors of the current article in their previous works analyzed processes of globalization and digitalization in different spheres (Danilchanka, Zhalezka, Siniauskaya and Yuakushenka, 2018; Oh Dok Hee, 2018). The main sources of the research base of the current article are compiled from materials of Korean scientists who studied the direction of the digital economy of the

Republic of Korea: Go Jongsuk (2015), Kim Kiwuan (2017), Kim Seongho (2017), Yun Seung Hee (2017).

The definition of the digital economy is given following the opinion of the Belarusian economists Kovalev and Golovenchik (2018). Not only scientists, but also politicians and practitioners understand that the digitalization of the economy in the XXI century has impact on other processes around the world. The digital economy became one of the most actively discussed topics in the XXI century.

The term “Digital Economy” became widespread after the ministerial conference of 40 developed countries held under the authority of the Organisation for Economic Co-operation and Development (OECD) in Cancun (Mexico) in 2016, which adopted “Ministerial Declaration on the Digital Economy: Innovation, Growth and Social Prosperity” (Organisation for Economic Co-operation and Development, 2016; Kovalev and Golovenchik, 2018, p. 22). The digital economy is an economic activity based on digital technologies. The issue is not about the traditional information economy, associated with the development and the use of information technologies (programs, database management systems, automated systems, etc.), but about electronic goods and services, the sale of virtual goods on the Internet, the use of electronic money and crypto currency, special Internet services, primarily social networks, the Internet of Things, Big Data, Cloud Data storage (Kovalev and Golovenchik, 2018, p. 23). The term “Analogue economy” is used in a different way. Analogue economy is the economic activity of society, as well as a set of relations that develop in the system of production, distribution, exchange and consumption.

The paradigm of the digital economy is characterized by freedom and autonomy, creative initiative and diversity, adventurism and openness, flexibility and variability, plurality and merging. This contradicts the analogous economic paradigm, which is characterized by such features as strong control, unification, equality, imitation, homogeneity, stability, closeness and shifting in only one direction. Digitalization of the economy has influence on all spheres of social-economic activity. In particular, the intellectual property rights system undergoes significant changes (Denton, 2011).

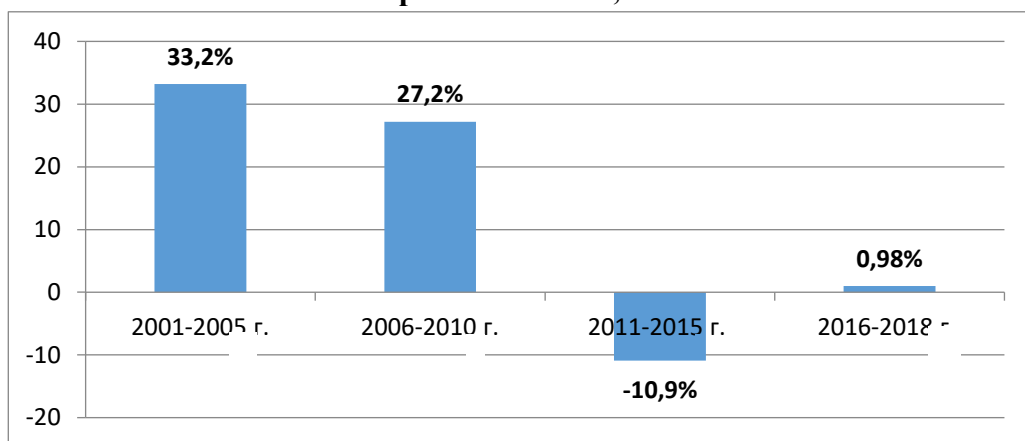
The efficiency of economic activity increases significantly when the economic paradigm shifts from analogue to digital. First of all, there have been strong changes in the models of behavior of business entities. In other words, all economic actors, including households, corporations, and government, have moved from the behavior of the analogue era to the behavior of the digital generation. The focus is on the development of the IT-industry as a key driver of economic development in the digital economy. The development of information technology directly accelerates the development of such areas as Biotechnology (BT), Material Technology (MT), and Nanotechnology (NT), thus contributing to the progress in the field of life extension technologies, as well as the liberalization of economic activities and the tendency towards globalization. The reason for this is that, thanks to the advancement of technology in the digital society, humanity can overcome the fatal limitations of the analogue society associated with time and space, mental abilities and physical strength. All this leads to the de-bordering of the existing political, cultural, ideological, economic and geographical boundaries between people (Oh Dok Hee, 2018).

3. Methodology

Due to the economic and social consequences of the transformation of the economy from analogue to digital revealed by the case of the Republic of Korea, statistical data from open sources, publications in scientific periodicals and research reports have been analyzed. Methodology of investigation includes monographic methods, comparative and systemic analysis, as well as a logical approach to the trends.

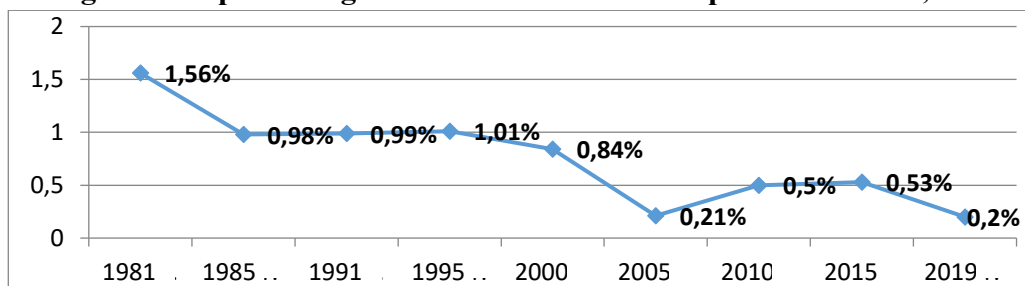
Liberalization, globalization, and the development of technology through the information technology revolution are the fundamental driving forces behind the radical changes in the Korean economy in the XXI century. The characteristic features of Korean society in recent decades have been stagnant population growth, a decline in the share of the working-age population (Figure 1), an aging population and an increase in the rate of singlehood due to a drop in the birth rate (Figure 2).

Figure 1. Changes in the share of the working-age population in the Republic of Korea, %



Source: Korean National Statistical Office (2019), available at: http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=2716

Figure 2. Population growth statistics for the Republic of Korea, %



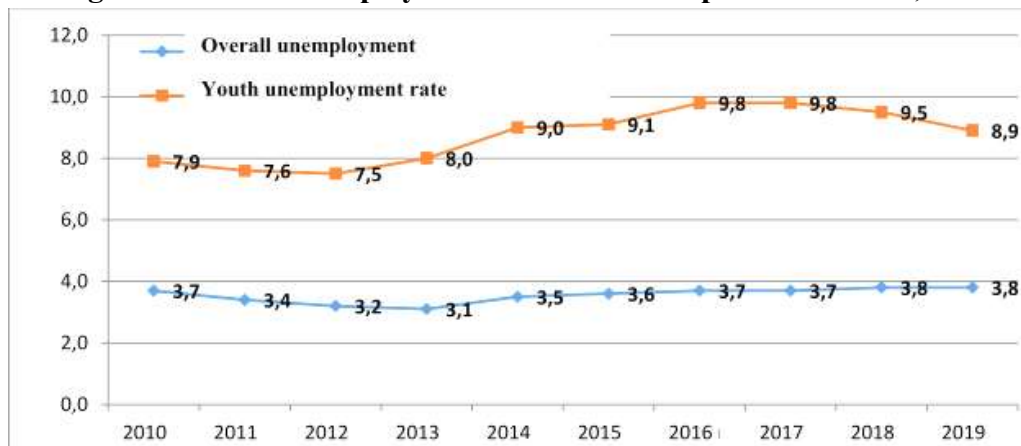
Source: Korean National Statistical Office (2019), available at: http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1009

Labour production in Korea fell sharply in the mid-2000s. This is the result of internal growth in labour wages and external development of manufacturing industries in developing countries such as Vietnam and India. In particular, high youth unemployment has become a serious social problem (Figure 3).

Such phenomena can have a negative impact on sustainable economic development in the long term. In fact, the Republic of Korea has faced the problem of the need to create a new paradigm of economic policy. As a result, at the beginning of the XXI century, the Korean government began to actively

promote the transition from the analogue economy to a digital economy based on creative economic policies.

Figure 3. Youth unemployment trend in the Republic of Korea, %



Source: Korean National Statistical Office (2019), available at:

http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1063

As the IT-revolution progressed, it became necessary to fundamentally change the essence of the economy, and such a change consists in the transition of the economic paradigm from analogue to digital.

The following data (Table 1) show the share of the internet economy in different countries and illustrates the leading position of the Republic of Korea in this area.

Liberalization and globalization of economic activity comply with human nature. Each person wishes to freely do what, in his opinion, is most useful for him, without the intervention of third parties. Therefore, the liberalization and globalization of the economy were the results of a reaction to the environment that hinders freedom of choice.

If liberalization can be called as the process of eliminating elements that impede freedom of economic activity within one state, then globalization is the desire to achieve freedom of economic activity between countries. In other words, the progress of the IT-revolution and the resulting transition to the digital economy are becoming the main driving forces behind economic liberalization and globalization.

Table 1. Dynamics of penetration of the digital economy (or Internet economy) in the G20 countries, in GDP, %

Country	Period	
	2010 year	2016 year (predict)
Great Britain	8,3	12,4
Republic of Korea	7,3	8,0
China	5,5	6,9
EU	3,8	5,7
India	4,1	5,6
Japan	4,7	5,6
USA	4,7	5,4
Mexico	2,5	4,2
Saudi Arabia	2,2	3,8
Australia	3,3	3,7
Canada	3,0	3,6
Argentina	2,0	3,3
Russia	1,9	2,8
South Africa	1,9	2,5
Brazil	2,2	2,4

Source: Boston Consulting Group (2012, pp. 8-9)

In turn, economic liberalization and globalization have an impact on even greater progress in the transition to a new form of economic management. This series of changes ultimately leads to an increase in the growth potential of the economy, and an increase in the growth potential leads to an increase in economic growth in the long term. As a result, this contributes to an increase in the level of well-being of all economic entities of the country.

4. Findings: consequences of the transition from the analogue economy to digital economy

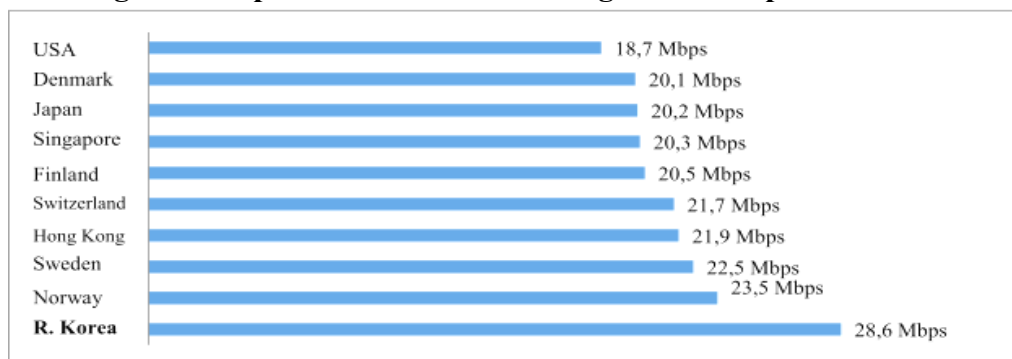
The transition from the analogue economy to digital economy as a result of the IT-revolution will lead to the following economic and social consequences.

1) Changes in the structure of the economy and business model. As the IT-revolution enters its mature phase, the paradigm of economics is shifting from analogue to digital, leading to significant changes in the widely used business model. New developments in science and technology, which have

been accelerated by the information technology revolution, have shifted the focus of the industrial structure from the heavy chemical industry to the industry of high-tech knowledge and information production that actively uses IT. It also contributes to the emergence of new service industries using IT and related technologies. The combination of IT with BT, MT and NT has formed a new engine of economic growth, which is a manufacturing industry based on advanced technologies.

2) Transformation from imitator to innovator. Such concepts as large volumes of production and the popularization of goods are characteristics of the analogue economy. However, in the digital economy, there has been a transformation towards a generation of uniqueness. In other words, there has been a change in people's thinking, which consists in the desire to possess not the goods that others have, but unique goods. Consumers have changed their behavior patterns, moving from a stage when they passively purchase goods and services produced for the personal reasons of the manufacturer, to a stage when consumers themselves actively influence the production process, expressing what kind of goods they would like to purchase based on their preferences. The development of networks based on the IT-revolution has empowered companies to offer products that meet the needs of individual consumers.

Figure 4. Top 10 countries with average internet speed in 2017

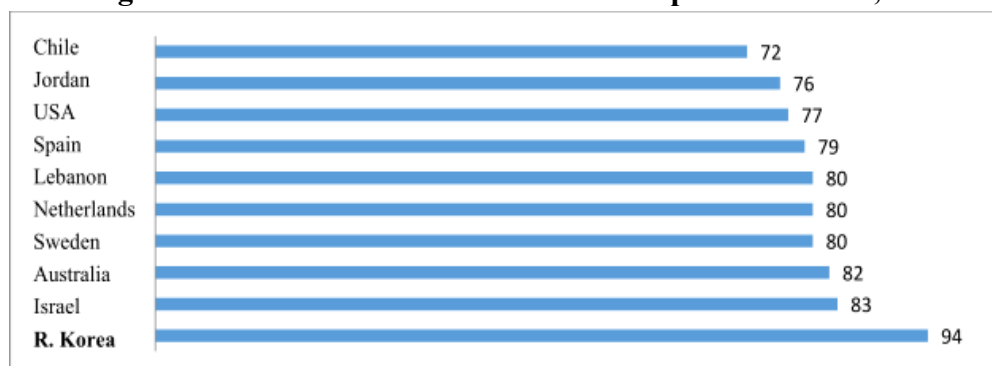


Source: Bloter & Media Inc. (2017)

The development of communication services contributes to the development of digital broadcasting services using personal blogs. This

requires the development of a high-speed information transmission network based on the Internet. The Republic of Korea is included in the top-10 countries with high internet speed (Figure 4) and with a high levels of smartphone distribution (Figure 5).

Figure 5. The level of distribution of smartphones in 2018, %



Source: Canada Talk (2018)

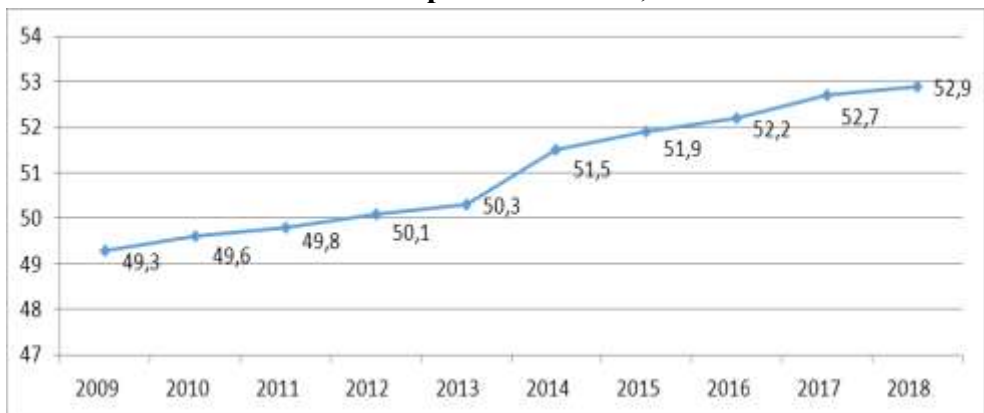
High-tech content is rapidly evolving in a variety of new business areas such as games, music and music videos, e-sports, videos, news and movies. New types of business activities, which were difficult even to imagine in the era of the analogue economy, made it possible to carry out economic activities with only a creative idea in the digital economy. In other words, the era of imitation has been replaced by an era of innovation. In the digital economy, informatization determines business success or failure. In society, those specialists in the information sphere who can create and apply knowledge and information themselves have gained much more power than those who are engaged in data processing.

3) Growth in the leisure and eco industries. The digital economy shows an increase in demand for new products and services as labour models have also changed significantly. The labour structure has changed significantly in relation to two factors. Currently, there is a trend in Korean society regarding a decrease in weekly working hours and an increase in the amount of free time. As leisure time increases, leisure industries such as tourism, sports, performances, concerts, and other entertainment are booming. In parallel with the development of the tourism industry, the associated transport services

sector, such as air travel, public transport, roads, etc., is rapidly developing. On the other hand, the leisure sector has become more than just an area of entertainment, but has also provided consumers with a growing number of opportunities for self-realization through outdoor activities based on personal experience and participation. It has also led to the growth of environmental industries such as ecotourism and other outdoor activities. The reason for this growth was that as globalization and scientific and technological progress continued, people began to strive for natural benefits and a comfortable environment.

4) Development of industries targeted at women and the elderly. In the digital economy, women's participation in economic activity is constantly expanding, while women's work is developing and improving (Figure 6).

Figure 6. The level of women participation in the economic activity in the Republic of Korea, %



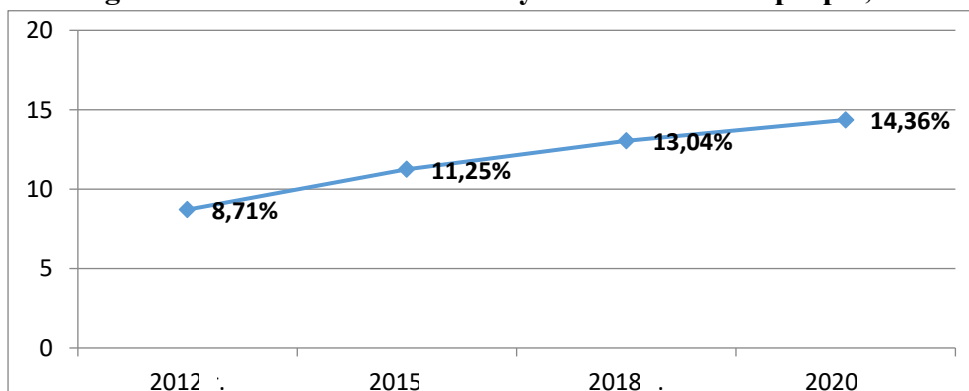
Source: Kim Han Suk (2016)

The reason for this is that the analogue economy, which emphasized the physical work of humans, has evolved into the digital economy with an emphasis on soft power. The demand for goods and services for working women has risen sharply as women's economic activity has increased. The demand for goods and services that can free a woman from some household work has increased significantly. For example, the demand for refrigerators, washing machines, dishwashers, multicookers with advanced remote control functions via the Internet has increased. Accordingly, the share of industries

related to smart home technologies and artificial intelligence (Internet of Things) is gradually increasing.

Due to the wider participation of women in economic activity, there is also a negative phenomenon of an increase in the proportion of unmarried women, which provokes a decrease in the birth rate, which has become one of the most acute social problems in the Republic of Korea. However, the increase in the number of single women has led to changes in the business model and an increase in demand for products and services appropriate to this category of consumers. There have also been major changes in the senior-centric industry. The Republic of Korea is now one of the countries in the world that is experiencing a rapid increase in the proportion of an aging population and its economic strength. As a result, the demand for goods and services demanded by the elderly is also increasing. For example, there is a growing number of educational services and training that help to prolong the inclusion of the elderly people in economic activities. The spheres of health care, medical care and therapeutic services for the older generations are also developing (Figure 7). The industry targeting seniors is medicine, medical equipment, food, cosmetics, household goods, welfare, housing, leisure, and finance.

Figure 7. Growth rate of industry focused on older people, %



Source: Slidesplayer.org Inc. (2019)

5) Leadership transition from large and powerful enterprises to small and flexible ones. While the analogue economy was the era of large and powerful players, in the digital economy the small and fast companies took the lead. In

all spheres of the economy, such as manufacturing, distribution, marketing, investment and finance, there are a growing number of small and flexible participants who are able to respond quickly to environmental changes. In other words, in the digital economy key positions are no longer occupied by the players of the heavy industry, such as steel, shipbuilding and automobile construction companies, but by economic entities of such industries as electronic, communications, distribution, financial, information, as well as representatives of the field of intellectual and information services. This phenomenon means that with the progress of digitalization, the axis of the economy is shifting towards the knowledge industry. The new stage of economic development is more consistent with those with special skills, creative and educated people than those who are engaged in physical labour. In comparison with bureaucratized large enterprises, representatives of small and medium-sized businesses are becoming more favourable, differing from the previous ones in their flexibility in a changing environment. This means that the share of SMEs and venture capital companies in the digital economy of the Republic of Korea is steadily growing (Go Jongsuk, 2015, pp. 88 – 91).

6) Strengthening of the relationship between producer and consumer. In the digital economy, the relationship between producers and consumers continues to grow in strength and influence. In the analogue economy, consumers choose from the goods produced by suppliers that they need. Accordingly, consumers did not have the opportunity to free themselves from the conditions of passive choice and consumption. In the digital economy, however, consumer demands on companies have increased, and only those companies that actively respond to and satisfy consumer needs remain in the enterprise structure. The rise in consumer power and influence is clearly related to globalization and the IT-revolution. Armed with knowledge and information, consumers can choose and shop in all markets around the world. As the power and influence of consumers in society grew, the emphasis began to shift from quantity to quality, from ordinariness to uniqueness, from uniformity to diversity, from unnecessary complexity to simplicity and ease of use, from passive to active participation of the consumer in the production process.

7) Technologization of traditional industries. IT-revolution has resulted in structural changes in existing business sectors which has significantly

increased the productivity of the economy. Information technology has pioneered a productivity revolution in key industries such as agriculture, fisheries, forestry and livestock. Besides, advanced technologies have been introduced into the production methods of secondary industries such as the food, pharmaceutical, clothing, steel, automotive and petrochemical industries. For example, in agriculture, information technology is used in all areas such as crop selection, seed purchase, land cultivation, agricultural equipment operation, and agricultural land management, management of water and temperature balance, sunlight balance, harvesting, distribution and sale, and also transfer of agricultural technologies. This technologization has the effect of increasing price competitiveness by growing efficient crops. IT-revolution transforms the industries of the tertiary sector of the economy, such as finance, transport, communications and distribution, into intelligent and information industries of a new type (Kim Seongho, 2017, pp. 22 – 25).

4.2. Expanding of liberalization

South Korean political scientist Yoon Sung Hee (2017), in his research report “Information and Communication Technology Development and Political Development”, expressed the following views that the transition from the analogue economy to the digital economy due to the IT-revolution expands personal freedom in the long term. IT-revolution also enriches the economy and culture, increases the level of diversity in society, and promotes the democratization and liberalization of politics.

In the case of the Republic of Korea, to see how economic diversity has contributed to increased personal freedom, it is necessary to compare the situation in the middle of the XX century, which became the starting point of economic growth, with the situation in the XXI century. In the 1960s, per capita income in the Republic of Korea was below the 100 USD. Basic consumer goods such as clothing, food and accommodation were hard to find, while cultural life, entertainment and travel were only dreamed of. Levels of political freedom and democratization were very low, and various restrictions impeded attempts to increase the level of freedom of the population. Despite this, in the

XXI century, the per capita income index of South Korean society tends to exceed 30,000 USD.

Looking at how much the income parameters have changed, one can judge how much the standard of living in the Republic of Korea has improved. An environment has developed in the country that allows anyone to travel, study or work abroad. Besides, citizens of other countries are also relatively free to enter the Republic of Korea for work, study or tourism. The development of the social networking system (SNS) due to the IT-revolution has greatly contributed to the democratization of the Republic of Korea and the establishment of freedom of speech, which has led to an increase in the level of political freedom of every citizen.

In the digital economy, which is the result of the information technology revolution, consumer freedom has also expanded. Typically, in the analogue economy, consumers had a choice of goods and values already produced by suppliers. However, in the digital economy, consumers, based on personal preferences, have begun to take part in the process of manufacturing goods and values by suppliers. Consumers are going beyond a simple consumption model and beginning to communicate in detail to suppliers what products are necessary in the market. In other words, demand-driven production and consumption are combined. This phenomenon is called “Do it yourself”, and by now it has become quite common in the Korean society. On-demand production and consumption is widespread in all areas of service, such as education, medicine and health care, sports, tourism, cultural life, etc. The widespread “Do it yourself” phenomenon also means an increase in consumer education. However, it is also important to understand the fact that this emergence was largely due to the simplification of access to the necessary knowledge and information, resulting from the IT-revolution and, in particular, the spread of the Internet. Expansion of freedom in the field of information actually influenced the expansion of consumer freedom (Go Jongsuk, 2015, pp. 110 – 112).

4.3. The phenomenon of accelerating flexibility and economic integration

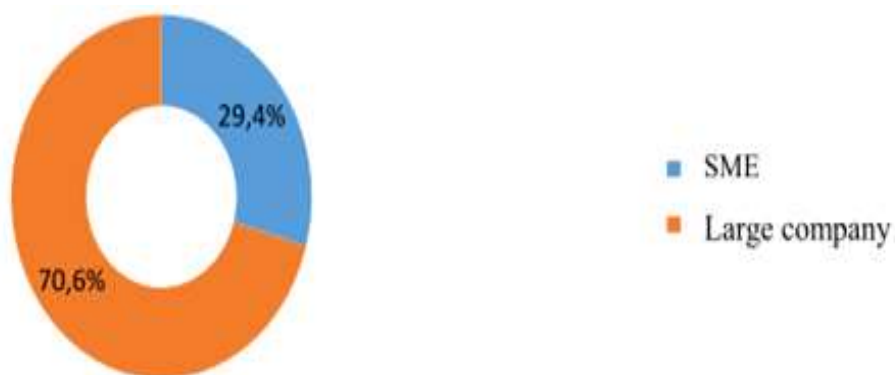
Globalization is a phenomenon where the globalization trend of economic activity extends beyond the borders of one state to the sphere of international economic relations. The rapid development of the IT-revolution at the end of the XX century led to the weakening of various barriers that existed between countries, thereby making possible the milestone progress of globalization. In the digital economy, business entities are faced with the goal of conducting economic activities around the world. Consumers have found the opportunity to purchase those products that best meet their needs from manufacturers around the world. Also, workers had a choice in which country to work, and companies, in turn, began to supply their products, focusing on consumers around the world. As a result, the share of enterprises with 100% local capital is gradually decreasing, giving way to multinational and mixed ones. More and more often, the meaning of drawing the boundaries between local and foreign enterprises is getting lost. Thanks to the IT-revolution, economic relations between Korea, Japan and China have become even closer. Consumers, employees and entrepreneurs of the three East Asian countries are becoming subjects of free economic activity, carried out regardless of geographic state boundaries. Korea, Japan and most of China form a common economic space and are united by a well-developed transport system that allows you to move freely from place of residence to place of work and back every day. Thus, in the digital economy, the economic integration of neighbouring countries is carried out at a faster pace.

In the digital economy driven by the IT breakthrough, the phenomenon of increased flexibility in economic relations is becoming more visible. The relations of economic agents that in the conditions of the analogue economy were fixed for a relatively long period of time, can be easily established or terminated as needed in the digital economy. In other words, relations between business entities are becoming more elastic. For example, among families, the number of large families is decreasing, giving way to nuclear families. Also, in the relationship between the employee and the employer, the concept of life-long employment in one company is losing its relevance. However, flexibility in hiring and dismissal increases the level of instability among workers.

Business relationships are also changing. Due to the IT-revolution, competition between companies has become much fiercer. In the analogue

economy several large enterprises through their exclusive ownership of information were able to form cartels. Small and medium-sized enterprises (SMEs) had no choice but to enter into long-term relationships with such large enterprises. However, as information costs have declined in the digital economy, SMEs have no longer needed to maintain long-term trade relationships with a small number of large corporations. As a result, the Republic of Korea is currently undergoing significant changes in the conglomerate system. The digital economy is becoming an environment conducive for SMEs, which are more flexible and responsive than too large and slow corporations. In addition, the growth of venture capital companies directly related to the IT-revolution is the most important feature of the digital economy (Go Jongsuk, 2015, pp. 128 – 130). Figure 8 shows that the production volume of large campaigns in the ICT sector is higher than that of SMEs.

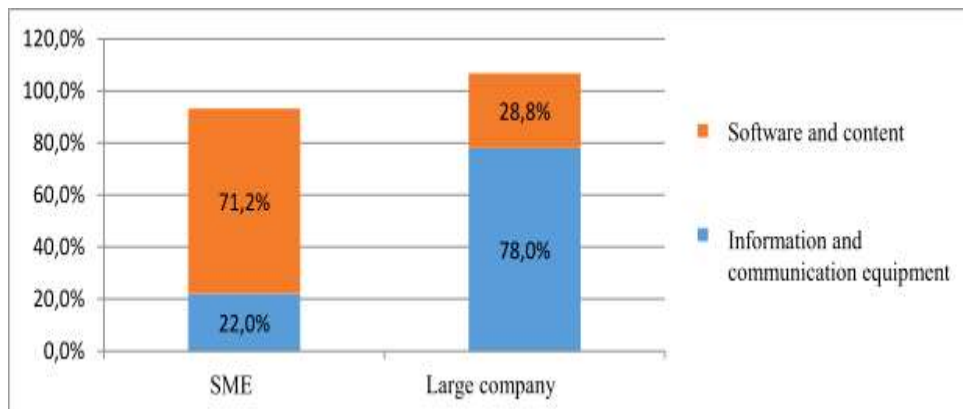
Figure 8. ICT industry production volume by a company in 2017



Source: Chungnam TechnoPark (2018)

However, looking at Figure 9, one can see that the output of SMEs by ICT sectors is higher than that of large companies. These facts show that SMEs play an important role in the digital economy driven by the information technology revolution.

Figure 9. Share of ICT industry products by sector in 2017



Source: Korean National Statistical Office (2019), available at: http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1009 [visited on 29.07.2019]

4.4. Efficiency of resource allocation and balanced development of regions

As the digital economy developed, it became possible to conduct economic activities without time and space constraints. For example, in the field of finance, such barriers have been overcome by the progress of E-trading (electronic commerce) and E-banking (electronic banking services) services.

In addition, manifestations of the digitalization of the economy, such as Internet banking, are helping to increase production capacity by reducing the transaction costs associated with economic activities. Reducing transaction costs contributes to an increase in the welfare of economic agents, thereby ensuring a truly efficient allocation of resources. In other words, savings in operating costs compared to the analogue economy system result in more efficient savings and investments.

Moreover, due to the fact that education and training began to actively develop in production, technological progress is further intensified. First of all, in the digital economy, the principles of the law of diminishing returns, which hampered economic activity in the analogue economy, lose their relevance, and they are replaced by the principles of the opposite theory of increasing returns (Kim Seongho, 2017).

The Increasing Returns of Scale is an effect during which output increases exponentially as the number of incoming factors increases. This principle contradicts the provisions of the Diminishing returns of scale, still applied in the traditional industrial economy. Increasing Returns of Scale is applied in the areas of intellectual capital and knowledge-based economics (information industry, software industries, culture and services). For example, the use of knowledge and know-how acquired in the process of work by the employees of companies becomes the basis for further development and creation of new know-how, since intellectual capital is not a limited resource and, based on the existing knowledge and experience, it is possible to develop infinitely further.

In the system of mass production, the decreasing returns law dominates, but in the high-tech industry, which is a knowledge-based production system, as well as in the Internet business, dominance is consolidated with the theory of increasing profitability. This leads to an increase in the socio-economic efficiency of resource allocation.

The digitization of the economy greatly contributes to the balanced development of regions through the large-scale expansion of clusters (when used as an economic term, it denotes a network formed in a special territory between companies, universities and research laboratories to create, based on the synergy effect, new knowledge and technologies in the field of information exchange and commercialization of developments through close interaction) and hubs (the centers of transport and aviation, connecting nearby cities). Expanding access to markets and suppliers, high-quality financial services, the availability of a highly skilled workforce, education, real estate services, health care, environment, culture and other leisure, due to the IT-revolution, is leading to accelerated urbanization. New cities are becoming dynamic and creative areas, where advanced knowledge and information can be easily accessed, high-quality networks between businesses and regions are easily formed, and areas that provide the benefits of an international trade hub. For example, such a city is the city of Songdo, located near Incheon International Airport (Kim Kiwuan, 2017, pp. 5 – 7).

4.5. Changing the role of government

Changes in the economic paradigm also influenced the changing role of government in the economy. In the analogue economy, the government planned, managed, and controlled many aspects of business. In the digital economy, however, such control is not only unnecessary, but, moreover, it becomes impossible.

As the trend towards liberalization developed, government intervention and control over the private sector weakened. As the proportion of aspects that the private sector can manage on its own has increased, the need for the government to plan, promote, manage and coordinate all economic processes has been eliminated. This means that the economic potential of the private sector has increased in the digital economy and the self-regulation function of the market has been strengthened. Also, the IT-revolution has contributed to the establishment of transparency in government functions. In the analogue economy, the government was able to control the private sector through a monopoly on knowledge and information. However, thanks to e-government, e-procurement and e-taxation, many things for which the government was previously responsible, were computerized and became open (Kim Seongho, 2017, pp. 59 – 61).

Furthermore, the force that has changed the role of government in the digital economy lies in the progress of globalization. The evolution of globalization and the acceleration of economic integration have increased the need to follow international standards across the entire spectrum of administrative functions.

This significantly reduced the ability of the government of an individual state in many areas of economic policy, including financial and exchange control, government taxation and customs regulation. It became impossible not to follow global standards when regulating the economy. The current situation had a favorable effect not only on the state of the economy of the Republic of Korea, but also on the liberalization and democratization of society.

4.6. Increasing of the intellectual property objects and changing in their rights defense

Development of the digital economy leads to very quick growth of intellectual property (IP) objects quantity and their types. Denton (2011) denotes, that “the rapid growth of the digital economy... presents huge opportunities for economic and social development, creating global markets for content and rights holders” and selects the following areas of intellectual objects in the digital economy: patents; trademarks; design; copyright and related rights. In the digital world, new specific intellectual property objects appear: artificial intelligence algorithms, user and software generated content, crowdsourcing objects, etc. “Social networking sites are widely used for publishing and sharing both user generated content and by content owners sharing their materials... The social networking eco-system has been active in developing guidelines and taking action to manage copyright content” (Denton, 2011, p. 18).

Growth of the intellectual property objects quantity and their types, enhancing of the possibilities of their sharing leads to the problems of conflicts of interest of consumers and intellectual rights owners. The Internet provides possibilities of sharing the intellectual property objects over the world. And consumers in developing countries are not ready to pay the same price for the IP objects as the more rich consumers in developed countries. IP rights violation became very serious topic in the digital world. Antitrust and free use regulation, digital rights management and technological protection measures have high significance for balancing these contradictions. Digital rights management can limit copying, restrict the use of an object for a limited period of time, or allow an object to be reproduced only using certain programs and techniques. Technological protection measures include software or hardware that makes it difficult to create copies of an IP object, or allows a copy to be created through a controlled process (Ahmedov et al, 2017, p.115).

5. Conclusion

The conducted research allowed the economic and social consequences of the economic transformation from analogue to digital in the Republic of Korea to be revealed. It confirms the hypotheses that digital economy is a key factor for the development of economic growth of not only national, but also global economies in the long-term in such areas as the structure of the economy and business model, economic integration and liberalization, resource allocation and balanced development of regions, the role of government, and intellectual property system.

The development of the digital economy in connection with the progress of the IT-revolution contributes to the liberalization and globalization of the economy of the Republic of Korea. The digitalization of economic processes in the Republic of Korea was carried out by replacing hardware and software. Narrowly defined, the digitalization of hardware and software has been achieved due to:

- 1) continuous growth and development of the digital industry, including electronics, communications and electricity;
- 2) digitalization of industries such as steel, automobile construction, pharmaceutical, finance, etc.;
- 3) emergence of new digital services such as finance, health care, education, distribution, sports, leisure and tourism;
- 4) development and humanization of technologies.

Digitalization of the economy has great influence on the system of intellectual property rights defense. Digital rights management and technological protection measures play important role in balancing of the interests of copyright owners and consumers.

Regarding digitalization on the part of the software in a broad sense, with the development of digital technologies, there have been changes in the relationship between economic agents, in the quality, quantity and type of products; quality, quantity and type of factors of production, method of production, method of distribution, consumption, saving and investing, labor and leisure, finance, training, technology development and other areas. These

changes have virtually affected the entire life of the Korean people, including politics, diplomacy, security, society and culture.

Broadly speaking, changes in software resulting from the IT-revolution are accompanied by changes in the orders, norms and structures that prevail in society, as well as changes in ideologies, trends and policies. Eventually, the analogue economic paradigm that dominated Korean society underwent a transformation and became digital. In the digital economy, it was possible to overcome excessive government control, uniformity, closed ideology and achieve political liberalization and autonomy, as well as diversity and openness in the private sector. These changes ultimately led to an increase in the growth potential of the economy, which, in turn, caused an increase in economic growth and, as a result, an increase in the welfare of economic entities.

Shortcomings in this research are incomplete analysis of the specific resources involved in the digital economy, such as staff resources for digitalization of business-process and for work in conditions of digital business-process. It may be the topic of future scientific work. Other avenues for continuation of this research are investigations of the possibilities of additional investment attraction and optimal investment distribution in the digital economy.

The conducted analysis has significant implication for identification of regularities in the transition from analogue to digital economy, and for explanation of Korean phenomena in becoming one of the digital economy leaders in the world. The main added value of the research is the possibility of using the experience of the Republic of Korea by other countries with an accounting of their specifics. Results obtained in this research may be used in transition from strategic to medium-term planning of economy digitalization and prediction of the consequences of this process, in the development of strategies for digital economy development.

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Digital Education as a Strategy for the Protection of Intellectual Property Rights

*Cristina LAZARIUC**

Abstract

The spiritual, scientific and cultural potential of society have always been the driving force of sustainable development, which determines the economic competitiveness of any state. Today we are witnessing a race of "digital armament", in which human rights are becoming less and less valuable, including intellectual property rights, which are systematically subjected to cyber-attacks by "data thieves". In this race, both IT giants and users with a high degree of digital literacy are driven by the maxim "purpose excuses the means", namely they admit that they may violate the limits of privacy, the limits of the principle of confidentiality, the limits of data integrity, the safety of persons, the limits of private property, including intellectual property, and all these in the name of profit. Under these conditions, the development of an efficient ecosystem for guaranteeing intellectual property rights, adapted to meet the challenges of the digital economy, requires both a strengthened regulatory environment and better competences. In this context, this article aims to address digital education, both as a mandatory requirement and objective to be achieved in the process of human adaptation to the challenges of the digital revolution, and as a strategy, whose concrete steps would ensure better protection of intellectual property rights, through the digital competences it forms.

Keywords: digitalization, digital economy, digital skills, ICT, OER.

JEL Code: I21, I23, I25, I28, O34

1. Introduction

In the past, two great inventions have profoundly changed culture and the transmission of knowledge: writing and printing. Today, a new innovation is

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revolutionizing knowledge and relationships in every society, namely, *digitalization*. Today we talk about the digital revolution not only as a simple concept, but also as a reality that involves and affects us every day, regardless of the country or continent where we come from, whether we want it or not. On the one hand, the digital revolution, has widened access to information and communication resources, making them available to an increasing number of individuals, and on the other hand, it has concentrated certain resources in the hands of interest groups. Thus, even if the number of users who have some access to development resources is constantly increasing, the number of those who can concentrate a critical mass of these resources and can control them is decreasing. Therefore, if previously it was considered that whoever has the information has the power, in the new circumstances, this maxim should be reformulated as follows: whoever has the critical mass of information, has the power: of decision, of governance and of control.

So, we live in a world that is built around us continuously, including a multitude of interconnected devices, a grandiose infrastructure that communicates with both vehicles and human users, ensuring efficiency, speed, resilience, adaptability, interaction, interdependence, cooperation, development, innovation, but also facing multiple data security issues, still unresolved. If we can barely intuit some of these problems, others, however, are part of our daily life, affecting both our public and private life, both the results of professional activity (products, services) and future projects, in particular, those which refer to intellectual property. Technology changes rapidly, making previously secure systems progressively less secure. For these reasons, the need to create highly reliable software so that the new infrastructure does not become a gateway for unauthorized and malicious people becomes vital.

Under these conditions, as a shield against the dangers of the information boom is the information itself, transformed into a system of knowledge, skills, attitudes and competences, cultivated and refined as a result of the education process, including the digital one. This article discusses the opportunities and challenges involved in delivering digital education. Based on these findings, the main aim of this paper is to approach *digital education* as a strategy for the protection of intellectual property rights, through which users of the virtual

environment become aware of the vulnerabilities of this environment and able to face them. In this sense, in the following, we aim to reflect on the phenomenon of *digitization*, both in terms of advantages, opportunities, perspectives and vulnerabilities, which, not being overcome, generate obstacles and challenges in daily human activity. We also undertake the analysis of the specifics of *digital education*, both as a mandatory requirement and objective to be achieved in the process of human adaptation to the challenges of the *digital revolution*, and as a strategy, whose concrete steps would ensure better protection of intellectual property rights, through the competences it forms. The need for such an analysis is underlined, on the one hand, by the transformations with galloping rhythms in the field of technology and, on the other hand, by the increasing importance that the resources of digital technologies have in our daily activity.

2. Digit(al)ization and digital education: defining concepts of the 21st century

Currently, *digitalization* and *digital education* are two concepts that define the specifics of the 21st century realities. According to the DEX, "digitalization" means the act of *digitalizing*, which means "converting analog signals into digital signals". Although confusions are quite common, *digitization* is not identical in meaning to *digitalization*. If *digitization* involves a set of processes by which a physical format is converted to a format compatible with the computing system, *digitalization* is the use of technology to store and process, search and retrieve information between online users. Therefore, digitizing a domain does not mean digitalizing that domain. In a nutshell, digitization refers to information, while digitalization refers to processes. Ainslee J. claims that *digitization is the integration of digital technologies into everyday life by the digitization of everything that can be digitized*. Indeed, today we are witnessing a phenomenon of oversaturation of both scientific and everyday language, with "digitized" terms, such as *digital society, digital age, digital education, digital economy, digital competence, digital literacy, digital culture, digital system, digital development, digital transformation, digital strategy, digital communication, digital signature,*

digital platform, digital identity, digital television, digital library, digital Moldova, digital Europe, digital environment, digital world, etc.

Digitalization enhances and amplifies other factors of development, affecting all spheres of society, including education. The digital transformation in education is being driven by advances in connectivity; the widespread use of devices and digital applications; the need for individual flexibility and the ever-increasing demand for digital skills. The COVID-19 crisis, which has heavily impacted education and training, has accelerated the change and provided a learning experience. According to tech writer K. Utermohlen, the technology's impact will exist anywhere from Kindergarten through higher education, offering the opportunity to create adaptive learning features with personalized tools to improve the student experience (Utermohlen, 2018). Australian researchers S. Wills and S. Alexander, on the other hand, believe that technology, by itself, does not alter or improve teaching and learning. The key to the successful introduction of technology in education is to pay more attention to process management, strategy, structure and, most importantly, roles and skills. (Wills and Alexander, 2000. p.57).

In this context, C. McLaughlin define *digital education* as the innovative use of digital tools and technologies during teaching and learning. According to the European Commission Action Plan (2021-2025), there are two interrelated aspects to digital education: firstly, the deployment of the vast and growing array of digital technologies (apps, platforms, software) to improve and extend education and training and secondly, the need to equip all learners with digital competences (knowledge, skills and attitudes) to live, work, learn and thrive in a world increasingly mediated by digital technologies (European Commission, 2020). Thus, as the whole society changes, as a result of the deep implementation of information technologies, all industries and professional fields follow the same trend, and the academic environment is constantly concerned with bringing educational content closer to the requirements of employers, focusing primarily on improving graduates' digital skills.

3.Methodology

The research was conducted by examining the literature in the field of digital education, including EU official documents (*Agenda for Europe (2016)*;

DigComp 2.0 (2016); Digital education Plan (2020-2021)) that set the main digital competences necessary for specialists to integrate and become competitive in the labor market of the EU Member States and not only. Also, the analysis of the digital competences' framework is examined in relation to the risks associated with the assumption by the Republic of Moldova, in the framework of the Open Government Partnership launched in 2011 by the USA, of the commitments on opening public data and waiving intellectual property rights, in order to encourage the creation of services and new products based on existing data in the Open Government Partnership launched in 2011 by the US. Finally, the research is carried out by combining the method of analysis in the approach to digital competences, as a goal of digital education, and the synthetic method focused on highlighting the relevance of promoting the development of digital skills, both individually and as a key to access and defense in the world of the future, for creators of intellectual property, as well as at the institutional level, in order to improve the way universities and public research organizations manage intellectual property and knowledge transfer.

4. Digitalization and digital education: challenges and perspectives

Today, in the context of the digital revolution, we are also talking about a new economy that needs the 5G network to be able to function, considered a vital technology for the next 20 years, with a high capacity for computing and data transfer. On the one hand, the new type of network will bring us closer, will make us more productive, more efficient, but on the other hand, this accessibility will make us more vulnerable, through the possibility of manipulating or even attacking our personal lives. For these reasons, it is necessary to carry out an in-depth analysis to anticipate the effects of the digitalization of the economy, especially given that new trends in the field of future work relate to technology, digitization, robotics and artificial intelligence.

Thus, when we analyze the social relevance of the digital economy, we find that the application of digital technologies can promote greater efficiency in the functioning of administrations, institutions, organizations in relations with citizens, creating opportunities for more participatory governance. Digital

technology has the particularity of accelerating progress, intensifying the production of goods, facilitating the storage, sorting and processing of data, making processes more reliable, eliminating distances and opening markets, reducing corruption by limiting human intervention, reducing budget costs, by changing the way of working, increasingly based on sharing and collaboration, facilitating the processing and circulation of information (Nabagné Kone, 2019). On the one hand, this revolution has a considerable influence, because it acts on the processes of production, launch, promotion, marketing, communication, socialization, knowledge transfer, wealth accumulation, professional growth, processes that lead to improved living conditions of populations. Today, information and communication technologies (ICT) are not only a modern tool for communication and information management, but also essential factors in development. ICT is a cross-cutting sector, with a direct multiplier effect on all other sectors of human activity. They are also a means of strengthening human and institutional capacity, both in the administration and in the business environment.

On the other hand, digitization offers opportunities to track and monitor people at work or on the street, shopping, etc. endangering their autonomy and privacy. This is an element with profound negative consequences for human society as a whole. Other vulnerable points of digitalization are: 1) the need to constantly adapt the normative-legislative framework to the rhythms of technological progress, which in addition to actions focused on improving human life, also involves cybercrime, which needs to be prevented, identified, monitored and sanctioned; 2) the risks related to cyber security and the need to guarantee secure transactions; 3) the fragility of the interconnection of networks and systems; 4) simplifying the ways of using different programs, applications and utilities; 5) accessibility of services for everyone, be they illiterate, disabled, poor, etc.; 6) management of false information, which endangers the interpersonal social and interstate political balance; 7) accessibility and efficiency of digital education, especially for people who want to find work, or 80% of tomorrow's jobs will require a minimum of ICT knowledge (Banking and finance, insurance, agriculture, security, medicine, administration, education, etc.).

In other words, the growth of the digital economy has both obvious advantages and disadvantages, at least in terms of developments so far: on the one hand, digitalization promotes economic growth, the transmission of information, knowledge, improving efficiency, accessibility and operability, creation of new public service platforms, facilitation of daily life, through quick 24/24 access to public services, projects, work tasks, activity reports, databases, digital libraries, working groups, chats, platforms etc., and on the other hand, it causes information insecurity, difficulties in regulating information, internet fraud, avalanche or information deficit caused by differentiated access to resources, infringement of intellectual property rights, intrusion into privacy and other new challenges.

Thus, the promptness, speed and virality of the flow of information have transformed our planet into a village, with clear advantages, but also challenges. As a consequence, we find that in the new IT infrastructure, the space has ceased to exist since we became interconnected in a vast network with an infinite number of tentacles, which expand to generate new opportunities, but at the same time, not guarantees the protection of ordinary users, provided that the risks can outweigh the benefits offered. So, practically, our whole life depends on digital technology, and the boundaries between what is public and private life are becoming blurred. As a result, we are currently witnessing a race of "digital armament", in which human rights are less and less valued, including intellectual property rights, which are systematically subjected to cyber-attacks by "data thieves". In this race, both IT giants and users with a high degree of digital literacy are driven by the Machiavellian maxim "purpose excuses the means", namely they admit that they may violate the limits of privacy, the limits of the principle of confidentiality, the limits of data integrity and security, and of the safety of persons, the limits of private property, including intellectual property, and all these in the name of profit, measured in money, goods, power and influence.

Consequently, at the crossroads of globalization, we are caught disoriented between the information society and the knowledge society, and after more than a year of pandemic, which has isolated us and made us even more dependent of technologies, what we understood, for sure, is the fact that space no longer matters, but time, both free time necessary for recreation and

time invested rationally, by trying to balance family life with professional life. On the other hand, it has already been observed that the impact of digitization can be very diversified depending on various factors, and these factors can be monitored and influenced. In the context in which many European countries tend to have strategies for digitization, and for this they create the necessary bodies for digitization at national level, we consider it important that the authorities take into account the risks associated with both existing networks (3G, 4G) and the new type of network (5G), regardless of the provider of the equipment that will compose it. At the same time, intellectual products, information and knowledge, the spiritual, scientific and cultural potential of contemporary society are the driving force of sustainable development and determine economic competitiveness. All this demonstrates the growing role of intellectual property in modern society, and the Government's efforts to invest in strengthening intellectual property regimes are seen as "value-added investments and economic growth, which also involve financial efforts to use modern information technologies, including by creating an information system to ensure the activity of all authorities with responsibilities in the field of enforcement of intellectual property rights" (Government of the Republic of Moldova, 2020, p.5). Yet the same technologies that provide vastly enhanced access to information also raise difficult fundamental issues concerning intellectual property, because the technology that makes access so easy also greatly aids copying—both legal and illegal. As a result, many of the intellectual property rules and practices that evolved in the world of physical artifacts do not work well in the digital environment (National Research Council, 2000). Thus, due to the proliferation of data processing, we also need to know how to protect this data, and for this we need new requirements for computer security. The most important example, with regard to the possibility of managing these factors, is that of public policies and, in particular, of education, including *digital education*.

Education, as the foundation of culture and the source of value of civilization, remains the only guarantor of harmony, necessary for the development of the person, groups or communities regardless of their size. Education plays multiple roles, both for the individual and for society. First of all, "education has significant implications in ensuring the economic prosperity

of each individual, of each community, of each nation” (Ministry of National Education. Government of Romania., 2019, p.2). Secondly, education has an essential role and cultural implications, being the main way in which knowledge, values and traditions are preserved, passed down from generation to generation and revalued. Over time, education is shaped to reflect cultural and economic developments and is anchored in contemporary social realities. Third, education plays a significant social role by giving each individual the opportunity to accumulate the knowledge and develop the attitudes, skills and competences needed to become a competitive specialist and an informed and active citizen who contributes to the advancement of his community. In this way, education ensures stability and social development. And last but not least, a fundamental role of education refers to personal development, giving each individual the opportunity to develop and integrate socially in correspondence with their own potential. (Ministry of National Education. Government of Romania, 2019). To this end, educational practitioners, faculty, staff and administrators must pay sufficient attention to academic integrity, human rights, and intellectual property protection that have become major concerns in the educational environment (Delgado Kloos et al., 2017), (Habiburrahim, 2015).

Therefore, the new digital age determines not only a new type of approach to the economic sphere, but also a new perspective on the educational phenomenon through new communication and information technologies. Digital education has recently become one of the priority concerns of education around the world, by supporting literacy and digital communication for any participant, both in the instructional-educational process and in the process of professional activity, in any field. ICT's growing pace and distribution already shows that our local universities and learning and science groups are no longer purely local, but have gone global (Nawaz & Qureshi, 2010). Thus, at present, training systems must contribute to meeting the growing need for refining and continuous updating of knowledge and competences, in the context of an expanding international labor market, while pursuing greater accessibility, efficiency and equity.

In this context, digital education aims to facilitate access and the permanent exchange of information through modern technologies. Digital

education also referred to as Technology Enhanced Learning (TEL) or e-learning, is the creative use of digital resources and innovations while teaching and learning. Exploring the use of emerging technology offers teachers the ability in the classes they offer to design interactive learning environments, which can take the form of mixed or entirely online programs and courses (Delgado Kloos et al., 2017), (Banerjee et al., 2015).

In other words, electronic resources, online content and the virtual educational environment provide the newest and most diverse opportunities for continuing education and training. This has meant that, in recent years, issues related to open educational resources have been widely addressed in the international educational community. For example, the Republic of Moldova, along with more than 50 other states, has made commitments to open up public data and waive intellectual property rights, precisely to encourage the creation of new services and products based on existing data (Open Government Partnership, 2020). This initiative, called the Open Government Partnership, which currently brings together 78 states, was launched in 2011 by the United States. Also, at European level, a series of actions have been implemented on the promotion of open data, in order to improve the quality and promote access to education. For example, the European Commission has developed a number of public policy documents that encourage the re-use of information in innovative ways and the design of open-ended educational materials (Bezedo, 2015). David Wiley, one of the promoters of these ideas, emphasizes the need for open education, which also includes an open pedagogy with certain key components, including *Open Educational Resources (OER)*. The term was adopted at the UNESCO Forum in Paris (2002), which analyzed the impact of Open Courseware projects on higher education, OER including both different types of learning materials, from course materials, reference lists and reading lists, experiments and demonstrations, up to school programs, curricula and guides for teachers, but also educational materials such as articles, modules, simulations, available outside the courses. In addition to the materials themselves, the concept of *Open Educational Resources* may also include "specialized tools such as software necessary for the development, use and delivery of educational materials, including the search and organization of

content, and virtual learning and training communities" (Burloiu, Chirvase, Manolea, Voicu, Bucur, Holotescu, 2014, p. 3).

The advantages of promoting and applying this concept (OER) in the education system are impressive. For pupils/students this means access to diverse and quality educational resources; applying knowledge in a broader context; increased accessibility (not only in academia, but also from work/home, wherever there is internet access) which generates new and new opportunities for learning. For the author/s of the OER, this means professional recognition and notoriety, the possibility of self-improvement and improvement of the OER due to access to feedback from users, as well as intensified dialogue within the organization/institution, but also outside it, in order to initiate interdisciplinary partnerships and to create new OERs adapted to the new requirements of the knowledge society. All in all, educational institutions will also benefit from enhanced recognition and reputation through increased ability to support distance learners, greater availability of academic content, sustainability of old materials, all while respecting intellectual property rights.

Therefore, the transformation of educational resources into digital resources, offers, first of all, extended opportunities to a very large number of people, and *Creative Commons (CC) licenses* allow the dissemination of these resources. The Creative Commons copyright licenses and tools forge a balance inside the traditional "all rights reserved" setting that copyright law creates. These tools give everyone from individual creators to large companies and institutions a simple, standardized way to grant copyright permissions to their creative work. The combination of the Creative Commons tools and their users is a vast and growing digital commons, a pool of content that can be copied, distributed, edited, remixed, and built upon, all within the boundaries of copyright law (Creative Commons, 2017). In other words, the *free license* is a document that describes, how a freely exposed creation of a person can be used: an audio material, a text, an image or a video material, a presentation. Under normal circumstances, when a photo, a song, an article, etc., are placed in the online environment, they are protected under copyright law. Beneficiaries may not use them without first seeking permission from the author. *Free licenses* explicitly state the conditions of use and the restrictions provided, namely they

are those that provide access to the work in question, the possibility to reuse and redistribute it without restrictions or only with certain restrictions. For example, a text on a web page, under a free license, can be used by others to: print or distribute it; take over another website or include in a publication; to make changes or additions; insert partially or completely in another written work, in a work on another medium (for example, audio or video), etc. (Bezede, 2015). Thus, open licenses are not an alternative to copyright, but they are built on copyright law itself, modeling, by the terms adopted, those freedoms and permissions that authors grant to all. In other words, a license is a document that specifies how you can use a creation. Basically, by applying an *open license* to a work, the author chooses to reserve a limited number of rights from the copyright suite conferred by law (Burloiu et al, 2014), and thus creates favorable conditions for those materials to be easily distributed, reused and improved, thus contributing, in a participatory way, to the optimization and improvement of procedures, activities, concepts, etc. In this way, *Open Educational Resources* become a catalyst for creativity and social development (UNESCO, 2015). In other words, open licenses legally allow the use of a work without the permission of the author. However, it should be noted that the use of a work without the express permission of the author is a violation of copyright. That is why there is a need to improve and manage the way universities and public research organizations manage intellectual property and knowledge transfer, through policies designed to encourage the use of publicly funded scientific research results for commercial or further research purposes, and to facilitate the transfer of knowledge and the absorption of innovations, while allowing the protection of intellectual property.

5. Digital skills: access key and defense shield in the world of the future

In addition to the above, digital education has become "the distinguishing factor between young people ready to integrate into the digital society, which requires increasingly competent people for the digital environment and those who have been provided in elementary education only in schools" (Chicu, 2018, p.8). But what does it mean to be prepared to integrate into the digital society? We consider that relevant in this sense are the accumulated *knowledge* (the

outcome of the assimilation of information through learning; the body of facts, principles, theories and practices that is related to a field of work or study), the formed *skills* (the ability to apply knowledge and use know-how to complete tasks and solve problems, which can be cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments)), the manifested *attitudes* (motivators of performance, the basis for continued competent performance, including aspirations and priorities) and developed *competences* (the combination of knowledge, skills and attitudes appropriate to the context). In that sense, A. W. Bates emphasizes that knowledge involves two strongly inter-linked but different components: *content* (facts, ideas, principles, evidence, and descriptions of processes or procedures) and *skills*. The skills required in a knowledge society include the following: *communications skills*; *the ability to learn independently*; *ethics and responsibility*; *teamwork and flexibility*; *thinking skills* (critical thinking, problem-solving, creativity, originality, strategizing; *knowledge management* (the key skill in a knowledge-based society which refers to: how to find, evaluate, analyze, apply and disseminate information, within a particular context) and *digital skills* (Bates, 2005). H. Chaouchi and Th. Bourgeau define *digital skills* as a set of technological abilities that may be fully or partially acquired before entering the workforce (Bourgeau, 2020).

All these represent the purpose of education, including the digital one, in which digital skills are the key to access and the shield of defense in the world of the future.

This is due to the fact that the world of the future is one in which *digital skills* are part of compulsory education anywhere in the world, which allow those who possess them to adapt to the rapid pace of digitalization, to integrate into the increasingly competitive field of work, to become a valuable employee and to stand out through original and innovative products and services, with all recognized intellectual property rights, preventing situations when “data thieves” would threaten their integrity and security. In this regard, we consider it relevant to mention the European Commission’s Communication “*A new skills agenda for Europe: Working together to strengthen human capital, employability and competitiveness*”, that proposes ways to address the skills

challenges that Europe is currently facing. The aim is for everyone to have the key set of competences needed for personal development, social inclusion, active citizenship and employment. These competences include "literacy, numeracy, science and foreign languages, as well as more transversal skills such as digital competence, entrepreneurship competence, critical thinking, problem solving and learning to learn". Therefore, according to the agenda for Europe (2016), in a fast-changing global economy, skills will to a great extent determine competitiveness and the capacity to drive innovation. "They are a pull factor for investment and a catalyst in the virtuous circle of job creation and growth. They are key to social cohesion" (European Commission, 2016).

In the same vein, it is important to highlight the Action Plan (2021-2026), initiated by the European Commission to adapt education and training to the digital age, especially given that following the crisis caused by the COVID-Pandemic 19, the technology is used to an unprecedented level. The new Action Plan launches two strategic priorities (European Commission, 2020). The first priority is to encourage the development of a high-performance digital education ecosystem, involving digital infrastructure, connectivity and equipment, effective planning and development of digital capabilities, including up-to-date organizational capabilities, motivated and competent teachers and trainers in the digital field, high quality educational content, as well as accessible tools and secure platforms that respect standards of confidentiality and ethics, including intellectual property rights. The second priority highlights the importance of developing *digital skills and competences* relevant to digital transformation. In this respect, the European Commission distinguishes two types of complexity of these competences: 1) *basic digital skills and competences* from an early age, which include digital skills, indispensable for combating misinformation; computer training and a good knowledge and understanding of data-intensive technologies, such as artificial intelligence; and 2) *advanced digital skills and competences* that can increase the number of digital specialists, including a balanced representation of both sexes and all ages in studies and professions in the digital sector.

These competencies are also found in *The European Digital Competence Framework for Citizens* (also known as *DigComp 2.0*), which was developed by the Joint Research Centre (JRC) of the European Commission as a scientific

project based on consultation with, and active input from, a wide range of stakeholders and policy makers from different social fields: education and training, employment, industry, social partners, etc., in order to offer a tool to improve citizens' digital competence. According to Detlef Eckert, the Director of the DG Employment, Social Affairs and Inclusion, the origin of this work goes back to 2006 when the European Union proposed 8 key competences for lifelong learning, one of which was *Digital Competence*. Also, in the fields of education and training, and employment, there was a need to have a common reference framework of what it means to be digitally savvy in an increasingly globalized world. As a result, *DigComp 2.0* identifies the key components of digital competence in five areas (Vuorikari, Punie, Carretero, Brande, 2016) (Table 1):

1. Information and data literacy;
2. Communication and collaboration;
3. Digital content creation;
4. Safety;
5. Problem solving.

These areas include the specifics of all types of *intellectual activity/intellectual property* (creations of the mind: inventions and creative expressions, literary and artistic works, drawings, names and images used in commerce), *social interaction* (oral/written communication and socialization, face to face or through communications and digital programs/platforms), creating *levers for their optimization* (intellectual creation, creativity, research, development, innovation, originality, truth, authenticity, transparency, exchange of ideas, knowledge, visions, theories, paradigms, launch, promotion, protection) and *tools for overcoming vulnerabilities and risks* that may arise (infringement of intellectual property rights by *counterfeit goods*, infringing a trademark or geographical indication and/or *pirated goods*, copied without the approval of the design, copyright or connected rights). *Intellectual Property Rights (IPR)* refers to the legal rights granted to certain types of intellectual property, to protect the creations of the intellect, including *Industrial Property Rights* (eg patents, industrial designs and trademarks), *Copyright* and *Related Rights* (rights of performers, producers and broadcasters). *IPR protection* is an essential parameter of progress in the field of research, innovation and employment, especially in the digital age when

counterfeiting and piracy are increasingly common phenomena, having a negative impact on promoting innovation and competitiveness in business, on ensuring consumer protection and on maintaining public order.

In this regard, the training and development of *digital competences*, corresponding to each of the 5 areas systematized in *DigComp 2.0*, is both an effective *strategy for protecting intellectual property rights* against risks and threats in the *digital environment*, and a strategy for growth, continuous development and training of the personality of the contemporary man who can meet the requirements of the digital age, adapt to new criteria of professional growth, integrate into the ever-changing digital society and protect himself against new threats that will arise in the future (Table 1):

Table 1. DigComp 2.0 – the Conceptual Reference Model

Competence areas Dimension 1	Competences Dimension 2
<p>1. Information and data literacy</p>	<p>1.1 Browsing, searching and filtering data, information and digital content To articulate needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.</p> <p>1.2 Evaluating data, information and digital content To analyze, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyze, interpret and critically evaluate the data, information and digital content.</p> <p>1.3. Managing data, information and digital content. To organize, store and retrieve data, information and content in digital environments. To organize and process them in a structured environment.</p>
<p>2. Communication and collaboration</p>	<p>2.1 Interacting through digital technologies To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.</p> <p>2.2 Sharing through digital technologies To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.</p> <p>2.3 Engaging in citizenship through digital technologies</p>

	<p>To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.</p> <p>2.4 Collaborating through digital technologies To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge.</p> <p>2.5 Net etiquette To be aware of behavioral norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.</p> <p>2.6 Managing digital identity To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools and services.</p>
<p>3. Digital content creation</p>	<p>3.1 Developing digital content To create and edit digital content in different formats, to express oneself through digital means.</p> <p>3.2 Integrating and re-elaborating digital content To modify, refine, improve and integrate information and content into existing body of knowledge to create new, original and relevant content and knowledge.</p> <p>3.3 Copyright and licenses To understand how copyright and licenses apply to data, information and digital content.</p> <p>3.4 Programming To plan and develop a sequence of understandable instruction for a computing system to solve a given problem or perform a specific task.</p>
<p>4. Safety</p>	<p>4.1 Protecting devices To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy.</p> <p>4.2 Protecting personal data and privacy To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a "Privacy policy" to inform how personal data is used.</p> <p>4.3 Protecting health and well-being</p>

	To be able to avoid health risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g., cyber bullying). To be aware of digital technologies for social well-being and social inclusion.
5. Problem solving	<p>5.1 Solving technical problems To identify technical problems when operating devices and using digital environment, and to solve them (from trouble-shooting to solving more complex problems).</p> <p>5.2 Identifying needs and technological responses To asses needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customize digital environments to personal needs (e.g. accessibility).</p> <p>5.3 Creatively using digital technologies To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.</p> <p>5.4 Identifying digital competence gaps To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.</p>

Source: European Commission, (2016)

Also, it is important to highlight that the DigComp 2.0 framework is descriptive rather than prescriptive. Yet, the framework should be used both in the formal education system (from primary school to higher education) as well as in non-formal education and lifelong learning. Several aspects of digital competence may include legal and ethical issues, for example, issues related to illegal sharing of proprietary digital content. The person who engages in this illegal activity may be competent and aware of the licenses and rules being broken. Therefore, in this framework ethical aspects are included in terms of competences (i.e. knowledge of rather than correct behavior).

It should be noted that the mechanisms for defending intellectual property rights in the physical world differ to some extent from those used in the digital world. if in the physical world intellectual property rights are regulated and

protected by legal norms and principles of professional ethics, in the digital world, in addition, the creator can prevent the infringement of his intellectual property by continuously improving personal digital skills (corresponding to the 5 areas of the DigComp 2.0 framework) or by requesting the support of an IT specialist. For example, there are few reasons in the physical world to reproduce an entire work, other than to make a copy that can substitute for an original and, hence, potentially harm the rights holder. One important consequence of this ascertainment is that, in the physical world, reproduction is a good predictor: The act is closely correlated to other actions, such as distribution, that may harm the rights holder and reduce incentive. A second consequence is that, because reproduction is routinely necessary for distribution (and thus exploitation of the work), control of reproduction is an effective means, a convenient bottleneck by which to control exploitation of the work. Finally, because reproduction is not necessary for ordinary use of the work (e.g., reading a hard-copy book), control of reproduction does not get in the way of intended consumption of a work (i.e., reading it). All of these consequences are not valid in the digital world: reproduction is not a good predictor of infringement in the digital world because there are many innocent reasons to make a copy of a work, copies that do not serve as substitutes for the original and hence have no impact on the rights holder. For example, digital works are routinely copied simply in order to access them. Code must be copied from the hard disk into random access memory in order to run a program, for example, and a Web page must be copied from the remote computer to the local computer in order to view it. More generally, in the digital world, access requires copying. The numerous ways in which copies get made in the digital world also cloud the question of whether a copy (in the legal sense) has been made. Arguments have arisen, for example, as to whether the copyright in a work can be infringed by the two actions noted above—copying a program from the disk into random access memory to run it and accessing a Web page from another computer. In both cases the information has been copied in the technical sense, but it is unclear whether this constitutes legal infringement.

In the new IT infrastructure, space has ceased to exist since we became interconnected in a vast network with an infinite number of tentacles from whose nets only time can save us. Understanding how valuable time is, we

come to realize the importance of the values, knowledge and skills we want to cultivate through (digital) education, as the essence of successful integration process in digital society, especially in the wake of the global pandemic, when the importance of digital skills has never been so evident, nor so urgent. As a result, programs and initiatives addressing the digital skills gap are mushrooming (Bourgeau et al., 2020).

6. Conclusions

In conclusion, digitization has created new opportunities for research, discovery and innovation, but at the same time it has opened a dispute over traditional methods of pedagogy, over the prospects for intellectual development and memory, and over the distinction between information and knowledge. Representing an essential component of our existence, transforming the essence of the notions of learning, communication, socialization, space, time, play, storage and transmission of information, the use of technology is not only an option, but is mandatory in training and harmonious development of future adults, who are to come up with new intellectual products. The pandemic spurred innovation in digital tools and platforms and increased digitization of business processes, products and services. As the pandemic continues, the need for a digitally competent population and the demand for a digitally skilled workforce it is becoming more and more prominent. Policy-makers, industry, academia and other educational institutions, as well as the international development community are developing new strategies to cater this challenge.

In addition, worldwide, there is a continuously transformation of cultural content into a digital form, promoting accessibility to educational products, information resources and national and international cultural heritage, to anyone, anywhere and anytime, and thereby thinning the line between originality-creativity-innovation (opportunities) and plagiarism-counterfeiting-piracy (risks). People need digital skills to be able to participate more deeply in our digital society and economy, and benefit from digital opportunities – but also to mitigate possible risks.

Therefore, the possession and refinement of the digital skills are essential, especially in the context of the global health crisis, when we are aware that we have become so dependent on technologies, the use of which is possible only by improving our digital skills, which also helps us overcome the challenges and obstacles encountered in strategic social spheres, such as: ensuring efficiency, quality, accessibility of education, guaranteeing employment and professional growth, quality, safety and security of products, services and data, both from the perspective of the producer/author/creator and the client/consumer/user.

Since the end of the 19th century, the world has recognized the right of people to obtain recognition or financial benefits for what they invent or create, a so important principle that intellectual property rights (IPR) are emphasized as a fundamental right in Article 27 of the Universal Declaration of Human Rights. More recently, in today's digitalized world, intellectual capital has become an extremely valuable asset, and intellectual property infringement cases have consequently become more frequent. Therefore, it is not surprising that the stakes in an intellectual property dispute are extremely high. The development of an effective ecosystem for guaranteeing intellectual property rights, adapted to meet the challenges of the digital economy, requires both a strengthened regulatory environment and better skills. In this regard, all countries all over the world join forces to protect IPR both by strengthening the regulatory, legislative and ethical framework for regulating these rights, which are fundamental to the development and innovation of global society, and by training and refining knowledge and skills, including digital ones, necessary for the contemporary man-creator who activates and integrates in the era of information accessibility. Background Knowledge and skills in the areas of information security, information privacy, and copyright/intellectual property rights and protection are of key importance for organizational and individual success in an evolving society and labor market in which information is a core resource. The accelerated speed towards digitization in the corporate sector goes hand in hand with a growing demand for employees with specialized digital skills who need to install, maintain and secure information and communication systems and provide technical support to the workforce. As, a result, organizations require skilled and knowledgeable professionals who

understand risks and responsibilities related to the management of information privacy, information security, and copyright/intellectual property.

By identifying the right balance between the public interest and the interests of innovators, the IPR system aims to promote and optimize an environment in which creativity and innovation can thrive and, as a result, the protection of intellectual property, through all possible levers (legal, political, economic, ethical, educational), stimulates economic growth, creates new jobs and industries, increasing the quality of life and well-being of society.

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Intellectual Property in Clinical Research - the Obstacles on the Road

*Iulianna LUPASCO**

Abstract

Intellectual property behind the scenery of clinical research present a very special issue in scientific field presenting a deep underestimation of the main precious production of scientific researchers – production of mind, intellect, knowledge, clinical practice and research. In this article are highlighted main questions the young researches and not only young ones face while generating ideas, developing into nice projects. In this topic are discussed the main types of intellectual property in clinical research with a short introduction how the law protects them on a national level and why intellectual property is important for every clinical scientist. The literature review is closely intertwined with our own observations over the years in terms of intellectual property. Finally, the main benefits of intellectual property protection for clinical researchers will be presented empowering with new contacts and scientific innovation leaders from other places of the world.

Keywords. Intellectual property, clinical research.

JEL Code: I19

1. Introduction

The idea of discussing this topic from behind the scenery of clinical researcher burst out not so spontaneously, but grew up slowly, due to many years of working in scientific field and struggling with deep underestimation of

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the main precious production of my colleagues – production of their mind, intellect, knowledge, clinical practice and research. In this article I would love to share some issues the young researches and not only young ones face while generating ideas, developing into nice projects, meeting plagiarism and sometimes even stolen accumulated data. In the modern scientific world, we constantly hear about the need to present inventions most often: during the master or PhD process; during clinical trials with or without pharmaceutical remedies; during the application process for receiving a financial grant; during annual and especially final completion reporting of a scientific project;

Moreover, most often the young scientists do not understand why there is a need to whatever IP elaboration and treat it as a cruel necessity that takes time form there research. After all, many of them do not at all strive to protect their intellectual property.

When we start describing the Intellectual property (IP) we need to understand the main meaning of it:

IP refers to creations of the mind – everything from works of art to inventions, computer programs to trademarks and other commercial signs (wipo, 2020).

In this article, we shall discuss:

- The main meaning of IP.
- Variants of possible IP in clinical research.
- We shall go notice at a glance some laws behind the IP.
- A short excursion into what was done so far on the country level for medical students and researchers.
- In conclusion the reasons why IP is important for clinical scientist.

2. Importance of intellectual property in clinical research: questions and answers.

2.1 The main meaning of intellectual property.

Therefore, going further, on the IP road, in a Geoff Tansey article it is possible to find the very nice and understandable description of different types of intellectual property:

These different forms provide creators and inventors with legal protection from someone copying or using their work or invention without permission. Some protect the intellectual knowledge behind technological innovations (patents) and others protect creative works such as books, films and music (copyright). (Tansey, 2006, p.2)

But if we try to understand what specialists say, from philosophical “bird view” the “Intellectual property is a twentieth-century generic term used to refer to a group of legal regimes which began their existence independently of each other and at different times in different places” (Drahos, 1996, p.14). Moreover, this is true nowadays as well, because every country has a bunch of specific laws consolidating basis of IP protection in somehow different manner from other countries in which way they define economic aims and the legal rights of patent holders to intellectual property. Moldova, of course, has the legislative base of IP, as other European countries, having the special state bodies in this field (craneip.com, 2021). Therefore, from here the fog of understanding the main meaning of IP starts to disappear and arise other issues. Before starting the topic of discussion about what types of IP are generated most often by scientists in clinical trials, one should dwell on what scientists face when they hear about IP. Lack of understanding what this IP actually means from practical point of view lead, accordingly, to appearance of this kind of questions:

- Why there is a need to draw up some kind of paper?
- What types of IP exist? and
- What can be protected in this case during a clinical trial?
- What is “a transfer of technology” and how it can be related to the clinic?
- What is "an implementation" and why are scientists so persistently required to show that it was carried out in the course of the study?

The main issue of scientist is intellectual productivity. The main goal is to protect this intellectual output. So the intellectual property system needs to balance the rights and interests of different groups: of creators and consumers (wipo, 2020).

Medical research faces many different problems:

- Elaborating new pathways of diagnosing based on clinical studies,

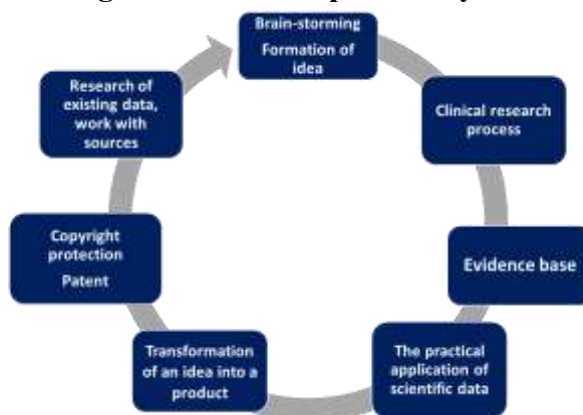
- Evaluation new medication targets and agents in treating different diseases,
- Creating specific algorithms, as well as national clinic protocols, guidelines of treatment and monitoring a broad spectrum of medical conditions, etc.,
- Establishing of novel prophylactic measures on local, national or even international level.

Most of clinical research projects supervisors are focused on technical issues and material substance of intellectual property, but protection of science ideas, protocols, guidelines, monographs, PhD theses, etc. matters not less, but sometimes even more for the science community and public health on a country level. At the same time, the idea of scientific research is the most valuable core of any project, since without it, there is impossible to build whatever skeleton and structure and, in fact, to implement, just because simple nothing will be to implement. No idea is born out of thin air; it is preceded by long hours of studying scientific material on the relevant topic. Now, after some kind of eureka, an idea is born, formed, structured and voiced. However, as soon as she flies out into the world, she no longer belongs to the author; she has a life of her own (Figure 1).

This is the place where the researcher should be careful, since the study of the idea in a scientific sense, confirmation by appropriate tests, analyzes and so on, the publication of personal data obtained, in no way fully protect intellectual rights. In addition, here lies the core stone of the discussion - IP is the legal protection of your product.

From other hand we have to remember that clinical researches serve public health and have to be used worldwide as it is clearly defines Taubman Antony “The struggle to combat human disease and to promote health is inherently international in character and is recognized as an element of maintaining international peace and security” (Taubman A, 2008, p.526)

During our daily struggling in fulfilling the aims and criteria of the ongoing clinical research (CR) we need to focus on another basic thing – about the importance of this work –importance of the scientific work on the field of public wealth improvement.

Figure 1. The idea-product cycle

Source. Elaborated by author.

Clinical research are under careful attention due to

- A) The important role that it plays in public health, by developing new strategies in diagnosing and treatment of diseases.
- B) The human participant's evaluation.
- C) The researchers' dependence on the scientific outcome, based on statistical data to create some new medical recommendations, because without statistical significance, all conclusion are still remain theories.
- D) The financial funding by State, or other grants supporting the research group and necessary equipment, so it is money that lay in between idea and product, like crème in the cake layers.

In addition, here the logic question appear - Why it is important to apply for IP? This necessity has a dual effect as well:

- From one point of view – protection from plagiarism.
- From the other - IP guarantees consumers that the products they buy or use have been tested, approved and safe.

A counterfeit product may look exactly like the original, but has often not been tested to make sure it is safe. This is especially true for some herbal or biologic products based on authentic “original” recipes.

2.2. Variants of IP in clinical research.

Let us going into differentiation of IP. There are 2 main variants of IP.

- Copyrights and related rights
- Industrial property

Copyrights give authors the right to protect their work. It covers databases, reference works, computer programs, architecture, books, technical drawings, and others. By copyrighting your work, you ensure that others cannot use it without your permission.

Industrial property rights include trademarks, patents and industrial designs. A trademark is a unique sign used to identify a product or a service. It can be a single word or a combination of words and numbers. Drawings, 3-D signs, or even symbols can constitute a trademark. For instance, “CRICOVA” is a famous national trademark with its own Registration Number 5389614 and Registration Date 2018-01-30, as well as “Floravita” oil (AGEPI, BOPI, 2017, p.102). The trademark application can be filed at national or regional levels depending on the extent of protection required. The same criteria meet medical facilities, instruments, machines and so on. For example, the well-known Moldovan-Romanian joint venture “EUROFARMACO” has its own trademark (Figure 2) (Registru Național al Cererii, 2021).

Figure 2. The EUROFARMACO trademark

(730) SOLICITANT	EUROFARMACO S.A., întreprindere mixtă moldo-română Str. Vadul lui Vodă nr. 2, MD-2025, Chișinău, Republica Moldova	
(740) REPREZENTANT		
(750) ADRESA PENTRU CORESPONDENȚĂ	EUROFARMACO S.A., întreprindere cu capital străin Șos. Chișinău-Hîncești nr. 10, MD-6836, Sotem, Ialoveni, Republica Moldova	
(540) REPRODUCEREA MARCII	<input type="checkbox"/> verbală <input checked="" type="checkbox"/> figurativă <input checked="" type="checkbox"/> combinată <input type="checkbox"/> tridimensională <input type="checkbox"/> individuală	caracter standard colectiv de certificare proprietate a statului
		
	(300) PRIORITATE INVOCATĂ:	
	(591) CULORI REVENDICATE alb-negru	
(511) CLASE	05, 35, 42	

Source. Registru Național. Cereri de înregistrare a marilor.
<http://db.agepi.md/trademarks/RegistruCererii?id=13ef0841d7374e4b975fcc64f7658e6a>

The possibility is large for developing the IP starting from the manufactures and finishing with a product, such as a medication “XILOZIN”, or “XILOZIN P” that serve as a nazal remedies for decongestion for topical usage, a sympathomimetic (AGEPI, 2017, p.78).

Geography in IP trademark, does it matters? A geographical indication states that a product belongs to a specific region and has quality or reputation owing to that region. Here are some examples:

- Palinca or Pálinka (Hungarian: Pálinka) is a traditional alcoholic beverage from Hungary and Romania, with a high alcohol content (52% legal percentage).
- “Palinca de Maramures” is a brand of traditional Romanian spirits from Maramures county. It is a product with a protected geographical name and recognized in Romania for spirits, as well as “Palinca de Bihor” (Ordin nr.147, 2005).

Rooibos tea, Basmati rice are other well-known products with geographic IP. Can we find the same possibility in medical frame? If someone consider that in medicine there is no place for a trademark, this is wrong.

- A Red Cross trademark, Red Cross logo and Red Cross brand present symbols of Red Cross organization worldwide, serve as official labels for the Red Cross nonprofit company and are under IP protection.
- And another variant connected with this topic: American Red Cross Philippine - a trademark with a geographical indication (Figure 3).

Figure 3. A Red Cross and American Red Cross Philippine trademarks



Source. Internet page with Red Cross trademark <http://logo-sign.com/tag/red-cross-trademark/> and <https://www.pngegg.com/en/png-saizh>

This worldwide trademark is under very strong protection according the Charter Act adopted by Congress in 1900 in connection with the Geneva Convention 1960 Chapter 4, Article 12 (and later amended in 1905 and 1910), so the American Red Cross has the exclusive right to use a red, Greek cross on a white field (GENEVA CONVENTIONS ACT, 1960, p.6)

Another type of IP is an industrial design a document that makes a product unique, attractive and useful. These may include 3-D (shape or surface of an object) or 2-D (lines or patterns) features. An “industrial design” phrase has a kind of an ice-machine sense to clinician that doubtly could be used in clinical research, but actually, it does. The shape of a bottle, plastic or metal equipment and so on could serve as examples of the industrial design.

An example from 2017 BOPI magazine is a portable monitoring device of vital bio signals (AGEPI, 2017, p. 126) (Figure 4).

Figure 4. An industrial design of the portable monitoring device of vital bio signals



Source. BOPI magazine, 2017, p. 126.

A patent is another kind of IP and gives an exclusive right to an invention that introduces a new solution or a technique. If the researcher is a patent owner, he/she is the only person who can manufacture, distribute, sell, or commercially use that product, if. If all the documents are perfectly correct. Moreover, the document filing is a specific process and here is a place, where researches need a hand of specialists in IP masterpiece. Why? Firstly due to the timeline of its life (patents are usually granted for a period of 20 years). Secondly, because the more professional specialist helps the researcher in the process of patent development, the better protection it receives in the end. The example for this can serve the JSC "Laboratorios Menarini" lawsuit against SRL "Balkan Pharmaceuticals", basing on the fact that the defendant violated the rights of the deriving from patent no. MD 921 from 31.10.1998 approved by the Government. After a very careful evaluating process of the materials of the case, the court came up with a decision that the invention proposed and invoked by the JSC "Laboratorios Menarini" did not meet the conditions of patentability and did not have an inventive character. Consequently, according to the law there was a cancelation of the existed patent no. 921 of an applicant JSC "Laboratorios Menarini".

So from here we receive a message from the mentioned above that "The state registration of the works protected by copyright and related rights" shall be performed by AGEPI specialists in accordance with the regulation of Law (LAW No. 139, 2010).

A special attention has to be paid for a copyright discussion. © - copyright protection mark, represented by the Latin letter C (the first letter of the word "copyright"), placed in the center of the circle. Do we use it consciously every time? Not so, but in case of a team work with other specialists the mark appears on the final version of printed material. What does it mean? The copyright mark is used with the name of the person or entity that owns the copyright. The object of copyright protection can also be indicated, as well as the year of publication.

Figure 5. A copyright mark and an example on the printed Abstract book for the PhD theses



(©Lupașco Iulianna, 2017)

Source. Elaborated by author, based on the existed copyright mark and authors' own printed material (Lupașco, Iu, 2017).

2.3. Some laws behind the intellectual property.

The copyright law of Moldova regulates the copyright of residence in our country. The first official decree related to copyright in the country was made on 25 November 1991, shortly after its independence on 27 August of the same year. After creating the State Agency for Intellectual Property (AGEPI), finally, Moldova replaced the 1994 law with a new one in 2011y. The European Union (EU) participated in its drafting to help the country have laws compatible with the most important international copyright treaties. The exceptional broad review on this topic was done by Jose Maria Gil-Robles during the Jean Monnet Conference “The development of intellectual property in the EU and Moldova: challenges and perspectives” held on 12 of March 2021 in Chisinau, Moldova. It is impossible not to mention the main idea reflected in Article 5 “Conditions of protection” of the 2010 copyright law:

- (1) In accordance with this law, all works expressed in a certain objective form in the literary, artistic and scientific field shall benefit from protection, regardless of whether or not they have been brought to the public's attention.
- (2) The author benefits from the protection of the copyright over his work by the very fact of its creation. For the appearance and exercise of copyright, it is not necessary to register the work, nor any other act of notification or other formalities. (LAW No. 139, 2010, p.7)

Moreover, what is extremely important :

“(6) Copyright protection extends to the form of expression, but does not extend to ideas, theories, scientific discoveries, procedures, methods of operation or mathematical concepts as such, nor to inventions contained in a work, whatever the way of taking over, explaining or expressing.” (LAW No. 139, 2010, p.7)

The copyright law of Moldova regulates the copyright of residence in our country that is reflected in Article 6:

“(1) Copyright extends to:

a) works, regardless of the place of their first publication, the copyright holder of which is a natural or legal person of the Republic of Moldova;” (LAW No. 139, 2010, p.7)

So if a researcher did not put all mental thoughts on the paper list, they are not protected, but this is only the beginning of the process. And in a very similar way how we learn the medical base material it is essential to study the “main notions” reflected in Article 3 of the Law that make sense for researcher: author, database, collective work, public communication, public demonstration, distribution, publication, etc., (LAW No. 139, 2010, p.3).

Going further in the same article we can see that

(3) The copyright consists of patrimonial rights and moral rights (non-patrimonial personal).

(4) The copyright does not depend on the property right over the material object in which the respective work found expression. The purchase of such an object does not confer on its owner any of the rights granted to the author of this law.

(5) The patrimonial rights may belong to the author or to another natural or legal person who legally holds the respective rights (the holder of rights). (LAW No. 139, 2010, p.7)

Registration is important evidence in any case of stolen creation, or even in intention to do this, in which case an IP document can be recognized by a court as a presumption of authorship unless proven otherwise. There is a lot more in this document that gives an opportunity to understand what is valuable and enriches the brain storming process with new ideas.

So why it is so important for a clinical researcher? A researcher who wants to obtain any IP

- Have to read more,
- Have to enrich the existed knowledge with different kind of information as well as with some law documents.

After that - to discuss the idea with an IP officer and finally to come up with a clear designed document and after a certain period of time and specific passes to receive the IP paper.

However this is not the end, as many of researchers think, this is just a beginning. Historically, two main moral and philosophical arguments for rewarding creative and innovative people have been used. One stems from the view of the nineteenth-century German philosopher Hegel postulating that an idea belongs to its creator because the idea is a manifestation of the creator's personality or self. The other approach advanced John Locke, the seventeenth-century English philosopher by postulate that the value added through work should be rewarded with a property (Tansey, 2006). Implementation of the product "includes the translational efforts that take healthcare interventions beyond the closed systems of evaluation studies into the open systems of 'real world' contexts" according to May, C.R and coauthors. (May, Johnson & Finch, 2016, p.1)

All scientific clinical researches are focused on improvement of clinical management of diseases, new treatment options and in this way new developed techniques, algorithms, clinical protocols while implemented in real practice serve as a final scientific product as a best benefit for public health.

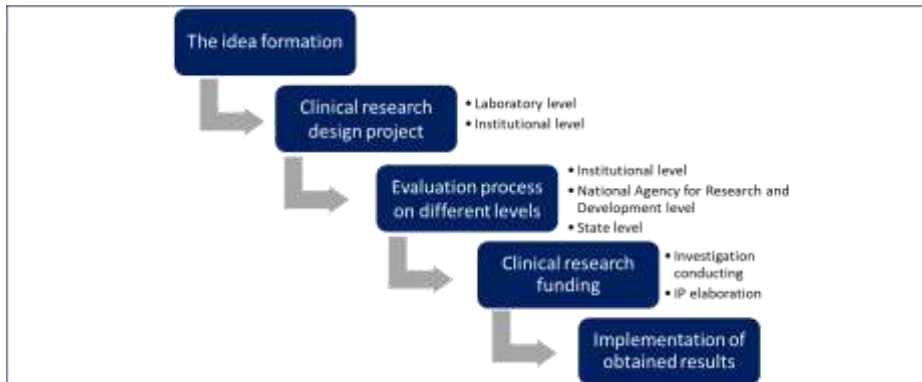
If we return to the very beginning of the idea formation – the implementation is the endpoint of this process. The main mistake of clinical researchers that they actually do implement all the results, but in very rare cases obtain an IP documental approval of the implementation process (Figure 6).

2.4. What was done so far on the country level for medical students and researchers?

When a young investigator starts the journey in the science' cosmos a bunch of new knowledge, rules, some approaches and so on appear on the road. IP is like a hidden tree among the tropical forest, which unknown fruit is strange but sophisticated by appearance. For a better understanding and sensibilization of scientific researches of the need to protect IP in the State University of Medicine and Pharmacy named after "Nicolae Testemitanu", different training

seminars, round tables and other activities have been held for young scientists for several years.

Figure 6. The implementation process in clinical research.



Source. Elaborated by author.

For example, talking about the targeted audience, approximately 90 PhD students, students and professors from the “Nicolae Testemitanu” State University of Medicine and Pharmacy in 2017 participated in a training seminar entitled “Intellectual Property - a tool for capitalizing on research results”, organized by the State Agency for Intellectual Property (AGEPI). The seminar aimed to familiarize participants with the national system of intellectual property protection. During the 2019 year were organized lectures “Protection of intellectual property” (inventions, copyright, etc.) and “Intellectual property as a tool for capitalizing on research results”. The main targets of the events were:

- Improvement of the research skills of PhD students;
- Involvement in complex research activities;
- Adaptation to a unified and systematic approach to counteracting academic plagiarism and identifying opportunities to raise awareness against plagiarism and promote academic ethics, the peculiarities of copyright, etc.

The events were organized by the Science Department based on a collaboration agreement between AGEPI and the University. The activities

became a part of the Advanced Research Training Program of the Doctoral School in Medical Sciences of “Nicolae Testemitanu” SUMP.

Finally, the extremely important news is that the Intellectual Property Discipline was introduced in the university curriculum; cycle III within the first year of higher doctoral studies.

The Medical Scientific Library of the “Nicolae Testemitanu” State University of Medicine and Pharmacy together with the State Agency for Intellectual Property organize an information seminar for researchers, professors and university students every year. The seminar usually is focused on the protection of intellectual property as a method of promoting products and services, encouraging technology transfer and attracting investment to continue scientific research. It covers an information about the service inventions, highlights what is the patentable object of the invention, the management of the examination procedure through the dialogue between the examiner and the applicant, etc.

Every year, in order to promote innovation in the field of medicine, the Department of Innovation, Marketing and Technology Transfer holds the “Day of Inventor and Rationalizer”, which is traditionally held on the basis of “Nicolae Testemitanu” State University of Medicine and Pharmacy Medical Scientific Library.

However, the coverage of participants is more behind the scenes than wide, gathering only those who already understand the great importance of IP protection and usually call participants who are awarded for their inventions. Moreover, this is so sad, because colleagues who worked a lot on their scientific projects share their distinctive awards among the same community of patent-holders, but other part of researches remains far from understanding the proud of such great appreciation on a national and especially international levels.

Traditionally, the State Agency on Intellectual Property (AGEPI) carries out various activities in order to raise awareness among researchers and inventors in the Republic of Moldova. Usually these events are about the need to protect scientific and innovative achievements, sources of information in the field of intellectual property and other aspects of ensuring the protection of intellectual property rights, as well as actions to support and promote the achievements of inventors at international exhibitions of inventions. In this

context, it is a need to mention a very important event. Every year in our country an “International Specialized Exhibition of Intellectual Property, Creativity and Innovation” “INFOINVENT” is organized, gathering different scientists to share their inventions and many other intellectual products. The main fact is that to participate in the conference, or whatever activity you need to be an owner of IP already. Thus, the circle is closed in order to participate in the conference one have to be an owner of intellectual property or to some extent to be in a process of obtaining it.

Concluding the writing, I would love to return to the title. Obviously, there is many obstacles on the scientific road in creating the investigation protocol, evaluating of research project, accumulating and statistical processing of the obtained data, etc. An intellectual property privilege can be estimated as another obstacle on the road, but actually, it is just a new step on the accumulated knowledge pyramid. With our business rivals, we rack our brains to think of some mind-blowing new product that will make them irrelevant, and, in the process, we take our eye of the ball. We shy away from writing a book or making a film even though it’s our dream because it’s so much work, we can’t imagine how we get from here to there.

How often do we compromise or settle because we feel that the real solution is too ambitious or outside our gasp? How often do we assume that change is impossible because it’s too big? Involves too many different groups? Or worse, how many people are paralysed by all their ideas and inspirations? They chase them all and go nowhere, distracting themselves and never making headway. They’re brilliant, sure, but they rarely execute...all these issues are solvable... (Holiday, R. (2014) p.110.)

So, where is the solution? The solution is closer that could be believed, it is right in our mind capacities. If we refer ourselves to scientists, we have to be ready to learn new material and go through any wall, or find the right door. From my consideration, it is a great need to maximize the information among researches that there is a very strong necessity of obtaining the IP document in clinical science.

3. Conclusions

Intellectual property present in different types having the main basis of legislative issue in the core.

Intellectual property serve to protect the rights of mind production of every clinical researcher from one hand and protect the rights of patients from the other.

The obtaining intellectual property in clinical research is an important issue and needs to be estimated extremely high by every scientist.

The working process in intellectual property pretends to receive a new knowledge and takes a researcher on another level of working on the own data.

The process of obtaining an intellectual property gives a scientist an opportunity to communicate to different from the medical community people and receive another angle of view on the mind product, enriching with some new practical ideas in the course.

In Republic of Moldova exist a special legislation in the sphere of copyright and related rights that serve for protection of the author.

Some valuable special events are held on a national and international level every year in order to promote innovation in the field of science and, from my consideration, all clinical researchers must participate in them to receive a new experience.

A clinical researcher have to obtain an intellectual property in order to become a visible person in the country among patent-holders and generate new possibilities in collaboration on a interdisciplinary level.

It waves a researcher on a different arena and arises the scientific confidence on a very new level of scientific life, empowering with new contacts and scientific innovation leaders from other places of the world.

Acknowledgement: *The work was carried out within the State Program (2020-2023) "Chronic liver and pancreatic diseases: nutritional and surgical aspects" 20.80009.8007.37.*

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Improving the practice of Competitive Strategies for the protection of Intellectual Property: the law and economics approach

*Vladlena LISENCO**

Abstract

The article contains analyze of the legal regulation of the protection of intellectual property rights and practice of competitive strategies for the protection of intellectual property using best legal practices of EU countries and Eurasian Economic Union. Legal confirmation of intellectual property right, in fact, means that the state realizes the importance of culture and progress for the preservation and development of society. Protection of the results of creativity, intellectual activity is associated with the protection of individual freedom, human rights. The features of the competitive environment and competitive mechanism in the innovation economy has been analyzed as well as influence of competition on the behavior of economic agents in the innovative economic system. The paper includes analyzes the logic and economics of non-competitive behavior of companies and states in the EU single market and examines the functions of the Directorate of the European Commission for Competition. The EU competition policy tools are flexible and that they take into account the most diverse interests of the single market. The policy of the Eurasian Union as a whole is aimed at the implementation by the member states of measures in competitive policy and contributes to the launch of joint research and industrial projects, allows to increase the competitiveness of products, reduce production costs, ensure joint access to the external market.

Key words: intellectual property; competition: innovative development; technology rights; copyright; patent law; international agreements; foreign investment.

JEL Code: K 11, K 33

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1. Introduction

One of the most characteristic phenomena of the XXI century is the intellectualization of world trade, i.e. an increase in the share of the «intellectual» component in goods and services. In developed countries, intellectual property rights (IPR) have long been an important element of economic development, it is this group of countries that is most actively involved for strengthening the protection of IP rights within the framework of both bilateral and regional and multilateral treaties.

It is impossible to pick out a single theory that would study intellectual property (IP). Within the economic theory, a large number of possible models have been proposed, which will not be unequivocal due to the complexity and heterogeneity of innovative activities and the obvious problems that arise when evaluating such items.

A multi-criteria approach to the classification of intellectual property can be presented as follows: a) by structure (institutions of intellectual property) b) by items of protection c) by the sign of the impact of intellectual property forms on the market system.

Purpose of this study is to explore to what extent, in what manner and with what objectives intellectual property has been considered in innovation policy making. Another area of research is competition policy, antimonopoly policy and policy in the field of intellectual property rights protection.

As concerns the importance of IP for innovation activity, the four major IPRs are patents, trademarks, design rights and copyrights. We define innovation policy as public intervention to support the generation and diffusion of new products, processes, services or business models (Mackaay, 2018). This is a very broad definition, that not only covers innovations that are exploited in the market place, but also those that are used in other domains (public sector innovation, social innovation). It also covers the support of innovation generation as well as the support for the exploitation, commercialization and adoption of innovation.

The most relevant aspects of the stated problematic area, in our opinion, are competition policy, antimonopoly policy and policy in the field of intellectual property rights protection. The study of the relationship between these aspects, requiring constructive analysis, is a topical issue. Competition is the basic mechanism of market relations. The paper tries to answer how competition should force entrepreneurs to compete with each other that results

will be in cheaper and higher quality of produced products, meeting consumer needs and improving the economy. The subject of this study is the competition policy of the European Union and Eurasian Union. The paper analyzes the logic and economics of non-competitive behavior of companies and states in the EU single market and examines the functions of the Directorate of the European Commission for Competition. The article also formulates goals and assesses the four main directions of competition policy – the fight against cartels, control of mergers, control of state support, control of the activities of natural monopolies and public sector enterprises. The author comes to the conclusion about the flexibility of the EU competition policy instruments, taking into account in it the most diverse interests of the single market, the usefulness of certain distortions of the conditions of competition - mergers, acquisitions, certain types of state support - for increasing the competitiveness of the EU economy.

So, the paper research the basic economic principles of IP & competition policy:

- IP: legal monopoly not per se a market monopoly
- IP: a “normal” good in competition policy?
- Where should competition policy come in
- Agreements (settlements, cross-licensing arrangements, pools)
- Monopolization, abuse of dominance

2. Literature review

IPR protection and competitiveness have been connected in the literature since the 1970s, although more prevalently during the late 1970s and 1980s, when IPR protection started to be framed as a competitiveness issue (Mokryshev, 2021).

Nowadays, IPR protection, is using by companies as a tool to attract investment (Torremans, 2004; Smarzynska, 2004), to create wealth (Schneider, 2005). It has been recognized as a source of competitive advantage (Singh, 2015). The use of patents by companies can provide a temporary technological lead and shape industry structure (Reitzig, 2004). IPR protection also allows these companies to develop innovative business models (Singh, 2015).

Competitiveness has been associated with the IPR protection and introduce technological breakthroughs and contribute to the vertical

differentiation of the products and services (Reitzig, 2004). Prior studies have shown that startups play a key role in the generation of radical innovations (Colombo, Doganova, Piva, D'Adda, & Mustar, 2015). Therefore, an appropriate IPR protection in this type of company can impact on their competitiveness.

At the moment, a certain theoretical and practical scientific base has been accumulated on the issues which are under scientific consideration. The role of innovation and intellectual capital in the economy at the macroeconomic level was studied by European, Russian, American and other scientists. The research review considers the legal articles in intellectual property rights, competitive strategies for the protection of intellectual property and its subtopics published during the 20th and 21st centuries. The coverage is broad and comprehensive as possible, ranging from theoretical to practical and doctrinal. The authors who mentioned in the research paper are of the pieces under discussion and all stand as leading figures in their respective fields.

The problems of the impact of the intellectualization of the world economy and the need to regulate IP trade and competition policy on an international scale is the subject of activity within a number of international economic organizations, primarily the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO), under whose patronage numerous reports have been developed. Up-to-date statistical information is also provided by the World Bank (WB), The Organization for Economic Co-operation and Development (OECD), UNCTAD. We found in the literature as to the relationship of IPR and the various policy interventions selected by WIPO.

Despite the significant scientific apparatus, it should be noted that evolution of the provisions of numerous international documents, regulating the transfer of various IP objects and economic effects cooperation in this area, represents a wide field for research. The importance and need for in-depth analysis of the issues under consideration is strengthened by the constant expansion of the range of issues affecting IP rights (activities of intermediaries: exchanges, auctions, clearing companies in the field of IP, the rapid development of technology commercialization offices (Technology Transfer Offices), and increasing the scope of international IP trade regulations such as compulsory licensing

pharmaceutical companies using patents on the human genome in the development of drugs against deadly diseases, the problem of trade in counterfeit products, etc.

3. Data and Methodology

Achievement of the goals determined the need to solve the tasks in the research: to analyze various theoretical and methodological approaches to the study of IP; to clarify the essence of the economic category of IP, to reveal the content of the process of development of intellectual property relations; to present systematically the contradictions of the IS relations as a driving force for the development of these relations; substantiate the need to protect IP from illegal distribution based on a comparison of world and other regional experience; study the impact of globalization on the formation and development of IP in new conditions; to identify the features of the IP model in EU and Eurasian Union.

To achieve the goals general scientific methods of cognition were used: system analysis and synthesis, and also methods of classification, comparison and typology for identifying and proving patterns and contradictions in the formation and development the international system of regulation of trade in objects of intellectual property; in addition, methods of systematization and generalization of statistical data were used. The research was also based on reports from WIPO, the WTO, the United Nations Conference on Trade and Development (UNCTAD), the World Bank, as well as the WIPO Statistics database and the UNCTAD / WTO International Trade Center (ITC).

The theoretical and methodological basis of the research is the scientific works of domestic and foreign specialists in the theory and statistics of intellectual property, on the development of the company and industry markets, strategic management, as well as the work of domestic and foreign authors on the problems of intellectual property management and the effectiveness of the development of the innovation sphere.

The information base was legislative acts on legal issues of economic development and intellectual property, materials and recommendations of scientific and practical forums, conferences and seminars on the problem under study; materials of periodicals; official statistical information and information on Internet sites. The methodological basis of this research is the methods and approaches that suggest that the study of all phenomena and processes is carried

out in development, interconnection and interdependence, and the substantiation of the theoretical provisions of the work is based on the most important laws of economic development.

During the study and systematization of the data obtained, statistical methods for comparing generalized indicators, analysis of time series were used. The results of the analysis strongly suggest that there is a systematic, positive relationship between the ownership of IPRs and economic performance at individual company level. The present study provides an indication of this relationship, based on statistical analysis of a samples of individual firms. Finally, a cluster analysis was conducted on the data. We therefore collected information through a survey in line with some authors who have made efforts to discover which appropriation strategies small companies choose (Grešš, Martin & Lipková, Ludmila, 2003; Thomä & Bizer, 2013), and how these strategies have affected firm performance (Baculáková, Kristína 2015, Laursen & Salter, 2005).

4. IPR and antimonopoly policy

The results of intellectual activity, knowledge, experience and especially the latest technologies represent the intellectual fund of any enterprise and are one of the main resources for its development. Creation of equal economic conditions for various types of commodity owners, the introduction of competitive principles into their activities and increased responsibility for its results, the need to saturate the market with goods and services causes an objective need for assessing and protecting intellectual property and means of individualization.

IP may make a positive contribution to society. Economic argument (Pretnar, 2003) and practical evidence (Fisher, 2007) suggest that patents encourage innovation and the dissemination of its proceeds, thus providing a base for further innovation; and they suggest that copyright may have a role in encouragement of creativity.

IPR is base of natural rights. Thus, the rights of the IP owner are not unlimited. There are restrictions on duration and territorial scope, requirements which must be met for the rights to exist and for the IPR owner to be able to exclude in a particular situation. Sharing may be required through compulsory licensing and some conduct is permitted in any event (for example fair dealing, use for noncommercial purposes and use of one's own name (Drahos, 1996).

Patent law deals with industrial property, i.e. exclusive rights exercised in the sphere of production, trade circulation, provision of services, etc. But the legislation does not consider the means of individualization of entrepreneurs and their products as the results of creative activity and does not recognize any special rights for their specific creators. When it comes to the legal protection of intellectual property items, the main function is to ensure the individualization of producers and their goods, works and services (Suhanov, 2019).

Firms use IPR initially to secure exclusive rights over their inventions, but they also use them to signal technological and design capacity, to build up reputation and strength in the market place (Somaya, 2012), increasingly also as ammunition against competitors, e.g. in bidding wars (Anderman, 2000).

Brand names, which are the commercial name of an enterprise, are inseparably associated with its business reputation. Under this name, an entrepreneur makes transactions and other legal actions, bears legal responsibility and exercises his rights and obligations, advertises or sells his products. The brand name, which has become popular with consumers and has business partners' credit, brings the entrepreneur not only income, but also well-deserved respect in society and recognition of his merits. That is why the right to a brand name should be considered as an important personal non-property good. The use of the brand name also fulfils an essential information function, since it informs third parties of the ownership, type and organizational form of the enterprise.

The trademark and service mark, which are used to mark the produced products and provided services, are an active connecting link between the producer and the consumer, acting as a silent seller. Along with its distinctive function, a popular trademark evokes a certain perception of product quality among consumers. One of the important functions of a trademark is also the advertising of produced products, since a trademark that has gained the trust of consumers contributes to the promotion of any goods marked with this sign. It is also known that on the world market the price of products with a trademark is on average 15-25% higher than the price of anonymous products. Finally, a trademark serves to protect products on the market and is used for fighting unfair competition.

Such means of product designation as an appellation of origin fulfil similar functions. Along with them, the designation of a product by an appellation of its origin is a guarantee that the product has special unique

properties due to the place of its production. By ensuring the legal protection of appellations of origin, the state protects and stimulates the development of traditional crafts and trades, whose products are always in great demand among consumers.

Thus, the legislation of different countries on the means of individualization is an important part of the legal protection of intellectual property items. In some countries, in addition to traditional items protected by copyright and patent law, as well as by legislation on means of individualization, protection is provided for selective breeding results, topologies of integrated circuits, official and commercial secrecy information, and some other results of intellectual activity.

Thus, intellectual property is a collective concept used to denote the rights to the following: the results of intellectual (creative) activities in the sphere of literature, art, science and technology, as well as in other spheres of creativity; means of individualization of participants in civil circulation, goods or services; protection against unfair competition.

It is extremely difficult, if not impossible, to give an accurate and universal definition of intellectual property, since the content of the concept of intellectual property changes with the development of technology, market relations and legislation, and the rights united by this concept are very heterogeneous (Friedman and Barak-Erez, 2001).

The rights of the IP owner are not unlimited. There are restrictions on duration and territorial scope, requirements which must be met for the rights to exist and for the IP owner to be able to exclude in a particular situation, sharing may be required through compulsory licensing and some conduct is permitted in any event - for example fair dealing, use for noncommercial purposes and use of one's own name.

Intellectual property refers to creations of the mind – everything from works of art to inventions, commercial signs, computer programs, trademarks and other commercial signs. More direct challenges to IP were seen at the World Intellectual Property Organization (WIPO), which is a global forum for intellectual property services, policy, information and cooperation and which has mission to lead the development of a balanced and effective international IP system that enables innovation and creativity for the benefit of all. WIPO is an intergovernmental organization which co-ordinates international applications for trademarks and patents, administers IP treaties, and also has an educational role as countries review, plus establish IP regimes. Concerns arose

that WIPO was not evaluating and considering fully the possible risks for developing economies of IP and its expansion into new fields.

Intellectual property is a specific subject to management with a number of special features, the significance of which increases in terms of the transition to an innovative economy. Intellectual property is a set of legal relations regarding the ownership, disposal and use of products of intellectual activity, exclusive rights to the results of creative activity and means of individualization (Delmas-Marty, 1992).

Intellectual property items are items of industrial and literary (artistic) property, the mechanisms of creation and protection of which are the same, while the conditions of commercialization are different to some extent. According to the classification of the World Intellectual Property Organization (WIPO), intellectual property items are works of science, literature and art; performing activities of artists, sound recordings, radio and television programs; inventions in all branches of human activity; industrial designs, trademarks, service marks, brand names and trade names.

At the present stage of development of the world economy, the world's leading companies have chosen a fundamentally new approach to economic growth issues, based on the intensification of the acquisition, use and transfer of knowledge. The results of intellectual activity, knowledge, experience and especially the latest technologies represent the intellectual fund of any enterprise and are one of the main resources for its development. (Bartels, 2006)

It is no coincidence that the interests of the leading countries of the world lie in the sphere of accelerated growth of knowledge. As the economy moves towards a more knowledge-based development model, the results of intellectual labor become one of the main assets not only of individual enterprises, but also of the state as a whole, and the exchange of these results has now become an independent sphere of international economic relations (Baculáková, 2015).

Nowadays IP is no longer considered as a by-product and a result of the development of a new type of product, but as a serious weapon in the competitive struggle. Hewlett Packard beat off competition in the market of ink-jet printers by significantly investing in laboratory research and protecting the development results with a large number of patents.

Given that the income from the use of R&D results are significantly reduced in case of their illegal use by competitors, IP began to be used not only as a defense, but also as an offensive weapon in competition. An example of the successful use of IP in corporate strategy is Texas Instruments company

(USA). In the 1960's, the company was making its «patent portfolio». By the mid-1980's, the company changed tactics to offensive and began pursuing companies that illegally used its intellectual property. The settlement of claims helped Texas Instruments earn significant income. In 1991, income was \$ 256 million. The total income earned by the company in 1986-1993 from the use of IP was \$ 1.2 billion. In the early 1990's, INTEL invested \$ 1 billion annually to control the production of microprocessors. Despite such huge expenses, the company's rate of return, according to the data that it submitted to the tax authorities, was 25%.

In a tough competition, the winner will be the company that makes the most productive use of its resources. In this regard, the development of the corporate strategy of the company is very important.

The intellectual capital growth is due to the characteristic features of technological development, the mechanism for the expansion of new technologies in the economy, the transfer of new knowledge and intellectual property. This growth is primarily due to the use of information technologies. Researchers predict the emergence of other basic innovations in the near future. (Čech, 2011).

The processes of the intellectual capital growth are directly dependent on the institutions and rules formed by the state that regulate the possibilities of using this capital. The system of such institutions includes institutions of monitoring intellectual capital; institutions of investing in entities that provide capital accumulation; institutions of the transfer and replication of intellectual products, which play a decisive role in increasing the efficiency of the innovation process and ensuring the organization of the main flows of knowledge and information in the modern economy; institutions of the protection of intellectual property rights; institutions of access to valuable information and knowledge.

The most relevant aspects of the stated problematic area, in our opinion, are competition policy, antimonopoly policy and policy in the field of intellectual property rights protection. The study of the relationship between these aspects, requiring constructive analysis, is a topical issue.

Antimonopoly policy is a protective component of competition policy aimed at ensuring competition by using methods of controlling the level of market concentration, preventing (suppressing) abuse of a dominant market position, restraining competition of agreements and concerted actions. The

specific properties of intellectual property items necessitate the development of special approaches to the application of antimonopoly policy tools.

5. EU policy on competition

In the European Union, where the barrier function of internal state borders has been eliminated, there are no national obstacles to market relations, discriminatory restrictions on the movement of goods, services, capital, labor, legal entities and individuals are prohibited. The single market was created and continues to develop for improving the economies of the EU member states and improving the living standards of its citizens. This development is based on the idea that international economic competition, developing in terms of market unity, creates an impetus for improving the quality and lowering the prices of goods and services, improving the division of labor, improving the organization of production, specialization and savings on increasing the scale of economic activity, the development of the latest achievements of science and technology (Grešš, Lipková, 2003)

Fair competition causes rapid economic change, the creation of high-tech start-up companies. All of this can be a more effective tool for economic development than protectionism or state support for dying companies. Back in 1957, the preamble to the Treaty of Rome of 1957, which laid the foundation for the European Economic Community, said that removing the barriers dividing Europe requires concerted actions to ensure fair competition.

The Treaty on European Union contains general provisions regarding competition policy in two subsections: one is about the behavior of companies in the market, the other is about the behavior of states. The Treaty of Lisbon barely addressed the basic provisions on competition. All of them, like before, are being implemented through the issuance of appropriate regulations, directives and decisions and subsequent control over their implementation. Most of the regulations in this area are issued by the European Commission (EC) and do not require approval by the Council of Ministers.

Finally, *acquis communautaire* in the sphere of competition is enriched on a regular basis by the practice cases of the EU Court of Justice (Ispolinov, 2010). To make it easier for enterprises and states to sort through the whole variety of institutional rules and judicial precedents, the Commission issues reports, guidebooks, main directions of regulation and other informational and advisory publications.

Article 14 of the Treaty of Lisbon maintained the subsidiary basis for rulemaking. The competence of the EU includes the following: promoting the improvement of the quality and reliability of natural monopolies, the availability of services of general economic interest and ensuring conditions for a reasonable reduction of the cost of these services, freedom of movement across the internal borders of the EU and increasing the level of transparency of the work of the relevant enterprises; protection of the rights of consumers of such services.

The European Commission considers contacts between enterprises as widely as possible. The discovered verbal and written agreements, decisions, contracts, conventions, associations are taken into account. The main thing for it is not the form, but the content of the practice of interaction between enterprises. The prohibition under Article 101 can be imposed both on horizontal agreements (price cartels and collusion to divide the market into exclusive rights zones) and on vertical agreements (between suppliers and dealers on fixing prices or exclusive dealerships in a certain territory) and binding agreements (for example, on the purchase of a product only in case of a following purchase of another product).

The nature and time of the impact of non-competitive behavior on the market is just as broadly considered. On this point, there is a precedent decision of 1967 of the *Brasserie de Haecht* case (aff. 23/67, R.p.525). With regard to the impact of non-competitive behavior of enterprises, in this decision the Court used the following wording: «which may have an impact, directly or indirectly, in the present and in the future, on the trade exchange between Member States ...». The EC Communication of April 27, 2004 fully confirms such a broad approach.

As for the large horizontal agreements, licensing agreements for technology transfer, specialization agreements, franchising, insurance, R&D transfer agreements have been approved, as they generally lead to improved production and distribution of products, as well as provide tangible benefits to consumers.

As it is known, the mutual opening of markets sometimes creates more problems for companies than opportunities. We are also talking about the possible dishonesty of the participants and the inefficiency of the cartel. Since the creation of the cartel, its members can not only deceive the market, but also deceive each other. For example, to release a little more goods than the cartel gives them. As a result, collusion keeps a large number of ineffective dishonest

companies in the industry, which are still at risk of not finding demand for their goods. The consequences of collusion to divide a common market differ little from those caused by disunity of markets. In both cases, there is a large number of small companies, forcibly or intentionally maintaining high prices for products due to the small scale of their activities. In both situations, high prices lead to low demand and, subsequently, an lowered supply.

Non-competitive behavior, as a result of which the company receives inflated income by collusion with competitors, is interpreted by society as fraud, and therefore should be punished. We cannot but mention the collusion between eight well-known vitamin companies*. These companies were caught out to be involved in ten years of cartel practice in the European internal market. They regularly exchanged data on sales volumes, coordinated prices, monitored annual profits, adjusted and quotaized output, for which they were punished. This example of collusion came down in history due to the very high fine of 1 billion euros imposed on the cartel in 2001. In particular, the fine imposed on the leader of the cartel, which is a Swiss company, was 462 million euros.

In 2016, the European Commission announced a fine for the largest European truck producers for a record amount in the European Union for violating antimonopoly laws. The decision marked the end of a five-year investigation of Scania, Iveco, DAF, Volvo, Daimler and MAN. The European Commission accused them of price collusion to slow the development of new technologies to reduce harmful emissions. Major truck producers drove up prices and hindered the struggle against polluting emissions since 1997.

Mergers and acquisitions are recognized as acceptable alternatives. It should be immediately noted that mergers and acquisitions are sometimes carried out painfully for states and society, since, as a rule, they are accompanied by job cuts and the liquidation of individual divisions. At the same time, a merger can result in dominance, which put fair competition at risk. Therefore, since the end of 1989, the European Commission has had full competence to control the sphere called the concentration of production in political economy.

There are vertical agreements between companies operating at different points in the production or distribution chain. An example of non-competitive behavior in this case would be an agreement between a company and

* Swiss Hoffman–La Roche, German BASF и Merck, French Aventis SA, Dutch Solvay Pharmaceuticals and Japanese Daiichi Pharmaceuticals, Esai and Takeda Chemical Industries.

distributors of its products on fixed prices or about exclusive dealership in a certain territory. Nintendo and seven of its distributors were fined 168 million euros for «dividing» the EU single market in the 1990s and setting excessive prices in those parts of the market where consumers could pay more.

The participants of the collusion managed to maintain a noticeable difference in the prices for game consoles and games by manipulating natural language barriers. For example, the release of copies of this product in Germany was so limited that the offer prices in Germany were 65% higher than the prices in the UK. The price differences could be lowered by the efforts of independent dealers who could buy the product in the UK and sell it in Germany. The Nintendo cartel obstructed the emergence of such companies.

A few words about the essence of dominant position. A company that can offer an innovative product to a mass-market consumer, as a rule, has a strong position in the market. High demand drives the distribution of the product and the company achieves the desired dominance position. The more supporters, the more actively the consumption grows. As a result, the product either displaces existing analogues from the market, or objectively does not give them the opportunity to appear. A classic example is Windows system from Microsoft, which has standardized the work of personal computers around the world. Consumers were extremely interested in such a product. Thus, the highest demand caused a dominant position. The value of this standardization (as well as any standardization) was that the majority of consumers use the same product, which creates a number of the following advantages: the possibility to combine production activities, convenience of domestic use, etc. Many companies promoting their product (or standard) strive to achieve the same effect. In its turn, the market is also interested in the win of one standard over many incompatible/competing standards (an excellent example of this is the win of the GSM standard for mobile communications).

As for Microsoft, its largely innovative approaches to win consumers threatened to knock out other quite competitive systems from the EU market space. It was fined in 2004 and again in 2008 for abusing its dominant position in the European market of operating systems during the period from 1998, or more precisely for the threats associated with a lack of alternatives. In EU practice, this is the only case when a second fine was imposed on a company, calculated taking into account the non-payment of the first one. The total amount of sanctions against Microsoft have reached 899 million euros so far.

European Commission managed to disclose collusion between four car glass producers*. The Japanese firm Asahi decided to work with the Commission and helped disclose the collusion. In return, when calculating the amounts of penalties, the company was given an incentive discount of 50%. In 2008, the cartel was fined an unprecedented amount of 1,383,896,000 euros. The French company was fined 896 million euros, while the fine imposed on Asahi was much smaller – 113 million euros.

The Treaty of the EU contains a prohibition (although not without clauses) on abuse of dominant position and intercompany collusion. The EU also controls other deformations of the competitive conditions, for example, caused by state subsidies. If enterprises manage to occupy 50% of the market or more, then this position is considered dominant (although there were cases when taking of 40% of the market was considered as dominance). The next thing is to find out whether dominance has a negative effect on trade, whether there are abuses in pricing (whether the high price is a consequence of high producer costs, or there is another reason) and sales policy, whether there are biased obstacles for competitors to enter the market, whether there are facts of discrimination against other market participants, and finally, whether there any additional obligations by partners that distort market conditions.

The company can be fined for non-competitive behavior. Since quite large companies come to the attention of the European Commission, then there are often sanctions in the amounts of hundreds of millions of euros (the figures of extremely high fines have already been cited above).

Regulation 1/2003 says that the fine must be quite high. Its purpose is to curb the attempts of EU market participants to engage in non-competitive behavior. Depending on the severity of the infringement, the fine is equivalent to 15-30% of the value of the company's sales related to the infringement. However, the maximum penalty may not exceed 10% of the company's annual turnover before the violation. Thus, the mission of the European Commission is not to bankrupt those who are guilty, but to deprive them of the profits obtained by dishonest means. When calculating the amount of the fine, the Commission takes into account both aggravating circumstances – leadership in the cartel, repeated violation[†] or evasion of company employees from testifying

* Asahi (Japan), Pilkington (UK), Saint-Gobain (France) и Soliver (Belgium) companies.

[†] The cartel experience of Saint-Gobain is quite long. In the 1980's she was fined twice for non-competitive behavior in the EU market. Then her participation in the cartel of car glass producers, mentioned above in connection with a unprecedented amount of sanctions of 1.383

and withholding documents during the investigation – and mitigating ones*. Enterprises have every right to apply for their own defense. They can avoid harsh sanctions if, in accordance with Art. 101 para 3 TFEU, they can prove that their activities contribute to technical or economic progress, provide a fair share of benefits to consumers, and improve production or distribution of goods. Dominance due to the possession of technology and know-how that competitors do not have, cannot be considered abuse; a well-known trademark and a developed distribution system also objectively help to maintain a dominant position. To defend their businesses, lawyers use consumer opinion surveys. Often this helps reveal a mistake in the conclusion of the Commission on the size of the market occupied by the enterprise. Art. 103 TFEU obliges the European Commission to formulate directives or decisions in order to comply with the above-mentioned provisions of the Treaty.

The single market is not without state support. The annual volume of financial assistance to the economy from the EU member states has reached about 65 billion euros (which is comparable to about 0.5% of the total EU GDP and general budget expenditures under the social and economic cohesion item). These are the data of the latest report of the European Commission on state support. On average, more than a quarter of state spending goes to environmental protection and energy saving projects; Sweden is the leader here. Up to 20% of state support is spent on helping lagging regions (Germany is the leader), on the development of R&D, small and medium-sized businesses, employment – about 10% each, on vocational training – 2%.

There are examples of state support in the EU: minor support, support to small and medium-sized enterprises, subsidies for creating new jobs, assistance to improve professional skills, state support for environmental protection, state support in saving and restructuring companies, state support to lagging EU regions, state support of services of general economic interest, state support to agriculture and forestry, state support to sea transport enterprises, etc. The basic provisions of the EU about the control of state support systems are set out in Articles 87 to 89 of the Treaty of the EU. Article 87.1 prohibits the payment of any type of support that threatens to distort the conditions of competition in the

billion euros, was proved. When calculating the fine for the last violation, the company was considered as a dangerous repeat offender

* Fine imposed on Sony for evading testimony and withholding information was increased by 30% in a price collusion case of three Japanese video cassette producers (Sony, Maxell and Fuji) disclosed by the EC in 2007.

single market. The limits and types of allowable assistance are announced either in the form of Commission regulations or in the form of recommendatory documents (for example, «Guidelines» in a specific area of regulation), and, accordingly, can be mandatory or recommendatory. There is a special section on the Commission's website, where information about the prepared and adopted rules in the sphere of state support regulation, recent reports and other documents can be found.

Competition policy of the EU fulfills a number of socially and economically significant functions. Thanks to its mechanisms, firstly, access to goods and services is provided on more favorable terms for EU citizens, secondly, fair assistance to the development of companies in member states is provided, and thirdly, the competitiveness of the European Union in the world increases. Competition policy is carried out using a well-developed toolkit. All other areas of EU internal policy are subordinated to its goals.

Within the framework of competition policy, some legal mechanisms are allowed and recognized as useful – mergers, acquisitions, certain types of state support, since they serve to increase the competitiveness of the Union in the world. 350-400 mergers are carried out annually in the EU single market.

The EU competition policy, which is quite flexible in relation to companies of the member states, remains rather tough to external actors. Therefore, the world is closely watching the processes taking place in the economic policy of the European Union.

Companies located outside the EU are adapting to its legal regulations, including competition law. They are encouraged to do so because of the fear of not being admitted to the space of the single market. The same companies that have already entered this market are forced to unconditionally follow these rules.

The competition policy rules cover the 27 member states, as well as Norway, Iceland and Liechtenstein, connected with the EU by the European Economic Area. Turkey as a member of EU Customs Union have committed themselves to adapting their national competition policy to EU rules. In terms of control of non-competitive behavior of enterprises, Turkey has reached a high degree of consistency of its rules and actions with the EU competition law, however, in terms of state aid, as noted by the EU, there is practically no progress.

The EU actively shares with other regions and countries its achievements in the management of competition. Agreements on cooperation in the sphere of

competition were signed with the USA, Japan, Canada. A special format of «Dialogues» is also used. In particular, within the framework of the concept of building a common economic space, a dozen sectoral dialogues are underway with Russia, including the task of approximation of competition laws and procedures for its application, as well as cooperation of antimonopoly authorities. The EU-China and EU-South Korea dialogue has begun. Thus, the European Union achieves the goal of communicating its experience to the outside world and discussing emerging problems.

6. EAEU and IPR

There is a direct interdependence between the growth of unfair competition and the lack of an intellectual property market in the countries of the Eurasian Economic Union (EAEU), including the Russian Federation. In general, the share of the intellectual property market in world trade in the XXI century has quadrupled (exceeds 15% of GDP) and continues to grow. On the other hand, the national intellectual property markets in the EAEU countries remained at the same level (less than 1-2% of patent sales of the total number of patents in force). Modern analyzes show that during the transition to the digital economy, the share of value added from the turnover of intellectual property in the pricing of produced goods, works/services and finances in general will only increase, which, in turn, will intensify competition, including unfair competition in this sphere (Leontiev, 2020).

According to the Development Strategy of the Information Society in the Russian Federation for 2017-2030, the formation of the digital economy is considered one of the national interests of Russia, including the following: the creation of new markets based on the use of information and communication technologies and ensuring leadership in these markets through the effective development of the Russian ecosystem of the digital economy (large Russian organizations in the sphere of information and communication technologies); increasing the competitiveness of Russian high-tech organizations in the international market; ensuring technological independence and security of the infrastructure used to sell goods and provide services to Russian citizens and organizations; protection of citizens against counterfeit and low-quality products; improvement of antimonopoly legislation, including while providing software, goods and services using the Internet to persons located on the territory of the Russian Federation; development of trade and economic

relations with strategic partners of the Russian Federation, including within the EAEU.

By decisions of the EAEU supreme bodies, all EAEU member states are required to expand the range of tools that are used, intensify efforts to achieve and maintain macroeconomic stability, implement joint measures within the EAEU and national measures in key areas. The implementation of these measures implies the active involvement of the economic potential from the use of intellectual property in these processes: from pricing while collecting customs payments to the formation of intangible assets and the use of intellectual property as an investment resource in diversifying economies at all levels (Eremenko, 2020).

Based on the results of the analysis of legislation and law enforcement practice in the sphere of production, circulation and protection of intellectual property in Russia and other EAEU countries during the transition to the digital economy, stable contradictions (collisions), new challenges and patterns that require the adoption of priority measures in the sphere of antimonopoly regulation and protection against unfair competition both by changing the rules and the procedures for their application, were identified.

According to Article 7(3) of the Civil Code of the Russian Federation (CC of the Russian Federation), in cases where a violation of the exclusive right to a result of intellectual activity or to a means of individualization is recognized in accordance with the established procedure as unfair competition, the protection of the violated exclusive right can be carried out both by the methods provided by the Civil Code of the Russian Federation, and in accordance with antimonopoly laws. In accordance with the Federal Law of July 26, 2006 No. 135-FL On Protection of Competition, the possibilities of applying antimonopoly measures in the sphere of intellectual property are limited.

Thus, in the last decade, a stable contradiction has developed between the patent monopoly on the results of intellectual activity and the possibilities of developing competition in the markets of goods, works and services using such objects of patent law. The results of intellectual activity, often obtained with budgetary funding (85% of all expenditures on research and development in the Russian Federation in 2019-2020 - federal budget funds), with a possible term of legal patent protection of 20 years, go into free use in two-three years from the date of issue of the patent. This is often used by foreign companies, including transnational companies (TNCs), which, with minor modifications,

patent these technical solutions for themselves again. Over the past 10 years, the entire increase in the issuance of patents in Russia (5%) was provided only by foreigners. At the same time, joint ventures are not created, licensing agreements with domestic producers are not concluded, thereby forcing out domestic companies from national markets in order to please the interests of international and foreign TNCs.

The globalization of world trade, the introduction of economic sanctions have actualized the legal problem of the exhaustion of the rights of a rightholder in relation to a trademark, which is a legal limitation of the legal monopoly on the use of the exclusive right to a trademark. Parallel imports, which is understood as the imports from abroad to the EAEU countries by importers of original goods that have the trademark of the rightholder, but without the permission of the rightholder, generates a conflict of interests of importers and rightholders claiming absolute powers to control parallel imports. In accordance with the Treaty on the EAEU and with the adoption and entry into force of the new Customs Code on January 1, 2018, the EAEU has a regional principle of exhaustion of law, while in the Russian Federation there is a national principle of exhaustion of law (Article 1487 of the Civil Code of the Russian Federation), which prohibits the imports of goods into Russia with trademarks placed on them without the permission of the rightholders. Under these conditions, a foreign rightholder may use the exclusive right to a trademark in bad faith and restrict the imports of specific goods into the domestic Eurasian market or implement a pricing policy that increases prices in this market. In order to ensure uniformity of approaches for resolving conflicts of private and public interests in antimonopoly regulation and protection against unfair competition, taking into account the clarifications of the Constitutional Court of the Russian Federation (Resolution of February 13, 2018 No. 8-P) in cases of bad faith behavior of foreign rightholders of trademarks, including the creation of the threat of a monopoly on their part on the trademarks of the EAEU countries, it is necessary to use the mechanisms of antimonopoly regulation and civil-law institutions to counteract the abuse of rights in the interests of realizing public interests for protecting competition, including state support of national goods producers.

At the same time, based on judicial practice, there is still a high legal uncertainty in the separation of unfair competition associated with the turnover of goods using the results of intellectual activity (RIA), and unfair competition associated with the circulation of exclusive rights to RIA data. At the same

time, the provisions of the current Federal Law No. 135-FL of July 26, 2006 cannot be applied within the research, development and technological work (R&D). That is why there are numerous abuses of the state customers of the use of previous intellectual property, where the rightholders are responsible parties or third parties (Mokryshev, 2021).

Despite the stated goals of harmonizing national legislation to build common markets in the EAEU in the sphere of intellectual property, protection against unfair competition and fighting counterfeiting, there are still fundamental differences among EAEU countries:

- system of protected items of intellectual property;
- determination of the rightholders of the RIA created with the use of budgetary funds;
- scope of rights to RIA;
- restrictions on exclusive rights to RIA;
- mechanisms of civil-law and customs protection of intellectual property;
- understanding of the institution of counterfeit and ways of protection against it;
- determination of the list of entities of unfair competition in the sphere of intellectual property and the specifics of their legal status;
- methods of unfair competition in the sphere of intellectual property and their identification;
- ways to protect against unfair competition in the sphere of intellectual property, including within the EAEU.

According to the Advisory Opinion of the Court of the Eurasian Economic Union of April 4, 2017 No. EC-2-1/1-17-GJ On clarification of the provisions of Articles 74, 75, 76 of the Treaty on the Eurasian Economic Union of May 29, 2014, competition law of the Union includes all three types of policies:

- unified competition (antimonopoly) policy of the Union (supranational regulation) to protect competition in cross-border markets;
- coordinated competition (antimonopoly) policy to protect competition in the national markets of the EAEU member states, including coordinated measures aimed at preventing and suppressing the circulation of counterfeit products;
- concerted competition (antimonopoly) policy in regard to the actions of economic entities (market entities) of third countries, if such actions

may have a negative impact on the state of competition in the markets of the goods of the EAEU member states.

The application of policies depends on the following criteria: 1) the nature of the market (national or cross-border); 2) the nationality of the economic entity (market entity of a member state or market entity of third countries).

Successful law enforcement practice of antimonopoly regulation and protection against unfair competition in the sphere of intellectual property is an interdisciplinary topic, which involves the determination of the boundaries and rules of interdepartmental interaction at all levels (regional, national and interstate) while carrying out the functions of protection against unfair competition and fighting counterfeit, as well as a certain adjustment of the system of decisions preparation and decision-making in the EEC of the EAEU due to the persisting fundamental contradictions in the national laws of the EAEU countries and the existing autonomy of the ministers (board members) of the EEC and their subordinate departments.

If the goal of innovative development is competitiveness and the intellectual property market is a required condition for its success, then antimonopoly regulation and protection against unfair competition in the sphere of intellectual property can become a sufficient tool of ensuring such competitiveness.

7. Conclusions

1. When referring to the intellectual property concept and its content, it should be noted that this category has a rather long history of its development, just like any other civil-law institution, owing its appearance to the general patterns of the development of society, which has a dominant evolutionary path. The stages of development of the institution of intellectual property are determined, first of all, by the economic conditions and legal traditions of a particular country. As one of the main institutions of the information economy, IP creates the basis for the exchange of intellectual goods between economic entities, taking into account the interests of the owners of the transferred goods and consumers of intellectual products. A multi-criteria approach to the classification of intellectual property can be presented as follows: a) by structure (institutions of intellectual property) b) by items of protection c) by the sign of the impact of intellectual property forms on the market system.

2. Legal confirmation of intellectual property right, in fact, means that the state realizes the importance of culture and progress for the preservation and development of society. Protection of the results of creativity, intellectual activity is associated with the protection of individual freedom, human rights. However, the dual nature of intellectual property law should be taken into account – its «spiritual» and economic components. Modern times are characterized by both the strengthening of the protection of personal non-property («moral») rights of the creators of intellectual values, and the further commercialization of property (economic) rights. The essence of intellectual property in terms of classical economic theory lies in the fact that intellectual property privatizes public knowledge, creates deficit and restricts access to certain information products. This enables the creator of an invention or work to control the consumption of this product and receive a reward for investment in human capital, which, accordingly, encourages further inventions. In terms of institutional economics, the essence of IP lies in the exchange of «bundles of rights» for intellectual goods, which is carried out in accordance with the system of rules regulating the ownership of intellectual products by certain entities.

3. It is impossible to pick out a single theory that would study intellectual property. Within the economic theory, a large number of possible models have been proposed, which will not be unequivocal due to the complexity and heterogeneity of innovative activities and the obvious problems that arise when evaluating such items. It is very difficult to objectively assess various combinations of various intellectual property items (innovation portfolio), state subsidies for innovative activities and other factors that affect the value of intellectual property items. The behavior of the company in a particular situation depends on all of the above-mentioned factors, for example, whether investments in development are made under the pressure of competition in the market. However, previous studies provided an interesting basis for analysis and also showed that there is no ideal model for promoting intellectual property. There are particular difficulties when the provisions of public law theory are applied. Problems arise when correlating public rights to created inventions and private rights of their owners. All that should lead to the development of new socially oriented institutions and to the development of an effective state strategy in the sphere of intellectual property.

4. One should remember that the economic environment is created over a long time and is not able to change quickly. The tool of this change is IP and

it is advisable to interpret it in four aspects: as a value, a system, a process and a result. Intellectual property as a value should be considered as an integral part of intellectual capital, that is, as an asset that has the ability to generate income. As a system, intellectual property is an institution that includes a set of interacting elements. The possibility of involving intellectual property in the economic cycle, in which its productive consumption and growth is carried out, is expressed by the essence of IP as a process. Growth, in its turn, characterizes ownership as a result. The multifaceted aspects of the IP taken together makes it possible to increase the competitiveness of an economic entity.

5. In the innovative economy, the IP institution is developing dynamically and requires constant monitoring and changes in the rules and regulations according to which economic entities operate. There are new ways, technologies and mechanisms of interaction of economic entities regarding intellectual products; there are new institutions that regulate economic behavior in the conditions of the creation of a new type of economic system.

6. Intellectual property is closely related to such categories as property (since it is its type), innovation (intellectual property items are created in the process of innovation), illegal copying (piracy). The connection with the latter category is ambiguous, piracy can be considered both a negative factor in the market of intellectual services, and as an objectively existing phenomenon that opens an access to limited information at zero costs to a wide range of people.

7. Informatization of the economy implies a reconsideration of the role of the human factor as a source of scientific information. The specific feature of the intellectual product is in the specific nature of the process of connecting the worker with the means of production, where the subject and product of intellectual labor is information, and the labor itself belongs to the category of intellectual labor. Intellectualization of production is achieved through the use of qualitatively new information technologies, which contributes to the transformation of production into a system of network services.

8. Measures for the dissemination of new knowledge and the effectiveness of the mechanism for its practical implementation largely depend on the goals of state policy, and the quality of perception of the new attitude to state policy and entrepreneurial activity depend on each individual. The potential of intellectual resources and their transformation into human capital have a direct (and not mediated through the market) impact on the rate of economic growth, the level of national wealth and the well-being of the

individual who is the monopoly owner of these qualities. Thus, in the new economy, the concept of national wealth includes intellectual resources along with property elements.

9. Antimonopoly policy is a protective component of competition policy aimed at ensuring competition by using methods of controlling the level of market concentration, preventing (suppressing) abuse of a dominant market position, restraining competition of agreements and concerted actions. The specific properties of intellectual property items necessitate the development of special approaches to the application of antimonopoly policy tools.

Acknowledgement: This paper is elaborated in the framework of the Jean Monnet Support to Associations in European Integration and Intellectual Property Protection Studies / EUPROIN, nr. ref. 611344-EPP-1-2019-1-MD-EPPJMO-SUPPA, implemented with financial support of the Erasmus+ programme of the European Union. *“The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein”*

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The Discrediting of Competing Trademarks - Between Multiple Qualification Option and Qualification Impediment

*Iulian MORARU**

Abstract

Discrediting competing trademarks consists in the spread of certain information regarding the trademarks owned by the competitor of the undertaking realising the disparaging actions. Relating the idea to the legislative provisions in force of the Republic of Moldova, it can be inferred that there are two options for qualifying such a conduct - according to the rules of unfair competition and in accordance with the rules of dishonest advertising. In such circumstances, the obvious question raised is whether the qualification will be done in accordance with one or another relevant legal norm. This aspect requires a broad clarification in the sense of offering viable alternative solutions and corresponding to the various practical factual situations. In this context, it is necessary to establish defined criteria in material and procedural terms in order to achieve a clear delimitation between different qualifying vectors. Circumstantially, there is a need to resort to the approach of domestic practice in this matter, as well as to the treatment of legislative, theoretical and practical trends in other states and legal systems.

Keywords: discrediting, trademark, unfair competition, dishonest advertising, qualification.

JEL Code: K23.

1. Introduction

The main reason for the present research lies in the need to outline some theoretical and practical aspects regarding the qualification of trademarks

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discrediting by unfair competitors, as well as the primary problems which may arise out in the qualification process.

The importance of such research is explained by the actual tendencies in the economic activity of undertakings to promote themselves by means of discrediting their competitors' person, economic activity or products.

The practical relevance of the researched subject consists of creating a consolidated vision regarding the doctrinal, legal and institutional approaches tangent to the researched field.

In the context of this research, it is proposed to reach the following proposed objectives:

- To determine the origin of the unfair competition act of discrediting a competitor;
- To understand the ways in which the unfair competition act of discrediting a competitor is regulated in the actual legislative specter of Republic of Moldova;
- To expose the criteria by which the discrediting competitor may be qualified in a certain way;
- To infer international legislative trends in the researched domain;
- To identify the most relevant national and international practice in the researched area.

In order to reach the above mentioned objects, we propose the consecutive approach of the following aspects: (i) The evocation of the historical origin of the unfair competition act of discrediting a competitor; (ii) Drawing the problem of qualification of discrediting a competing trademark; (iii) Revealing the relevant theoretical and practical criteria by which a certain act may be qualified; (iv) Examining the relevant international legislative trends in the researched area; (v) Studying the national and international practice in the domain of discrediting a competitor's trademark.

2. Literature review

The relevant literature in the matter is not a rich one in the quantitative aspect, or a limited number of authors have written by the moment on the

subject in question. Among the mentioned sources, it is worth specifying the following ones:

- Gorincioi, C. (2019). Cercetarea instrumentelor juridice de contracarare a actelor de concurență neloială. Teză de doctor în drept. [Research of legal instruments of counteracting the unfair competition acts. Doctoral thesis in law] This source is an integrated synthesis of the specifics of the system of unfair competition actions, as well as of the available legal mechanisms to counteract these actions. The theoretical significance of the thesis lies in the fact that the author approaches the topic concerning the main differences between unfair competition and inadequate advertising.

- Andraško, J. Sopúchová, S.R. (2016). Limitations of comparative advertising permissibility: denigration/disparagement. This source is a practical point of view concerning different approaches towards limitations of comparative advertising. It was primarily used for the purpose of studying the relevant European case law dealing with the researched topic.

- Castraveț, D. (2019). Răspunderea civilă delictuală pentru actele de concurență neloială. Teză de doctor în drept. [Tortious civil liability for acts of unfair competition. Doctoral thesis in law]. This paper is a bibliographical reference for consultation in the sense of diversifying the views expressed by various researchers in the field of approach.

- WIPO Model Provision on Protection Against Unfair Competition (1996). The mentioned source has been used in the scope of determining the content of discrediting a competitor unfair competition act.

- WIPO Handbook on Intellectual Property (2004). This source has been used for the purpose of identifying the regulation trends in the field of the researched topic at the international level.

3. Methodology

The methodological arsenal used in the context of the elaboration of this paper consists in particular of:

- *The historical method.* The use of that method contributes, in particular, to the identification of the historical origin from the normative point of view of the concept of discrediting in the system of unfair competition actions, as well

as the evolutionary course of the given concept, until its introduction in competition and related legislation at national level;

- *Logical-formal method*. The benefit of using this method lies in the possibility of a proper analysis of theoretical ideas, as well as previous practical findings through deduction and induction operations in order to identify the compliance of those findings with the related regulatory trends;

- *Legal-comparative method*. In view of the application of this research method, the necessary conditions are created in order to contrast the theoretical-practical and legislative aspects, as a result of which relevant conclusions can be drawn in order to improve the existing conceptual framework and unify current practice.

Apart from that, during the research there will be also used the content analysis method and the analysis of social, official, public, numerical and non-numerical documents.

All the methods listed and analyzed above will be used alternatively and as a whole.

4. The origin and significance of the concept of 'discredit'

The term “discredit” comes from the French “discrediter” and means, according to the Explanatory Dictionary of the Romanian Language, “to make lose or lose one's credit, consideration, trust of others; to (commit)”.

5. Use of the term in Law on competition no. 183 of 11.07.2012

It is worth mentioning that the term “discredit” is used in the text of art. 15 of the Law on competition no. 183 of 11.07.2012 in two alternative normative ways:

- a) Indirect discrediting
- b) Direct discrediting

The normative meaning of the term “discrediting” is similar to that of the Explanatory Dictionary of the Romanian Language.

6. The need to approach the proposed topic

In practical terms, from a normative point of view, the discrediting of the competitor is dispersed in two distinct normative acts: Law on competition no. 183 of 11.07.2012 (art. 15) and the Law on advertising no. 1227 of 27.06.1997 (art. 9 para. (1) letter b)).

Thus, according to the provisions of art. 15 of the Law on competition no. 183 of 11.07.2012, "It is forbidden to discredit competitors, namely to defame or endanger their reputation or credibility by:

a) the spread by an undertaking of false information about its activity, about its products, meant to create a favorable situation in relation to some competitors;

b) the spread by an undertaking of false statements about the activity of a competitor or about its products, statements that harm the activity of the competitor".

Contextually, in accordance with the provisions of art. 9 para. (1) lit. b) of the Law on Advertising no. 1227 of 27.06.1997, "It is considered dishonest advertising that: b) contains incorrect comparisons of goods advertised with similar goods of another economic agent, as well as statements or images that harm the honor, dignity or professional reputation of the competitor."

From the wording of the provision of art. 9 para. (1) lit. b) of the Law on Advertising, there can be inferred two sub-modalities of manifestation of dishonest advertising:

- a) Comparative advertising
- b) Denigrating advertising

At the same time, certain contextual interferences may present non-authentic advertising manifested by the production, supply or dissemination of advertising that does not correspond to the reality regarding the trademark of the producer, or according to the provisions of art. 10 para. (1) lit. a) of the Law on Advertising no. 1227 of 27.06.1997, "It is considered inauthentic advertising containing data that do not correspond to reality in terms of: a) some characteristics of the goods necessary for the consumer, indicated on the label: quality, composition, date of manufacture, destination, properties of consumption, conditions of use and care recommendations, compliance with

the standard, the manufacturer's trademark, the origin and place of production of the goods...". However, we find that in that case there is no evidence of the presence of the discrediting element.

Apart from that, in the Criminal Code of Republic of Moldova, there is established criminal liability for comparative advertising. Thus, according to provisions of art. 246¹ letter e) from the mentioned normative act, „Any act of unfair competition, including:...e) comparison for advertising purposes of goods produced or marketed by an economic operator with the goods of other economic agents shall be punished with a fine from 3000 to 4000 conventional units or with imprisonment of up to 1 year, with a fine, applied to the legal person, from 3500 to 5000 conventional units with deprivation of the right to exercise a certain activity for a period of every 1 to 5 years”. But, due to the existence of other forms of liability for unfair competition act, this legal norm has proven not to be efficient, as there is no case law on the cited provision.

Apparently, those forms of manifestation of dishonest advertising involve certain points of interference with the unfair competition action of discrediting the competitor. Thus, disparaging advertising can be compared to the direct form of manifestation of unfair competition action of discrediting the competitor, and comparative advertising, in some respects, involves tangency with the indirect way of realizing the unfair competition action of discrediting the competitor. Such circumstances may involve certain qualifying difficulties.

In the existing doctrine, there have been revealed several criteria for distinguishing between competitive discrediting and dishonest advertising in the forms of manifestation specified above. Thus, mainly, the following were noted:

a) Competitive discrediting involves competing companies as victims while dishonest advertising involves the victimization of consumers;

b) In case of discrediting, the spread of information may have specific addressees or a small circle of people, but dishonest advertising must be accessible to the general public;

c) The subject of discrediting is only the undertaking, but the subject of dishonest advertising activity can be any person.

At the same time, some procedural differences have been noticed. Thus, if the notification comes from a consumer, the rules of the legislation on

advertising may be applied and, if necessary, of the Law on Consumer Protection will be applicable. On the other hand, if the complaint is filled by a competing undertaking, the facts are to be examined in the light of Law on competition no. 183 of 11.07.2012. (Gorincioi, 2019)

We consider the respective conclusions to be well-founded and, at the same time, we will put forward new hypotheses in that sense.

Thus, in the sense of a deeper examination of the aspects presented above, we consider the following similarities between the two extremes of the normative dispersion in question:

- a) Both concern the reputation of the competing undertaking;
- b) Both involve defamatory elements;

At the same time, there are a number of relevant differences in this regard that allow a clear distinction to be made between the two extremes:

a) Competitive discrediting imperatively implies the existence of false information, while disparaging advertising may even contain truthful statements.

b) Competitive discrediting may involve the spread of false information by transmitting it to a single person, while advertising is usually accessible to an indeterminate number of consumers.

c) Competitive discrediting is a formal action that sufficiently involves the spread of false information, regardless of the existence of an effect or injury, while disparaging advertising involves the actual damage to the honor, dignity or professional reputation of the competitor, as a result of accessible advertising to an indeterminate circle of consumers.

d) Competitive discrediting involves two alternative ways of manifestation (direct and indirect), while denigrating advertising can only affect the competitor directly; at the same time, comparative advertising may involve interferences with the indirect form of discrediting of the competitor.

Therefore, disparaging advertising and competitive discrediting have sufficient distinguishing points in the sense of achieving a delimited qualification.

7. Conceptual problematic aspects regarding the discrediting of competing trademarks

In the legislation of the Republic of Moldova, comparative advertising is a way of manifesting dishonest advertising, provided in the text of art. 9 para. (1) lit. b), prop. 1., which provides for 'incorrect comparisons', and the lack of a discrediting element is one of the criteria for determining the 'incorrect' rating of comparisons made in advertising.

Taking into account all the above considerations, we distinguish 4 options to qualify the action of discrediting competing trademarks:

a) Indirect discrediting, by spreading false information by the denigrating company about its own trademarks, thus being put in a favorable light in relation to the denigrated competitor;

b) Direct discrediting, by spreading false statements about the competitor's trademark, the action being meant to damage the latter's reputation;

c) Denigrating advertising, which involves an advertising activity that harms the honor, dignity or professional reputation of the competing undertaking by attacking the competitor's trademark

d) Comparative advertising, which puts the competitor's trademark in a negative light by making comparative assumptions between the trademark of the manufacturer, supplier or broadcaster of comparative advertising and its competitor (similar goods of another economic operator).

The first two qualifying alternatives represent normative modalities of the unfair competition action of discrediting the competitor, enshrined in the text of art. 15 of the Law on competition no. 183 of 11.07.2012, and the last two alternatives represent normative ways of manifesting of dishonest advertising, enshrined in the text of art. 9 para. (1) lit. b) of the Law on Advertising no. 1227 of 27.06.1997.

As an example, we will present the following hypothetical illustrations of the violations addressed in this paper:

a) *Indirect discrediting*. Undertaking X manufactures and sells household appliances and states that its Y-marked products have a number of advantages over other competing brands on the market due to its main characteristics. Thus, undertaking X disseminates false information about its own brand Y and places itself in a favorable light in relation to competing undertakings on that market.

b) *Direct discrediting*. Undertaking X operates on the market for Y-marked hotel services and spreads false information about the quality of services provided by undertaking Z with trademark A, which is a directly competitive activity with Y trademark.

c) *Denigrating advertising*. Undertaking X places advertising material on a radio station that urges you not to purchase a particular Y-marked product because of its poor quality.

d) *Comparative advertising*. Undertaking X places advertising by which it compares its own services provided under the Y trademark with the services of competitor A provided under the B trademark, thus putting in an unfavorable light the services provided by the competing company.

In practice, it is possible for the same action to bring together the constituent elements of several infringements set out above or to commit two separate acts. This circumstance is particularly relevant given that the same authority has jurisdiction to examine infringements of unfair competition and advertising law. Thus, according to the provisions of art. 39 lit. e) of the Law on competition no. 183 of 11.07.2012, “The Competition Council has the following main attributions: e) investigates anti-competitive practices, unfair competition and other violations of the legislation in the field of competition, state aid and advertising, within the limits of its competence ...”.

8. Conflict of qualification and cumulation of illicit acts

8.1. Conflict of qualification

In the case of the simultaneous existence of signs of two distinct unlawful acts (signs of discrediting the competing trademark, on the one hand, and signs of disparaging or comparative advertising, on the other hand, the following aspects will be taken into account:

a) The dimensions of the illicit act, or the relation to the degree of spread of the respective information (a larger audience will be taken into account for the comparative advertising);

b) Competitive discrediting will always involve the spread of false information/statements, while in the case of advertising the lack of veracity is not a mandatory sign;

c) Competitive discrediting is oriented towards a certain competitor, while the advertising implies the advertiser's intent to put in a favorable lights its product.

d) Competitive discrediting will be committed intentionally each time, while dishonest advertising could involve other forms of guilt.

e) The object of competitive discrediting will always be a competitor, while in the case of advertising, although made to the detriment of a competitor, the object may be different.

Procedural considerations may also be listed in order to resolve potential conflicts of qualification:

The author of the notification. If the complainant is directly the competitor whose legitimate interest has been affected by the actions of company X, then the administrative procedure before the Competition Council can be initiated based on the provisions of the competition legislation; on the contrary, in the case of advertising, the subject of the notification may be any person.

Form requirements. In the case of competitive discrediting, the complaint must correspond to the formalities of the form approved by the Decision of the Plenum of the Competition Council, in accordance with the provisions of art. 14 para. (2) and (3), art. 49 para. (2) - (4) and art. 51 para. (2) and (3) of the Law on competition no. 183 of 11.07.2012. Thus, according to the provisions of the norms from art. 14 para. (2) of the Law on competition, "Unfair competition actions prohibited by the provisions of art. 15–19 shall be examined by the Competition Council, upon the complaint regarding the alleged unfair competition actions filed by the undertaking whose legitimate interests have been harmed, under the conditions stipulated in art. 49 para. (2) - (4)". At the same time, in accordance with the provisions of para (3) of the nominated article, "The complaint regarding the alleged unfair competition actions shall be submitted according to the form adopted by decision of the Competition Council, under the conditions provided in art. 51 para. (2) and (3)".

The limitation period. Based on the provisions of art. 14 para. (5) of the Law on competition no. 183 of 11.07.2012, "The undertaking whose legitimate interests have been harmed may submit the complaint regarding the alleged unfair competition actions to the Competition Council within 6 months from

the date on which it knew or should have known about the realization of the alleged unfair competition from another undertaking”.

8.2. Cumulation of illicit acts

In practice, it is possible to meet the qualifying elements of several types of infringements by committing possible deviations from the law. For instance, company X, through a social network, spreads false information about the competitor's trademark Y (quality of products manufactured under the given trademark) - ideal cumulation or company X spreads false information about the brand of competing company Y through social networks and, at the same time, broadcasts through the audiovisual media denigrating advertising about the same products of the same competitor – real cumulation of illicit acts.

In such situations, the following question appears: can the contraventional liability coexist with the administrative one regarding the same act (in the case of the ideal cumulation of illicit acts) and regarding different but related acts (real cumulation of illicit acts).

Although there are several opinions regarding the coexistence of different forms of liability, we consider that in this case, administrative liability may coexist with contraventional liability, given the following relevant circumstances:

a) The authority to apply the sanction. In this case, the contraventional liability for dishonest advertising is applied by the court, and the administrative liability for competitive discrediting is applied by the national competition authority (Competition Council);

b) The act by which the sanctions are applied. The contravention liability is applied by means of a court decision, and the administrative liability by means of a decision of the Plenum of the Competition Council (unfavorable administrative act).

c) The normative act that governs the respective relations. The contraventional liability is applied based on the provisions of the Contravention Code of the Republic of Moldova, and the administrative liability is applied based on the provisions of the Law on competition no. 183 of 11.07.2012.

9. International trends

In an international context, discrediting competing trademarks is assimilated to comparative advertising in many cases. In this respect, the WIPO model provisions on protection against unfair competition are relevant. Thus, according to the provisions of art. 5 para. (2) of the nominated act, 'Discrediting may arise out of advertising or promotion and may, in particular, occur with respect to (i) the manufacturing process of a product; (ii) the suitability of a product or service for a particular purpose; (iii) the quality or quantity or other characteristics of products or services; (iv) the conditions on which the products or services are offered or provided; (v) the price of products or services or the manner in which it is calculated. So, as it can be inferred from the cited provisions, the authors consider a direct link between discrediting and advertising, so that discrediting may arise out of advertising or promotion. However, it is not limited only to advertising.

In countries where emphasis is traditionally placed on the protection of honest entrepreneurs and their reputation, comparative advertising is either prohibited or at least severely restricted. Sometimes, the mere fact that a competitor's name is mentioned against his will is taken into account and, accordingly, the action is considered to be discrediting and therefore is considered to be unfair competition.

According to the rule that "the honest businessman has a right not to be spoken of, even if the truth is spoken", the legislation of some countries has expressly forbidden all comparisons that unnecessarily identify a competitor. The same argument has led courts in other states to consider comparative advertising automatically against fair commercial practices (and therefore against the general provisions on unfair competition). Although it has sometimes been pointed out that true comparisons may be in the interests of consumers, doctrine and case law have in practice allowed comparisons only in very special circumstances, for example, if they were expressly requested by a customer, if they were made to counter a illegal attack on the advertiser or if the comparison is necessary to explain certain systems or new technical developments in general.

In recent years, however, this attitude towards comparative advertising has changed substantially. Thus, it is increasingly recognized that true comparative materials of relevant facts not only reduce the costs of searching for consumer information, but also have positive effects on the economy by improving market transparency. Courts in states that traditionally consider comparative advertising to be disparaging have gradually relaxed the strict prohibition on all statements identifying a competitor. For example, price comparisons based on true, relevant and comprehensive materials may be allowed. Overall, there seems to be a clear trend towards admitting truthful comparative advertising.

On the other hand, it cannot be denied that comparative advertising can more easily be misleading or disparaging than most other forms of advertising, for example if the comparison is based on irrelevant (or not really comparable) aspects, or if the overall impression is misleading. These potential dangers require special safeguards against abuse. Countries that allow comparisons place special emphasis on the fact that even true statements must not be unnecessarily disparaging or that irrelevant facts must not be compared.

In the same context, comparative advertising is often impossible without referring to a particular trademark that refers to a particular product, service or business. In such cases, in addition to advertising and unfair competition law, trademark protection law must be taken into account.

In states where trademarks are protected only as indications of the source of a product or service, the use of a trademark in comparative advertising may not fall within the scope of trademark protection law. However, there are states where the use of another person's trademark is made in comparative advertising, applicable to trademark protection law. (WIPO Handbook on Intellectual Property, 2004).

10. Actuality

10.1. European Union

At EU level, Directive 2006/114 / EC of the European Parliament and of the Council of 12 December 2006 on misleading and comparative advertising

is in force. In the text of art. 4 lit. d), the following is stated: "Comparative advertising shall, as far as the comparison is concerned, be permitted when the following conditions are met:...d) it does not discredit or denigrate the trademarks, trade names, other distinguishing marks, goods, services, activities or circumstances of a competitor".

Therefore, at European level, the lack of the element of discrediting or denigrating competing brands is a criterion for the permissiveness of comparative advertising.

Thus, comparative advertising is allowed, as it can be very useful to consumers, provided that it is (i) true; (ii) non-misleading and (iii) meets the conditions of art. 4 of that Directive. One of the conditions given is that comparative advertising must not "discredit or denigrate the trademarks, trade names, other distinguishing marks, goods, services, activities or circumstances of a competitor".

Discrediting is a form of denigration and, since both are covered, no further distinctions are needed. However, not all comparative advertisements which discredit a competitor's trademarks must constitute discrediting within the meaning of that Directive, as any critical comparative advertising implies a certain discrediting of the competitor or its products. In the case of an absolute prohibition, the expected liberalization of comparative advertising would not have been achieved. Therefore, only in cases where advertising unduly discredits or denigrates a competitor's trademarks, trade names, products or activities, it should be considered illegal. In particular, where comparative advertising emphasizes the benefits of its own goods or services and reasonably highlights the disadvantages of the product of other competitors, there should not be any concerns regarding the lawfulness of the advertising material. On the other hand, comparative advertising that focuses only on the negative aspects of the competitor or its products is not acceptable. In the same context, discrediting can also result from an inappropriate and aggressive tone, unusual representation or assessment, or even non-specific, global rejection.

10.2. United States of America

In the US, the legislation on comparative advertising is relatively similar to that in the EU, but still more permissive than the latter, so that any kind of

comparative advertising is allowed, except that which presents untrue information.

11. Relevant practice

11.1. National practice

A relevant case in this respect is the one solved by Decision no. CN-16/19-07 of 25.02.2020 („Simplex-Co” S.R.L. against „Viloterm” S.R.L.). Thus, the Competition Council noted the following: “... signs of the discrediting action of the competitor were identified by the fact that it was spread by “Viloterm” S.R.L. of false claims about the products marketed by its competitor, namely that BAXI brand boilers are of poor quality and are produced in Turkey but not in Italy. Thus, it is noted that the company "Viloterm" S.R.L. did not have information regarding the inadequate quality of the BAXI boilers (in the context in which the defendant does not ensure their repair during the warranty and post-warranty period), but spread false information in this regard. This fact is certain and is confirmed by all the information resources accumulated in the process of conducting the investigation. The information presented by the representative of "Viloterm" S.R.L. consumers, during the telephone discussions, regarding the quality of the products, determined the buyers to give up the purchased product, returning it to the seller - „Simplex-Co” S.R.L. The respective statements of "Viloterm" S.R.L., having no evidentiary support, constitute in themselves actions that discredit and harm the activity of "Simplex-Co" S.R.L." Finally, the following were mentioned: „Based on the above, it is concluded that the company "Viloterm" S.R.L. took actions to discredit the competitor by spreading false statements about its products, statements that harm the activity of "Simplex-Co" S.R.L. Thus, the violation of the provisions of art. 15 lit. b) of the Law on competition no. 183 of 11.07.2012”. Respectively, the act of spreading false information about the competitor's products was qualified as direct discrediting”.

Another relevant case is the one solved through the Decision of the Plenum of the Competition Council no. CN-50/19-30 of 09.07.2020 ("Invivo-Tech" S.R.L. against "Dermocosmetica" S.R.L.). Competition Council noted

the following: “Thus, following the generation of all the accumulated materials, as a whole, the following are concluded: (i) the undertaking “Dermocosmetica” S.R.L. took both indirect and direct discrediting of the competitor by 1. disseminating false information about its products and 2. about the competitor's products, which is detrimental to the latter's activity, given that the a) silences the expiry of European product certificates and b) discredits the competitor through the posts made within the social networks by the defendant's administrator; (ii) such actions jeopardize the reputation of the applicant undertaking and its products, and (iii) as a result, the risk of migration of the applicant undertaking's customers to the claimed undertaking is generated, which is likely to result in substantial losses in terms of regarding its main economic indicators addressed in the report ”. Finally, the following were specified: “Based on the above, it is concluded that the company” Dermocosmetica” S.R.L. has undertaken actions to discredit the company "Invivo-Tech" S.R.L., by spreading false information about its own products, as well as about the economic activity of the competing company "Invivo-Tech" S.R.L. In this context, it was found the violation of the provisions of art. 15 of the Law on competition”.

11.2. International practice “British Airways against Ryanair Ltd (2001)”

One of the most resonant cases dealing with comparative advertising, especially in terms of denigration, is *British Airways v. Ryanair Ltd (2001)*. Ryanair organized a comparative advertising campaign in various UK publications in 1999. The first advertising material is known as 'Bastard' advertising (entitled 'EXPENSIVE BA... .DS!') And later 'Expensive' advertising. (title "EXPENSIVE BA"). That publicity appeared in February and March in several national periodicals. The "expensive" ad appeared only once in November, in the "Evening Standard". British Airways ('BA') is a registered trademark consisting of the letters BA registered for, inter alia, air travel services. The Advertising Standards Authority has been considering a complaint from the general public against the 'Bastard' advertisement. The Authority considered that such advertising material could cause significant damage to British Airways, but Ryanair Ltd undertook to cease the subsequent dissemination of that advertising. The second advertising material was the

subject of an action for infringement of trademark rights and harmful falsity, but that action was ultimately rejected. (Andraško and Sopúchová, 2016)

12. Conclusions

All the issues addressed in the context of the elaboration of the scientific material in question allow the following general conclusions to be drawn:

- Discrediting competing trademarks implies the existence of multiple qualifying options;
- The respective qualification options are dispersed in distinct normative acts;
- The regulatory dispersion in question is likely to cause qualification impediments to the

Competition Council as the authority investigating the categories of cases;

- There are jurisdictions in which the discrediting of trademarks is an infringement, including based on the provisions of trademark protection legislation;
- Defining the criteria for delimiting different qualification options is a crucial aspect in order to achieve a correct qualification of the conduct of undertakings in their economic activity.

From our point of view, Competition Council has to examine all the relevant circumstances on a case by case basis for the purpose of identifying the correct solution for each practical situation. In this regard, there should be taken into consideration the above mentioned and discussed criteria.

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Intellectual Property in the Context of Global Ethics

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Abstract

Today we are the subjects and witnesses of the continuous development and transformation of society, which has made rapid leaps from modern to the informational and knowledge-based society. In this sense, in order to ensure technological, economic and social progress, Intellectual Property Rights (IPR) must become the only key element for protecting ideas, stimulating innovation and creativity, designing and contributing to the creation of technology. In this article the authors emphasize the need to address IPR in the context of global ethics, because IPR is also the social responsibility and moral duty of every global citizen, whether creative or consumer, to respect the cultural and intellectual heritage of humanity and to contribute to its diversification and to overcome the challenges of the contemporary world in the digital age. In the current context of the globalization of economic, social and even spiritual life, the need for morality of people is becoming more and more pressing, on which we will continue to focus our concerns, because any new issue addressed includes a component of global ethics.

Keywords: copy right, related rights, industrial property, global society, social responsibility, sustainable development.

JEL Code: A13, I23, I28, I31

1. Introduction

The approach of globalization, as a process of communion, cooperation and awareness of the fact that people, living in concrete societies and

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belonging to local civilizations, also belong to a "world community", has in itself a decisive legitimacy in the development of global society. In the current context of the globalization of economic, social and even spiritual life, the need for morality of people is becoming more and more pressing, on which it is necessary to focus our concerns. Dalai Lama believes that "In the age of globalization, the time has come to recognize that our lives are closely interconnected and to accept the global dimension of our behavior" (Dalai Lama, 2017, p. 45), which highlights that our interests are better defended, when we serve the interests of the entire human community.

Given the fact that rapid economic progress and the expansion of technology on a global scale have led to the reaffirmation of ethical considerations, it has become imperatively necessary to establish new ethical relations at all levels of global society, ensuring common cooperation and well-being. For these reasons, we believe that as relationships between people become closer and closer, overcoming spatial barriers, ethics becomes an issue that can no longer and should not be ignored. As a result, the angle of approach to the ethical horizon needs to be extended from a local /national/regional/continental framework worldwide, in a process that involves reporting to a system of universal values, norms and ethical concepts that provide a new understanding of things from the perspective of responsibility, solidarity, rights and obligations. In this context, a new concept has been established that analyzes and seeks ethical solutions to the challenges of the contemporary world, called global ethics.

2. Literature review

From the point of view of content, ethics can be considered global when the justifications, values, principles and norms that it contains have a moral significance and global coverage. An example of global ethical content is the duty of mutual respect, regardless of the criteria of human differentiation (gender, age, race, religion, political affiliation, level of education, financial situation, social position, function, etc.). Equal respect for any human being can be reflected in the help given directly to one's neighbor, unconditionally and selflessly, in the same way, whether he is a friend, a relative or a stranger.

Also, the duty of mutual respect presupposes both respect for private property in general and respect for intellectual property, whether individual or collective.

Intellectual property (IP) is defined in various regulations and legislation governing both national and international law. For example, World Intellectual Property Organization (WIPO) notes that intellectual property refers to creations of the mind, such as inventions; literary and artistic works; designs; symbols, names and images used in commerce (WIPO). Article 9 of the Constitution of the Republic of Moldova stipulates that property consists of material and intellectual values. In addition, the Law No. 114 of 03-07-2014 on the State Agency of Intellectual Property defines: intellectual property as a private property owned by individuals or legal entities with the right of possession, use and disposal. Intellectual property includes objects resulting from intellectual activity in the industrial, economic, commercial, scientific, informational, literary and/or artistic fields, as well as in other fields (Law No. 114 of 03.07.2014).

S. Lakshmana Prabu, T.N.K. Suriyaprakash and C. Dinesh Kumar define intellectual property rights as the rights given to any particular person/organization for their new creations based on their minds for a certain period of time with an exclusive right over the use of their creation (Prabu, Suriyaprakash & Kumar, 2012). In other words, in a broad sense, intellectual property refers to all the rights associated with intellectual activity in the following areas: literary, artistic and scientific, economic, commercial and industrial. Unlike property in general, which relates to the possession of material goods, intellectual property has been enshrined as an objective reality, referring to "spiritual goods." So, traditionally, intellectual property is divided into two branches:

- *Copyright and related rights* - refers to the protection of works in the literary field (novels, poems, plays) artistic (films, musical works), scientific (monographs, research projects, scientific articles, etc.), artistic-architectural (paintings, photographs, sculptures, architectural design), computer programs (games, websites, etc.) - copyright - as well as the results of the work of performers, producers of phonograms, video grams and broadcasting organizations, or by cable - related rights. In other words, this branch of

intellectual property refers to categories of intellectual creation whose protection arises by itself, from the moment of their realization without the need for an examination and certification procedure. It is protected by copyright, provided that the creation is original.

- *industrial property* - refers to categories of industrially reproducible intellectual property in the form of products, processes or methods, including the protection of inventions, plant varieties, integrated circuit topographies, industrial designs, trademarks of products and / or services, designations of origin and traditional specialties guaranteed, etc. This type of property is protected on request, by certification, patent, based on an assessment of an official specialized body.

3. Addressing the protection of intellectual property as an individual and global right and responsibility

Intellectual property has become the subject of legislative regulations, which pursue two well-defined purposes. On the one hand, the legislation establishes the moral and economic rights of creators over their creations, as well as the rights of the public (beneficiaries, users) to have access to these creations. On the other hand, legal rules aim to promote creativity, spread and encourage a fair use of the results of this activity.

At the same time, in the information society and, more recently, in the knowledge-based one, the moral norms in force refer, including, to intellectual property and copyright, protecting them, and their violation is blamed, whether it is voluntary or involuntary. As a result, within the organizations, institutions (especially those whose activity has as purpose various types of creation) that operate locally, nationally, regionally, but also globally, codes of ethics and standards of good practice have been developed and adopted which expressly stipulate the obligation of each employee to respect the copyright and intellectual property of both his colleagues and creators outside the organization.

For example, universities around the world value these rights as essential to the institution's prestige and performance, to the reputation of its members, and to the effective conduct of academic life. The activity of

universities, especially those with a technical profile, have as central objective not only the development of the instructive-educational process (teaching-learning-evaluation), but also the scientific research, as a result of which a diverse volume of intellectual creation is generated that is regulated by both branches of intellectual property: copyright and related rights, and industrial property. In turn, scientific research and technological development are the main creative and generating activities of economic and social progress. In this sense, universities, especially those with a technical profile, deal with: 1. fundamental research, which includes the activity carried out in order to acquire new knowledge on phenomena and processes, as well as in order to formulate and verify hypotheses, conceptual models and theories; 2. applied research - an activity aimed mainly at using scientific knowledge to improve or develop new products, technologies and services, and, last but not least, 3. technological development - consisting of systems, engineering and technological engineering, through which the application and transfer of research results to economic agents is carried out, as well as the introduction and materialization of new technologies in the social field.

For these reasons, universities adhere unconditionally to the principles of full respect for intellectual property and ensuring academic integrity, and the promotion of these principles has become a criterion of performance and a central principle of their own activity and their institutional development policy. At the same time, it is obvious that respecting intellectual property and copyright is not only the social responsibility of the university, but also the professional obligation and moral duty of each member of the academic community, whether student, trainer, teacher or researcher. Following the analysis of the multiple situations of infringement of the right to intellectual property, detected in various academic and scientific communities, it was found that most frequently, infringement of intellectual property and moral rights of authors materializes by: - copying or paraphrasing a pre-existing text without mentioning the author: unassigned citation of ideas, arguments, data, results, etc. in a way that gives the impression that they belong to the person quoting - public presentation of ideas, research results, representations (visual, auditory) hypotheses, data, formulas, algorithms, program sequences, demonstrations, etc. of other authors as their own - the acquisition of

intellectual contributions (translations, systematizations, etc.) of other authors and their public presentation without explicit mention of the sources of these contributions. All these are committed voluntarily or involuntarily, despite the fact that the academic norms in force expressly provide for the obligation to specify the sources.

The concerns about intellectual property are based on a series of unanimously recognized ethical principles: individual responsibility, autonomy from moral to legal evaluation, differentiation of responsibility and proportionality of sanctions according to the seriousness of the violation, impartiality and academic integrity. In this sense, the violation of this obligation is a serious fault and it must be severely sanctioned, with punishments that can go as far as expulsion, dismissal, interruption of collaboration, payment of material and moral damages, etc. Like all citizens, members of the academic community are liable to justice for any act contrary to the legal provisions regarding the enforcement of intellectual property. However, before having this legal responsibility, they have, first of all, a moral responsibility for its observance, which, if it is conscious, will not appeal to the coercive instruments of the former.

Another facet of individual responsibility is the obligation of each member of the academic community to show intransigence towards conduct or practices that infringe copyright, i.e. to adopt an attitude that does not allow compromises or conciliations or exceptions to the cause or to apply the principle of zero tolerance. Infringement of intellectual property is not a simple personal matter. It does not only affect the guilty party (taking into account the existence or the lack of guilty intent) and / or the injured party (taking into account the purpose and results of the acts committed, whose severity increases with the importance of their consequences - for example, obtaining academic positions, distinctions or awards, or benefits (titles, academic qualities, etc.)), but it is a matter of public morality and institutional performance. Governing bodies, teams, teachers and students have a moral and professional obligation to detect possible reprehensible acts, copyright infringement and to take action against them in order to protect a defining quality of university activity: academic integrity. Moreover, in the conditions of the information society and the knowledge-based one, in the conditions in

which digital technologies have profoundly changed the way creative content is produced, distributed and accessed and in the context of a dynamic information environment, but prone to large-scale cyber-attacks, intellectual property protection goes beyond the national framework of legal and moral regulation, becoming the subject of international law and global ethics.

In this sense, intellectual property protection is an important component of national economic policies. Governments face complex choices on how to design an IP system that best serves their policy objectives, and how to respond to changes in technology and in business models that challenge the status quo. According to Ganguli P., recent exploration of the technology towards new dimension and path, IPR system helps to ensure and encourage new innovation and sharing the acquired knowledge during the innovation globally. Various IPR issues are:

- Domain names and trademarks: Copyright in cyberspace;
- Rights on traditional knowledge, prior art, material transfer agreement and bio-prospecting;
- Software and patents;
- Biotechnological inventions and moral issues and patents;
- Compulsory licensing options, border measures and parallel imports and exhaustion of IPR;
- Government control on export of technology (Ganguli P., 2000).

Although governed by various national laws, intellectual property rights (IPR) are also covered by European Union legislation. Article 118 of the Treaty on the Functioning of the European Union provides that, in the context of the establishment and functioning of the internal market, the Parliament and the Council establish measures for the creation of EU intellectual property law in order to ensure uniform IPR protection and to set up centralized authorization, coordination and control throughout the EU. For example, the European Union Intellectual Property Office (EUIPO) is responsible for managing the EU trademark and designs. Also, the EU Parliament is working to harmonize IPR by creating a single European system, in parallel with the national ones, for example: the EU trade mark and designs and the European unitary patent. All these measures provide the necessary regulatory framework for intellectual property to create added

value for European businesses and economies, and as a result to contribute to the development and innovation of European society.

In addition, globally, in 1967, it was created the World Intellectual Property Organization (WIPO) which currently has 193 member states, including the Republic of Moldova, since 1991. The major goal stated by WIPO is to encourage creative work and the promotion of intellectual property anywhere in the world, so that the creativity of inventors and authors is recognized and rewarded. At this level, the international protection of IPR is an impetus for human creativity, with the effect of continuously expanding the field of science and technology and diversifying the world of literature and the arts. In addition, ensuring IPR protection globally would pave the way for international trade, ensuring a stable and conducive environment for the marketing of intellectual property products. In close cooperation with Member States and other stakeholders, WIPO is working to ensure the existence of an intellectual property system that remains a flexible and adaptable tool for prosperity and well-being, designed to enable the full exploitation of the potential of intellectual property in the benefit of current and future generations.

As a specialized agency of the United Nations, the World Intellectual Property Organization contributes to the *Sustainable Development Goals* by providing concrete services to its member states, enabling them to use the intellectual property system to drive the innovation, competitiveness and creativity needed to achieve these goals. The *2030 Agenda for Sustainable Development* and its 17 Sustainable Development Goals (SDGs), adopted by all United Nations Member States in 2015, as the most ambitious development agenda in human history, is a roadmap *to end poverty*, protect the planet and ensure that all people live in *peace* and *prosperity*. In this regard, we emphasize that global society is not just about peace between nations. It embodies that special state of mind to which Spinoza referred: "Peace means more than the mere absence of war, peace is a virtue." He added: peace is "a state of mind, a disposition for goodwill, trust and justice."

Indeed, true peace exists only if people have the confidence and certainty that their interests are recognized and represented, are satisfied with their political system, and are guaranteed that their fundamental rights are

respected. As a community of universal values, it represents this vision of freedom and justice, which places the individual and respect for human dignity in a central position and which cannot exist outside democracy (Tocqueville, 2017, p.23). Through constant dialogue and negotiations, applying the art of compromise and the ethical principles of human interaction, covering more and more issues and involving more and more countries, the promotion of world peace, as an indispensable condition for managing other global issues, is possible.

In this sense, in the context of global ethics, on the one hand, the human being must be considered the greatest value of the planetary society, whose dignity must be respected and promoted by creating the necessary conditions for the development of the human being as:

- free and multilaterally developed personality;
- specialist and professional with working conditions conducive to his continuous training;
- identity, not subject to the risk of depersonalization;
- citizen who actively participates in the social-political life at national and global level, in non-discriminatory conditions, of equity and equal opportunities;
- as a responsible person who contributes to the establishment of harmonious relations between man, nature and society, both locally and globally.

On the other hand, the human being must be considered the holder of global citizenship which involves the following responsibilities:

- to contribute to the common good and prosperity;
- to anticipate the impact of its actions on the security and well-being of others and on nature;
- to promote fairness and non-discriminatory treatment in relation to other people,
- to protect the interests of future generations by developing and preserving global assets;
- to respect the cultural and intellectual heritage of mankind and to contribute to its diversification;

- to be an active participant in the governance, promotion and implementation of social reforms and the solution of the problems of the global society.

All these situations and responsibilities cannot be ensured if the right to intellectual property has not been promoted and respected. At the same time, beyond legally recognized rights, there are inalienable moral rights, such as the rights of each author, that his results and contributions be respected, that his ideas and data not be taken over or exploited without the necessary recognition and that the fraudulent appropriation of intellectual contributions to be appropriately sanctioned. These rights are indispensable elements for stimulating creative activity and performance.

Thus, intellectual property is a critical incentive for innovation and creativity, which in turn are key to the success of the SDGs. Only through human ingenuity it will be possible to develop new solutions that: eradicate poverty; boost agricultural sustainability and ensure food security; fight disease; improve education; protect the environment and accelerate the transition to a low-carbon economy; increase productivity and boost business competitiveness. In turn, all these challenges of the contemporary world require ethical approaches at the global level.

WIPO seeks to contribute to a better understanding of the economic effects of different IP policy choices and to offer a first entry point for information on the economics of IP. Also, WIPO works globally, with its member states as well as public and private organizations, to help develop understanding of and respect for intellectual property. Building respect for IP means helping create an environment in which intellectual property can fulfill its role to stimulate innovation and creation. It also means fostering an environment in which the system of protection provides equitable benefits to both owners and users of IP. Building respect for IP requires integrating elements encompassing developments in legislation, awareness and cultural change, business and technology solutions, and institutional collaboration.

5. Conclusions

Therefore, at the individual level, on the one hand, for the *creator*, the protection of intellectual property rights represents the security of

appreciation of creativity, originality and efforts made in the creative process. Given the lack of legal and moral rules that would protect intellectual property, an inventor would consider that his investment in developing a new idea or product could be neglected, which would diminish his motivation to create more innovative intellectual products in the future. On the other hand, for the beneficiary/consumer the protection of the intellectual property right represents the guarantee of the quality and the inoffensiveness of the purchased products/services. IPR guarantees consumers that the products they buy have been tested, approved and safe. A counterfeit product may look exactly like the original, but has often not been tested to make sure it is safe. This is especially true for fake cosmetics and consumables.

Also, intellectual property allows consumers to make choices between competing entrepreneurs, and the goods and services they sell. Therefore, IP is inherently pro-competitive as it ensures the protection of differentiated, intangible business assets. Without IP, less efficient manufacturers and service providers would try to lure clients by copying the goods and services of more efficient competitors. The latter would lose any incentive to improve or to offer new products and services. Society as a whole would lose. But IP only performs that crucial role of ensuring competition when it protects genuine differences.

At the national level, infringements of intellectual property rights also deprive governments of tax revenue. This means a higher tax burden for businesses and individuals, who comply with the law and often means less money for schools, healthcare and social protection. At the global level, the protection of intellectual property rights is an essential parameter of progress in the field of research, innovation and employment, being at the same time the social and moral responsibility of every citizen. From this, we conclude that through the global dimension to which it aspires, ethics is more concerned with communities than individuals, its effectiveness being amplified, and the principles, norms and values of global ethics are applied in a context of global interconnection, which transcends national and continental spaces. In other words, global ethics does not simply internationalize a set of principles, but offers a new perspective for identifying alternative solutions

to new global ethical dilemmas and challenges, starting from a common ground.

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