

Global Competitiveness of the Economy and Intellectual Capital Index: Case of the EU Countries and Ukraineⁱ

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This research aims to analyze indicators of competitiveness of Ukraine economy in contrast to consistent indicators of the EU countries' economies in context of forward-looking perspective on integration Ukraine into the EU, as well as examine the national index of intellectual capital considering each of its dimensions (human capital, market capital, process capital and renewal capital) within three pillars: Education, R&D, New Business, and explore the potential for growth of Ukraine's economic competitiveness global given its innovation aspects. The study uses a mixed approach, including factorial analysis and descriptive statistics, using a sample of 27 the EU economies and Ukraine's economy. The study shows Ukraine has significant innovative potential, high level of higher education and training. It is a crucial competitive advantage, providing successful economic development and accelerating integration Ukraine into the EU. Only through developing of advanced technologies and implementing them in all sphere, stable pace of economic growth and welfare of the nation can be achieved in the conditions of globalization. The restraining factors are corruption, political instability, inflation, and ineffective state policy. In order to be more innovative and, hence, competitive, Ukraine needs to focus more on the structural and comprehensive reforms of institutional environment, concerning the ethical behavior of companies, the protection of property and intellectual property rights, transparency in the adoption of state decisions, the independence of the judiciary, the efficiency of the use of the state budget, public trust in politicians etc. Future studies may explore the opportunities for enhancing innovation performance based on the management of intellectual capital in more detail, using larger sample sizes.

Key words: intellectual capital, global competitiveness, investment attractiveness, economic freedom, corruption perceptions.

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Introduction. In the era of Fourth and Fifth Industrial revolutions the decisive factor for growth of economies' competitiveness in global environment is intellectual capital, which is the engine for fundamental transformation of global production systems and the driver of economic development and prosperity of nations [18, 19, 23]. A key indicator of the economic development is a rank of economy in the international economic ratings. Leading world

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rankings define the position of the country in terms of competitiveness, investment attractiveness, corruption of institutions, economic freedom as well as economic potential, human capital and its development.

Problem statement. Theoretical fundamentals of economic competition, the structure of the international competitive environment, analysis of the preconditions for competitive advantages, as well as the problems of achieving the countries' high competitiveness have been studied rather profoundly by scholars, namely R. Vernon, G. Grouber, Ch. Johnson, A. Smitt, R. Solou, S. Ounter, E. Chamberlin, J. Shumpeter, F. Hayeka, E. Hechere etc. Despite significant scientific and practical achievements in the field of study, it should be noted that in Ukraine up to this time, the issues related to enhancement of its competitiveness in global environment have remained insufficiently elaborated and worked at.

The purpose of the research is to study the potential for growth of global economic competitiveness given the national index of intellectual capital on the example of the EU and Ukraine.

Results of the research. Ukraine in terms of geographical location is an integral part of Europe. A clear desire of Ukrainians to join the EU, the signing of the Association Agreement became the first step towards building a European society. However, the process of reforming socio-political and economic relations in Ukraine takes place at a very slow pace under the pressure of an authoritarian corrupt political system that dominated for decades in the state. The research and analysis of the level of competitiveness of Ukraine over the past decade will provide an opportunity to make conclusions about the prospects of integration to the EU, as well as identify the weaknesses and the advantages of the domestic economy. The determining indicators of the effectiveness of the country's economic policy is its position in global rankings. Generally, there are about ten international indexes. The most common are the Global Competitiveness Index (GCI), KOF Index of Globalization (KOFI), Global Sustainable Competitiveness Index (GSCI), Ease of doing business (EDB), Index of Economic Freedom (IEF), Corruption Perceptions Index (CPI), Human Development Index (HDI), Index of Economic Freedom (IEF), Investment Attractiveness Index (IAI) etc.

It should be noted that in the Industry 4.0 and Industry 5.0 it is the level of intellectualization of society that is the factor determining long-term competitiveness of the economy [20, 21]. Therefore, when assessing the global competitiveness of the country, it is advisable to explore in addition to indicators mentioned such an indicator as the national index of intellectual capital (NICI) [17, 22, 24]. Given intellectual capital as the crucial source of nations' wealth, their competitiveness and productivity, *NICI* is regarded as yardstick helping policy-makers to manage productivity and, hence, forward country's economy [1, 43].

Modern approaches to *NICI* assessment has been developed from Bonet's methodology [2, 25, 43] based on 4 pillars of intellectual capital: human capital, market capital, process capital and renewal capital. It should be noted that according to Solability's methodology [25] all indicators of intellectual capital are divided into three groups: Education, R&D, New Business, and additionally, the indicators of school education as a factor in shaping future human capital is taken into account. Given forward-looking reflection on the future, the further analysis of indicators is recommended to carry out based on Solability's approach [25].

Thus, comprehensive analysis of all indicators makes it possible to assess the country's competitiveness in the most detailed way, as well as the ability of national economies to achieve sustainable development on the basis of new knowledge and technologies. The ranking of the EU countries and Ukraine in the world in terms of economic competitiveness is shown in Table 1 and Table 2.

The analysis shows that Ukraine lags behind the rest of the EU countries in most of the indicators. Nevertheless, according to NICI Ukraine has significant potential for further economic development. The study of Ukraine's global competitiveness indicators in dynamics (Table 3) allows us to make the following conclusions.

In spite of Crimea occupation by Russian Federation, hybrid Russian-Ukrainian war, risk of military aggression escalation by Russian Federation and COVID-19 pandemic, competitiveness of Ukraine over 2010-2021 has not undergone dramatic shifts in general. Nowadays, Ukraine places 85th position by the GCI among 141 countries. According to the World Economic Forum reports [44-53] the most problematic is the quality of institutions in Ukraine (110th place in the rating).

Table 1

EU countries and Ukraine in major world economic rankings
(own elaboration based on the dates [5, 25, 30, 42, 53])

Country	GCI 4.0 2019		IEF 2021		EDB2020		CPI2020		GSCI2020	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Austria	76,6	21	73,9	25	78,7	27	76	15	56,7	14
Belgium	76,4	22	70,1	37	75	46	76	15	52,1	29
Bulgaria	64,9	49	70,4	35	72	61	44	69	51,6	34
Croatia	61,9	63	63,6	79	73,6	51	47	63	57,2	10
Cyprus	66,4	44	71,4	33	73,4	54	57	42	47,6	67
Czech Republic	70,9	32	73,8	27	76,3	41	54	49	55,2	19
Denmark	81,2	10	77,8	10	85,3	4	88	1	61,0	2
Estonia	70,9	31	78,2	8	80,6	18	75	17	59,4	6
Finland	80,2	11	76,1	17	80,2	20	85	3	60,4	4
France	78,8	15	65,7	64	76,8	32	69	23	55,5	18
Germany	81,8	7	72,5	29	79,7	22	80	9	54,6	22
Greece	62,6	59	60,9	96	68,4	79	50	59	50,0	47
Hungary	65,1	47	67,2	55	73,4	52	44	69	52,9	24
Ireland	75,1	24	81,4	5	79,6	24	72	20	56,8	13
Italy	71,5	30	64,9	68	72,9	58	53	52	51,6	33
Latvia	67	41	72,3	30	80,3	19	57	42	58,2	7
Lithuania	68,4	39	76,9	15	81,6	11	60	35	55,9	17
Luxembourg	77	18	76	18	69,6	72	80	9	58,0	8
Malta	68,5	38	70,2	36	66,1	88	53	52	50,9	38
Netherlands	82,4	4	76,8	16	76,1	42	82	8	52,9	25
Poland	68,9	37	69,7	41	76,4	40	56	45	52,8	26
Portugal	70,4	34	67,5	52	76,5	39	61	33	55,0	20
Romania	64,4	51	69,5	43	73,3	55	44	69	54,5	23
Slovakia	66,8	42	66,3	61	75,6	45	49	60	54,9	21
Slovenia	70,2	35	68,3	48	76,5	37	60	35	55,9	16
Spain	75,3	23	69,9	39	77,9	30	62	32	51,8	31
Sweden	81,2	8	74,7	21	82	10	85	3	62,1	1
Ukraine	57	85	56,2	127	70,2	64	33	117	46,7	76
Average	60,7		61,6		63,6		43,3		46,3	
Max	84,8	141	89,7	178	86,8	190	88,0	179	62,1	180
Min	35,1		5		20		12,0		33,9	

The only one index that has been rapidly growing for recent years is the EDB, rising to as much as 78 positions in total, owing to reforms carried out over 2014-2019 [30-41]. However,

the most acute issues for foreign investors in Ukraine are still the registration of property, high corruption, as well as protecting investors.

Table 2
 Intellect capital index of EU countries and Ukraine (own elaboration based on [25-29])

Country	2016		2017		2018		2019		2020	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Austria	58,2	18	61,6	12	60,0	16	56,1	18	59,74	18
Belgium	56,9	22	61,5	13	62,0	13	58,0	16	59,93	16
Bulgaria	44,6	54	52,1	30	48,9	44	45,7	45	49,43	41
Croatia	50,8	32	52,9	27	52,3	34	48,5	33	50,91	37
Cyprus	43,7	55	44,0	53	43,4	63	46,6	39	48,22	44
Czech Republic	57,1	21	57,0	21	54,8	25	58,5	14	61,21	14
Denmark	62,9	8	66,5	5	67,6	4	63,6	5	67,04	4
Estonia	51,9	29	52,9	28	53,8	29	50,4	27	55,80	24
Finland	64,2	5	63,9	8	63,9	11	59,3	12	64,35	10
France	56,4	23	58,0	20	58,3	19	54,6	20	59,70	19
Germany	63,7	6	64,2	6	65,1	7	60,6	11	60,43	15
Greece	49	41	49,7	39	51,5	37	46,9	38	49,87	40
Hungary	51,5	30	49,8	38	53,2	31	50,9	25	57,50	22
Ireland	55,9	24	55,8	23	56,5	21	47,2	36	52,24	31
Italy	49,3	39	52,0	33	53,1	32	48,8	31	50,89	38
Latvia	44,8	51	50,5	37	49,1	43	44,1	49	49,42	42
Lithuania	54,4	26	51,5	35	49,2	42	43,0	54	48,17	45
Luxembourg	52,5	28	52,1	32	54,5	26	49,7	30	51,84	32
Malta	62,2	11	60,6	16	58,8	18	47,1	37	48,66	43
Netherlands	60,7	13	60,5	17	59,8	17	56,4	17	59,78	17
Poland	51,1	31	56,2	22	56,3	23	51,1	24	58,32	21
Portugal	54,2	27	52,6	29	53,9	28	51,6	21	55,43	25
Romania	34,7	113	35,2	97	42,9	66	40,8	64	42,68	63
Slovakia	49,9	36	53,4	26	56,5	22	47,8	34	53,74	29
Slovenia	68	3	61,2	14	61,9	14	59,0	13	59,40	20
Spain	45,2	49	45,2	47	47,6	47	42,6	55	46,50	49
Sweden	70,8	2	69,3	2	70,8	2	66,1	2	69,50	2
Ukraine	50,3	35	39,2	80	50,1	41	47,8	35	47,70	47
Average	38,8		38,3		39,0		35,9		38,8	
Max	75,2	180	79,0	180	79,7	180	72,9	180	74,8	180
Min	15,0		12,1		11,1		8,7		11,9	

According to CPI reports [42], since 2010 the country has improved its performance by 17 positions as result of anti-corruption reforms launched in 2014. Nevertheless, progress in fighting corruption is very slow because reforms remain incomplete. In contrast to the EU countries, Ukraine takes 117th rank while the average global score of 43,3 (Table 1). Furthermore, it is twice worse than the EU countries.

According to IEF [5-16], Ukraine is regarded as a country with "mostly unfree economy". During last 10 years Ukraine has managed to increase the score by 9,8, which is much more than the world average growth dynamics. Given the smooth growth since 2017 and Ukraine's IEF dynamics, it is likely Ukraine will be able to achieve the global trend indicators by 2025-2026, provided that there is no escalation of the political situation in the country. According to Indexes of Judicial Effectiveness and Fiscal health added by Heritage in 2017, Ukraine has

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raised from 22,6 to 31,5 and from 67,9 to 82,6 points for this indicator since 2017. Comparing to the EU countries, Ukraine demonstrates high results by index of Fiscal Health and positive dynamics, which similar with Poland progress and even higher. The score less low than has Poland, but it doesn't prevent steady consolidation in the higher group of "free economies" with score of 86,4. Thus, Ukraine managed to make a breakthrough and emigrate from the group below the middle level "Moderately Unfree" to the upper group.

The effectiveness of Judicial authorities rated very low owing to the lack of independence and constant pressure from the authorities to which the courts are subject, the high level of objectivity and corruption of judges, as well as the long duration of the consideration of lawsuits and the conduct of trials. Nevertheless, Ukraine demonstrates a positive trend. A low score for this index significantly affects the overall score in the rating for the worse and does not allow Ukraine to get indicators above the world average. Reforming this sphere is the key task of the authorities for the next 5 years. The low level of trust in the courts also slows down the indicators of investment attractiveness, because the state cannot guarantee the protection of investment portfolios of investors and the transparency of resolving disputes in ship structures.

Conclusions and prospects of further research. Ukraine has significant innovative potential (58th place), worthy of higher education and training (46rd place). It is an important competitive advantage, providing successful economic development and accelerating integration Ukraine into the EU. Only through developing of advanced technologies and implementing them in all sphere, stable pace of economic growth and welfare of the nation can be achieved in the conditions of globalization of market-oriented economies. The factors that most affected the deterioration of these processes are corruption, political instability, inflation, and the ineffectiveness of state policy. As far as corruption is concerned, analysis of CPI shows slow growth of Ukraine's position, confirming that country still does not manage fully to eliminate corruption in public authorities. Therefore, it can be argued that no significant progress has been made on this issue.

Furthermore, given competitiveness as a "set of institutions, policies and production factors that shape the productivity of the country" [53], it is the institutional environment that need to accelerate the appropriate reforms, concerning the ethical behavior of companies, the protection of property and intellectual property rights, transparency in the adoption of state decisions, the independence of the judiciary, the efficiency of the use of the state budget, public trust in politicians, etc. The pace of institutional reform and economic development should be significantly accelerated. Moreover, it is very important for Ukraine to continue the changes that were launched in 2014. The transition from raw material economy to economy, which involves the development and creation of innovative products. Achieving such a transformation is possible only with the support of the scientific sphere of activity, development of the regions of the country, cooperation with international organizations and the gradual adaptation of standards to the level of European and world.

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**Глобальна конкурентоспроможність економіки та індекс інтелектуального капіталу:
приклад країн ЄС та України**

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Це дослідження має на меті проаналізувати показники конкурентоспроможності економіки України порівняно з відповідними показниками економік країн ЄС у контексті перспективи інтеграції України до ЄС, а також вивчити національний індекс інтелектуального капіталу з урахуванням всіх вимірів (людський капітал, ринковий капітал, капітал процесу та капітал оновлення) у межах трьох груп: Освіта, НДДКР, Новий бізнес, та дослідити потенціал зростання

економічної конкурентоспроможності України в глобальному масштабі, враховуючи її інноваційні аспекти. Дослідження використовує змішаний підхід, включаючи факторіальний аналіз та описову статистику, використовуючи вибірку з 27 економік ЄС та України. Дослідження показує, що Україна має значний інноваційний потенціал, високий рівень вищої освіти та професійної підготовки. Це вирішальна конкурентна перевага, що забезпечує успішний економічний розвиток та пришвидшення інтеграції України до ЄС. Тільки завдяки розробці передових технологій та впровадженню їх у всі сфери можна досягти стабільних темпів економічного зростання та добробуту нації в умовах глобалізації. Стримуючими факторами таких процесів є корупція, політична нестабільність, інфляція та неефективна державна політика. Для того, щоб бути більш інноваційною, а отже, конкурентоспроможною, Україні слід більше зосередитись на структурних та комплексних реформах інституційного середовища, стосовно етичної поведінки компаній, захисту прав власності, в т.ч. інтелектуальної власності, прозорості у прийнятті державних рішень, незалежності судової влади, ефективності використання державного бюджету, довіри громадськості до політиків тощо. Майбутні дослідження мають бути спрямовані на детальне вивчення можливих шляхів підвищення ефективності інновації на основі управління інтелектуальним капіталом, використовуючи більші обсяги вибірки.

Ключові слова: інтелектуальний капітал, глобальна конкурентоспроможність, інвестиційна привабливість, економічна свобода, сприйняття корупції.

JEL Codes: O11, O33, O40, O57

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