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LAUNCHING THE 'THIRD TRACK' OF EUROPEAN INTEGRATION: REASONS, DEVELOPMENTS AND CHALLENGES

ЗАПОЧАТКУВАННЯ «ТРЕТЬОГО КОЛА» ІНТЕГРАЦІЇ В ЄС: ПРИЧИНИ, ХІД, ВИКЛИКИ

ЗАПУСК ТРЕТЬЕГО КРУГА ИНТЕГРАЦИИ В ЕС: ПРИЧИНЫ, ХОД, ВЫЗОВЫ

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Abstract. *The article addresses the progress of the European integration in such fields as social, wage, insurance and fiscal policies. The author analyzes key stages of, and major factors contributing to, the advancement of policy coordination and building up common policies in the fields mentioned.*

The author sees the integration these spheres as a 'third track' of the European integration, which follows the first two ones, i.e. the economic integration and launching the Common Foreign and Security Policy, and has the potential to become the next priority direction of the European integration process.

The article describes the phenomenon of the 'third track' of the European integration and assesses major risks and challenges that may arise in the context of the further progress of the integration effort in this field. Three scenarios of the latter bearing on its eventual implications for Europe are presented, along with a consideration of implications for Ukraine in terms of this country's aspirations for EU membership.

Key words: *EU, integration, common policy, 'third track', economy.*

Анотація. *У статті досліджується розвиток інтеграційних процесів у ЄС в таких сферах, як соціальна, тарифна, страхова і бюджетно-податкова політика. Розглядається перебіг та головні етапи інтеграції у цих сферах, аналізуються ключові чинники, що сприяли інтенсифікації та становленню спільної політики за даними напрямками.*

Висувається гіпотеза про можливість сукупної характеристики даних сфер як «третього кола» європейської інтеграції, що становить наступний пріоритетний напрям у поступі євроінтеграційних процесів після першого (економічна інтеграція) та другого (спільна зовнішня та безпекова політика) напрямів, або кіл.

Дається характеристика феномену «III кола» інтеграції ЄС, описуються основні виклики, пов'язані з подальшим перетіканням інтеграційних процесів до даної сфери. Пропонуються три сценарії, які є вірогідними у зрізі подальшого розвитку євроінтеграційних процесів у напрямку «III кола»; аргументуються можливі наслідки такого розвитку для євроінтеграційних перспектив України.

Обстоюється думка про необхідність ґрунтовного дослідження проблеми «III кола» у науковому та політико-стратегічному контексті.

Ключові слова: *ЄС, інтеграція, спільна політика, «третьє коло», економіка.*

Аннотация. *В статье исследуется развитие интеграционных процессов в ЕС в таких сферах, как социальная, тарифная, страховая и бюджетно-налоговая политика. Рассматривается ход и основные этапы интеграции в этих сферах, анализируются основные факторы, способствовавшие интенсификации координации и становлению общей политики по данным направлениям.*

Выдвигается гипотеза о возможности совокупно охарактеризовать данные сферы как «третий круг» европейской интеграции, представляющий собой следующее приоритетное направление в развитии интеграционных процессов после первого (экономическая интеграция) и второго (общая внешняя политика и политика безопасности) направлений, или кругов.

Дается характеристика феномена «III круга» интеграции ЕС, описываются основные вызовы, связанные с дальнейшим перетеканием интеграционных процессов в данную сферу. Предлагаются три сценария, которые являются вероятными в срезе дальнейшего развития интеграционных процессов в направлении «III круга»; аргументируются возможные последствия такого развития для евроинтеграционных перспектив Украины.

Выдвигается мысль о необходимости основательного исследования проблемы «III круга» в научном и политико-стратегическом контексте.

Ключевые слова: *ЕС, интеграция, общая политика, «третий круг», экономика.*

Defining the issue. The development of European integration is broad and multidimensional. It can be stated that the integration processes in the EU are gradually moving beyond the traditional and most studied areas of integration - economic and political, security and administrative - and its spread to new industries, including social policy, insurance, fiscal policy and more. This trend creates additional burdens on the EU system and is a structural challenge to the sustainability of its design. In turn, the promotion of integration processes determines the significant relevance of political science understanding of their logic and patterns, as well as scientific analysis of new forms of interaction and areas involved in integration.

The purpose of the article is to characterize the spread of European integration processes to the "third circle" (or "third sphere") of the areas of integration. As part of achieving this goal, the author sets himself the following tasks:

- to study the creation and the course of development EU integration in the areas of "Round III";
- to describe the phenomenon of the "Third Round" of European Integration;
- to determine the impact on the development of the EU in the administrative-political and institutional dimensions;
- to outline the main scenarios for further progress of integration in the "Third Round", including the context of Ukraine's European integration prospects.

Digesting the analysis of recent research and publications. The issue of European integration is being actively developed by a wide range of domestic and foreign scientists. Among others one should mention such authors as O.I.Shnyrkov and L.V.Yarova, who pay significant attention to the promotion of integration processes in the socio-economic sphere. Mr. Clark is deeply researching the unification of the EU insurance market. In his works, T. Mueller defends the thesis of building the "pillars of community" of the EU, which makes a significant step towards understanding the integration process in this area as an important trend, covering a number of areas of integration and regulatory sectors of the EU. In turn, the formation of the general research position of the author was influenced by the work of such scientists as R.O. Zablotska, M.I. Marchuk, T. Schulden. Hence, it should be noted that in the existing studies, the issue of integration in the areas of social, tariff, fiscal, insurance policy are not considered in the amount, *i.e.* as a set of issues of the "Third Round" of integration.

Presenting the main research material. Deepening European integration is an ongoing process that characterizes the European Community as a system. In dynamics, this process is cyclical. As the number of interactions between the various elements increases - Member States, national and community institutions, domestic economic and political actors, etc. - relations within the system of European integration become more complicated, which, in turn, calls for further institutionalization of these relations and, consequently, the creation of new structures. In the thematic dimension of the agendas of the integration process, the promotion of mutual rapprochement of states and the interpenetration of economies naturally stimulates the "flow" of integration into new areas.

In our opinion, it is possible to conditionally define as leading such historically priority spheres, or "rounds" of European integration, which combine a number of thematically related areas of cooperation. According to the author, the first such circle was cooperation in the field of economy: it was with cooperation in the tariff, trade, economic and industrial spheres that the process of formation of the Community. The second round is the European dialogue in foreign policy and security, as well as, in a broader context, in the dimension of governance and the creation of a community-based management and EU policy. With the development of the Community, a whole range of issues related to how the economy of a state and social infrastructure actually work, such as insurance, budget, tariff and social policy, have been brought into the orbit of this process. Together, these areas can be identified as the "Third Round" of European integration, the formation of which marks a new important stage in the life of the EU.

As a basis for the "Third Round" of integration, the author considers the efforts to develop the social policy of the Community, the foundations of which were laid down in the basic documents of the EEC / EU, in particular in the Treaty of Rome, 1957 on improving living and working conditions in Europe, harmonization of social systems of the Community, coordination of Member States' policies in such areas as employment, labor law, social security, labor protection, trade unions, etc. [*Treaty establishing the European Economic Community and connected documents, 1957: 9-11*]. It

should also be noted that at the initial stage of the formation of the Community, social issues were rigidly tied to the economic ones and were perceived almost exclusively within the context of labor relations.

Time given its due, the social dimension of European integration has been strengthened on multiple levels. For instance, in 1989, the Community Charter of the Fundamental Social Rights of Workers was adopted. That established such principles as free movement of labor, freedom of choice of work and free access to employment services, a course to comprehensively improve working and leisure conditions, the right to adequate social security and protection, education, health of workers, as well as guidelines for social protection of children, adolescents, the elderly and people with disabilities. The Charter was to be implemented by incorporating its provisions into the national legislation of the parties under the auspices of the European Commission [*Community Charter of the Fundamental Social Rights of Workers European Observatory of Working Life*], which determined the special role of Community structures in the relevant policy and laid the foundations for further redistribution of powers between the nation state and community institutions.

It should be noted that as European integration deepened, the Community's social policy gradually spread beyond labor relations, which has traditionally been the main focus: community social norms and policies are beginning to regulate not only labor relations but also other spheres of public life. We should mention that Article 2 of the 1992 Maastricht Treaty ensured the welfare of citizens as one of the EU's goals and guaranteed a number of social rights (in particular, the right to free movement, children's rights, etc.), which marked a departure from the initial paradigm of treating social issues as an economic ones.

Since we have mentioned the Maastricht Treaty, let us proceed in terms of the formation of the "Third Round" of integration, it is necessary to point to the following. The introduction of economic and monetary union, initiated by the treaty, deprived national governments of a number of monetary and economic levers, which objectively narrowed the formal competence and actual ability of member states to regulate their social sphere and led to the transfer of powers to the community level [*Kraievskia O., 2017: 78, 79*]. It can be argued that this step laid the systemic factor for the further spread of integration processes in the areas that the author refers to the "Third Round" of integration paradigm shift towards dealing with social issues as an auxiliary to economic ones.

In this context, the Amsterdam Treaty has significantly deepened the social direction of community dialogue. In response to the demand generated by the aforementioned reduction in the nation state's ability to solve social problems on its own, the Treaty identified the achievement of a high level of employment as one of the Union's objectives and laid the foundations for a coordinated communication strategy in this area. In addition, the document set a course to improve and harmonize the living and working conditions of citizens of the Union, ensuring their proper social protection, maintaining dialogue between workers and employers, stimulating professional development and combating social exclusion [*Treaty of Amsterdam amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts, 1997: 37-38*]. According to the author, an important contribution of the Treaty to the process of building the EU social policy system was the incorporation into the community legal field of norms and social rights as provided by the European Social Charter of 1961, concluded within the framework of the Council of Europe.

The 2007 Treaty on the Functioning of the EU (TFEU) further consolidated the course of deepening the Union's social policy and outlined important aspects of its implementation. According to the TFEU, Member States and the European Union jointly ensure the implementation

of community social policy [*Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union, 2012: 51-52*]. The Treaty provides for the extension of the joint competence of the EU and the Member States to such areas as health and safety at work, social security and protection of workers, working conditions, gender equality in labor relations, etc., and sets guidelines for community policy in education, training, youth and Sport.

The guidelines for EU social policy today are set out in a document named "European Pillar of Social Rights", adopted by the European Parliament, the European Commission and the European Council on 17 November 2017. [*The European Pillar of Social Rights in 20 principles*] In particular, the following key principles are postulated, grouped into three categories:

- Category I: equal opportunities and access to the labor market;
- Category II: fair working conditions;
- Category III: social protection and inclusion [*The European Pillar of Social Rights in 20 principles*].

Comparing these provisions with the principles and scope of previous acquis, it should be noted that there has been significant progress in terms of policy concretization, its acquisition of substantive and clear forms, and hence the strengthening of community regulatory levers in this area. The breadth of areas regulated by this document illustrates the scale of changes in European integration in terms of its extension to the "Third Round" of key topics of cooperation. Initiated as an additional dimension of European cooperation, which complemented the economic aspect of the latter in terms of employment promotion, the social component of European policy has become an independent direction.

The European Socio-Economic Committee (ESEC), established by the Treaty of Rome in 1958, is an important institutional element of the EU social policy-making system. The purpose of this platform is to involve business and civil society in community policy-making and to strengthen the Community social agenda. . Currently, the ESEC is one of the most influential advisory bodies at the community level, preparing annually from 160 to 190 positions on the socio-economic aspects of draft new EU legislation [*Our work / European Economic and Social Committee*]. In the context of the "third round" of integration, the importance of the committee lies in its function as a "bridge" between the institutions of community and state government, on the one hand, and the public sector, on the other. It should be noted that a direct dialogue with the organized public can be interpreted, including as a manifestation of the trend towards European integration outside the state-centric paradigm, its direct transfer to the plane of intra-social interactions. In the author's opinion, this circumstance accompanies the process of formation of the "Third Round" of integration issues and can be characterized as one of its defining features.

The policy in the field of wages and tariffs, which is one of the notable areas of the "Third Round" of integration is closely related to the EU's social policy. This connection is due to the historically determined emphasis of such a policy on addressing primarily those social issues that arose from the creation of a common labor market, employment promotion and, accordingly, community regulation of labor relations.

The first three decades of the Community's existence were marked by a wide variety of tariff policies in the Member States, due to differences in the dynamics of economic development and inflation, as well as the application of different approaches to monetary, financial, credit and tariff regulation. In particular, during the 1970s, the annual growth rate of the average nominal wage varied from 8.3% in Germany to more than 20% in the Iberian Peninsula (Spain and Portugal), which largely reflected inflation in the countries concerned. The situation in this area began to change with the deepening of integration and the launch of a monetary union to implement The Maastricht Treaty: in order to meet its criteria, Member States have consistently reduced inflation, resulting in wage growth during the second half of the 1990s - 2000s. equalized, and the nominal

values of wage rates in different EU countries began to move towards mutual rapprochement [*Wage policy and EMU / European Foundation for the Improvement of Living and Working Conditions*].

It should be emphasized that the introduction of a monetary union has led to a sharp rise in the importance of tariff policy on a pan-European scale. On the one hand, due to the loss of regulatory instruments such as exchange rate adjustments and credit rates by EU governments, wage and tariff policy has become one of the leading national mechanisms for compensating for imbalances between member states in the field of economic development. On the other hand, according to the author, at the community level the importance of tariff policy was its ability to have a direct impact on key macroeconomic indicators of the EU, in particular on inflation and deflationary trends. Thus, these factors have contributed to the emergence of awareness at both the community and national levels of the need to coordinate public policies in the tariff sector and to define the role of the Community in this process.

This factor led to the formation of community systems responsible for managing a new direction of common policy. Thus, since 1994, the Council of the EU has annually issued the General Guidelines for the Economic Policies of the Member States and the Community, a non-legally binding document containing framework recommendations on a wide range of economic policy issues, in which wage regulation is one of the most important. Article 121 of the Treaty on the Functioning of the EU fixes this guiding role of the Union and the Council as the developer of specific provisions of this policy [*Community Charter of the Fundamental Social Rights of Workers European Observatory of Working Life: 97-98*]. In turn, on June 4, 1999, a resolution of the European Council adopted the European Employment Pact, which paid considerable attention to the tariff issue. In particular, in order to ensure employment growth in the EU, it was envisaged to organize such interaction between fiscal, monetary and tariff policies, which would mutually strengthen these components. In addition, a course has been set for a balanced tariff policy linked to measures to ensure price stability and job creation [*Resolution of the European Council on the European Employment Pact*].

The abovementioned set the framework for a common wage policy and provided guidelines for relevant national policies. As you can see, the very objective logic of the processes of economic integration in the EU and the strengthening of the role of the Community as a center of decision-making led to the inclusion in the orbit of community regulation of this thematic segment of "ThirdRound" of integration.

At the same time, the development of integration in this direction has faced a number of brutal challenges.

For instance, the successive enlargements of the EU in the new millennium have created a number of additional burdens on the entire system of European integration, including against the background of the common tariff policy. The emergence of a number of countries in the Union with economic indicators significantly below the EU average has increased the relevance of economic coordination between Member States and the Community in this regard and, in general, the need to deepen integration processes. Against this background, the main emphasis was placed on the promotion of cohesion policy, which included, in particular, stimulating structural change, stimulating employment, as well as the development of labor resources in the new EU member states. One of the results of the rapprochement was the forced growth of wages in the least economically successful countries of the Union. Thus, from January 2009 to January 2019, the average annual growth rate of the average salary was approx. 5% in Slovenia, approx. 6% in Hungary, approx. 7% in the Czech Republic, Slovakia and Poland, approx. 8% in Latvia and Estonia, approx. 10% in Bulgaria and Lithuania and more than 11% in Romania. For comparison, in

the same period in the vast majority of EU-15 these figures ranged from 2-3%, and in Greece were negative (-2%) [*Minimum Wages, January 2009 and January 2019 / Eurostat*].

Because, despite some progress, there is currently a significant gap in minimum wages between the countries of "old" and "new" Europe: according to Eurostat, if in 9 Central and Eastern European member states, this figure is approx. 500 euros per month, in the 7 "old" member states of the Union it is equal to approx. 1500 euros per month. The lowest such parameter is recorded in Bulgaria (286 euros per month), the largest - in the Grand Duchy of Luxembourg (2071 euros per month). [*Minimum wage statistics / Eurostat*]. At the same time, it poses a challenge for further integration, calling into question the EU's ability to pursue one of its key objectives under the "Third Round" - to achieve a balanced nature of member countries' development.

It should be noted that the common tariff policy has been strengthened in the context of the above-mentioned principles of the "European framework of social rights". The obligation to ensure that workers receive a fair wage, to introduce adequate minimum wages and to combat the phenomenon of the "working poor" has set new guidelines for state and community policy in this dimension [*Müller T.: 6th July 2017*]. It should be noted that these guidelines can be interpreted as a reflection of changes in the paradigm of EU social and tariff policy: if at the time of its formation wages were considered more as an inflationary factor, they have recently been reinterpreted as a factor stimulating domestic demand and therefore additional domestic resources. In addition, in our opinion, this circumstance serves as another depiction of the thematic interpenetration of community policies of the "Third Round", which allows us to ponder upon them as a holistic object of regulation and, accordingly, research.

One of the core elements of the "Third Round" of European integration is the EU's insurance policy. The actual starting point in the context of its formation was the adoption of Directive 73/239 / EEC of July 24, 1973, which introduced the coordination of rule-making activities of EEC member states in the field of insurance business [*First Council Directive 73/239/EEC of 24 July 1973 on the coordination of laws, regulations and administrative provisions relating to the taking-up and pursuit of the business of direct insurance other than life assurance*]. Subsequent directives, 73/239 on property insurance and 79/267 on life insurance, subsequently consolidated under Directive 2002/83, harmonized the fundamentals of insurance business and established uniform financial control rules based on the same solvency standards, and requirements for the minimum size of guarantee funds [*Clarke P., 2019*]. These provisions, which can be attributed to the principles of the common insurance policy of the "first generation", were characterized by guidelines for the unification of rules and regulations; at the same time, the actual insurance activity remained the subject of national regulation. The norms and principles of the EEC on the issues of "Second Round" insurance policy, which emerged in the late 1980s, were sustained in the logic of finding answers to the new challenges facing the EEC insurance market in the course of deepening integration. In particular, in order to remove barriers to the development of the insurance market, Directives 88/357 and 90/619 were adopted, which clarified the powers of national supervisory authorities and the competence of Member States.

The creation of the EU has opened up opportunities for the organization of a common market for insurance services. The new conditions set by the formation of the monetary union and the further deepening of economic integration led to the adoption and implementation of the "Third Round" norms presented by Directives 92/49 and 92/96. They introduced a single system of licensing and financial control over the work of the insurance business, built on the principles of freedom of establishment and freedom of movement of services [*Clarke P., 2019*]. This has liberalized the EU insurance market, making it one of the most unified and competitive in the world. In general, it was possible for insurance companies registered in one country to be able to provide services directly or indirectly throughout the Union. Thus, as in the other areas of the "third

round" of integration, the creation of a single market and a common highly harmonized economic system has forced Member States to coordinate rules and policies in such an important area as insurance, which is one of the basic mechanisms for doing business. and the normal functioning of the economy as a whole.

Tax (or fiscal) policy can be identified as another area of the "Third Round" of European integration. The importance of this area in the context of European integration should be emphasized, which is primarily its role in supporting economic convergence and ensuring the stability of the European monetary and financial system. According to the author, the launch of such a policy was due to the need to introduce a system of control over budget deficits and, in general, public spending of member states in order to create a predictable operating environment for deepening economic integration and implementation of the monetary union. The practical goal of EU fiscal policy has been to develop effective mechanisms for monitoring and coordinating the tax policies of the Member States of the Union. The foundations of a common fiscal policy were laid by a number of resolutions of the EU Council, which currently form the so-called Stability and Growth Pact (SGP) [*What is the stability and growth pact? / The Guardian, 06.03.2019*]. These are, first of all, Resolutions 1466/97 and 1467/97 of 7 July 1997, which introduced a set of measures to strengthen the supervision of fiscal policy of member states and coordination of their economic policies, as well as regulate the procedure and mechanisms for correcting budget deficits. In the development of integration in this plane, one can observe the same systemic logic that was inherent in other areas of integration of the "third circle". Initially formed as one of the auxiliary elements of economic integration, fiscal policy becomes an independent direction of integration and a separate area of the EU competence.

These levers were improved during the reforms of 2011-2013, aimed at debugging the tools of community oversight and control over fiscal and fiscal policies in order to address the shortcomings identified during the implementation of these mechanisms. In particular, one of the tasks of these measures was to neutralize and prevent the consequences for the euro area of unbalanced fiscal policies of a number of member states. The SGP was strengthened by revising the above-mentioned key documents in the direction of expanding community powers and developing more effective mechanisms for practical support of budgetary monitoring by Union institutions, provided for in Resolution 1173/2011 of 16 November 2011. In addition, the Budget and Tax Pact was developed. to the Intergovernmental Agreement on Stability, Coordination and Governance in the Economic and Monetary Union, signed in March 2012 [*The EU framework for fiscal policies*]. In addition to these changes, in May 2013 the so-called "double package" of measures aimed at deepening the EU fiscal policy, adopted by Council Resolutions 472/2013 and 473/2013, was adopted. Thanks to this package, the EU has been given new powers in the field of monitoring and ex-ante evaluation of draft national estimates, correction of identified excessive deficits, as well as budgetary supervision of those euro area member states that face threats to their own financial stability.

It should be emphasized that the adoption of these measures was important not only to normalize the functioning of the EU economic union, overcome the impact of the 2008 financial crisis and improve the EU's financial mechanisms, but also to further promote the European integration process as a whole. It should be noted that the strengthening of community control has significantly narrowed the decision-making space for national governments. The latter were forced to make significant concessions in terms of fiscal and fiscal policy, which objectively strengthened the community level of government in the EU, while depriving the state of traditional levers and functions.

In summary, we can give the following description of the phenomenon of the "Third Round" of EU integration.

In general, the progress of integration in the "Third Round", despite the numerical differences in measuring the duration, specific schedules and sectoral specifics of the respective processes, shows significant structural similarity regardless of the particular direction in which such progress is observed. It can be stated that in all spheres of the "third circle" the main engine of integration processes is the promotion of integration in the first two - and first of all the first (economic) - circles. This pattern, in the author's view, is due to the derivative and / or technical or service nature of these areas in relation to a range of economic issues. All of them are somehow connected with ensuring sustainable economic development and the implementation of common policies in the "First Round". Thus, the challenges of economic integration are forcing the Member States and the Community itself to transfer their policy coherence to ever new areas, thus pushing forward integration processes in these areas.

In turn, the launch of integration in these new areas means involving the latter in a comprehensive system of European integration as elements. In this way, integration in the new dimensions of politics acquires an independent sound and goes through branching, complication, acquisition of more complex forms. A typical example of such a spread is the development of a common EU social policy: being in the early stages only one of the elements of integration in the economic sphere (by increasing the availability of labor, enabling free movement of labor, building a common labor market, etc.), it stood out as a separate an important area of European integration.

Noteworthy is such a common feature of the issues of the "Third Round" as their connection to the "soft" dimension of integration, formally close to people and their well-being. Which is not the case of the first two integration rounds - economics and foreign and security policy - which concern "rigid" state competencies and mechanisms, the "Third Round" of integration is focused primarily on meeting the interests and needs of societies, social groups and citizens of the states-members. At the same time, the strong genetic connection between the issues of the first and third rounds demonstrates the tendency to gradually recede into the background in terms of determining specific directions and dynamics of promoting the integration of the "third round". This is reflected in the fact that new areas of integration are beginning to "live their lives", focusing not so much on the economic feasibility and functional service of the EU's economic development, as on their own system of priorities.

The subjects of the institutional environment of the EU and European elites associated with their functioning are yet an another universal locomotive of the promotion of integration on the "Third Round" train. The logic of further accumulation of powers enhances the role and importance of the governing bodies of the community level and makes an additional contribution to the promotion of integration. This trend is supported by a broad pro-European consensus in the policies of a number of EU countries - in particular, Germany and Belgium. This allows us to conclude that the constant updating of the agenda of integration processes in the "third round", which is currently observed, is a reflection of the trend to strengthen the structural capacity of community institutions, their real power within the political and administrative system of the Union, including at the expense of the Member States and the national level of government.

Observation of this trend - the deepening of integration processes in the studied areas and their gradual acquisition of their own logic of development - makes it possible to predict the spread of these processes to new areas of the "Third Round" of integration. A characteristic feature of this trend may be the further "humanization" of common policy issues, the inclusion in the field of common and (or) community regulation of an increasing number of issues related to human capital development, social services, humanitarian needs of EU citizens.

According to the author, the rise of the "Third Round" has a dualistic significance for the dynamics, content and prospects of European integration.

On the one hand, the expansion of integration into these new areas determines the further advancement of integration processes: the transfer of powers to the community stage creates a "vacuum of competence" within state structures, which cyclically causes further involvement of joint institutions in the administration of these areas. Communities and the complexity of its administrative mechanisms. In this sense, rapprochement in the "Third Round" is a guarantee and one of the main drivers of further consolidation of the Union, namely the "Third Round" appears as a key promising direction of the EU integration movement.

On the other hand, the development of integration in the "Third Round" creates new challenges for the entire EU structure.

First of all, in this context, we should pay attention to this trend. In the institutional dimension, additional burdens are formed on the decision-making system and institutions of the Union involved in the implementation of the "Third Round" policies. In particular, the involvement in the sphere of knowledge of community structures of a huge mass of additional issues leads to the erosion of system resources, their dispersion to solve the flow of new tasks. This factor contributes to the progress of structural and functional stress, and hence to an objective increase in entropy within the system of community administration.

In turn, in the measurement of relations "state-union" and "state-citizen" deformations are also possible. The leaching of state competence, caused by the delegation of an increasing range of powers, leads to the gradual loss of the ability of national institutions to provide relevant services to citizens, and thus to perform their basic functions. Although we believe that these effects are to some extent delayed, this does not reduce the potential for their distorting impact on national administrative and social service delivery systems across the EU. The atrophy of competencies in the field of social, insurance, fiscal policy and, importantly, the erosion of relevant state institutions further reduces the overall role of national statehood in the EU.

On the other hand, in terms of the functional capacity of Europe's institutions, both in the community and in the national context, a situation where European institutions face the above-mentioned challenges of scaling up new areas and national authorities lose their competences can provoke general dysfunction in Europe. There is a risk that the efficiency of all levels of the three-tier governance hierarchy in the EU will decline, and the final destinations of the "third round" policies - citizens, public associations, businesses - will not be able to receive quality and timely services. This will naturally have wide-ranging consequences that go beyond the "Third Round" issue and may have a complex negative impact on the economic and administrative-political development of the EU.

Another challenge is the prospect of forming in the context of European integration a state that could be defined as "permanent transit". In our view, this perspective is due to both the breadth of the scope and diversity of "third-round" issues and the need to harmonize the growing number of policies and regulations in the relevant areas.

According to the author, to overcome these challenges, the EU will inevitably have to take a number of adaptive measures. We believe that depending on the success of adaptation and the effectiveness of selected recipes, events in the context of European integration will follow one of three scenarios that could be identified in terms of EU stability and further prospects for its development as optimistic, pessimistic and mixed.

Under an optimistic scenario, the EU could increase its capacity in task management and workflow management through, including: a) further "administrative expansion" to new areas of

competence, b) significant financial costs for the development of community management mechanisms, and c) comprehensive improvement of interaction procedures along the lines of "EU-state", "EU-communities", "EU-economic entities", "EU-citizen", etc. Thus, it could maintain its structural stability, compensating for the loss of competence of the nation state in measuring the availability of appropriate social services for their recipients. Because, even in such a scenario, the issue of overcoming imbalances in the EU's social development, which in fact manifests itself in the dimension of the "Third Round" of European integration, would remain urgent. At the same time, in this scenario, there may be a risk of hypercentralization and bureaucratization of the EU, which may become irreversible and undermine the real potential of the state as a stage of European government.

Under the pessimistic scenario, the EU may face the problem of dysfunction of the institutions of the community, national and regional levels, multiplied by the difficulties caused by differences in the levels of development of the Member States. In turn, this problem can lead to a crisis of the EU institutions and, more broadly, European integration, causing a slowdown and even a review of the feasibility of integration in some areas, and possibly its partial collapse. In such circumstances, the growth of Eurosceptic sentiment and, consequently, centrifugal political tendencies within the EU is not excluded.

Under the mixed scenario, characterized by a combination of trends from both of the above scenarios, it is possible to implement some of their consequences simultaneously. Against this background, a partial revision of the integration achievements and desynchronization of its course and (or) its further movement on different tracks for different European countries or their groups is probable - a trend that can be associated with the revival of the realities of "Europe of different speeds".

We believe that the third, mixed scenario has a relatively greater potential for implementation. Its probability is higher than others due to the fact that it takes into account both key trends in the development of the EU at the current stage: on the one hand, the trend of integration, which is reflected in the practical cooperation of member states on "third round", and on the other hand, it is a centrifugal trend caused by the conflict between the interests of the nation state and the community level of EU governance, one of the manifestations of which was the withdrawal of Great Britain from the Union. However, no matter what the scenario in this context, it should be noted that the transit to the format of integration in the "third circle" objectively entails profound changes in measuring the functioning of formal and informal institutions, creates new challenges in intra-European dialogue and, accordingly, forms a source of political and functional instability within the EU.

In this regard, it is worth noting that both the anticipation of the most probable ways of EU development in view of the challenges and prospects of the "Third Round" of European integration, and the issue of the "Third Round" need scientific research and understanding. The flow of integration to the new planes described in this article, accompanied by new structural problems, requires new concepts that can give an adequate interpretation of this stage of development of European integration, to properly characterize it from a theoretical point of view. We believe that this may be a new direction of the main schools of scientific thought that professionally consider European issues, and the introduction of the "Third Round" paradigm in the conceptual arsenal of European studies will increase their research value and practical significance, bringing them closer to tomorrow's realities. We hope to start a broad scientific discussion on this issue.

The development of integration processes in the "Third Round" has a number of practical consequences for Ukraine. Gradually becoming one of the factors outlining European legal,

political and socio-economic realities, it can not but have, in the long run, influence the progress of our state's efforts for European integration.

In the author's view, integration in the "Third Round" creates additional challenges in this context. Such challenges arise primarily against the background of Ukraine's socio-economic system approaching European standards. It is possible that the introduction of restrictions and norms provided by documents and political guidelines of the "Third Round" will have a restraining effect on the pace and dynamics of recovery of the Ukrainian economy, which is currently suffering from a number of crises, and further distort its development.

In turn, the need to adapt the growing number of *acquis* in the socio-economic sphere to domestic legislation will create additional pressure on the national legal system of Ukraine. The permanent transit nature of changes in the "Third Round" and, consequently, the presence of clear prospects for their preservation in a "permanently transitional" state for many years significantly complicates the task of their legal implementation in Ukrainian legislation and forms an objective obstacle to our country's accession to the EU.

This one particular moment should also be mentioned. The prospect of entropy within the EU's political structure and, consequently, the chaos of decision-making processes, the dispersion of responsibilities and other structural problems that may arise in negative Community development scenarios, activated, *inter alia*, by the factors described in this article to a productive dialogue with Ukraine. The key to a planned, predictable and, ultimately, mutually beneficial integration process is a high degree of functional capacity of the parties, the existence of which on the part of the EU, in these circumstances, may be questioned.

In this light, we believe that the issues of the "Third Round" should be taken into account, including in terms of scientific and practical analysis of its potential impact on Ukraine's European integration prospects.

Conclusions. The extension of integration processes in the EU to new areas (social, tariff, insurance, budget, fiscal policy, etc.) allows us to state the beginning of the "Third Round" of European integration along with the first two - integration in economic policy and political security. The main reason for the transition of European integration to the "third round" industries is the gradual scaling up of the process of rapprochement of the EEU states, which took place first in the economic and then in the related social sphere. Integration in this area initially served as an ancillary function, facilitating and stimulating economic integration. Due to this close genetic link between the issues of economic integration and the issues of the "Third Round", the integration processes in the latter have shown significant dynamics.

With the course of integration, there is a gradual loss of this connection and the acquisition by the "third circle" of the common EU policy of independent sounding. The logic of European integration processes determines the consistent progress of integration in these areas and its further spread to other areas that can be classified in the "Third Round". One of the locomotives of this integration at the present stage is the community level of power in the EU, aimed at further consolidating its influence in the administrative and political structure of the EU.

Raising integration in the Third Round creates new challenges for the EU's institutional structure and the European integration process as a whole. Further inclusion of the "Round III" issue in the sphere of community institutions, accompanied by the erosion of the institutional capacity of the national level of government in the EU, may provoke crises within the European integration system with ambiguous consequences for its further course.

Formation of a state of "permanent transit" within the EU is one of the significant systemic risks of such a plan, which can disrupt the work of its institutions and have a negative impact on the European integration prospects of new potential members of the Union, Ukraine specifically. Such an impact could manifest itself, in particular, against the background of creating additional burdens on both the legal and socio-economic system of Ukraine, which would slow down economic recovery in the country, as well as in reducing the real negotiating capacity of the EU as a counterparty. Together, these factors could create additional obstacles on Ukraine's path to the EU and slow down the dialogue on membership in the Union.

Given the context, the task of developing new conceptual models and theories of integration that can be adapted to analyze existing and future European integration processes is relevant. It is considered expedient to introduce the issues of the "Third Round" of integration into the field of scientific and strategic analysis of Ukraine on European integration and prospects for EU membership.

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INFORMATION AND ANALYTICAL ACTIVITY IN INTERNATIONAL REGIONAL AND COUNTRY STUDIES

ІНФОРМАЦІЙНО–АНАЛІТИЧНА ДІЯЛЬНІСТЬ У МІЖНАРОДНИХ РЕГІОНАЛЬНИХ ТА КРАЇНОЗНАВЧИХ ДОСЛІДЖЕННЯХ

ИНФОРМАЦИОННО-АНАЛИТИЧЕСКАЯ ДЕЯТЕЛЬНОСТЬ В МЕЖДУНАРОДНЫХ РЕГИОНАЛЬНЫХ И СТРАНОВЕДЧЕСКИХ ИССЛЕДОВАНИЯХ

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***Abstract.** Under the concept of information and analytical activity we understand a kind of special mental, intellectual human activity, as a result of which in the process of successive actions for the search, accumulation, processing, analysis of the original source an analytical forecast or review is created.*

At present, it is the information and analytical activity that enables managers to make the right decisions in the face of modern, difficult to predict, crisis phenomena of today. Based on the abovementioned, it can be stated that it is the information and analytical processes that allow

public authorities of different countries around the world and regional associations to make effective management decisions, predicting in advance the consequences of both decision and no decision.

Analytics and information appear to be a new type of product, with universal economic properties, which are defined in unlimited reproduction, accumulation, use and at the same time a way to study phenomena / processes at both macro and micro levels.

In scientific research, information analytics primarily performs the task of qualitative and meaningful transformation of primary information, functionally intersecting in this regard with scientific (production of new knowledge) and management (development of solutions, scenarios) activities.

Information and analytical activity is interconnected with science through the information method of cognition and scientific analysis of reality, and with management - the applicable nature of analytics (solving specific information needs and problems of the customer).

Information and analytical activity is a broader area of research. It includes the selection and systematization of facts on a particular issue, their evaluation, selection, interpretation, clear and thoughtful presentation in oral or written form. It is worth noting that the extraction of necessary materials, activity related to the acquisition, systematization, translation and distribution of books and documents are not included here. Hence the purpose of such activities is to get the most out of the available information in order to understand and assess the situation properly, see it in the long run, and ultimately - to eliminate future threats.

Key words: *information and analytical activity, analytics, information, scientific research, country studies, regional research, decision making.*

Анотація. *У статті розглянуто найважливіші теоретичні питання інформаційно-аналітичної діяльності, яку використовують при вивченні міжнародних регіональних та країнознавчих процесах/явищах. Досліджується проблема інформаційного забезпечення прийняття зовнішньополітичних рішень. Розглядаються методи дослідження інформації. Відслідковується взаємозв'язок між розвитком суспільства та зростанням потреби в інформації. Визначено та сформовано методи застосування інформаційно-аналітичної діяльності у наукових дослідженнях.*

Ключові слова: *інформаційно-аналітична діяльність, аналітика, інформація, наукові дослідження, країнознавство, регіональні дослідження, прийняття рішень.*

Аннотация. *В статье рассмотрены важнейшие теоретические вопросы информационно-аналитической деятельности, используемой при изучении международных региональных и страноведческих процессов/явлений. Исследуется проблема информационного обеспечения принятия внешнеполитических решений. Рассматриваются методы исследования информации. Отслеживается взаимосвязь между развитием общества и ростом потребности в информации. Определены и сформированы методы применения информационно-аналитической деятельности в научных исследованиях.*

Ключевые слова: *информационно-аналитическая деятельность, аналитика, информация, научные исследования, страноведение, региональные исследования, принятие решений.*

Introduction. *At present, the processes of globalization, technical equipment and complex structure of the world give a significant role to information and analytical activities. This, in its turn, is the result of the complexly regulated development of all processes and phenomena in the economic, social, state-building and political spheres. Studies of any phenomena/ processes require forecasting for further development, risk protection and analytics. It is the process of information and analytical activity that provides an answer to the further development of the world as a whole.*

Analysis of recent research and publications. Information and analytical activity has been studied in the scientific works of the following scientists: S. Vyrovyi, D. Zviahina, Y. Klinshans, Y. Popov, S. Teleshun, O. Tytarenko, I. Reiterovych and others.

The purpose of the article. To carry out the systematization of the use of information and analytical activity in international regional and country studies.

Research results. Under the concept of information and analytical activity we understand a kind of special mental, intellectual human work, as a result of which in the process of successive actions for the search, accumulation, processing, analysis of the original source an analytical forecast or review is created.

Currently, it is information and analytical activity that enables senior managers to make the right decisions in the face of modern, difficult to predict, crisis phenomena of today. Based on the abovementioned, it can be stated that it is information and analytical processes that allow public authorities of different countries around the world and regional associations to make effective management decisions, predicting in advance the consequences of their adoption or rejection.

In international and country studies, information and analytical activities performs the functions shown in Fig. 1:

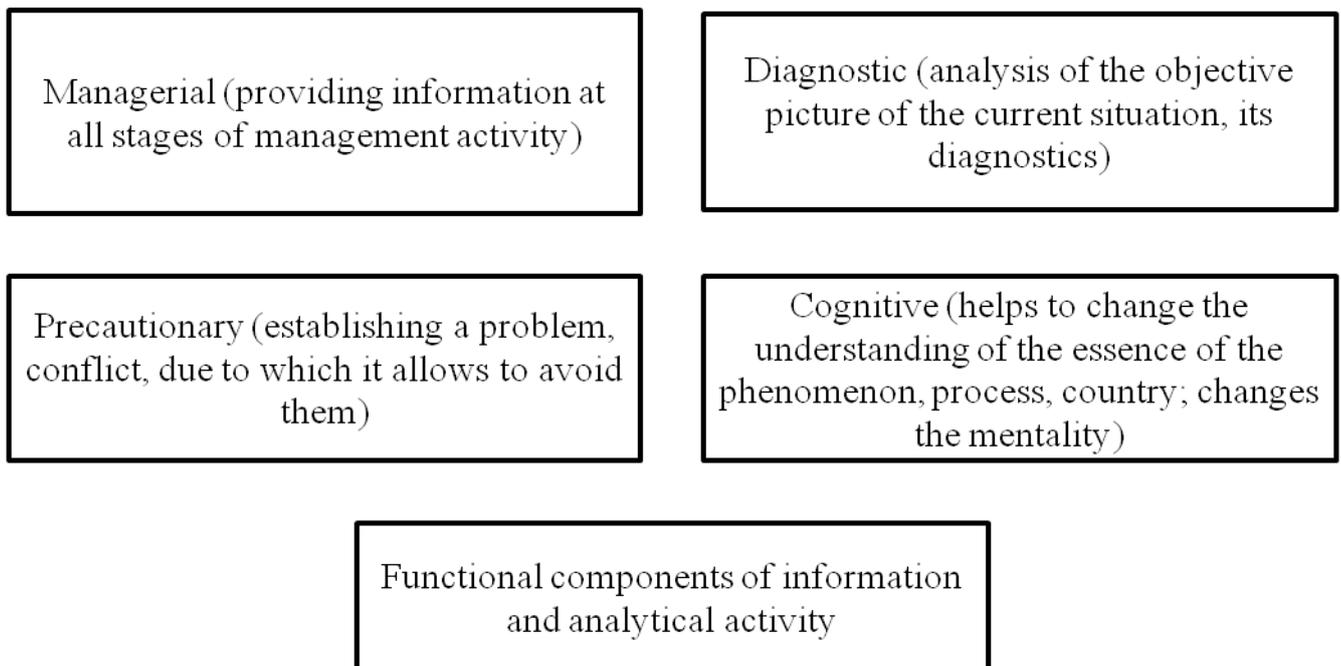


Fig. 1. Functional components of information and analytical activity

Based on the functions of information and analytical activity, we can identify two conditions that change the consequences of decisions made and research:

- a direct result is obtained, which arises as a result of the search for the optimal solution for research in country studies and regions.
- changing knowledge and perceptions about the phenomenon or object being analyzed.

Therefore, it can be stated that analytics and information appear to be a new type of product, with universal economic properties, which are defined in unlimited reproduction, accumulation, use and at the same time a way of studying phenomena/ processes at both macro and micro levels.

Information and analytical activity by its origin in the use in country and regional studies can be, again, conditionally divided into primary and secondary. Primary – presents analytical data, collected at the beginning of the topic research, while secondary - is a result of studying the research topic.

In scientific research information analytics primarily performs the task of qualitative and meaningful transformation of primary information, functionally intersecting in this regard with scientific (production of new knowledge) and managerial (development of solutions, scenarios) activities.

In international regional and country studies information and analytical activity is characterized by a certain systematic approach, which is shown in Fig. 2:

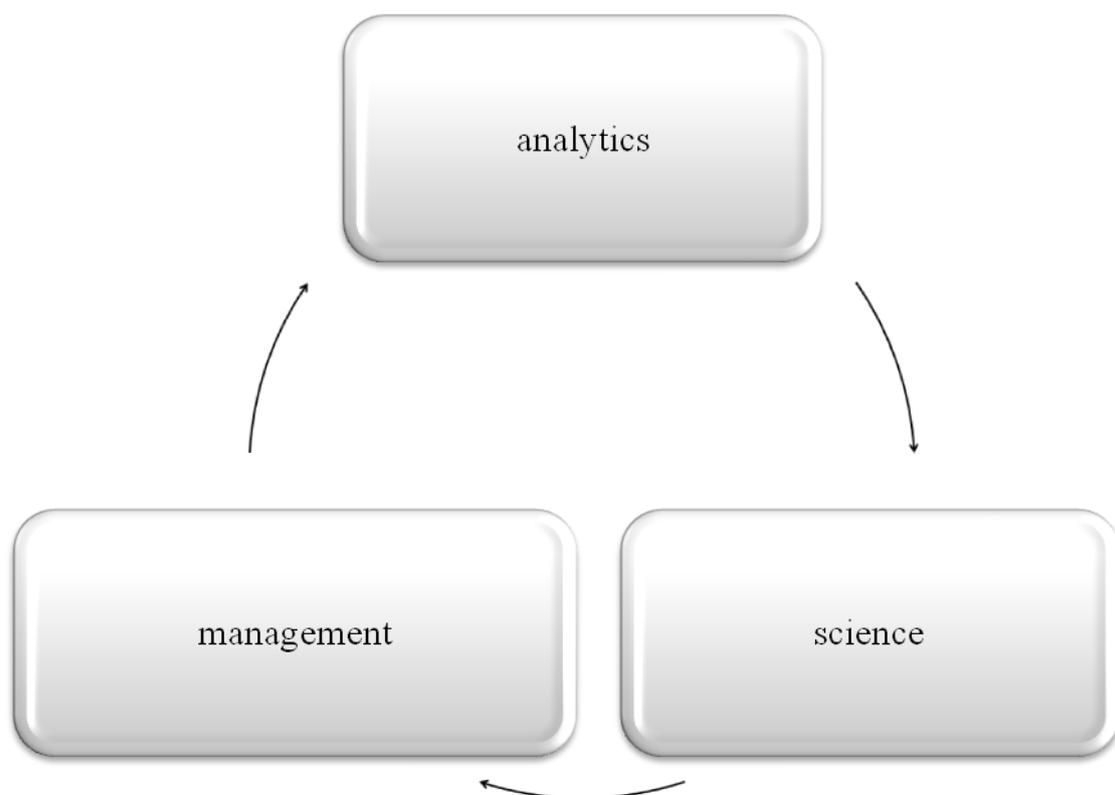


Fig. 2. Systematic character of information and analytical activity in scientific research

Information and analytical activity is connected to science through the information cognitive style and scientific analysis of reality, and with management – through the applied nature of analytics (solving specific information needs and problems of the customer).

Analytical activity, based on the information structure (imprints of events, facts, actions, ideas, thoughts, feelings of people, natural, social, political, financial, economic processes in the information space) determines the patterns and direction of new trends, establishes cause-and-effect relationships. In this case analytical activity forms new knowledge of that sphere of study, which is in the field of analysis.

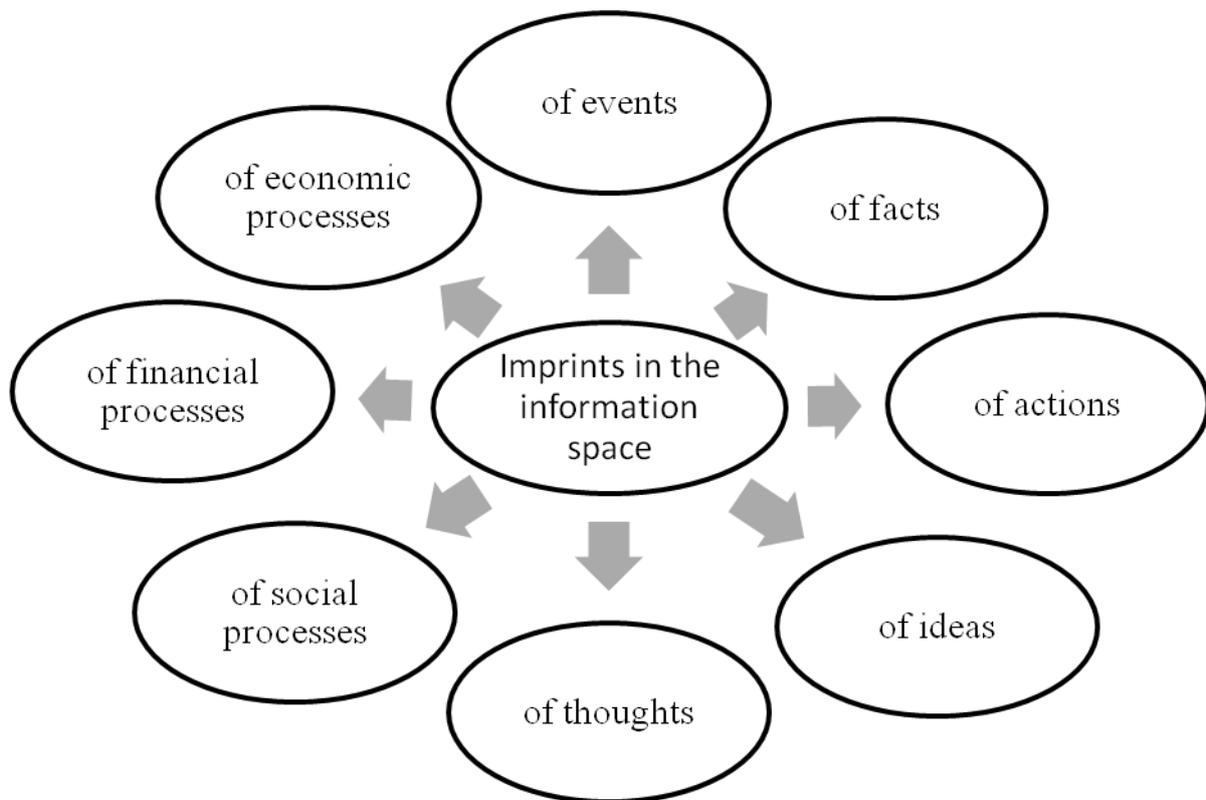


Fig. 3. Information structure of analytical activity

It should be noted that there is a significant difference between the nature of analytical activity and classical scientific research. First of all, scientific research, classically, is formed on the objective laws of the studied process/ phenomenon, which have a tendency to repetition, stable connections, general parameters of the studied area. Information and analytical activity is based on scientific knowledge, generalized patterns, evaluates real facts and events while giving a predictive aspect of development based not only on generalized typical parameters, but also a range of factors and including random influences, conflict of interests with active participation of social processes.

Based on the abovementioned, information and analytical activity is a broader area of research. It includes the selection and systematization of facts on a particular issue, their evaluation, selection, interpretation, clear and thoughtful presentation in oral or written form. It is worth noting that the extraction of necessary materials, activities related to the acquisition, systematization, translation and distribution of books and documents are not included here. Hence the purpose of such activities is to get the most out of the information available in order to understand and assess the situation properly, see it in the future, and ultimately – to eliminate future threats.

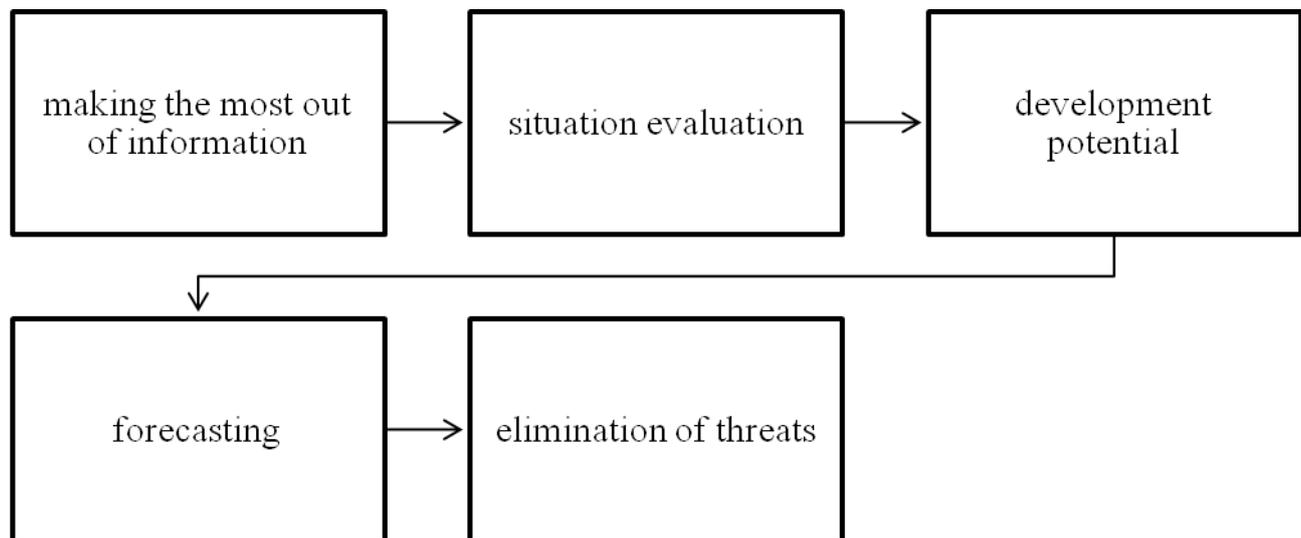


Fig. 4. The purpose of information and analytical activity in regional and country studies.

The essence of information and analytical activity is the disclosure of the sense of the process/ phenomenon, comparison of facts and processes, the perspective of the development of the situation/ phenomenon/ process, data transfer for further use.

Information analytics in research has two types of manifestation: strategic and tactical. Strategic information and analytical activity is formed on the basis of concepts, means and methods to collect the main, timely information for further processing, analysis and construction of a new high-quality information product. Tactical information and analytical activity is determined in each specific study depending on the task (search for partners, markets, sources of funding, degree of risk, etc.).

Objects of information and analytical activity	information and analytical products;
	databases;
	hardware facilities;
	computers, means of communication;
	software;
	antivirus programs, interactive graphics, spreadsheets, multimedia tools
	information services;
	information retrieval system technologies

Fig 5. Objects of information and analytical activity in scientific research

Subjects of information and analytical activity	a personality;
	a state;
	producers of primary information;
	producers of secondary information (bibliographical references);
	information centers, institutes;
	technical means of information processing;
	information processing software;
	information intermediaries (brokerage institutions);
	Internet providers;
	developers of means of communication.

Fig 6. Subjects of information and analytical activity in scientific research

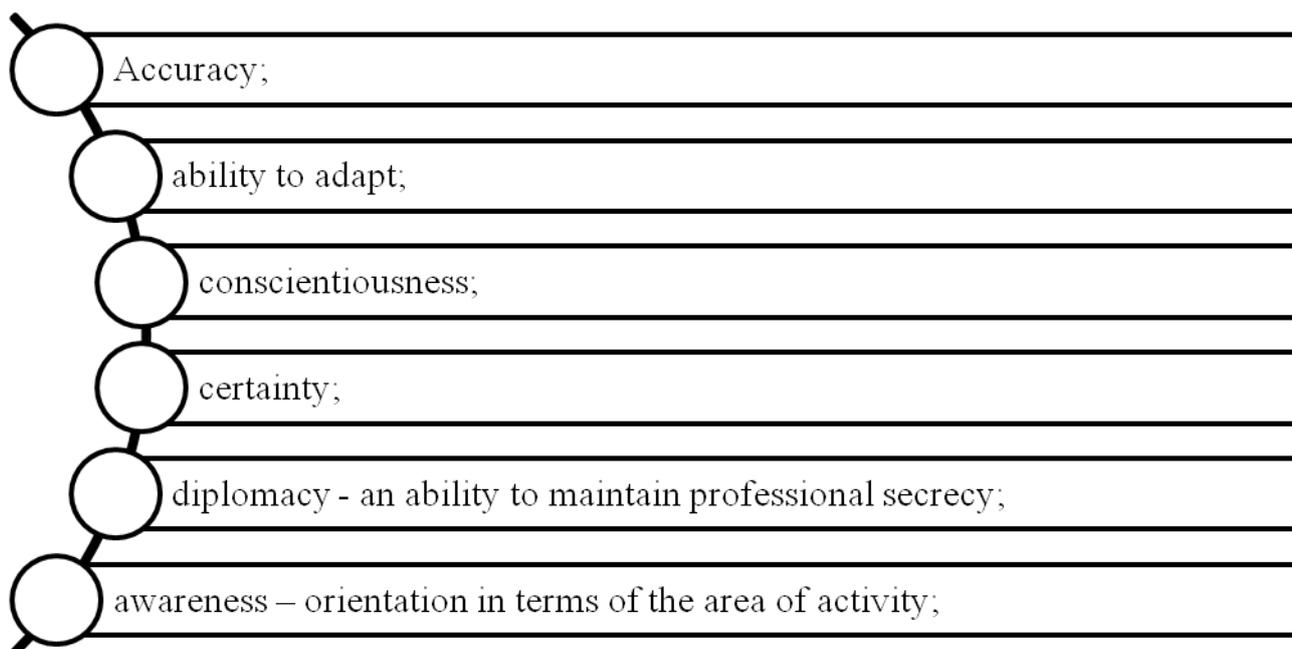


Fig. 7. Necessary skills in carrying out information and analytical activity in international regional and country studies

The main methods of information and analytical activity in international regional and country studies:

- Historical method – consideration of a phenomenon/ process/ object with all historical features and chronological sequence;
- Analysis – the division of the phenomenon/ process/ object into constituent parts with their further study;
- Method of synthesis – a combination of components (properties, features, relationships) with the disclosure of the role of each component;
- Method of analogies – a kind of comparison of similarities and differences (assumptions with a subsequent possible hypothesis);
- Hypothesis – scientific assumptions about further possible development of properties, consequences, connections of research;
- Comparison;
- Method of relation network - the establishment of optimal organizational structures of institutions, governments in the selection of probable senior and middle managers;
- Content analysis;
- Observation;
- Method of regularities;
- Modeling method;
- System method – combination of information data into a system;
- Method of empathy – imagining yourself as part of the studied phenomenon/ process/ object and understanding the next steps from this position.

Conclusions. Information and analytical activity is a concept of a broader meaning, which means that the activity is much broader and is not limited to one subject area. It is a complex of intelligent technologies, which establishes the fundamental essence of the phenomenon/ process/ object of research, reveals the development trend and creates a scientific basis for effective

forecasting. It is a process of effective emphasizing of the main information and approbation of the created model of development of research and a way of forecasting in the future.

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УДК 32+327

FRANCE'S POLICY TOWARDS UKRAINE IN THE CONTEXT OF THE UKRAINIAN – RUSSIAN WAR

ПОЛІТИКА ФРАНЦІЇ ЩОДО УКРАЇНИ У КОНТЕКСТІ УКРАЇНСЬКО – РОСІЙСЬКОЇ ВІЙНИ

ПОЛИТИКА ФРАНЦИИ ПО ОТНОШЕНИЮ К УКРАИНЕ В КОНТЕКСТЕ УКРАИНСКО – РОССИЙСКОЙ ВОЙНЫ

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***Abstract.** The article discusses the influence and the risks from France's rapprochement with the Russian Federation in the aftermath of Ukrainian – Russian war, what can present a threat to the EU Neighborhood Policy. The ideas and views expressed in the article, present exclusively the point of view of authors, who relied on a wide range of documents and official information from open sources, but they do not necessarily have to coincide with the opinion of other specialists. Currently expressing the desire to get Russia back to the dialogue with the European Union, which throughout the history defined Moscow as one of the main economic partners, France pursues the policy of appeasing the aggressor, neglecting the war in Ukraine. The Russian Federation violated the basics of the international law, having annexed the Crimean Peninsula and having occupied certain areas of Donetsk and Lugansk regions. The article underlines that Ukraine is not alone in the long least of Moscow pro-imperial plans and presents a threat to the stability and security of the continent. The analyses, also demonstrates the politics of France towards Ukraine during the last seven years. The article provides a complex evidence that there is a connotation between the Ukrainian – Russian war and the desire of Moscow to establish the instability zone along the borders of the European Union.*

***Keywords:** France, Russia, Ukraine, bilateral relations, conflict resolution.*

Анотація. У статті розглядається вплив та ризики зближення Франції з Російською Федерацією у контексті українсько-російської війни, що може становити загрозу для політики сусідства ЄС. Ідеї та погляди, викладені в статті, представляють виключно точку зору авторів, які спиралися на широкий спектр документів та офіційної інформації з відкритих джерел, але вони не обов'язково повинні збігатися з думкою інших дослідників. Висловлюючи бажання повернути Росію до діалогу з Європейським Союзом, Франція яка протягом усієї історії визначала Москву одним із головних своїх економічних партнерів, проводить політику умиротворення агресора, нехтуючи війною в Україні. Російська Федерація порушила основи міжнародного права, анексувавши Кримський півострів та окупувавши окремі райони Донецької та Луганської областей. У статті підкреслюється, що Україна не є останнім пунктом у проімперських планах Москви і вона становить безпосередню загрозу стабільності та безпеці континенту. Дослідження також показує політику Франції щодо України протягом останніх семи років. У статті наводяться докази того, що існує прямий зв'язок між українсько-російською війною та бажанням Москви створити зону нестабільності вздовж кордонів Європейського Союзу.

Ключові слова. Франція, Росія, Україна, двосторонні відносини, вирішення конфліктів.

Аннотация. В статье рассматривается влияние и риски сближения Франции с Российской Федерацией в контексте украинско-российской войны, что может представлять угрозу политике соседства ЕС. Идеи и взгляды, изложенные в статье, представляют исключительно точку зрения авторов, опирающихся на широкий спектр документов и официальной информации из открытых источников, но они не обязательно должны совпадать с мнением других исследователей. Выражая желание вернуть Россию к диалогу с Европейским Союзом, Франция, которая на протяжении всей истории определяла Москву одним из главных своих экономических партнеров, проводит политику умиротворения агрессора, пренебрегая войной в Украине. Российская Федерация нарушила основы международного права, аннексировала Крымский полуостров и оккупировала отдельные районы Донецкой и Луганской областей. В статье подчеркивается, что Украина не является последним пунктом в проимперских планах Москвы и представляет непосредственную угрозу стабильности и безопасности континента. Исследование также показывает политику Франции в отношении Украины за последние семь лет. В статье приводятся доказательства, что существует прямая связь между украинско-российской войной и желанием Москвы создать зону нестабильности вдоль границ Европейского Союза.

Ключевые слова. Франция, Россия, Украина, двусторонние отношения, разрешение конфликтов.

Introduction. In the aftermath of the COVID-19 pandemic, Brexit, migration challenges, in the nearest future the European Neighborhood Policy can become another matter of concern due to the growing rapprochement between France and the Russian Federation.

The annexation of Crimea and the war in Donbas were the key events of the 2014, which directly influenced not only the post-soviet space and the European Security, but the entire international system. The European Union as well as other countries of the world had to revise their politics regarding Russian Federation. France was not an exception in this context. Until 2014, France never showed bold support for Kyiv. Ukraine never belonged to the Paris historical sphere of interests and was always associated with Moscow. The French government rarely paid deep attention to the political situation in Ukraine.

Even the former French President François Hollande, who was a direct participant of the Minsk agreements, was inclined to view the war in Donbas, not as it really is, the aggressive war of Russia against Ukraine, but rather a kind of internal conflict with Russia's support of "separatists" (Olland, 2019). French political and business elite were convinced that the EU has already achieved

the final point of enlargement and it is a bad idea to support integration hopes of pro-western Ukrainian political elite (Yevropeiska pravda, 2016).

Ukraine is not important for France in terms of political and economic interests. Even though some observers speak about the intensification of Ukrainian – French contacts, both presidents met more than, ten times in different formats, neither François Hollande, nor Emmanuel Macron never officially visited Kyiv. In July 2019, the Kremlin's press service reported that the French leader had accepted the invitation to pay a visit to Moscow on the occasion of the 75th anniversary of the Second World War victory (TASS, 2020). But the visit was canceled due to COVID-19 pandemic.

France also doesn't have serious economic interests in Ukraine. In 2014 Ukraine was ranked 54-th in French exports and 67-th in imports (Narochnickaya, 2019). According to the results of 2019, France ranked 8th among Ukraine's trading partners among European countries with a share of 4.65% of total turnover, as well as 9th place among countries in terms of investment in Ukraine's economy (Ambassade d'Ukraine en France, 2021).

The active and the dynamic support of the dialogue with the Russian Federation is one of the main challenges for the future of Ukraine – France relations. In this article, the present-day relations of Ukraine and France is interpreted in the context of the Ukrainian conflict and the rapprochement of France and the Russian Federation, what poses a threat to the European Neighborhood Policy.

Definitions, methods, and research structure. The subject matter of the study is the foreign policy of France towards the Russian Federation in the contacts of the Ukrainian – Russian war. The hypothesis of this paper is the following: France under the presidency of Emanuel Macron seeks to return Moscow to the dialogue with the European Union, acting as the ambassador to a country that has launched hostilities against its own neighbor. The aim of the article is to show that this approximation presents a serious threat to the stability and security of the whole Europe. With this purpose the authors plan to answer such questions: the peculiarities of the Ukrainian – French relations in recent years; The specifics of France's foreign policy strategy towards the Russian Federation and whether the economic interests of one of the European Union members is more important than Common Security and Defence Policy.

The methodological basis of the research is the systematic approach which helped the authors to study the foreign policy of France in recent years. The content analysis method was used for the analysis of a great number of textual and visual information from different electronic and non-electronic resources. The comparative method allowed us to obtain reliable conclusions considering the bilateral relations between France – Ukraine – Russia. The descriptive method helped to present the results of the study in the logical sequence. But, as we consider, the case study became the main method of this research paper, because the authors tried to make the analysis of the present-day situation with the settlement of the conflict in Eastern Ukraine.

The situation is very specific because it deals with the violation of the international law on the occupied territories and in the Crimea by the neighboring state that is the Permanent member of the UN Security Council and possesses the military doctrine with the possibility of preventive nuclear attack and presents threat to the entire European continent.

Literature review and research background. Due to the actuality of the problem, it is already visible that the problem lacks fundamental research such as monographs and articles particularly about the foreign policy of France under the presidency of Emmanuel Macron. Of course much has already been written, covering the issues of bilateral relations of France with Russia and Ukraine such as: “Les leçons du pouvoir”, written by François Hollande the former President of France (Hollande, 2018), “Révolution Française: Emmanuel Macron and the quest to reinvent a nation” written by Sophie Pedder in which she examines the first year in office of France's youngest and most exciting president in modern times (Pedder, 2018), the article of Andrii Kutsenko “Emmanuel Macron and Franco-Russian relations at the present stage” (Kutsenko, 2020), but it is still hard to find appropriate materials, covering the problem. Official documents such as: “The UN General Assembly Resolution 68/262 on territorial integrity of Ukraine, adopted by the General Assembly on 27 March 2014” (UN General Assembly, 2014), Minsk agreement

(UNIAN,2015), speech by the President Emmanuel Macron at the Ambassadors' Conference, 2018 (The Ministry for Europe and foreign affairs of France, 2018), "Conclusions agrées. Sommet de Paris en format "Normandie" (Palais de l'Élysée, 2019) also became the vital part of the research.

The specific of the research is also notable in the context of the absence of the deep analytical materials of the French researches. Such situation has some reasons and explanations: French – Ukrainian relations are not the priority for the country. Ukraine is more studied in the context of the Russian Federation, which was always a priority for Paris.

Materials of the research. In 2014, French President François Hollande supported the EU policy of sanctions against the Russian Federation. Russia illegally annexed Crimea in February, 2014. Russian militants invaded the territory of Ukrainian Donbas in April 2014 after the Russian Federation seized Crimea.

Russia's politics in the annexed Crimea and on the temporarily occupied territories of Donbas is an element of the hybrid war against Ukraine. The instruments of this war are very different: the military aid (the weapons and ammunition delivery; the military and security advisers; the direct military actions (the shelling of the Ukrainian territories and airspace (MH-17 case); the direct invasion (Ilovaysk and Debaltseve operations), the financial support of the separatist and proxies; so called humanitarian convoys (used as the channel for the transportation of ammunition, equipment and other resources); the information and the media campaigns (so called "Novorossiia" or "people's republics" projects), human rights violation, also the creation of a background for effective implementation of the "Russian world" concept, one of the basic pillar that is a religious unity of the "fraternal nations". The establishment of the "grey zones" is one of the key elements of Russia's foreign policy towards its neighbors.

Realizing the negative consequences for itself, Paris couldn't back down from the policy of European solidarity, which lied in the condemnation of Moscow's aggressive actions in Ukraine. France terminated its military contract, signed with Russia in 2010 for the construction of two universal landing helicopter ships ("Mistrals"). The total payment from France was more than one billion euros. What considerably hurt the budget of the country (Deutsche Welle, 2015).

France recognized that the annexation of Crimea was illegal and joined the UN General Assembly resolution 68/262, confirming the sovereignty and territorial integrity of Ukraine (UN General Assembly, 2014). France took an active part in the negotiations of the Minsk agreements both in September 2014 and in February 2015. It was the French President – François Hollande, who proposed the initiative of the "Normandy format talks" (Nenartovych, 2017). The first meeting of leaders of Germany, Ukraine, France and Russia took place during the celebration of the 70-th anniversary of the allies landing in Normandy during the Second World War. The result of the talks was a new package of measures called Minsk II (a set of measures to implement Minsk agreements), which was agreed on February 12-th, 2015 (UNIAN, 2015).

Another initiative of France was the "Moral plan", which was supposed to help the West and Russia to find a compromise for a peaceful solution of the Donbas conflict. Pierre Moral, chairman of the working group on political affairs of the Trilateral Contact Group (TCG), consisting of the representatives from Ukraine, the Russian Federation and the Organization for security and cooperation in Europe (OSCE), offered the Ukrainian Parliament to adopt a special law which will allow to carry out separate Donbas elections. The elections would be held in accordance with the Ukrainian legislation, but Kyiv should give the so-called "republics" the possibility to stage them on their own rules. The Morel Plan didn't find support in Kyiv. Ukrainian President Petro Poroshenko said that he considered it to be nothing more than Morel's personal opinion (Deutsche Welle, 2015).

The election of Emanuel Macron as the President of France in May 7, 2017 didn't fundamentally change the French position on Crimea, Ukraine and Russia – EU relations. In the context of the analysis, it is worth mentioning, that in January 21, 2016 as the French Finance Minister, E. Macron visited Moscow and in contradiction to the official position of the government, expressed hope that the anti-Russian sanctions would be postponed no later than August of this year (Yevropeiska pravda 2016). During the elections E. Macron underlined the necessity to have the

dialogue with Moscow and promised to have “demanding talks” with Vladimir Putin. It is vital to underline, that E. Macron very seldom touched Ukraine and Donbas in his election speeches, while his opponent Marine Le Pen (the President of the National Rally, previously National Front), didn’t hide her sympathy for Moscow and recognized the annexed Crimea as the part of the Russian Federation.

Having won the elections E. Macron demonstrated the noticeable interest to the continuation of the “Normandy format talks” and even talked about the possibility to expand sanctions if Russia doesn’t stop supporting separatists in Donbas (Russian “humanitarian convoy” to Ukraine – a military, financial and humanitarian assistance from Russian Federation to militants and the population of so-called “DNR” and “LNR” during the war in Eastern Ukraine. More than 70 trucks have crossed the Ukrainian – Russian border with such assistance since 2014). The French President even pushed forward to announce that he reached the agreement with Vladimir Putin to hold a summit of the “Normandy quartet” during their meeting in Versailles on the 29-th of May, 2017. For V. Putin, it was the first meeting with a French President in five years. He canceled a meeting with Macron's Francois Hollande scheduled for October 2016 after F. Hollande called Russia's airstrikes on Aleppo a war crime (Deutsche Welle, 2017). In Versailles, E. Macron obviously demonstrated his commitment to the Russian President and his desire to return Moscow to the dialogue with the EU. However, from May 2017 to May 2019 there were only few telephone talks (summer 2017), one meeting of ministers in June 2018 in Berlin and a tripartite summit of A. Merkel, E. Macron and P. Poroshenko without Vladimir Putin on May 10, 2018 in Aachen. This day the President of France received the international award of Charlemagne Prize for his “vision of a new Europe” (Interfax, 2018).

In his annual address to the French diplomatic corps (the conference of ambassadors) on August 27, 2018, E. Macron underlined the necessity to engage to a broad discussion of defense and security issues of all European partners, including Russia. He also pointed that the substantial progress towards resolving the Ukrainian crisis in compliance with the OSCE framework will clearly be the prior condition necessary for real progress with Moscow (The Ministry for Europe and foreign affairs of France, 2018).

On August 21, 2019 E. Macron announced the possibility of the “G8” format restoration, but only after the settlement of the conflict on the East of Ukraine (Radio Free Europe, 2019).

In his annual conference of ambassadors on August 27, 2019 E. Macron pointed again that Russia is also the part of Europe and if the European countries are unable to accomplish anything useful with Russia at any given time, they will remain in a state of deeply unproductive tension. Europe will continue to be the theatre of a strategic battle between the United States and Russia, with the consequences of the Cold War still visible. Only one sentence is devoted to the Russia-Ukraine conflict in which it is said that the date of the next summit will be offered in the coming days (Ambassade de France à Riga, 2019).

Before the summit in Biarritz which was held from the 24-th to the 26-th of August, 2019 the President of France met with Vladimir Putin in his summer residence, Fort de Brégançon. During the negotiations, E. Macron was trying to reach the progress in resolving the situation in Eastern Ukraine. Both presidents agreed that they do not mind that the “Normandy format talks” would continue to remain the main platform of dialogue for the conflict resolution. The implementation of the Minsk agreements remained one of the main conditions. At the same time both leaders of France and Russia expressed the expectation that the change of power in Ukraine and the election of Vladimir Zelensky, will give the new impulse for the settlement of the conflict (AP, 2019).

On December 9, 2019 the “Normandy format talks” summit was held in Paris. The meeting was initiated by the President of France – Emmanuel Macron. The fact of such negotiations after a three year break was called an achievement (Deutsche Welle, 2019).

The final communiqué contains the next concrete steps to resolve the situation in Donbas, including the termination of a ceasefire by the end of this year, as well as the exchange of detainees in an “all for all” format also by the end of this year. Other agreed measures also include the

deployment of forces in three additional areas by the end of March 2020, the opening of the new entry-exit checkpoints and support for demining measures. The communiqué also emphasizes that the OSCE monitoring mission should have access throughout Ukraine for the full implementation of its mandate (Palais de l'Élysée, 2019). Regarding the political part of Minsk agreements, the final part of the document of the summit states that the parties consider it necessary to assign the provisions of the so-called "Steinmeier formula" in Ukrainian legislation in accordance with the agreements reached earlier. The "Steinmeier formula" is a package of proposals of a President of Germany – Frank-Walter Steinmeier, who offered to hold the elections on the temporarily occupied territories of Donetsk and Lugansk regions under the control of the OSCE representatives and grant a special status to these territories [(Deutsche Welle, 2019).

It is important to pay attention to the privileged attitude of E. Macron to V. Putin during the meeting. The head of the Russian Federation received the largest motorcade and near the Élysée Palace, the President E. Macron warmly embraced the Russian leader. Moreover, for the first time V. Putin wasn't late and arrived in time, what can also be interpreted as a manifestation of commitment to the President of France (Hromadske International, 2019). But the final rapprochement of two presidents took place a few weeks later when they discussed by phone the achievements of the Paris Summit (The Ministry for Europe and foreign affairs of France, 2020).

The attitude of E. Macron towards the Donbas war and the relationships with Russia changed dramatically in 2020. In an interview on January 15, 2020 the President of France said that he is ready for closer with the Russian Federation despite its long-lasting conflicts with its neighbors. E. Macron said that his position is the result of a long analysis and reflections. The President of France stated: "Russia has captured Ukraine and we took measures. We are on the way to resolving frozen conflicts, but while we are waiting for their solution, it is time to start moving forward" (Palais de l'Élysée, 2020).

In March – April 2020, E. Macron called the states to the global truce at the time of the COVID-19 pandemic. The president suggested that V. Putin "would probably agree with him", hinting about at least a partial cessation of hostilities on the territory of Ukraine"(CNN, 2020). Speaking at the Munich Security Conference on the 20-th of February this year which Vladimir Putin skipped for the second time, E. Macron called the international community to rebuilt the overall security architecture, which should include the dialogue with Russia. France and Germany called all parties of the conflict to take the responsibility for the lives of people who are in a threat because of the pandemic (HLAVKOM, 2021).

For now it is not quite clear what will be the politics of France to the war in Ukraine in the future, but as we see E. Macron will coordinate the foreign policy of France with the need of close cooperation between France and Russia. Even though France condemned the annexation of the Crimean Peninsula and generally continues to play an active role in the direction of the final settlement of the conflict, the relationships with the Russian Federation is still the main priority. At least, France started to follow the events in Ukraine, because the conflict takes place along the border of the European Neighborhood Policy and deeply affects French political and economic ties with Moscow.

Conclusions and discussions. On the one hand the French diplomacy doesn't have the purpose to step back from the EU official position which lies in the condemnation of Russia's aggressive actions in Ukraine, but on the other, E. Macron's administration doesn't see the alternative of conflict resolution rather than "Normandy format talks" and call upon Europe to get back to the dialogue with Moscow. The President of France considers Russia away from Europe as the major strategic error. The Paris has picked up for itself the significance of cooperation with Russia and less action in dealing with Ukraine. In his book "Les Pensees du General de Gaulle" a well – known French politician and a former Henri Guaino member of the National Assembly wrote: "A mistake that can be read in particular in the difficulties of European construction is the need of merging all European nations without taking into account history and culture. The failure

can be seen in relations between Russia and Ukraine, where Europe and the United States have ignored geography and culture (Guaino, 2015).

But, we consider that it is necessary to remind about the appeasement and what role did it play in the world history and French foreign policy, when it failed to stop the Nazi Germany.

Thus, the official position of France lies in the adherence to the “Normandy format talks” in tandem with Germany, speaking on behalf the European Union and the further expansion of closer ties with the Russian Federation.

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СУЧАСНА СИСТЕМА МІЖНАРОДНОГО ПРАВА

УДК 341.23

COOPERATION OF STATES IN THE FIELD OF COMBATING CYBER CRIME AND APPROACHES TO SOLVING THE PROBLEM OF CYBER TERRORISM

СПІВРОБІТНИЦТВО ДЕРЖАВ В СФЕРІ БОРОТЬБИ З КІБЕРЗЛОЧИННІСТЮ ТА ПІДХОДИ ДО ВИРІШЕННЯ ПРОБЛЕМИ КІБЕР-ТЕРРОРИЗМА

СОТРУДНИЧЕСТВО ДЕРЖАВ В СФЕРЕ БОРЬБЫ С КИБЕРПРЕСТУПНОСТЬЮ И ПОДХОДЫ К РЕШЕНИЮ ПРОБЛЕМЫ КИБЕР-ТЕРРОРИЗМА

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***Abstract.** Currently, society is evolving into information one, which, on the one hand, simplifies the interaction between participants in public relations, and on the other hand, increases the risk of human rights violations, when using information and communication technologies. Changing the structure and scope of information transfer requires both the subjects of social relations, which have a personal interest in ensuring the highest possible level of security of transmitted data, and the state as a whole as a guarantor of the stability of the legal field of public relations. It is obvious that national security largely depends on information security, and in the course of technical progress, this dependence is only growing. Information, acting as an economic and social guarantee of stability of existence and development of society and the state, is the object of close attention and influence of the state. The introduction of e- document management and the creation of interconnected information resources have made information vulnerable to outside interference.*

The choice is made by the individual user of information-and-communication technologies, by civil society as a whole (for example, by opposing or supporting certain state policies in the information sphere) and by public authorities, as they decide on lawmaking and implementation of relevant norms. Each state is constantly balancing between the principles of respect for human and civil rights and freedoms, integration into the international community, the need to ensure economic growth and national security. However, no domestic policy should outweigh the need for international cooperation in the fight against crime, which should be based on the principles of openness, mutual assistance, development of new forms of cooperation. It seems that international

cooperation in the fight against cybercrime should be carried out with the participation of all countries.

The legal basis of the regime of preservation of information in international law includes the following components: basic principles of human rights protection; the procedure for cross-border circulation of information; protection of confidential information; the status of international bodies implementing a unified legal policy in the field of information protection and its implementation.

It seems that international cooperation in the fight against cybercrime must be carried out with the participation of all countries. At the same time, based on a generalized analysis of the legal framework of international, European and national legislation of the EU countries, a certain approach to the implementation of international cooperation in combating cybercrime is proposed: improving the legal framework for international cooperation, harmonized implementation of developed legal norms into national legislation, improving approaches to information exchange.

Key words: cybersecurity, cybercrime, international cooperation, international information law.

Анотація. Нині відбувається еволюція суспільства в інформаційне, що, з одного боку, спрощує взаємодію між учасниками суспільних відносин, а з іншого боку, підвищує ризик порушення прав людини під час використання інформаційно-комунікаційних технологій. Зміна структури та обсягу передачі інформації вимагає як від самих суб'єктів соціальних відносин, які мають особистий інтерес у забезпеченні максимально можливого рівня безпеки даних, що передаються, так і від держави в цілому як від гаранта стабільності правового поля суспільних відносин, забезпечення безпечного поширення інформації. Очевидно, що національна безпека значною мірою залежить від забезпечення інформаційної безпеки, і в ході технічного прогресу ця залежність лише зростає. Інформація, виступаючи в якості економічної та соціальної гарантії стабільності існування та розвитку суспільства та держави, є об'єктом пильної уваги та впливу з боку держави. Введення електронного документообігу та створення взаємопов'язаних інформаційних ресурсів зробили інформацію досить вразливою для втручання ззовні.

Вибір здійснює як окремих користувачів інформаційно-комунікаційних технологій, так і суспільство в цілому (наприклад виступаючи проти чи підтримуючи певну політику держави в інформаційній сфері), та органи публічної влади, як приймають рішення щодо законотворчості та впровадження відповідних норм. Кожна держава постійно балансує між принципами дотримання прав і свобод людини та громадянина, інтеграцією у міжнародне співтовариство, необхідністю забезпечення економічного зростання та національної безпеки. Однак, жодна внутрішня політика не повинна переважати потреби міжнародного співробітництва у боротьбі зі злочинами, яке має будуватися на принципах відкритості, взаємодопомоги, активності у розробці нових форм взаємодії. Як видається, міжнародне співробітництво у боротьбі з кіберзлочинністю необхідно здійснювати на основі участі всіх країн.

Правові основи режиму збереження інформації у міжнародне право включають такі його складові: базові принципи; порядок транскордонного обігу інформації; захист конфіденційної інформації; статус міжнародних органів, що здійснюють вироблення єдиної правової політики у сфері захисту інформації та її реалізацію. Виходячи з узагальненого аналізу нормативно-правової бази як міжнародного, європейського та національного законодавства країн ЄС, пропонується певний підхід до реалізації міжнародного співробітництва у сфері боротьби з кіберзлочинами, що передбачає скоординованість дій усіх держав таким напрямом як удосконалення правової основи взаємодії та імплементація вироблених норм у національне законодавство, покращення підходів до обміну інформацією.

Ключові слова: кібербезпека, кіберпреступність міжнародна співпраця, міжнародне інформаційне право.

Аннотация. В настоящее время происходит эволюция общества в информационное, что, с одной стороны, упрощает взаимодействие между участниками общественных отношений, а с другой стороны, повышает риск нарушения прав человека при использовании информационно-коммуникационных технологий. Изменение структуры и объема передачи информации требует как от самих субъектов социальных отношений, имеющих личный интерес в обеспечении максимально возможного уровня безопасности передаваемых данных, так и от государства в целом как от гаранта стабильности правового поля общественных отношений, обеспечения безопасного распространения информации. Очевидно, что национальная безопасность в значительной степени зависит от обеспечения информационной безопасности и в ходе технического прогресса эта зависимость только растет. Информация, выступая в качестве экономической и социальной гарантии стабильности существования и развития общества и государства, является объектом пристального внимания и влияния государства. Введение электронного документооборота и создание взаимосвязанных информационных ресурсов сделали информацию достаточно уязвимой для вмешательства извне.

Выбор осуществляет как отдельный пользователь информационно-коммуникационных технологий, так и общество в целом (например, выступая против или поддерживая определенную политику государства в информационной сфере), и органы публичной власти, как принимают решения о законотворчестве и внедрении соответствующих норм. Каждое государство постоянно балансирует между принципами соблюдения прав и свобод человека и гражданина, интеграцией в международное сообщество, необходимостью обеспечения экономического роста и безопасности. Однако ни одна внутренняя политика не должна преобладать над необходимостью международного сотрудничества в борьбе с преступлениями, которое должно строиться на принципах открытости, взаимопомощи, активности в разработке новых форм взаимодействия. Как представляется, международное сотрудничество по борьбе с киберпреступностью необходимо осуществлять на основе участия всех стран.

Правовые основы режима хранения информации в международном праве включают следующие его составляющие: базовые принципы; порядок трансграничного обращения информации; защита конфиденциальной информации; статус международных органов, осуществляющих выработку единой правовой политики в сфере защиты информации и ее реализации. Исходя из обобщенного анализа нормативно-правовой базы как международного, европейского, так и национального законодательства стран ЕС, предлагается определенный подход к реализации международного сотрудничества в сфере борьбы с киберпреступлениями, предусматривающий скоординированность действий всех государств по таким направлениям как усовершенствование правовой основы взаимодействия, гармонизированная имплементация выработанных норм в национальное законодательство, улучшение подходов к обмену информацией.

Ключевые слова: *кибербезопасность, киберпреступность, международное сотрудничество, международное информационное право.*

Introduction. Currently, society is evolving into information one, which, on the one hand, simplifies the interaction between participants in public relations, and on the other hand, increases the risk of human rights violations, when using information and communication technologies. Changing the structure and scope of information transfer requires both the subjects of social relations, which have a personal interest in ensuring the highest possible level of security of transmitted data, and the state as a whole as a guarantor of the stability of the legal field of public relations. It is obvious that national security largely depends on information security, and in the course of technical progress, this dependence is only growing. Information, acting as an economic and social guarantee of stability of existence and development of society and the state, is the object of close attention and influence of the state. The introduction of e- document management and the

creation of interconnected information resources have made information vulnerable to outside interference.

The purpose of research. The purpose of this article is, based on a generalized analysis of the legal framework of international, European and national legislation of the EU countries, to propose a certain approach to the implementation of international cooperation in combating cybercrime.

Literature review. In recent years, Ukrainian scientists in the sphere of IT technologies, sociology, economy, and law have been paying significant attention to the issue of cybersecurity. Mostly, the issue of cybersecurity is studied from the point of view of computer sciences (applied aspect): Furashov V., (2012), in legal sciences much attention is paid to national regulation of this issue in Ukraine: the theoretical basis of cyber-relations (Gnatiuk S., 2013), information, and cybersecurity (subject, object, relations, etc.): works of Lipkan V., (2017), Sopilko I., (2016), Dovgan O., (2018) studying of provisions of Ukrainian law in the sphere of information and security, cybersecurity from point of view of criminal law and administrative law (i.e. Doronin I., 2017; Diorditsa I., 2017), cybersecurity as a strategy of national information law order (i.e. Tkachuk N., 2019; Gutsaliuk M., 2019; Halinska K., 2016), etc.

Research results. At present, the postindustrial society is being transformed into an information society, which, on the one hand, simplifies the interaction between participants in public relations, and, on the other hand, increases the risk of violating confidentiality. Changing the structure and volume of information transferred requires both the subjects of social relations, who have a personal interest in ensuring the highest possible level of security of the transmitted data, and the state, as a guarantor of the public relations stability, to build clear architecture for the safe dissemination of information.

Obviously, national security depends to a large extent on ensuring information security, and this dependence only grows in the course of technological progress. Information, acting as an economic and social guarantee of the stability of the existence and development of society and the state, is the object of close attention and influence of the state authorities. The introduction of full-fledged electronic document circulation and the creation of interoperable information resources made information matter sufficiently vulnerable to outside interference. The legal basis of the regime of confidentiality of information in international law includes the following components: basic principles in the field of privacy; the procedure for cross-border turnover of confidential information; protection of confidential information; the status of international bodies engaged in the development of a unified legal policy in the field of privacy and its implementation. Based on a generalized analysis of the regulatory framework of both international and national legislation and current views on this problem, the new approach towards the implementation of international cooperation in the field of combating cybercrime can be proposed. Such an approach should imply greater coordination of actions of all states, at least in two directions: improving the legal basis for interaction and implementation of the developed norms into national legislation, completing the organizational basis for the exchange of information.

Each state is constantly balancing between the principles of observance of rights and freedoms of a person and a citizen, integration into the international community, and from another side - the need to ensure economic growth and national security, including restrictions of human and civil rights and freedoms, the establishment of restrictions on entrepreneurial activity, protection of its own interests in the international arena.

It appears that international cooperation in the fight against cybercrime needs to be implemented based on the participation of all countries, which is predetermined both by the property of the information itself as an object of encroachment and by the nature of committed crimes. As noted by the international expert on harmonization of legislation in the field of cybercrime, Stein Schjolberg, "cyberspace, as the fifth common space, after terrestrial, sea, air and space, requires coordination, cooperation and special legal measures at the international level" [Schjolberg S., 2010].

In the modern world, information is the most important component of the development of society. The transformation of a postindustrial society into an information society means that information becomes global, becomes significant both for a person and for the state and society as a whole, everyone can seek, receive, transmit, produce and disseminate information by any legal way, there are no boundaries for its flow. At the moment information is recognized as one of the most important values, accordingly, its protection is no less important activity than its receipt and transmission, therefore, in a “digitalized society at the beginning of the 21st-century sphere of risk is changing” [Sindhu K.K., Kombade R., 2012]. The widespread use of information processing facilities by computers with software that makes it relatively easy to modify, copy and destroy information increases the vulnerability of the information space.

It is very important to understand the global nature of the cybercrime problem. So, already now, cyberattacks paralyze the work of not only private structures, but also state bodies, in the world, there is no state that is enough protected from this kind of attack. As potential sources of cyber threats, are considered not as such not only hackers or their groups, but also whole states, terrorist and criminal groups.

Symantec Security, global cyber security service, says “every second 12 people are being cyberattacked around the world, and annually in the world, there are about 556 million cybercrimes, the damage from which is more than \$ 100 billion”.

Cybercrime can violate the interests of both the state and the individual. Undoubtedly, the features of the functioning of information systems, primarily the Internet, “require that the solution cybersecurity issues were addressed joint efforts of various actors - public and private” [Huey L., 2013], however, it is the state that is only capable of effectively carrying out a full-scale counteraction committing cybercrimes.

There are examples in the world of fairly effective systems for countering cybercrimes. Currently, leading countries of the world are actively expanding and creating in the armed forces and special services the units, which should ensure the development of offensive capabilities in cyberspace.

For example, in the USA, along with the already functioning National Cyber Security Center, as part of The Armed Forces has been formed the Unified Cyber Command (Unified U.S. Cyber Command), which in a global scale should coordinate the efforts of all structures of the Pentagon during the conduct of military actions, provide appropriate support civil federal institutions, and also interact with similar departments of other countries. At the same time, these organizations are partly controlled departments, since the supreme controlling structure is the National Security Council with special committees, whose area of responsibility includes the implementation of an information strategy, including the fight against cybercrime. In the UK cyberweapon programs are implemented - they will ensure the ability of the authorities to withstand the growing threats from cyberspace. Australia has established an Email Security Coordination Group (ESCG). The main task of this group is to create a secure and reliable electronic operational space for both the public and private sectors. Cybercrime countermeasures are not limited to the activity of individual states, but also their blocs, in particular NATO. The strategic NATO concept for the first time included a provision on cyberspace as a new area of the military activities of the alliance.

In other words, in the fight against cross-border crimes, which include a significant part of cybercrimes, a special role is assigned to states: only when there is well-coordinated work of law enforcement agencies of different countries, then it becomes possible to reduce the number of offenses committed in this area.

International cooperation is carried out in several directions and presupposes, first of all, the creation of regulations and the development of general recommendations, as well as the introduction of effective models of organizational interaction between states.

Legal regulation of issues of struggle against cybercrime is the basis of the entire system of countering cybercrime. The complexity of the development of international instruments is further

complicated by the fact that existing laws are difficult to apply when it comes to not localizable attacks on a planetary scale, the evidence of which is scattered and virtual.

The international community in various levels has developed a number of acts that are significant for the fight against cybercrime, with a special role played by regional acts, since the worldwide document is currently quite difficult to elaborate.

At the same time one can note the attempts of states to spread the norms of global international treaties on cybercrime issues or attempts to conclude new treaties. For example, so both in cyberspace along with individual persons organized criminal groups can act, there is a possibility of application of international treaties aimed at combating organized crime to them - in particular, the UN Convention against transnational organized crime of November 15, 2000. In addition, the concept of the UN Convention on ensuring international information security [UN Convention, 2000], presented to the international community in November 2011 at the Conference on Cyberspace in London; it includes a preamble, 23 articles combined into the main part, and final provisions.

It is important that in Art. 4 of the aforesaid Convention there are stipulated main threats to the international peace and security in the information space, of which 11 ones are basic and 4 – are additional. Basic ones include: 1) the use of information technology and means of storing and transferring information to engage in hostile activity and acts of aggression; 2) purposefully destructive behavior in the information space aimed against critically important structures of the government of another State; 3) the illegal use of the information resources of another government without the permission of that government, in the information space where those resources are located; 4) actions in the information space aimed at undermining the political, economic, and social system of another government, and psychological campaigns carried out against the population of a State with the intent of destabilizing society; 5) the use of the international information space by governmental and non-governmental structures, organizations, groups, and individuals for terrorist, extremist, or other criminal purposes; 6) the dissemination of information across national borders, in a manner counter to the principles and norms of international law, as well as the national legislation of the government involved; 7) the use of an information infrastructure to disseminate information intended to inflame national, ethnic, or religious conflict, racist and xenophobic written materials, images or any other type of presenting ideas or theories that promote, enable, or incite hatred, discrimination, or violence against any individual or group, if the supporting reasons are based on race, skin color, national or ethnic origin, or religion; 8) the manipulation of the flow of information in the information space of other governments, disinformation or the concealment of information with the goal of adversely affecting the psychological or spiritual state of society, or eroding traditional cultural, moral, ethical, and aesthetic values; 9) the use, carried out in the information space, of information and communication technology and means to the detriment of fundamental human rights and freedoms; 10) the denial of access to new information and communication technologies, the creation of a state of technological dependence in the sphere of informatization, to the detriment of another State; 11) information expansion, gaining control over the national information resources of another State.

Additional factors, increasing the danger of the aforementioned threats, are: 1) difficulty in identifying the source of hostile actions, especially taking into account the growing activity of individuals, groups, and organizations, including criminal organizations, which provide intermediary services, carrying out activities in the name of others; 2) the potential danger of the inclusion of undeclared destructive capabilities in information and communication technology; 3) the difference in the levels of information and communication technologies in use, and in their security, in different States ("digital inequality"); 4) the difference in national legislation and practices as regards the formation of a secure and quickly restorable information infrastructure.

However, again we have to admit that in the concept the principles of the draft convention there is not spelled out in detail plan of international cooperation in the fight against cybercrimes, except for actions against terrorists. The inclusion into the concept of the Convention Ch. 5 "International cooperation in the field of international information security " is a positive sign, but

measures of international cooperation in this area seem to be clearly insufficient for the effective functioning of the system of international security since they only assume “exchange best practices on the prevention, legal investigation, and the liquidation of consequences of crimes, including those related to terrorism, involving the information space”, “consultations on the issues of activities in the information space, which can cause the concern of the participating States, and cooperation regarding the settlement conflict situations of a military nature”. At the same time, these forms do not take into account the need for operational interaction of law enforcement bodies on a wide range of issues.

Thus, the provisions of the concept of the UN Convention on the provision of international information security are of a sufficiently compromise nature and are oriented primarily to prevent information wars and terrorism.

It should be noted, that majority of the specialized acts for the fight against cybercrimes constitute acts of the European Union, which has one of the most developed in the world information security systems. So, in October 1999 during the Tampere Meeting of the European Council, it was decided on the advisability of including crimes in the field of high technologies (*high-tech crime*) among crimes for which it is necessary to develop a common European approach in terms of criminalization and sanctions. In 2001, the European Commission submitted a special Message “Creating a secure information society through increasing the security of information infrastructure and combating crime with using computer tools” [Communication, 2001], which contained proposals for legal and organizational nature to combat cybercrime in the European Union.

The Budapest Convention on Cybercrime is of fundamental importance both for the European Union and for the entire world community, governing global control measures with cybercrime, which was adopted by the Council of Europe in 2001 [Convention on Cybercrime, 2001].

In the preamble to the Convention, the States – Parties outlined the purpose of its adoption: the development, as a priority, of a common policy in the field of criminal law, focused on protecting society from cybercrime, including through appropriate legislative acts and strengthening of international cooperation; deterring actions against the confidentiality, integrity, and availability of computer systems and networks and computer information, as well as against abuse of such systems, networks, and information, by ensuring that such acts are criminalized and granting powers sufficient to the effective fight against these crimes by helping to identify and by the investigation and prosecution of such criminal offenses, both domestically and internationally and by developing agreements on operational and reliable international cooperation.

The Cybercrime Convention calls for action to be taken by the participating States and at the international level. At the national level, the development of primarily material criminal law to be taken: development in national criminal codes norms on offenses against confidentiality, integrity and availability of computer systems, crimes, related to networks and information, related to the use of computer tools, data content, in violation of copyright and related right; establishment of criminal liability of legal entities, which, however, contradicts the concepts of criminal responsibility in a number of countries.

Thus, in the Convention on Cybercrime, cybercrimes are classified as follows: 1) offenses against the confidentiality, integrity, and availability of computer data and systems: illegal access; illegal interception; data interference; system interference; misuse of devices; 2) computer-related offenses: computer-related forgery; computer-related fraud; 3) content-related offenses - offenses related to child pornography; 4) offenses related to infringements of copyright and related rights.

Additional Protocol to the Convention on cybercrime includes a list of the following types of crimes: 1) dissemination of racist and xenophobic material through computer systems; 2) racist and xenophobic motivated threat; 3) racist and xenophobic motivated insult; 4) denial, gross minimization, approval or justification of genocide or crimes against humanity). [Additional Protocol, 2003]

The Convention also presupposes the development of criminal procedure legislation, for example, the need to legally secure the operational security of accumulated computer data, the procedure for conducting a search and seizure of stored computer data. The Convention focuses on international cooperation (chapter 3).

The general principles of international cooperation are: general principles of mutual assistance; the possibility of cross-border access to stored computer data from the corresponding consent or to publicly available data, mutual assistance in connection with the evaluation of stored electronic data, mutual legal assistance to collect data on streams in real-time; network creation (24/7). Despite the presence in the considered sphere of other international acts, The Convention is the only recognized international treaty, containing the norms of material and procedural rights to counter cybercrime and protect freedom, security and human rights on the Internet. The provisions of the Convention provide the basis for the interaction of states, however, as noted by the Bulgarian researcher R. Georgieva, "The Convention does not guarantee the safety of the virtual space. Of great importance, it will be to have its coordination with the domestic legislation of each country" [Georgieva R., 2001].

Within the framework of the European Union, a number of programs that contribute to the fight against cybercrime, are being developed. In particular, the Stockholm Program recommends preparing an internal security strategy for the EU to improve the protection of citizens and to combat organized crime and terrorism. At the regional level, in addition to the Convention on Cybercrime, the Agreement on Cooperation of the Member States of the Commonwealth of Independent States in Combating Crimes in the Sphere of Computer Information was adopted of June 1, 2001. Basic idea of these documents is the definition of uniform compositions of computer crimes that states must include in their national legislation, as well as the development of measures to combat them. The treaties under consideration fulfill a very important role: they establish the foundations of the jurisdiction of states in criminal matters on the Internet and the rules of international cooperation, ensuring the consistency of the states in the fight against computer crimes.

In general, these treaties provide for a system of interrelated international and national measures to combat computer crimes. It is important to note, that the interaction of states in the fight against cybercrimes requires a generalization of the legal norms of various states when regulating the actions of the parties in the process of such struggle. In particular, the NATO Center of Best Practices in Computer Security published the "Tallinn Manual on the International Law Applicable to Cyber Warfare". The main tasks are supposed to "adapt the existing legal norms in relation to armed conflicts under the specifics of hostile activity in the virtual space", and an attempt to develop definitions of basic concepts in the field of computer security [Tallin Manual, 2012].

The second form of cooperation between states in the fight against cybercrime is the creation of specialized bodies. Because an information security state is associated with its sovereignty, then the creation of a single body that would coordinate the interaction of states to combat cybercrime, is difficult, however, subsidiary bodies are created, guided by uniform performance standards, generalizing the practice of different countries on issues of combating cybercrimes. Of great importance in the interaction of the states - members of the European Union is the activity of Europol and Eurojust, which are directly involved in the fight against cybercrime in the European Union.

Eurojust carries out coordination of law enforcement bodies of various states on the investigation of cybercrimes, assists in the investigation on the request of the relevant public authority of the member states of the European Union, provides law enforcement agencies from these countries information on ongoing investigations on cybercriminals [Eurojust casework in 2015, 2016].

Eurojust's mandate also extends to initiating criminal investigations or putting forward a proposal to initiate an investigation to the law enforcement authorities of the EU member states and

subsequent coordination of ongoing investigations. In addition to these bodies, possessing jurisdictional competence in this area, the European Union creates also subsidiary bodies.

Also, on January 18, 2013, European Center on Combatting Cybercrime was officially opened in the Hague. Its goals are the creation of the data collection and processing of data on cybercrimes, the expertise of Internet threat assessments, development and implementation of advanced methods of prevention and investigation of cybercrimes, preparation of new personnel, assistance to law enforcement and the judiciary, as well as coordination of joint actions of stakeholders, aimed at improving the level of security in European cyberspace.

The military interaction of states also requires a solution to the issue of their cooperation in the field of organizational support for the struggle against cybercrime. Thus, in 2008, at the initiative of Estonia, a Center of NATO Best Practices was established in Tallinn, acting as a research and educational center and dealing with the development of key directions of coalition capabilities in cyberspace. Also, in 2013, NATO completed its unified cyber threat response system, which includes two Cyber Threat Response Centers (Brussels and Mons). Besides, steps are being taken to test the effectiveness of the already established cyber-attack mitigation system, for example, there are trainings been annually held: "Cybercoalition", "Shield ball".

In other words, the current trend of international counteraction to cybercrime is the expansion of the sphere of the interaction of states. Such methods as operational cooperation of law enforcement agencies in the fight against cybercrime (Interpol, Europol, Eurojust), creation and use of a unified database on cybercriminals, committed and planned cybercrimes (primarily working in 24/7 mode) turned into reality.

Insofar as the introduction of normative acts of both national and international character is an insufficient step towards solving the problem of combating cybercrime, in this case, we need special knowledge in the field of information technology and software. A single global act governing the procedure for countering cybercrimes has not been developed, but the international community within the framework of the regional cooperation takes measures to regulate legislatively the actions of subjects in cyberspace, to combat cybercrime.

If we speak about legal features of countering cyberterrorism in foreign law in the context of the development of the modern information space, it was noted that such principles of IT technologies as openness and general accessibility are widely used by terrorist organizations for their criminal purposes.

An analysis of foreign legislation suggests that in most countries of the world there is no special corpus delicti - cyber terrorism. At the same time, the reference to the use of IT technologies in the spread of ideas of terrorism is fixed as an aggravating circumstance. One can come to the conclusion, that there is no consensus in legal doctrine regarding including cyber-terrorism into criminal law at national level. Two types of cyber-terrorism can be determined, proceeding from types of actions taken: hybrid and pure one. In the first case, it is the use of the Internet for terrorist activities: propaganda, recruiting supporters, training them, radicalizing society, collecting funds, obtaining data, communicating, planning real terrorist attacks. In the second case, these are direct attacks on cyberinfrastructure in order to achieve political, religious and ideological goals.

More and more industrial facilities are operated from remote computers, more and more information bases are systematized thanks to cloud programs. Simultaneously, the global network allows you to get easy access to a large audience in the absence of censorship, thanks to which the dissemination of information takes on qualitatively different forms. It is believed that Barry Collin (an employee of the Institute for Security and Intelligence, California, USA) back in 1980, when only several computers of the U.S. Department of Defense have been linked together through a network ARPANET was the first researcher who for the first time mentioned "cyberterrorism" [B. Collin, 1996]. Among the first attempts to use the Internet for illegal purposes were actions, made by the group "Tamil Tigers", which in 1998 "bombed" with electronic letters the official institutions of Sri Lanka, calling themselves "black Internet tigers" in them. Around the same time, sect "Aum Shinrikyo" (the data was obtained during searches at the headquarters of the organization) was developing the possibility of intercepting control of nuclear facilities.

For the first time about "digital Pearl Harbor" was written in 1995 [J. Lewis, 2003]. America seemed a defenseless victim even facing the most insignificant computer actions [Weimann G., 2005]. "Such a whipping up of hysteria had been going on for ten years, right up to the time when G. Weimann in 2004 designed it step by step in the near future" [Weimann G., 2004].

Analysis of foreign criminal legislation also shows reluctance to introduce cyber terrorism into national legal systems, which should not be considered as a kind of "conspiracy of silence". In some countries, there is only mention of the use of telecommunication systems in terrorist purposes, which in most cases can be considered as an additional aggravating circumstance.

For example, Art. 421-1 Criminal Code of France, providing for the concept of an act of terrorism, only complements that it will also apply to criminal acts in the field of informatics in case of identifying their target focus. Herewith reference is made to Book III of the Criminal Code, establishing criminal liability for crimes in the sphere of computer information. After the appearance of special electronic journals and sites promoting terrorist actions, Art. 421-2-5-2, which introduced criminal liability for distribution of messages on the Internet, images, other informational actions, including the display of deliberate attacks for life with a demonstration of commitment to terrorist ideology was included.

Italian criminal legislation has its own specifics. So, in addition to special acts of terrorism in the Criminal Code of Italy, there is a general rule (Art. 280), which makes it possible to refer to terrorists practically any offense provided for by the Code, if it is was committed for that purpose. Attention to cyber terrorism in Italy can be traced to Art. 270-quinquies of its Criminal Code, establishing responsibility for terrorist training. In 2005 this article was introduced in the Criminal Code of Italy, but in 2015 received an important addition - the punishment increases when teaching with the use of IT technologies.

Thus, in some foreign countries, we can see attempts to apply measures of criminal law enforcement with the aim of countering cyber-terrorism, however, it seems that in its current form, this kind of regulation speaks rather about the problem statement than about its possible decision.

Much skepticism about the very phenomenon - cyber terrorism - is present in the United States and Western Europe. Many researchers point out that at the moment there are no reliable data on the real possibilities of terrorist organizations infiltrating into remote control systems and damaging critically important infrastructure facilities.

In the scientific literature, there are references to annual USA national intelligence reports, containing the assessment of cybersecurity of the country. For example, in the introductory part Dennis Blair's 2010 report there is present an overall assessment of cybersecurity, highlighting the prospects for the development of cybercrime. Only a passing mention is made of the ability of criminals to interfere with remote access to critical facilities and infrastructure. At the same time, forms of countering cyber terrorism are associated with the concept of "America's enemy" without deciphering it. Further, where the basic characteristics of threats are given on the part of the main terrorist organizations, there is no mention of the cyber capabilities of criminals. However, in relation to Al-Qaeda there is made the remark about its preparation a large-scale action against the United States in order to inflict the greatest damage to the country's economy [D. Blair, 2010].

To a large extent, public opinion about the significance of the cyber terrorism threat in the United States is formed by the reports of the country's national intelligence service.

In 2011, James Clapper, Head of the Service, does not mention cyber terrorism as a threat at all, presenting a general outline of the development of crimes in the field of computer information. [Statement for the Record on the Worldwide Threat Assessment, 2011]

In 2012, the Head of National Intelligence points to the global spread of smartphones and the development of cloud technologies for organizing information as a risk factor. But even in this case, the term "cyber terrorism" is not used. [Statement on global Security, 2012] The close interaction of state authorities and the private sector in the field of computer information are indicated as an effective preventive measure.

A 2014 report ranked cyberspace as the number one global threat and identified Russia as a country of concern for US cyber policy and network security [Statement on Global Security, 2014] The report clearly identifies this factor as a threat to America's interests and values.

In the 2017 report, Russia is already identified as the main threat to the US cybersecurity. The main focus is on accusing Russia of influencing the 2016 elections (it is emphasized that such actions could be carried out only with the consent of senior officials). Russian hackers are said to have carried out “devastating” cyberattacks on critical US infrastructure [Statement on Global Security, 2017]. Such forecasts are made with the aim of forming a certain public opinion for the subsequent substantiation of additional restrictions imposed on Internet communication, the introduction of special forms of regulation of communication technologies, and the expansion of the powers of national special services.

R. Knake in 2017, presenting recommendations to the Trump administration, explicitly advises considering cyberattacks as “an armed attack entailing a military response” [R. Knake, 2017]

Expert of Council on Foreign Relations, Robert Knake, cites the following statistics: out of more than 63 thousand cases of terrorism in 2000–2010 yy, none are associated with cyber terrorism. Al-Qaeda has never been able to carry out cyberattacks to US facilities that could lead even to minor damage [R. Knake, 2010]. By the way, R. Knake in his expert assessments always speaks with restraint about cyber terrorism. Already in 2015 this expert supported international efforts on the prevention of computer crime, welcoming proposals to introduce compulsory national responsibility states from whose territory were committed malicious cyberattacks [R. Knake, 2015]. The state should form a national legal framework so that internet service providers were required to monitor malicious traffic and close access to it. However, at the same time, he indicated that the proposal should be supported primarily by the United States.

The definition of cyber terrorism, presented by foreign experts in 2017 for Tunisia [M. Zerri, 2017], looks interesting with the aim of applying it in the activities of state authorities and the country's special services. It highlights the following features:

- –is performed through cyberspace by individuals, groups or organizations directly influenced by terrorist movements and / or their leaders;
- motivated by a desire to bring about political or ideological changes;
- causes violence, due to which the physical and psychological consequences can go far beyond the immediate victim or the target of the impact.

At the same time, cyber terrorism is classified into hybrid and pure cyber terrorism. In the first case, this is the use of the Internet for terrorist activities: propaganda, recruiting supporters, training them, radicalizing society, collecting funds, obtaining data, communicating, planning real terrorist attacks, in the second, direct attacks on cyberinfrastructure to achieve political, religious and ideological goals.

Cyber terrorism in its pure form is divided into destructive and subversive. Disruptive cyber terrorism is the destruction of information system functions to damage or destroy virtual and physical assets. The most popular way is the use of computer viruses, worms, Trojans, and extortion. Subversive cyberterrorism means hacking into computer networks that provide critical infrastructure (medical care, transport, financial systems, etc.) that disrupts the normal life of society, the state, and citizens. Attention is drawn to the fact that at present, hybrid cyberterrorism, associated with the propaganda of terrorist ideas, training supporters, recruiting them, and preparing them to carry out single attacks, is becoming the most widespread. The Internet, due to its openness, also influences the structure of terrorist organizations, which are increasingly turning into a networked community that does not have centralized control.

Hybrid cyber terrorism associated with the propaganda of terrorist ideas has the most direct impact on the mass consciousness of citizens. In terms of the strength of the psychological impact, the effect of it often significantly exceeds the consequences of a direct terrorist attack [M. Gross, 2016]. In the context of the instability of the socio-political situation around the world, terrorist organizations have realized that thanks to pinpoint impacts that do not require significant financial

costs and in-depth knowledge of computer systems, it is possible to achieve very far-reaching results.

Conclusions

The importance of cybersecurity issues at the international level is confirmed by the fact that with few exceptions (most notably, the Budapest Convention on Cybercrime and the not-yet-in-force African Union Convention on Cyber Security and Personal Data Protection), international law does not regulate cyberspace, leaving this task for national authorities or international expert groups.

Insofar as the introduction of normative acts of both national and international character is an insufficient step towards solving the problem of combating cybercrime, in this case, we need special knowledge in the field of information technology and software. A single global act governing the procedure for countering cybercrimes has not been developed, but the international community within the framework of the regional cooperation takes measures to regulate legislatively the actions of subjects in cyberspace, to combat cybercrime. The current trend of international counteraction to cybercrime is the expansion of the sphere of the interaction of states. Operational cooperation of law enforcement agencies in the fight against cybercrime (*Interpol, Europol, Eurojust*) turned into reality as well as creation and use of a unified database on cybercriminals, committed and planned cybercrimes.

The international law of cybersecurity is just over 20 years old, it remains in a state of formation. The great problem remains, relating to the issue of state sovereignty in cyberspace. The absence of a unified international legal basis has led to the fact, that many States are conflicted over the application and interpretation of key aspects of international law in the cyber context, relating to volume and borders of rights and obligations of cyberspace users (of all types – including those who create content and those who consume it, as well as content- and internet services- providers). Speaking of cyberterrorism and cybercrime leads us to the issue of limitation of our human and civil rights, which can be applied to us in the face of protection of national security. International law can become the only system of supports and counterbalances between human rights protection in cyberspace and firewall against hostile cyber operations at the international level.

The fight against cybercrime (and therefore also against cyberterrorism) will have a meaningful impact only when the efforts of the entire international community to be united. The criminalization of such actions in one country can be easily circumvented by the lack of accountability in another. As a possible solution, one can propose to introduce a universal jurisdiction in which the attacked state can demand investigation, punishment of the perpetrators, and compensation for damage from the state from the territory of which the attack was carried out.

Thus, the legal framework for countering cybercrime and, particularly, cyberterrorism through the prism of the socio-political dimension is based on the following general points:

1. Cyberterrorism is now a slightly exaggerated threat. Standard cybercrime causes more significant damage to the economy of any state, taking into account that cybercrime is extremely widespread.

2. All over the world there are certain discrepancies in the understanding of cyber terrorism. Experts admit that it is often impossible to draw a line between this phenomenon and the manifestation of ordinary cyber criminality. Traditionally, there is a broad understanding of cyber terrorism (any use of computer networks for terrorist purposes) and a narrow one (actions aimed at causing specific damage to infrastructure, life and health of citizens).

3. The analysis showed that, despite the applicability of the principles and norms of modern international law to the information sphere, universalization of the existing international legal regulation in relation to cyberspace is required, taking into account its specifics and in order to counter effectively the use of information and communication technologies for illegal purposes. The efforts of states to develop special rules of conduct in cyberspace are currently focused on a narrow sphere of issues related to human rights, data privacy, etc. Not all states are interested in creating a modern and effective mechanism for cooperation in cyberspace, openly opposing the development

of new international legal instruments, which entails the lack of a full-fledged universal international legal framework for cooperation in the field of cyberspace.

4. Based on the conducted analysis of doctrine and practice, the conclusion can be made about the need to create a universal international legal framework for cooperation in the field of cyberspace. In modern international law, cybersecurity is one of the most pressing problems directly related to the security of the state. The difference in the approaches of states to the problem of ensuring cybersecurity at the present stage entails the absence of an effective multilateral legal framework for cooperation in this area.

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**ОСОБЛИВОСТІ РОЗВИТКУ
СВІТОВОГО ГОСПОДАРСТВА ТА МЕВ**

УДК 304.4:330.342.146

METHODICAL APPROACHES TO THE ASSESSMENT OF THE QUALITY OF LIFE OF THE POPULATION OF THE WORLD COUNTRIES AND WAYS OF IMPROVING THE QUALITY OF LIFE INDICATORS OF THE POPULATION FOR UKRAINE

МЕТОДИЧНІ ПІДХОДИ ЩОДО ОЦІНКИ ЯКОСТІ ЖИТТЯ НАСЕЛЕННЯ КРАЇН СВІТУ: РЕКОМЕНДАЦІЇ ДЛЯ УКРАЇНИ

МЕТОДИЧЕСКИЕ ПОДХОДЫ К ОЦЕНКЕ КАЧЕСТВА ЖИЗНИ НАСЕЛЕНИЯ СТРАН МИРА: РЕКОМЕНДАЦИИ ДЛЯ УКРАИНЫ

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Abstract. *In the article the principles of improving the quality of life of the population of Ukraine were analyzed, a method of calculating the quality of life of the population of the world was developed. The solution of the tasks was carried out with the use of general scientific research methods: abstraction, analysis and synthesis, generalization, formalization, as well as special methods of analysis: structural, statistical, logical. The authors have analyzed the state of factors influencing the quality of life of the population of Ukraine: purchasing power index, safety index, health care index, cost of living index, property price to income ratio, traffic commute time index, pollution index, climate index, GDP by PPP per capita in international dollars, rating of political and civil liberties, life expectancy at birth, unemployment rate, gender equality index. General recommendations for improving the condition of these factors and priority areas have been identified. The general approaches to development of methods of calculation of quality of life of the population of the world countries are defined. A method for calculating the quality of life of the population has been developed: 5 indicators that have a positive impact on the quality of life and 5 indicators that have a negative impact on the quality of life of the population have been identified; mentioned weights of each of these indicators. The Index of Quality of Life of the Population of Ukraine, neighboring countries and developed world countries was calculated according to the developed calculation method, the obtained results have been compared with the Numbeo Quality of Life Index.*

Keywords: *quality of life, quality of life index, social policy, method of calculating quality of life, criteria for assessing the quality of life.*

Анотація. *У статті проаналізовано засади покращення якості життя населення України, розроблена методика розрахунку якості життя населення країн світу. Вирішення поставлених завдань здійснювалися за допомогою використання загальнонаукових методів дослідження: абстрагування, аналізу і синтезу, узагальнення, формалізації, а також спеціальні методи аналізу: структурний, статистичний, логічний. Авторами був проаналізований стан факторів впливу на якість життя населення України: індексу купівельної спроможності, індексу безпеки, індексу охорони здоров'я, індексу вартості життя, відношення ціни майна до доходу, індексу витрат часу на дорогу, індексу забруднення, індексу клімату, рівня ВВП за ПКС на душу населення у міжнародних доларах, рейтингу політичних та громадських свобод, очікуваної тривалість життя при народженні, рівня безробіття, індексу гендерної рівності. Визначені загальні рекомендації щодо покращення стану цих факторів та пріоритетні напрямки. Визначені загальні підходи до розробки методик розрахунку якості життя населення країн світу. Розроблена методика розрахунку якості життя населення: виділені 5 показників, що мають позитивний вплив на якість життя населення та 5 показників, що мають негативний вплив на якість життя населення; зазначені вагові коефіцієнти кожного з цих показників. Розрахований Індекс якості життя населення України, країн-сусідів та розвинених країн світу за розробленим методом розрахунку, отримані результати порівняні з Індексом якості життя Numbeo.*

Ключові слова: *якість життя, індекс якості життя, соціальна політика, метод розрахунку якості життя, критерії оцінки якості життя.*

Анотація. *В статті проаналізовані основи удешевлення якості життя населення України, розроблена методика розрахунку якості життя населення країн світу. Розв'язання поставлених завдань здійснювалось за допомогою використання загальнонаукових методів дослідження: абстрагування, аналізу та синтезу, узагальнення, формалізації, а також спеціальні методи аналізу: структурний, статистичний, логічний. Авторами було проаналізовано стан факторів впливу на якість життя населення України: індексу покупальної спроможності, індексу безпеки, індексу здоров'я, індексу вартості життя, відношення ціни нерухомості до доходу, індексу витрат часу на дорогу, індексу забруднення, індексу клімату, рівня ВВП на душу населення в міжнародних долларах, рейтинг політичних та суспільних свобод, очікувану тривалість життя при народженні, рівень безробіття, індекс гендерної рівності. Визначено загальні рекомендації по удешевненню стану цих факторів та пріоритетних напрямків. Визначено загальні підходи до розробки методик розрахунку якості життя населення країн світу. Розроблена методика розрахунку якості життя населення: виділено 5 показників, які надають позитивний вплив на якість життя населення та 5 показників, які надають негативний вплив на якість життя населення; вказано вагові коефіцієнти кожного з цих показників. Розраховано Індекс якості життя населення України, країн-сусідів та розвинутих країн світу за розробленою методикою розрахунку, отримані результати порівняні з Індексом якості життя Numbeo.*

Ключевые слова: *качество жизни, индекс качества жизни, социальная политика, метод расчета качества жизни, критерии оценки качества жизни.*

Introduction. Quality of life is a complex, multifaceted phenomenon that depends on both objective and subjective factors.

The quality of life of the world's population and its gradual improvement is a prerequisite for human development. At the same time, the quality of life of the population is recognized as one of the main characteristics of the level of economic, social and political development of the respective countries of the world.

As Ukraine is a developing country and seeks to integrate into the EU community, improving the quality of life of the country's population is one of the government's priorities.

Analysis of the recent sources and publications. Scientists such as J. Galbraith, A. Maslow, D. Bell, W. Rogers, S. Whitney, F. Converse, L. Milbraith, V. P. Vasiliev, N. D. Lukianchenko, V. N. Maiorchenko, O. B. Vatchenko, V. H. Nikiforenko, S. A. Aivazian, H. V. Tsyhankova made a significant contribution to the formation and development of the concept of quality of life.

E. M. Libanova, O. M. Hladun, L. S. Lisohor, L. H. Tkachenko, N. V. Kovtun and others in their research work "Measuring the quality of life in Ukraine" mention that the quality of life is a complex, multicomponent phenomenon, dependent on both objective factors and various subjective factors. Improving the quality of life is a criterion and a necessary condition for human development. Quality of life reflects the basic prerequisites and the degree of implementation of the requirements of human development, the degree of priority of human development in the civilization process, as well as human well-being, self-identification and the state of their environment [1].

The purpose of the work of Komarenko O. O. was to consider the criteria for assessing the level and quality of life of the population and the analysis of existing methodological approaches to measuring the level and quality of life of the population. In the course of the study it was found that: first, the level and quality of life achieved by society can be judged by an appropriate system of criteria and indicators. In this case, the choice and justification of evaluation criteria is an important

step in assessing the level and quality of life; secondly, the creation of an adequate system of criteria, and the allocation of a single integrated index of quality of life is problematic in view of the complexity of the very structure of quality of life [2].

Komarenko O. A. states in his work that by the quality of life we understand complex characteristics of both the objectively existing standard of living and satisfaction of needs for directly unpaid benefits and the subjective perception of the degree of satisfaction of the whole spectrum of needs [3].

Purpose of the article. To determine the principles of improving the quality of life of the population of Ukraine and to develop a method of calculating the quality of life of the population of the world countries.

Presentation of basic material of the research. Quality of life is an integral concept that comprehensively characterizes the degree of comfort of the public and natural environment for human life and activity, the level of well-being, social, spiritual and physical health. In order to determine the priority areas for improving the quality of life of the population of Ukraine, first of all, it is necessary to identify strengths and weaknesses among all the factors that affect the quality of life of the population. In the previous section, 12 different factors that affect the quality of life of the population were analyzed. Let's pay attention to their current indicators and determine what the Government of Ukraine should pay attention to and make efforts to improve the quality of life of the population of Ukraine.

In terms of GDP by PPP per capita, Ukraine ranks last among the neighboring countries and the most developed countries in the world. Some of the reasons for the low level of GDP by PPP, which are stated by the Ministry of Economic Development and Trade of Ukraine, are the degradation of the situation in the production sector (reduction of production output) and the decline in agriculture [4]. According to the National Bank of Ukraine, about a quarter, namely UAH 846 billion GDP is in the shadows [5]. In turn, the IMF states that economic growth is constrained by a weak business environment, corruption, inefficient state-owned enterprises [6]. Also, one of the reasons for the low level of GDP by PPP is the low level of attracting foreign direct investment due to poor business conditions. This indicator is to some extent related to the unemployment rate, which in Ukraine is again the highest among all the countries considered.

Another indicator that affects the quality of life is the rating of political and civil liberties. And although Ukraine is not an outsider among all the countries considered, it falls far behind the leaders of the rating. Let's consider what components of this rating need to be improved in order to improve the situation in the field of freedom. The first component that needs to be improved is the election legislation and the election process. Electoral legislation is interpreted differently by different courts and new election laws are sometimes passed hastily on the eve of elections [7]. Therefore, in order to improve Ukraine's position, the government needs to approve the election legislation before the next election, which will make the pre-election and election processes transparent and different interpretations by different judges will be ruled out. Another component that needs significant improvement is the dominance of non-political and political forces that use non-political means in politics. One of the parties that enjoys great support, "Opposition Platform – for Life", enjoys the support of another state and the oligarchs have a significant influence on politics, as they fund various political parties [7]. The situation with the level of corruption remains rather difficult. Anti-corruption bodies are ineffective, often in conflict with other government agencies, and have little political will to tackle corruption [7]. There is also a problem with media independence. Although the Constitution guarantees freedom of speech, slander is not considered a criminal offense. A significant number of media outlets are owned by oligarchs, who use them to achieve their own goals and to give publicity to the necessary politicians and political parties in a positive way. Also, in the last few years, a large number of offenses have been committed against journalists, among which the most high-profile were the murders of Pavel Sheremet and Vadim Komarov [7]. Another serious problem is the state of independence of the judiciary system. Despite initiatives to reform the judiciary system, the courts have remained corrupt and politicized. Consideration of cases is constantly delayed and postponed, and the ambiguous rulings of the

Constitutional Court of Ukraine and the subsequent conflict with the President have only exacerbated the crisis in the judiciary system.

The next indicator that has been considered is the Health Care Index and the associated life expectancy at birth. Compared to health budget expenditures in 2020, in 2021 health expenditures increased by 36.8% and amounted to UAH 159 billion. The website of the Cabinet of Ministers of Ukraine also published information that it is planned to increase health care expenditures to 5% of GDP by 2023 [8]. To some extent, the COVID-19 pandemic has drawn attention to vulnerabilities in Ukraine's health care system, which should force government officials to pay significant attention and resources. The WHO is also quite positive about the reform of the health care system, carried out in 2016-2019. However, this estimate is based on official data. Objectively, the condition of Ukrainian hospitals remains unsatisfactory. A large number of Ukrainian citizens who are forced to treat serious illnesses choose Germany, Israel, Turkey or the United States to receive the necessary assistance. Ukrainian hospitals do not have the necessary equipment that does not allow them to provide qualified care. Also in 2020, the health care system of Ukraine faced the problem of covering the population with tests for COVID-19. Official figures on the number of infected people stir up controversy in the society and information about denials of testing and hospitalization often appears on social networks. This appeared to be one more reason of decline in trust in public healthcare facilities. In 2019, the law "On Concession" was adopted, which allows to unite the efforts of state and private investors. However, only two such projects have emerged in the healthcare sector. The situation could be changed by the introduction of a compulsory health insurance system. This will allow taxes to be referred directly to medical institutions, reducing the number of links and, consequently, corruption risks, which will increase the amount of funding for hospitals. In order to implement such a project, it is necessary to attract investment for the development of hospitals or building of new ones as well as to develop the necessary legislation.

Another indicator considered was the Gender Equality Index. Among the countries examined, the differences were not significant and Ukraine took a median position. In general, gender inequality has been smoothed over the last decade, and women's wage has been gradually increasing relative to men's. Also in Ukraine, particularly in the political sphere, gender quotas are being introduced, which allow women to increase their representation comparing to the situation before. Also in September 2020, Ukraine officially became a member of the "Biarritz Partnership", an international initiative for equal rights and opportunities for all. According to the order of the Cabinet of Ministers, Ukraine has undertaken commitments in five areas:

- 1) development of a barrier-free public space, friendly to families with children and low-mobility groups;
- 2) teaching children the principles of equality between women and men;
- 3) prevention of violence;
- 4) reducing the pay gap between women and men;
- 5) creating greater opportunities for men to care for children [9].

Thus, it can be stated that in the future gender inequality will continue to decline and Ukraine has the opportunity to catch up with the leading countries.

The next indicator is the Security Index. As of January 2021, Numbeo assesses the level of security in Ukraine as moderate, giving a score of 51.73 out of 100. At the same time, the security index is the opposite of the Crime Index, which amounted to 48.27 points. The most important in this index were "problems of corruption and bribery" and "increase in crime over the past 3 years." House burglary, vandalism, theft and car theft also remain a rather acute problem [10]. In 2019, Transparency International ranked Ukraine 126th out of 180 on the Corruption Perceptions Index [11], and one of the 25 most high-profile corruption cases in the last 25 years is from Ukraine. Today, the problem of corruption and security is very acute for Ukraine. As it was mentioned earlier, anti-corruption institutions are ineffective and the courts are not independent and free from corruption. Also due to the war in Donbass, the number of illegal weapons that entered the country have increased. Despite police reform in 2015 and some anti-corruption laws and initiatives, they have proved ineffective. The situation can be improved through ongoing reforms, the abolition of

ineffective institutions and the establishment of new, strict criteria for selecting candidates for positions at all levels, from patrol police officers to judges. Also, the problem of petty theft can be solved by improving the financial situation of all segments of the population, in particular by reducing poverty through rapid economic development and higher wages.

The Cost of Living Index has also been considered. This index reflects the level of prices for consumer goods and the level of housing rental prices. The gold standard is the price level in New York, which corresponds to an estimate of 100. In Ukraine, as of 2020, the cost of living index was 33.18 points, which means that life in Ukraine is 33% as expensive as in New York. For the most part, such low prices are due to low incomes of the population. As wages increase, so will prices (as a result of higher wages for employees involved in the production and sale of goods), which will lead to an increase in the Cost of Living Index.

Another indicator that has been studied was a ratio of property prices to income. It is considered as a ratio of average apartment prices to the average available family income per year. In Ukraine, this ratio is 12.23 years, which is a median indicator. This means that given the relatively low level of wages, housing prices are also correspondingly low. However, as with the previous figure, higher wages may increase housing prices accordingly, especially in new buildings. The opening of the land market can also potentially increase housing prices, as land prices are projected to rise after that. However, we need to learn from countries such as the United States, Belgium, Denmark and Austria, where housing prices and wages are higher, but families need much less time to earn the required amount of money.

Another index that affects the quality of life of the population is the Travel Time Index. In Ukraine, the average time spent on the way from home to work is 36.65 minutes. Together with the way home it is almost 1 hour 20 minutes, which is quite a large part of the day. There are several ways to improve this issue. The first is the adoption of some Scandinavian companies' experience, which take into account travel time as time spent at work, and the working day is also 8 hours. However, this path is not effective for Ukraine, because unlike the Scandinavian countries, the volume of production and the general state of the economy do not allow to reduce the time of employee's presence in the workplace. Another way is to develop a public transport network. The fastest public transport in the city is the subway. Therefore, the construction of an extensive subway system will allow city residents to use convenient transport and reduce the time spent on the way to work. It will also reduce the number of cars on the city streets, which will reduce road traffic and, consequently, the average speed of bus transport will also increase. Another way to increase the speed of buses is to allocate a separate lane on the roads exclusively for public transport, as, for example, it is done in Barcelona.

Another index that is to some extent related to the health of citizens is the Pollution Index. Unfortunately, Ukraine still has a high level of pollution, and in Kyiv, Zaporizhia and Dnipro almost every year there are cases of extremely dangerous levels of air pollution. There are several main components that can significantly improve the environmental condition of air and water in Ukraine. First of all, it is strict control over air and water emissions, installation of modern filters at factories and assignment of strict responsibility for non-compliance with the required standards and attempts to bribe officials, responsible for monitoring compliance with these standards. Another step to reduce pollution is the development of environmentally friendly energy sources. With the development of solar, hydro and air power plants, the creation of a favorable investment environment, it is possible to quickly abandon obsolete power plants that convert energy from coal and gas. To speed up this process, we can pay attention to Germany, where in 2019 almost 50% of electricity generated was "green", and in the first quarter of 2020 this figure exceeded 51%. The last important component is the development of electric transport. By replacing old diesel locomotives with new electric ones, replacing old buses with electric buses, developing the subway network and trams, it is possible to significantly reduce emissions from public transport. It is also possible to significantly accelerate the purchase of electric cars by the population by creating the necessary infrastructure, including charging stations, simplifying customs procedures and reducing fees and taxes for this class of transport.

The last indicator to be analyzed is the Climate Index. Ukraine cannot influence this indicator on its own, as it depends almost entirely on the country's geographical location. However, in the context of global warming, the climate can change significantly. This can be seen due to events such as flooding of the Azov coast in autumn, warm winters of 2019-2020 and 2020-2021, abnormally hot summer of 2020, abnormally large numbers of jellyfish in the Azov and Black Seas, etc. However, Ukraine can make an effort, for its part, to halt these changes through the actions identified for the previous indicator. The development of environmentally friendly sources of electricity will reduce greenhouse gas emissions into the atmosphere, which directly affect climate change.

As you can see, there are many problems in Ukraine that affect the quality of life of the population. The main ones are GDP by PPP per capita, rating of political and civil liberties, healthcare and life expectancy, security, corruption, travel time and pollution. Some issues are not as acute as others, but the government needs to make significant efforts to address these issues, as it will affect not only the quality of life, but also the international image, investment inflows, scientific and technological development, etc.

Unfortunately, at the moment there is no study on the calculation of quality of life, which would take into account all countries of the world and would be published at least annually. In the research the Numbeo Quality of Life Index has been analyzed, which is published twice a year and included 80 countries in 2020, but it is not perfect. It should be noted that the formula for calculating the Quality of Life Index, apart from the values of indicators, also the coefficients, set by the experts of this organization, are taken into account. However, there is no methodological explanation of the definition of these coefficients in free access. Also, in the formula of the Quality of Life Index there are indicators that do not have clear algorithms for calculations. At the same time, the impact of one of the indicators on the quality of life of the population is questionable. In addition, some indicators worth including in the calculations are ignored. Therefore, there is a need to create a formula that would cover a large number of countries and include the necessary indicators and coefficients.

There are several methods for calculating the quality of life: calculation using the geometric mean components of quality of life, calculation using the weighted average components of quality of life, calculation using the algebraic sum of the products of the components of quality of life multiplied by the corresponding coefficients. Due to the fact that some indicators negatively affect the quality of life of the population, the third method has been chosen. The general formula is as follows:

$$I_{ql} = \sum_{i=1}^k w_i z_i, \quad (3.1.)$$

where I_{ql} – Index of the quality of life of the population;

w_i – weight of the i -th indicator;

z_i – value of the i -th indicator.

10 indicators have been selected to calculate the Index. Five of them have a positive impact on the quality of life of the world's population:

- 1) GDP by PPP per capita;
- 2) Security Index;
- 3) Life expectancy at birth;
- 4) Rating of political and civil liberties;
- 5) Gender Equality Index.

The other five indicators have a negative impact on the quality of life of the world's population:

- 1) The ratio of property prices to income;
- 2) Unemployment rate;
- 3) Pollution Index;
- 4) Travel Time Index;
- 5) Cost of Living Index.

Due to the fact that these 5 indicators have a negative impact on the quality of life of the population, and their lower score is better than higher, when calculating the quality of life index, they should be subtracted, not added. Also, each indicator should be assigned a coefficient that reflects the level of impact on the quality of life of the population. There are two approaches to determining the coefficients: expert assessment and sociological survey of the population to understand what is more important. Due to the fact that the survey of only a small group of people from Ukraine will be extremely subjective, and there is no opportunity to interview citizens of other countries to determine the general trends in the importance of certain indicators, the expert assessment approach has been chosen. Taking into account all the above-mentioned, the calculation of the quality of life index will be carried out according to the following formula:

$$I_{ql} = G_{ppc} \times 2/1000 + I_s + E_{le} + R_l/2 + I_{ge} \times 100/4 - R_{rp}/4 - L_{ur} - I_p \times 1,5 - I_{tt}/2 - I_{cl}/4 \quad (3.2.)$$

- де G_{ppc} – GDP by PPP per capita;
- I_s – Safety Index;
- E_{le} – Life expectancy at birth;
- R_l – Rating of political and civil liberties;
- I_{ge} – Gender Equality Index;
- R_{rp} – The ratio of property prices to income;
- L_{ur} – Unemployment rate;
- I_p – Pollution Index;
- I_{tt} – Travel Time Index;
- I_{cl} – Cost of Living Index.

To calculate the quality of life of the population according to the formula, the data of all surveyed countries for 2019 were selected due to the fact that the data for 2020 were not available for all indicators. The results of the calculations are compared with the rating of the Numbeo Quality of Life Index for 2019.

For Moldova, there were no data on the following indicators: Safety Index, the ratio of property prices to income, the Travel Time Index, the Cost of Living Index. Therefore, the data available for its capital, Chisinau, were chosen for the calculations. There is also no free access to data on the unemployment rate in the UAE, but the report of the Ministry of Economic Development and Trade of Ukraine states that this figure is two-digit that is at least 10.0, so this value has been chosen for calculations [12]. The results of calculations, as well as the corresponding estimates according to Numbeo are given in Table 1.

Table 1 – Indices of quality of life of the population

Country	Indicators	
	Quality of Life Index	Numbeo Quality of Life Index
Ukraine	62,73	102,34
Russia	83,41	104,94
Belarus	133,07	141,47
Poland	169,3	147,98
Slovakia	184,1	153,1
Hungary	159,01	134,47
Romania	154,67	140,31
Moldova *	78,85	
USA	236,94	179,2

France	191,81	157,83
Germany	250,53	187,05

Continuation of Table 8

Country	Quality of Life Index	Numbeo Quality of Life Index
Great Britain	206,28	170,81
Sweden	248,24	178,67
Norway	281,38	181,86
Switzerland	296,95	195,93
Japan	223,75	180,5
Southern Korea	171,77	149,53
China	25,07	97,92
UAE**	191,21	167,81

The source: compiled by the author

As you can see, the values of the Numbeo Quality of Life Index and the Quality of Life Index calculated by the developed formula differ. If for the first of them the maximum score (Switzerland) was 195.93, then for the second it was 296.95. The situation is opposite for the country that scored the lowest score. If in the first case China scored 97.92 points, in the second only 25.07. As you can see, the general trends have persisted: the leader and the outsiders occupy the same positions. However, there have been changes. According to the Numbeo rating, Belarus ranks 13th, and according to the calculations of the developed formula - 15th. The opposite process took place for Hungary – from 15th place it rose to 13. The UAE and France have also changed their positions in the rankings. According to Numbeo's calculations, France took 9th place, and the UAE – 8. However, according to the calculations according to the developed formula, France went one step up, and the UAE, on the contrary, went one step down. A similar process has taken place for Sweden and Japan, respectively. According to Numbeo, Japan is on the 4th place, and according to the new formula – on the 6th, and Sweden, on the contrary, rose from the 6th place to the 4th. Germany and Norway also changed their positions in the ranking. Germany went down from the 2nd step to the 3rd, and Norway rose from the 3rd step to the 2nd. Ukraine is ranked 17th both according to the Numbeo rating and according to the developed formula, ahead of China. It should be noted that Moldova is also ahead of Ukraine in terms of calculations, but it is not possible to compare this figure with the Numbeo indicator due to its absence. The UAE may also potentially take a lower position if the country's unemployment rate exceeds 10.0%. However, we can conclude that the general trends have persisted, therefore, the developed formula for calculating the Quality of Life Index can be considered as an alternative to existing methods of calculating similar indicators.

Conclusions. Based on the work done, the following conclusions can be drawn. 1. There are many problems in Ukraine that affect the quality of life of the population. The main ones are GDP per capita, rating of political and civil liberties, healthcare and life expectancy, security, corruption, travel time and pollution. Some problems are not as acute as others, but the government needs to make significant efforts to address these issues, as it will affect not only the quality of life, but also the international image, investment inflows, scientific and technological development, etc. 2. A methodology of calculating the quality of life of the population of the world, which can be used as an alternative to existing methods, has been developed. 3. The results obtained from the calculations according to the developed methodology retain the trends reflected in the Numbeo Quality of Life Index, which testifies to its practical expediency and objectivity.

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THE IMPACT OF THE ASSOCIATION AGREEMENT WITH THE EU ON UKRAINE, GEORGIA, AND MOLDOVA: VAR-MODEL, MONETIZATION INDEX, CUSTOMER PRICE INDEX.

ВПЛИВ УГОДИ ПРО АСОЦІАЦІЮ З ЄС НА УКРАЇНУ, ГРУЗІЮ ТА МОЛДОВУ: VAR-МОДЕЛЬ, ІНДЕКС МОНЕТИЗАЦІЇ, ІНДЕКС СПОЖИВЧИХ ЦІН.

ВЛИЯНИЕ ДОГОВОРА ОБ АССОЦИАЦИИ С ЕС НА УКРАИНУ, ГРУЗИЮ И МОЛДОВУ: VAR-МОДЕЛЬ, ИНДЕКС МОНЕТИЗАЦИИ, ИНДЕКС ПОТРЕБИТЕЛЬСКИХ ЦЕН.

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***Abstract.** This article assesses the impact of the association agreement with the European Union on Georgia, Ukraine, and Moldova. The monetization index is the ratio of the money supply of the M2 aggregate to the GDP of the studied economy. The consumer price index reflects the change in the value of a certain consumer basket. This index is the ratio of the money supply of the M2 aggregate to the GDP of the analyzed economy. The article substantiates the expediency of using such particular indicators due to their monthly update and lower susceptibility to artificial manipulation. For each country, two specific time periods were selected, before and after the entry into force of the association agreement with the European Union. The time intervals were chosen to exclude abnormal events that could affect the accuracy and objectivity of the study. The data obtained were reduced to a general form through econometric transformations. For the selected time intervals, using vector autoregression and the Granger causality test, the dependences of the analyzed indicators of each country on such indicators of the euro area were determined. The*

dependence coefficients of the Granger causality test were compared for the time periods before and after the association agreement for each country. Based on the transformed monetization index and consumer price index, conclusions were drawn regarding the change in the degree of mutual influence of the European Union economy on the economies of the countries represented. The conclusions analyze the possible reasons for the data obtained, as well as compare the geographical and economic conditions of each country in the context of the results of the study. The impact of the association agreement with the European Union on the overall economic dependence of Georgia, Ukraine and Moldova on the European Union has been assessed. The countries actively participate in European integration. The study builds an understanding of the depth of integration of each country, as well as analyzes the dynamics of its change in recent periods.

Key words: VAR model, monetization index, M2 aggregate, money supply, Georgia, Moldova, Ukraine, European integration, Customer Price Index, Granger causality test

Анотація. У цій статті досліджується вплив договору про асоціацію з Європейським Союзом на Грузію, Україну та Молдову. У якості аналізованих індикаторів було обрано індекс монетизації економіки та індекс споживчих цін, а індекс споживчих цін відображає зміну вартості певного споживчого кошика. Такий індекс обчислюється через відношення грошової маси агрегату M2 до ВВП економіки, що досліджується. Стаття розглядає доцільність використання саме таких показників з точки зору їх щомісячного оновлення, а також меншої схильності до штучних маніпуляцій. Для кожної країни було виділено два конкретні часові відрізки, до і після набрання чинності договору між країнами та Європейським Союзом про асоціацію. Часові відрізки обрані з урахуванням виключення аномальних подій, які б вплинули на точність і об'єктивність дослідження. Отримані дані було приведено до загального вигляду через економетричні перетворення. Для обраних часових відрізків шляхом векторної авторегресії та тесту причинності Грейнджера було визначено залежності аналізованих показників кожної країни від таких показників для зони євро. Зроблено порівняння коефіцієнтів залежності тесту причинності Грейнджера для тимчасових відрізків до та після договору про асоціацію з ЄС для кожної країни. На підставі конвертованого індексу монетизації та індексу споживчих цін зроблено висновки щодо зміни рівня взаємного впливу економіки Європейського Союзу на економіки представлених країн. У висновках аналізуються можливі причини отриманих даних, а також проводиться порівняння географічних та економічних умов кожної країни у розрізі результатів дослідження. Здійснено оцінку впливу договору про асоціацію з Європейським Союзом на загальну економічну залежність Грузії, України та Молдови від економіки Європейського Союзу. Країни активно беруть участь у європейській інтеграції. У процесі дослідження створюється розуміння глибини інтеграції кожної країни, а також аналізується динаміка її змін за останні періоди.

Ключові слова: модель VAR, індекс монетизації, агрегат M2, грошова маса, Грузія, Молдова, Україна, Європейська інтеграція, індекс споживчих цін, тест причинності Грейнджера

Аннотация. В данной статье оценивается влияние договора об ассоциации с Европейским Союзом на Грузию, Украину и Молдову. В качестве анализируемых индикаторов было выбрано индекс монетизации экономики и индекс потребительских цен. Индекс монетизации является отношением денежной массы агрегата M2 к ВВП исследуемой экономики, а индекс потребительских цен отражает изменение стоимости определенной потребительской корзины. Статья рассматривает целесообразность использования именно таких показателей с точки зрения их ежемесячного обновления, а так же меньшей подверженности к искусственным манипуляциям. Для каждой страны было выделено два конкретных временных отрезка, до и после вступления в силу договора об ассоциации с Европейским Союзом. Временные отрезки выбраны с учетом исключения аномальных событий, которые могли бы повлиять на точность и объективность

исследования. Полученные данные были приведены к общему виду через эконометрические преобразования. Для выбранных временных отрезков путем векторной авторегрессии и теста причинности Грейнджера были определены зависимости анализируемых показателей каждой страны от таких показателей зоны евро. Произведено сравнение коэффициентов зависимости теста причинности Грейнджера для временных отрезков до и после договора об ассоциации для каждой страны. На основании преобразованных индекса монетизации и индекса потребительских цен сделаны выводы касательно изменения степени взаимного влияния экономики Европейского Союза на экономики представленных стран. В выводах анализируются возможные причины полученных данных, а так же производится сравнение географических и экономических условий каждой страны в разрезе результатов исследования. Произведена оценка влияния договора об ассоциации с Европейским Союзом на общую экономическую зависимость Грузии, Украины и Молдовы от Европейского Союза. Страны активно принимают участие в европейской интеграции. В процессе исследования выстраивается понимание глубины интеграции каждой страны, а так же анализируется динамика ее изменения за последние периоды.

Ключевые слова: модель VAR, индекс монетизации, агрегат M2, денежная масса, Грузия, Молдова, Украина, Европейская интеграция, индекс потребительских цен, тест причинности Грейнджера

General statement of problem. European integration involves the gradual reform and adoption of agreements with the European Union. One such step is the signing of the Association Agreement. Georgia, Ukraine and Moldova signed the Association Agreement with the European Union around the same time. In Georgia and Moldova the Association Agreement with the EU entered into force simultaneously, while in Ukraine there was a one-year delay due to political conflicts. Enough time has passed to assess the implications of this stage of integration with the EU for Georgia, Ukraine and Moldova.

The aim of the article is to determine whether the influence of the European Union on the economies of Georgia, Ukraine and Moldova has increased since the signing of the Association Agreement.

Introduction. As the analyzed indicator, the Monetization Ratio and Consumer Price Index was chosen, which reflects the economic situation in the countries and which, at the same time, is protected from artificial manipulations. The Monetization coefficient is the ratio of the money supply of the M2 aggregate to the country's GDP:

$$\text{Monetization ratio} = \frac{M2}{GDP}, M2 - \text{Monetary aggregate}, GDP - \text{Gross domestic product} \quad (1).$$

Monetary aggregate M2 includes the amount of all cash in circulation, as well as the amount of deposits in national and foreign currencies [11]. The monetization ratio is protected from the influence of uncontrolled money emission, since such actions will only lead to its decrease [1]. A rapid increase in the nominal money supply in a period of inflation would lead to a faster artificial increase in GDP, so that the divisor in the equation would progress faster. When the growth rate of the nominal money supply decreases during GDP growth, confidence in national money increases, which leads to an increase in the monetization ratio of the economy. More developed countries have a higher monetization ratio, as it reflects the degree of efficiency of the financial sector.

The consumer price index reflects the level of inflation, which characterizes the state of the economy as a whole [3]. The Consumer Price Index is the ratio of the cost of the consumer goods basket for a given month to the cost of the consumer goods basket for the base year, multiplied by one hundred percent:

$$\text{Consumer Price Index (CPI)} = \frac{\text{Cost of the Market Basket, Given Month}}{\text{Cost of the Market Basket, Base Year}} \times 100\% \quad (2).$$

In this study, Granger's causality test will examine short time intervals from 2 to 3 years before and after the signing of the Association Agreement with the European Union. The main problem is the lack of observations when using quarterly or annual data for a valid vector autoregression. The Monetization Ratio and the Consumer Price Index are calculated by the economies on a monthly basis. Consequently, for the two years under study we will have 24 observations, and for the three years we will have 36 observations. This is sufficient for the Granger causality test. The minimum requirement for its objective indicators is at least 20 observations. For example, GDP per capita is also a good economic indicator, but it is observed annually and quarterly. Taking quarterly data for 2 and 3 years we get 8 and 12 observations, which is not enough for a qualitative VAR model. Quarterly and annual indicators are inefficient for building VAR models on short timeframes.

Recent literature review.

The topic of the Association Agreement with the EU is actively studied by Ukrainian and foreign researchers. In particular, in Ukraine the impact of European integration on the development of national economies is studied in the scientific works of P. Dziuba, O. Rogach, O. Shnyrkov, S. Yakubovskiy [O. Shnyrkov and D. Pliushch, 2021: 13; O. Rogach, O. Shnyrkov, P. Dziuba, 2019: 14].

At the same time, the existing studies do not fully use all the econometric modeling tools that make it possible to establish the relationship between individual key indicators of integrating countries. In particular, the topic of changes in the dependence of economic indicators of countries on the European Union after the signing of the Association Agreement requires further exploration.

The relationship between the debt indicators and the economic growth of the European Union through the Granger causality test was investigated by A. Marton [A. Marton, 2021: 19]. The author considered the public debt of the European Union as a potential source of danger to economic growth. The author concluded that only public debt has a causal effect on economic growth, and there is no reverse effect.

The impact of foreign capital inflows on Eastern European countries is studied in scientific work of S. Yakubovskiy, T. Rodionova and A. Kyfak [S. Yakubovskiy, T. Rodionova and A. Kyfak, 2019: 8]. By conducting the Granger causality test, the authors confirmed the significant impact of foreign investment on exports, imports, trade, and current account balances showed for countries such as the Czech Republic, Slovakia, Hungary, Poland, and Ukraine.

As an alternative for the European Union economical area, the trade relation between India and other BRICS countries was analyzed using the Granger causality test by N. Kubendran [N. Kubendran, 2020: 20]. BRICS is an acronym for the following countries: Brazil, Russia, India, China and South Africa. The Granger causality tests results showed a positive impact on Indian Economy for trading with BRICS countries. The study also insists that India should strengthen its trade ties with the BRICS countries, which would help it get better economic growth.

Granger's causality test, while having enormous scientific potential, has many unexplored areas in which it can be applied. One such unexplored area is the consequences of the Association Agreement with the European Union.

Research method. For each country, two periods were selected before and after the Association Agreement with the EU. The data period varies from two to three years, depending on the situation in each country. In Georgia and Moldova, the Association Agreement entered into force on July 1, 2016 [7, 10]. The initial task is to choose the period before and after this event, taking into account the exclusion of anomalous economic events. Such an event can be considered a lockdown, which in these three countries began simultaneously in March 2020 [6, 9, 21]. In Ukraine on September 1, 2017 [22]. It is also worth considering the military conflict in Ukraine, which began in early 2014 [2]. Since our data is monthly and seasonal, it is a good idea to take an integer number of years. With such criteria in mind, the periods of two years, namely 2012-2013 and 2018-2019, were chosen for Ukraine. For Georgia and Moldova, three-year periods were chosen, namely 2013-2015 and 2017-2019.

The Monetization Ratio and Customer Price Index for each of the periods were calculated. The same calculations were made for the euro area. The data obtained is not normalised, has a

trend, changing volatility and pronounced seasonality. To normalise the data, the average value and standard deviation were calculated. Each data value were recalculated using the following formula:

$$\text{Normalized value} = \frac{x - \bar{x}}{\sigma}, \text{ where } x - \text{current}, \bar{x} = \frac{x_1 + \dots + x_n}{n}, \sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}} \quad (3).$$

The resulting data has a trend and no centre point, this can be corrected by subtracting the previous value from each value:

$$\text{Stationary value} = x_n - x_{(n-1)}, \text{ where } x - \text{current value}, n - \text{current index} \quad (4).$$

After such calculation we still have a changing volatility. To eliminate the change in volatility, the data was divided by the standard deviation of its year:

$$\text{Normalized value for each year} = \frac{x}{\sigma}, \text{ where } x - \text{current}, \sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}} \quad (5).$$

The last step is to remove the monthly seasonality. From each month, the arithmetic average of that month for all existing years was subtracted:

$$\text{Value without seasonality} = x - \bar{x}, \text{ where } x - \text{current value}, \bar{x} = \frac{x_1 + \dots + x_n}{n} \quad (6).$$

Based on the normalized data obtained, the following 12 VAR-models of interdependence of the Monetization Ratio and Consumer Price Index of Georgia, Moldova and Ukraine on the eurozone before and after the Association Agreement were calculated to test Granger non-causality:

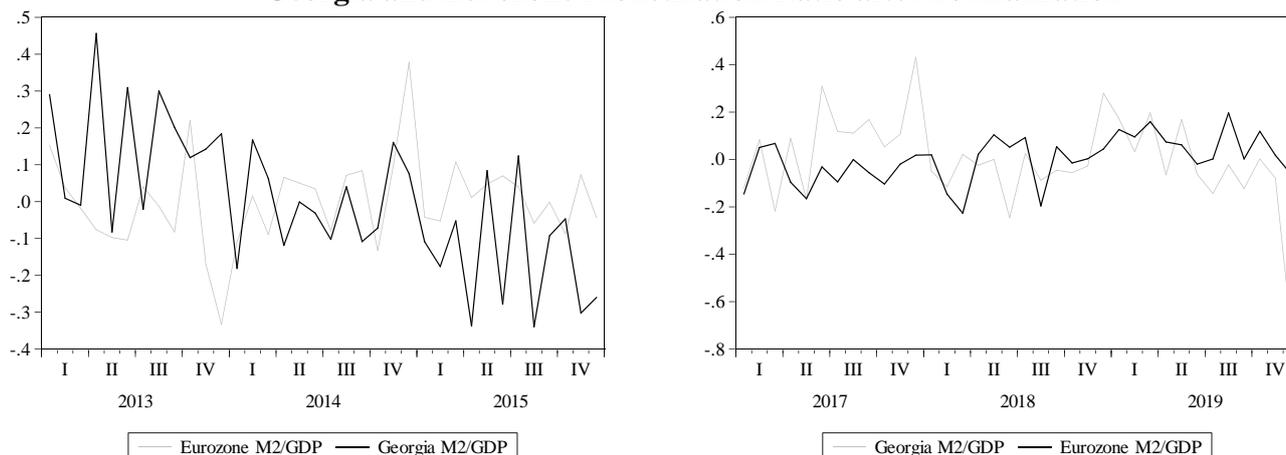
$$CAI_t = \alpha_1 + \sum_{i=1}^p \beta_{1i} EZAI_{t-i} + \sum_{i=1}^p \gamma_{1i} CAI_{t-i} + \varepsilon_{1t}, \quad EZAI_t = \alpha_2 + \sum_{i=1}^p \beta_{2i} CAI_{t-i} + \sum_{i=1}^p \gamma_{2i} EZAI_{t-i} + \varepsilon_{2t} \quad (7),$$

where CAI, EZAI, ε imply: a current country analyzed index – Monetization Ratio or Consumer Price Index of Georgia, Ukraine or Moldova; a eurozone analyzed index – Monetization Ratio or Consumer Price Index of eurozone and error value. Where α is a constant term, β and γ are estimated coefficients and p is the analyzed time series lag length. For the purpose of the study, the Granger null hypothesis of non-causality will be used, where $\beta_{1i}=0$ and $\gamma_{2i}=0$. Granger causality test helps to determine the existence of dependencies between the studied indicators. The EViews 8 program was used as a tool for constructing the VAR model. First, the VAR is evaluated with a maximum of 5 lags. The number of lags was determined by the total score of the criteria LR, FPE, AIC, SC, HQ. One month was chosen as the unit of the time interval. After that, the model is built taking into account the new number of lags. After choosing the number of lags, the Granger non-causality ε error value was used to assess the dependence of the indicators of these countries on the eurozone.

Research results. Looking at the graph of the monetization coefficient for Georgia (Illustration 1), it is difficult to characterise the differences between the periods before and after the signing of the Association Agreement. Visually, the graph cannot show a noticeable structural changes in the dynamics of indicators.

Illustration 1.

Georgia and Eurozone Monetization Ratio after normalization

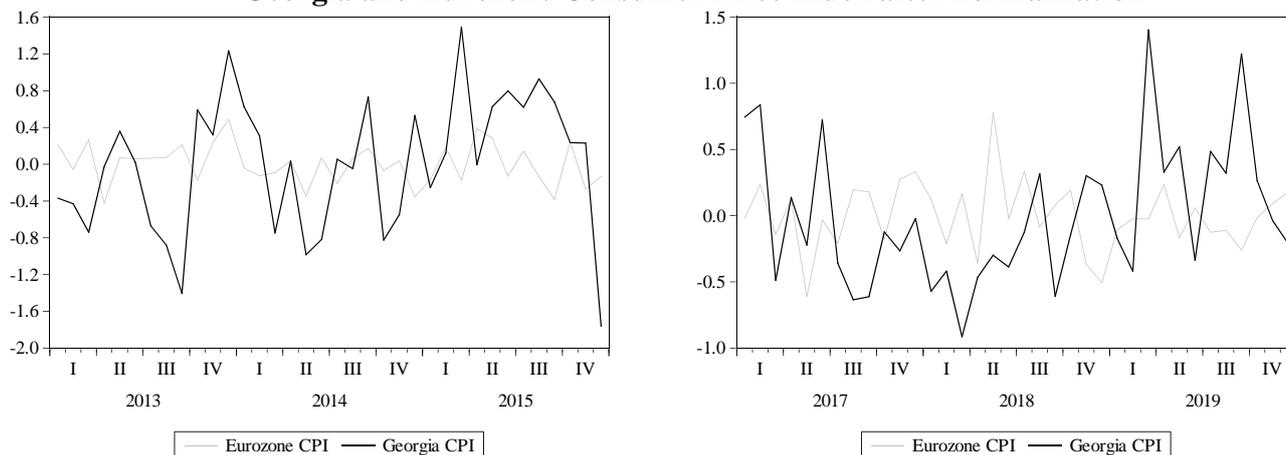


Source: created by authors based on [5, 15, 18].

It is also difficult to characterize any dependencies on the graph of the normalized consumer price index of Georgia and the Eurozone (Illustration 2).

Illustration 2.

Georgia and Eurozone Consumer Price Index after normalization



Source: created by authors based on [3].

Using the lag length criteria of the Monetization Ratio VAR model, 3 lags were selected for the first period and 1 lag for the second period in order to optimise the model. Using the coefficients of the Granger causality test from Table 1, we can conclude that there is no correlation between the monetization indicators of the economies of Georgia and the Eurozone. For the consumer price index, 3 lags were chosen for the first period and 1 lag for the second. Georgia's consumer price index was dependent on the European Union before the association period. After the treaty, as we can see, the data does not fall into any criterion of dependence.

Table 1. Granger causality test for Georgia and Eurozone on 2013-2015 and 2017-2019 with monthly time periods

Dependent index and economy		2013M1-2015M12	2017M1-2019M12
M2/GDP	Eurozone	5,70 (0,1269)	0,12 (0,7213)
	Georgia	0,38 (0,9429)	1,52 (0,2165)
CPI	Eurozone	16,50 (0,0009) ^a	0,57 (0,4489)
	Georgia	6,56 (0,0871) ^c	0,46 (0,4941)

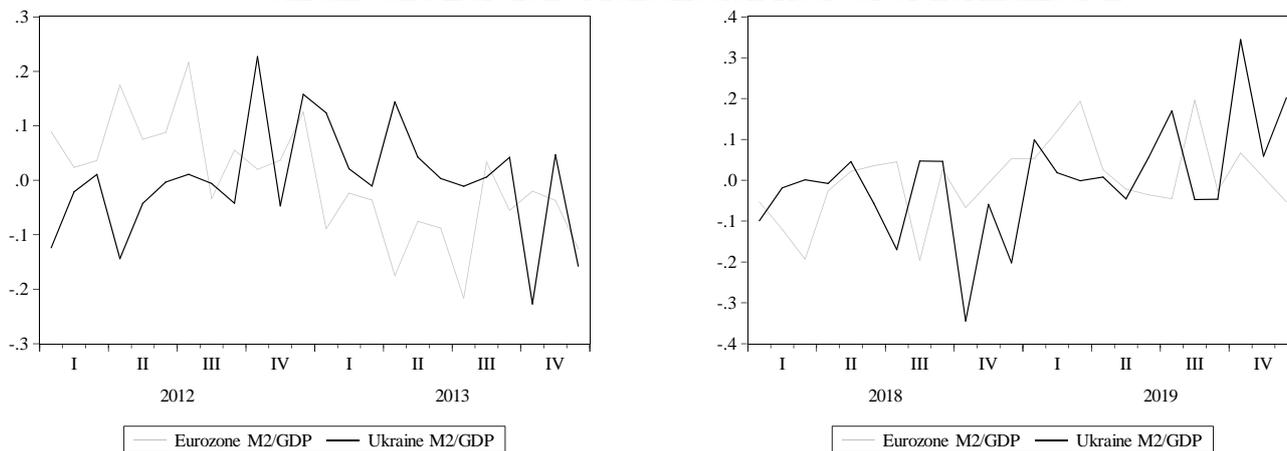
Note: The values before the parentheses indicate the chi-square value. The numbers in parentheses indicate the error ε , which are defined into 3 groups: a, b, c. Letters mean hitting an error in the 1%, 5%, and 10% dependence criteria respectively.

Source: created by authors based on [3, 5, 15, 18].

Illustration 3 shows the changes in the monetization indicator for the economy of Ukraine before and after the Association Agreement, if we consider such an indicator relative to the Eurozone. In the period after the Association Agreement 2018-2019, both graphs have a smaller spread and are concentrated in the same range. Whereas the period 2012-2013 is less measured.

Illustration 3.

Ukraine and Eurozone Monetization Ratio after normalization

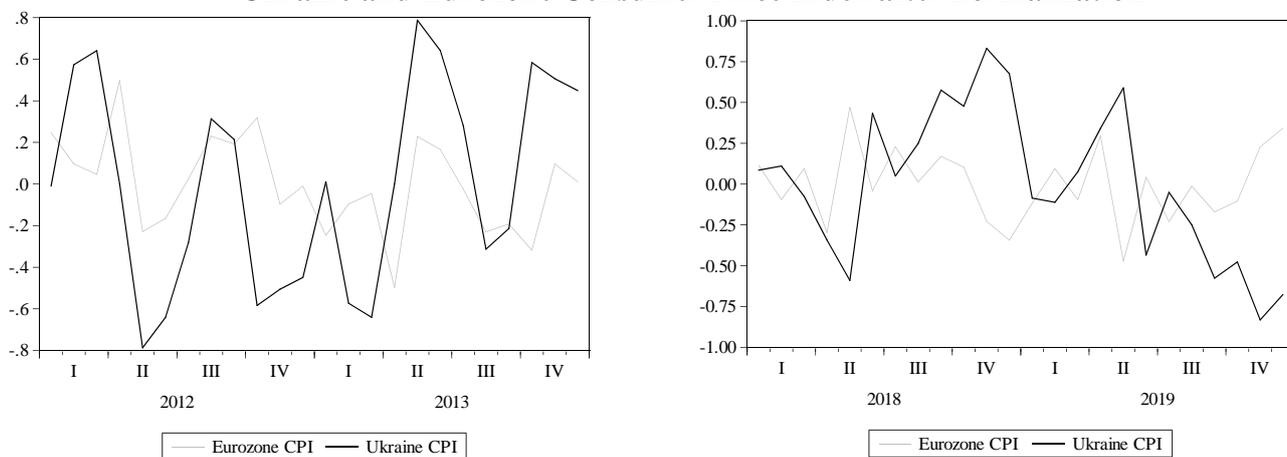


Source: created by authors based on [5, 15, 17].

The graph of the consumer price coefficient after normalization does not allow us to determine any regularities (Illustration 4). The coefficients move together in some periods and separately in others.

Illustration 4

Ukraine and Eurozone Consumer Price Index after normalization



Source: created by authors based on [3].

The Granger causality test shows more specific results for Ukraine and the Eurozone. In the period 2012-2013, the dependence of the Eurozone monetization indicator on Ukraine in Table 2 slightly goes beyond the 10 percent criterion. For Ukraine's dependence on the Eurozone, such a coefficient falls even in the 1% dependence criterion. The period 2018-2019 after the signing of the Association Agreement shows a clear interdependence of the monetization indicators of the Eurozone and Ukraine, meeting the 1% criterion. The consumer price index was interdependent before the signing of the association agreement, falling under the one percent criterion. After the agreement was signed, this interdependence persisted. The dependence of the eurozone indicator fell within the 5% criterion.

Table 2. Granger causality test for Ukraine and Eurozone on 2012-2013 and 2018-2019 with monthly time periods

Dependent index and economy		2012M1-2013M12	2018M1-2019M12
M2/GDP	Eurozone	7,60 (0,1071)	20,88 (0,0009) ^a
	Ukraine	16,91 (0,0020) ^a	22,40 (0,0004) ^a
CPI	Eurozone	17,82 (0,0013) ^a	24,93 (0,0124) ^b
	Ukraine	17,93 (0,0013) ^a	8,77 (0,0000) ^a

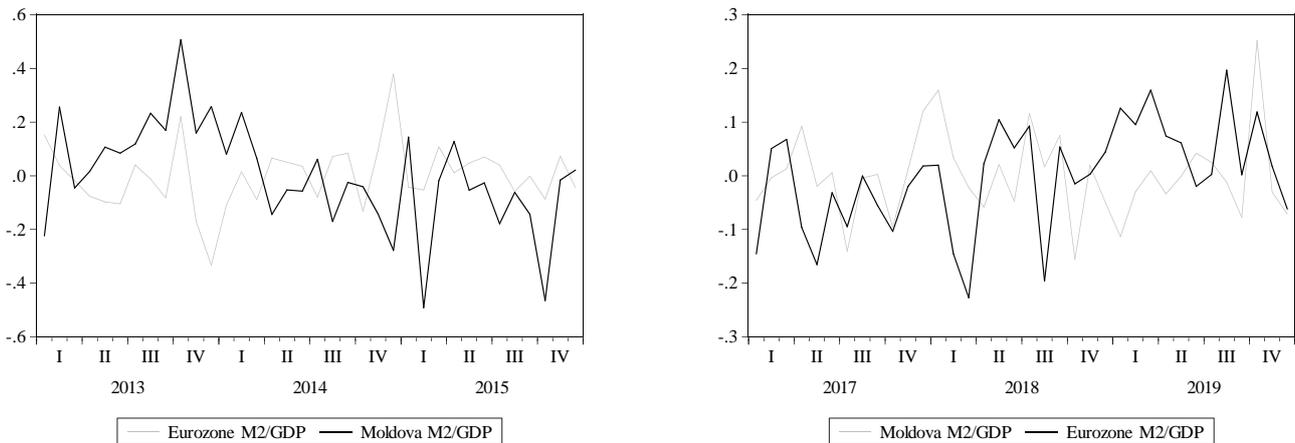
Note: The values before the parentheses indicate the chi-square value. The numbers in parentheses indicate the error ϵ , which are defined into 3 groups: a, b, c. Letters mean hitting an error in the 1%, 5%, and 10% dependence criteria respectively.

Source: created by authors based on [3, 5, 15, 17].

Considering the graph of the dependence of the monetization indicators of Moldova and the Eurozone on Illustration 3, one can also notice a large mutual concentration of data on the graph of the period 2017-2019. This graph illustrates the period after the signing of the Association Agreement by Moldova.

Illustration 5.

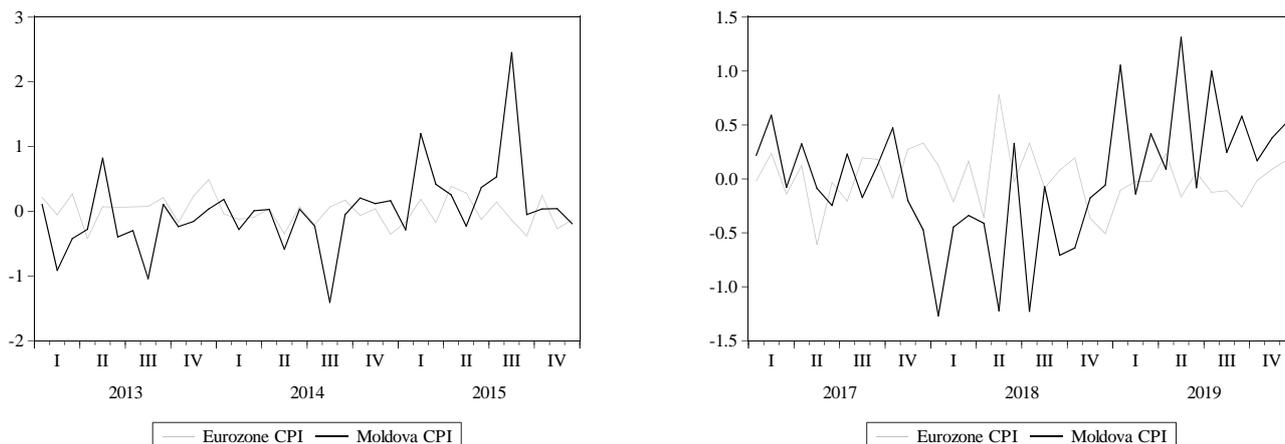
Moldova and Eurozone monetization ratio after normalization



Source: created by authors based on [5, 15, 16].

The dependence between the normalized inflation rates of Moldova and the eurozone is difficult to determine on the graph (Illustration 6). The graphs are chaotically arranged, it is difficult to identify common patterns.

Moldova and Eurozone Consumer Price Index after normalization



Source: created by authors based on [3].

The Granger causality test for Moldova and the Eurozone also allows conclusions to be drawn (Table 3). Before the signing of the Association Agreement, only the monetization indicator of the Eurozone fell under the 10% criterion of dependence on Moldova, which can be attributed to external factors. There is a mutual dependence of the indicators of the monetization of Moldova and the Eurozone, which fall under the 5% dependence criterion. The consumer price index had a reciprocal relationship before the signing of the association agreement. After it was signed, the dependence of the Moldova index on the Eurozone disappeared, and the dependence of the Eurozone index on Moldova, on the contrary, increased.

Table 3. Granger causality test for Moldova and Eurozone on 2013-2015 and 2017-2019 with monthly time periods

Dependent index and economy		2013M1-2015M12	2017M1-2019M12
M2/GDP	Eurozone	5,28 (0,0710) ^c	8,66 (0,0131) ^b
	Moldova	3,88 (0,1437)	7,84 (0,0198) ^b
CPI	Eurozone	7,80 (0,0991) ^c	23,05 (0,0003) ^a
	Moldova	9,55 (0,0486) ^b	1,25 (0,9399)

Note: The values before the parentheses indicate the chi-square value. The numbers in parentheses indicate the error ϵ , which are defined into 3 groups: a, b, c. Letters mean hitting an error in the 1%, 5%, and 10% dependence criteria respectively.

Source: created by authors based on [3, 5, 15, 16].

Discussion of results and conclusions. Georgia showed the absence of any dependence of the monetization indicator of the economy on the Eurozone, while Ukraine and Moldova showed such dependence. Before the signing of the Association Agreement for Ukraine and Moldova, dependence by monetization index with the European Union was not observed. In the period after the signing of such an agreement, there is a clear interdependence of Moldova and Ukraine separately from the Eurozone in the context of the indicator of economic monetization. The maximum interdependence of monetization indicators can be traced between Ukraine and the Eurozone. There, the Granger causality test falls under the 1 percent criterion for both the monetization rate of Ukraine and the Eurozone. This is a strong indicator of interdependence that emerged after the signing of the Association Agreement. For Moldova there is also a strong, though less pronounced, dependence compared to Ukraine. There is a characteristic interdependence of the Moldova monetization indicator on the Eurozone after the signing of the Association Agreement, which was not observed before its signing. Based on the monetization index, Ukraine and Moldova

are economically deeply integrated with the European Union. The fact of the influence of the Association Agreement on the increase in the mutual dependence of the economies of the countries on the economy of the European Union has been proved. The consumer price index showed less specific results. For Georgia, before the signing of the Association Agreement, there was an interdependence of the consumer price index. After the agreement, this dependence disappeared. The interdependence of such an index for Ukraine and the eurozone was strong and persisted after the signing of the Association Agreement. Moldova had an interdependence of the consumer price index with the European Union, which turned into one-sided on the part of the eurozone as a dependent indicator. Such results seem to be less objective than for the monetization index. The consumer price index is influenced by many external factors, and it can hardly be called successful for assessing the degree of integration of a country into the EU. The integration process is complex, the data obtained is also the result of the mass of decisions that countries have taken on the way to European integration. The main part of the Association Agreement from an economic point of view is the simplification of the terms of trade. In this study, the monetization index is a better indicator for assessing integration on short timeframes than the consumer price index. Since geographically, Moldova and Ukraine are closer to the European Union, the interdependence of economies is inevitable. Georgia has an effective domestic policy and is geographically surrounded by alternative trading partners. Based on the study, the influence of the European Union on the Georgian economy is less pronounced in terms of the rate of monetization of the economy.

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RENEWABLE ENERGY FOR SUSTAINABLE DEVELOPMENT IN MIDDLE EAST

ВІДНОВЛЮВАЛЬНА ЕНЕРГЕТИКА ЯК ЧИННИК СТАЛОГО РОЗВИТКУ КРАЇН БЛИЗЬКОГО СХОДУ

ВОЗОБНОВЛЯЕМАЯ ЭНЕРГЕТИКА КАК ФАКТОР УСТОЙЧИВОГО РАЗВИТИЯ СТРАН БЛИЖНЕГО ВОСТОКА

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***Abstract.** Improving energy efficiency is one of the main ways to reduce energy pollution that leads to economic development, increasing energy access and better life. That can result in reducing fossil fuel use and growing clean energy supplies. The Gulf countries have as many renewable resources as hydrocarbons like sunshine, considerable wind resources, and geothermal. The economy of the Middle east deeply depends on fossil fuel export. Declining fossil fuel supplies and rising energy prices are driving global energy supplies to renewables energies. Although the Middle East region, due to its special geographical features, has significant potential for the growth of renewable energy sources, they have not been developed yet. It overviews the energy situation and sustainability, economic potential of renewable energy, policies for energy systems over the recent decades in six resource-rich countries in the middle east. In addition, along with renewable energy technologies, possible ways to solve current environmental problems are recognized. The methodology of this work is PESTLE analysis of these countries' energy status*

to develop a long-term mechanism for sustainable and secure energy for the Middle East based on Political, Economic, Social, Technological, Legal, Environmental. Also, it identifies challenges that restrict the development of renewable energy technologies in the Middle East. By analyzing the status of energy in recent decades, the importance of implementation of effective energy policies to develop sustainable energy can be realized.

Key words: energy source, sustainable future, renewable, effective policy, resource-rich countries.

Анотація. Підвищення енергоефективності є одним з основних способів зменшення забруднення, економічного розвитку, покращення рівня добробуту населення. Використання заходів енергоефективності може призвести до зменшення використання викопного палива та збільшення обсягів чистого енергопостачання. Країни Перської затоки активно використовують такі відновлювані ресурси, як сонячне світло, ресурси вітру та геотермальні ресурси. В той же час, економіка Близького Сходу глибоко залежить від експорту викопного палива. Зменшення поставок викопного палива та зростання цін на енергію обумовлюють потребу в глобальному енергопостачанні відновлюваних джерел енергії. Хоча регіон Близького Сходу через свої особливі географічні характеристики має значний потенціал для зростання відновлюваних джерел енергії, вони залишаються недостатньо розвиненими. В статті здійснено огляд енергетичної ситуації, оцінено економічний потенціал відновлюваної енергетики, політику щодо енергетичних систем протягом останніх десятиліть у шести багатих ресурсами країнах Близького Сходу. Крім того, поряд із технологіями відновлюваної енергетики визнаються можливі шляхи вирішення поточних екологічних проблем. Методологією цієї роботи є PESTLE-аналіз енергетичного стану цих країн для розробки довгострокового механізму стійкої та безпечної енергетики на Близькому Сході на основі аналізу політичної, економічної, соціальної, технологічної, правової, екологічної ситуації в регіонах. Крім того, автори визначили проблеми, які обмежують розвиток технологій відновлюваної енергетики на Близькому Сході. Аналіз стану енергетичного забезпечення дає можливість усвідомити важливість впровадження ефективної енергетичної політики для розвитку сталої енергетики.

Ключові слова: енергетичні ресурси, сталий розвиток, відновлювальні джерела енергії, ефективна політика, багаті на енергетичні ресурси країни.

Аннотация: Повышение энергоэффективности является одним из основных способов уменьшения загрязнения, экономического развития, улучшения уровня благосостояния населения. Использование мер энергоэффективности может привести к уменьшению использования ископаемого топлива и увеличению объемов чистого энергоснабжения. Страны Персидского залива активно используют такие возобновляемые ресурсы, как солнечный свет, ресурсы ветра и геотермальные ресурсы. В то же время экономика Ближнего Востока глубоко зависит от экспорта ископаемого топлива. Уменьшение поставок ископаемого топлива и роста цен на энергию обуславливают потребность в глобальном энергоснабжении возобновляемых источников энергии. Хотя регион Ближнего Востока через свои особые географические характеристики имеет значительный потенциал для роста возобновляемых источников энергии, они остаются недостаточно развитыми. В статье сделан обзор энергетической ситуации, оценены экономический потенциал возобновляемой энергетики, политика в отношении энергетических систем в течение последних десятилетий в шести богатых ресурсами странах. Ближнего Востока. Кроме того, наряду с технологиями возобновляемой энергетики признаются возможные пути решения текущих экологических проблем. Методологией этой работы является PESTLE-анализ энергетического состояния этих стран для разработки долгосрочного механизма устойчивой и безопасной энергетики на Ближнем Востоке на основе анализа политической, экономической, социальной, технологической, правовой, экологической ситуации в регионах. Кроме того, авторы

определили проблемы, которые ограничивают развитие технологий возобновляемой энергетики на Ближнем Востоке. Анализ энергетического обеспечения дает возможность осознать важность внедрения эффективной энергетической политики для развития устойчивой энергетики.

Ключевые слова: *энергетические ресурсы, устойчивое развитие, возобновляемые источники энергии, эффективная политика, богатые энергетическими ресурсами страны.*

Introduction. The Middle East countries, whose economies depend on hydrocarbons for their energy supply and domestic consumption, are consuming huge amounts of natural resources domestically. Their rapid economic growth, identified by population explosion, significant industrialization, and growth in Gross Domestic Product (GDP) makes them large consumers of energy. With energy production around 2.7 times as large as its demand, and reaching 2040 Mtoe in 2018, the Middle East had the highest energy self-sufficiency ratio in the world. The region produced 14% of global energy in 2018, and more specifically 33% of global oil and 16% of the world's gas. The Middle East's global share of natural gas production had more than tripled since 1993. Saudi Arabia was still by far the largest oil producer in the region in 2018 with 39%, followed by Iraq and Iran, with 15.5% and 14% respectively (IEA: 2020). Demand for electricity is soaring; it has nearly doubled during the last decade and will continue to grow inexorably by seven to eight percent annually for several years to come (Imen: 2012). Such rapid growth of energy needs is making pressure on the GCC's hydrocarbon resources, a significant lack of which, and inefficient use or damage to the environment refers to the fact that we should not be too dependent on fossil resources. Since most of the energy used in the region is provided by fossil fuels, any alternative way must respond to promoting renewable energy solutions to protect the environment while maintaining development. The GCC countries (Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Oman, and Bahrain) significantly meet the demand for primary energy, electricity generation and CO₂ emissions in the Middle East. Consequently, it is critical to know how the development of their energy systems can affect the energy future of the region. so, the purpose of this article is to study and compare the CO₂ emissions in GCC countries, which are known as the biggest polluters and what is their role in the future sustainable development of the Middle East's energy system. The first section of this paper looks an overview of natural resources, energy production and consumption. the second section is about renewable energy development in these countries and the last one is PESTLE analysis of renewable energy with consideration of energy trends and CO₂ emissions in the Middle East.

The purpose of the article is to evaluate the effect of renewable energy development on Carbon emission reduction in the middle east region over the recent decades and how the middle east can shift to a sustainable future by sustainable energy and lower emission. It overviews the energy situation and sustainability, economic potential of renewable energy, policies for energy systems over the recent decades in six resource-rich countries in the middle east.

Literature review. Historical energy trends have shown that rapid growth in energy consumption in GCC countries is expected in the next few years. In addition, rapidly growing domestic energy needs could potentially notably limit their ability to export to the world market in the future. All these factors can lead to an increase in the region's overall share of global CO₂ emissions. Addressing these issues will require considerable input from governments, stakeholders, society, and politicians. The problem of renewable energies in its broadest sense was explored by authors. The main limitation of this article is the study of energy trends without much emphasis on the policies associated with these trends. In addition, the six key PESTLE factors discussed in this article can be expanded to include other parameters, such as energy management policy, fuel prices, and the efficiency of available renewable energy technologies. However, in the works of these authors, the analysis in the review section showed that in these countries, renewable energy targets are part of the future energy agenda. However, emission trends have shown that there is a gap in the relevant energy policy, which is closely linked to climate goals. In addition, the relationship between

energy demand management and the Establishment of renewable energy technology will have a strong effect on reducing CO2 emissions in the future. Such trends show that the development of energy transition policies aimed at reducing carbon emissions is the main to attain climate goals in these countries. Finally, a coherent policy is needed to lay the groundwork for an appropriate energy development strategy and to implement the planned renewable energy targets.

Main results of the research.

1. Natural Resources. The availability of fossil fuels is evaluated based on existing reserves of oil and gas in GCC countries. The GCC countries have considerable conventional resources: KSA has the world’s largest oil reserves of 259.9 billion barrels, Kuwait has 101.5 billion barrels, the UAE has 97.8, and Qatar 25.4 billion barrels. The table below shows the scores given for each country based on its ranking. In terms of existing natural gas reserves, Qatar ranks 3rd in the world with 899 trillion cubic feet (TCF), and UAE ranks 7th with 210 TCF (CIA: 2011).

Table 1: The GCC countries energy reserve ranks and RE-readiness scores

	Proven Oil and Gas Reserves						Rank >96
	Rank 1-16	16-32	32-48	48-64	64-80	80-96	
Allocated score	1	2	3	4	5	6	7
Country	Oil rank	Score	Gas rank	Score	Average score		
Bahrain	66	5	55	4	4.5		
KSA	1	1	4	1	1		
Kuwait	6	1	20	2	1.5		
Oman	23	2	26	2	2		
Qatar	12	1	3	1	1		
UAE	7	1	7	1	1		

The Middle East holds about 78% of the world's proven crude oil reserves, putting the region at the forefront of the global oil market. Saudi Arabia is the largest oil producer and exporter in the Middle East, with oil reserves for about 16 percent of the world. As a result, its economy is largely oil-based, with oil revenues accounting for about 90% of total national income and about 50% of its GDP (Mezghani: 2017). For Kuwait, oil is an essential component of its energy supply system. At the end of 2012, Kuwait's total proven crude oil reserves accounted for 8% of world oil reserves (Ramadhan: 2012).

a. *Energy Production.* The composition of energy production differs between the four countries in terms of fuel type and its share in total primary energy production. In general, the contribution of renewable resources is comparatively small compared to fossil fuels. The UAE, has two main sources of energy: oil and natural gas, other sources like coal and solar energy contribute slightly (less than 0.1%). (BP Statistical: 2016). AE is planning to adopt clean technology such as Carbon Capture and Storage (CCS) to continue using coal in the future. Also for the UAE, coal is mostly supplied through imports with a 2.5% share of the country's primary energy (IEA: 2016). With oil reserves about 16% of the world, Saudi Arabia is the largest oil producer and exporter in the Middle East. As a result, the country's economy is largely oil-based, since oil revenues accounting for about 90% of total national income and about 50% of GDP (Mezghani: 2017). Oil production in Saudi Arabia and Kuwait have been growing at an average annual rate of 1.5 percent, while the UAE grew at an annual rate of 2 percent. According to recent surveys of gas reserves in the Middle East, Saudi Arabia, the UAE, and Kuwait are among the largest natural gas reserves, accounting for about 63% of the total region. In 2012, Saudi Arabia was recognized as the world's largest producer of petroleum liquids (Bahgat: 2016). Consequently, oil has been supplying more

than 50% of Saudi Arabia's primary energy production since 1980. For Oman in 2012, about 86% of the government revenue came from the hydrocarbons sector and about 40 % of Oman's GDP comes from Oil and gas revenues, which shows the high dependence on the hydrocarbons sector. Looking into the energy balance of Oman, it is noticed that natural gas is the main energy source, as it accounts for 73% of the Total Primary Energy Supply (TPES) and the rest 27% comes from crude oil (Almulla: 2015). Bahrain is also a small producer of natural gas; it produced 446 billion cubic feet of dry natural gas in 2011. Despite the fact Bahrain is the smallest producer of hydrocarbons among the GCC countries, the Total Primary Energy Supply (TPES) in 2010 was about 9457 ktoe, it is mainly supplied by natural gas 85% and the rest comes from crude oil (Almulla: 2015).

b. *Energy Consumption.* For Kuwait, its domestic natural gas consumption has always equaled production. However, in the last years, Kuwait's natural gas demand has surpassed domestic consumption due to surging demands from electricity generation during the summer months (Abdul Hamid: 2016). Saudi Arabia is ranked as the world's sixth-largest oil consumer with total energy consumption higher than the global average (Alyousef: 2012). Over the past two decades, the country's per capita energy consumption has been rising, reaching four times higher than the world average in 2014 (IEA: 2015). The UAE has fewer reserves than Kuwait, but its total oil production and consumption are extremely higher than Kuwait. While the total population of UAE represents only 0.1% of the global population, the country consumes around 0.8% of the world's total oil consumption (Sgouridis: 2016).

2. Renewable Energy. The gradual decline in fossil fuel reserves, coupled with rising energy prices, will shift global energy to more renewable sources over the next decade. Under these conditions, renewable energies show a great capacity to meet much of the growing energy demand. The Middle East has considerable potential for renewable energy development due to its geographical and environmental characteristics, especially solar and wind energy. Although the region has the greatest potential for renewable energy, especially solar energy, renewable energy is not yet developed and accounts for only about 5% of the Middle East primary energy supply mix (IEA, 2016).

a. *Solar Energy.* GCC countries receive significant solar radiation, with KSA having the highest resource potential. On average, the global solar radiation for solar PV is close to 2,083 ($kWh/m^2/year$) and the direct solar radiation for CSP is about 2,208 ($kWh/m^2/year$) in the region.

b. *Wind energy.* The Gulf region has moderate wind energy potential. The countries of this country have an average wind speed of about 6 meters per second with wind potential, which is very different among them. Full load hours per year, which indicates the number of hours a wind turbine operates at full capacity for local wind speeds, is low compared to other countries. If the full wind load hours are reduced, the cost per unit of generation will increase. The KSA recorded full loading hours in 1,789 per year, which is the highest in the GCC countries, with the UAE having the lowest loading hours per year at 1,176.

Table 2: Solar and wind potential in the GCC countries (Alnaser: 2011; Ferroukhi: 2013; ACVL: 2011).

Country	PV Global solar radiation kWh/m ² /year	CSP Direct normal solar radiation (kWh/m ² /year)	Solar energy (kWh/m ²)/ Score	Wind speed (m/s)	Hours of full load per year	Score
Bahrain	2160	2050	5.1	5 – 6	1,360	5.5
Kuwait	1900	2100	5.9	5 - 5.5	1,605	5.2
Oman	2050	2200	5.4	4 - 6	1,463	5
Qatar	2140	2200	5.2	5 - 7	1,421	6
KSA	2130	2500	5.6	2.5-4.5	1,789	3.5
UAE	2120	2200	5.4	3.5-4.5	1,176	4
Average	2083	2208				

Generally, the GCC countries have considerable solar and wind resources. UAE and KSA reached lower scores due to their lack of wind resources.

c. *Electrification Rate.* The GCC countries have the highest electricity rates in the world (Kuwait and the UAE 100%, KSA 99%, Bahrain 99.4%, Qatar 98.7%, and Oman 98%). The Gulf region has high reliability (reduced load / limited blackout) of electricity suppliers. The only exception is during peak summer days, which experience some disadvantages. Kuwait and the UAE have 100% electrification rates and the best quality of electricity supply. Saudi Arabia's electricity consumption is nearly 256 TWh/y, the highest consumption of all Gulf Cooperation Council (GCC) countries (SP Statistical: 2016). In the UAE, electricity consumption has increased exponentially in the last decades. With large reliance on hydrocarbon resources for energy supply, the country has set three targets; 27% of Renewable Energy Technologies (RETs) by 2020, 30% by 2030 and recently 50% from renewables by 2050 (IRENA: 2015).

CO2 Emissions. Increasing global energy demand, most of which is met by fossil fuels, is resulting in increasing CO2 emissions. In 2012, a total of 35.6 billion tons of CO2 emissions were generated worldwide, which is 2.6% more than the previous year, mostly because of increased fossil fuel combustion. CO2 emissions in Kuwait are between the highest in the world. CO2 emissions in Kuwait per capita grew at a rate of 1.13% annually to reach 39 metric tons in 2010, compared to a world average of 4.54 tons and the U.S. of 18 tons (Alotaibi: 2011). Between 1995 and 2015, Saudi Arabia's CO2 emissions increased by 5.2 percent annually. In addition, Saudi Arabia's share of global CO2 emissions increased from 0.7 percent in 1990 to 1.4 percent in 2015 (Bahgat: 2016). The UAE is among the world's largest emissions per capita from fossil fuel combustion. Since 1980, per capita emissions have grown by an average of 1.3 percent per year, reaching 44 tons in 2010. However, the country's absolute pollution rate corresponds to 0.7% of CO2 emissions worldwide.

3. PESTLE analysis. PESTLE analysis includes six main categories: Political and legal (political changes or improvement that would have an impact on energy policies, trades, and energy supply), Economical (economic factors like income level, international trade, and taxes), social (social factors like population, consumption behavior, and lifestyle), Technological (new technologies that can affect the development of energy systems, and efficiency) and Environment (including factors of natural systems such as wind and water).

a. *Technological.* Bahrain; Population and economic growth have led to a very high estimated annual energy growth rate of 10% in Bahrain. In 2008, the total installed power generation capacity

was 2,780 megawatts (MW) (IEA: 2012). It is expected that a total capacity of 6,500 MW will be required by 2030 to meet the projected demand (Gelil: 2013). Bahrain has installed three wind turbines at its World Trade Center, which supply 13% of the building's energy needs. The country has a solar energy street lighting pilot project implemented by the Electricity and Water Authority (EWA). In July 2011, Bahrain signed a contract with German consulting engineers Fitchner to prepare a techno-commercial feasibility study for solar and wind energy sources (MEW: 2012).

Kingdom of Saudi Arabia; The KSA's rapid economic growth is closely linked to its per capita energy consumption which has increased by more than 30% since 2010 (Alyousef: 2012). KSA made the first step in the region in the 1970s with the establishment of King Abdulaziz Science and Technology City (KACST) and the funding of R&D projects, including renewable energy. In 2009, KAUST was established to make the country a major energy research center and develop renewable and sustainable technologies through collaboration with global scientific institutions. In April 2010, the King Abdullah City for Atomic and Renewable Energy (KA-CARE) was founded by a Royal order to contribute towards sustainable development through the implementation of nuclear power plants and renewable energy projects to diversify energy supply and minimize CO₂ emissions. In April 2011, KSA announced that it would invest \$ 100 billion in renewable and nuclear energy to reduce its dependence on crude oil and generate 7-10% electricity generation from RETs by 2020 (Bachelier: 2012).

Kuwait. In 1958, the first power plant with a capacity of 15 MW was installed. The total installed capacity by 2008 has reached 11.6 GW. It is expected that by 2020, a capacity of 23 GW will be needed to meet the projected demand for electricity (Bachelier: 2012). This country is rich in solar energy. Kuwait has set a goal of generating renewable energy production, which aims to generate 10% of its electricity from sustainable sources by 2020 (Times: 2011). Several pilot projects in wind, solar PV, and solar thermal technologies have been completed by the KISR. Some of these projects are: solar heating and cooking with different thermal storage configurations, thermal and electricity application projects including Kuwait English School (Salwa) with a daily electricity load of 80 kWh. the solar power plant at Sulaibia complex with 56 power production of 125 kW.

Oman. In 2010, the total peak of electricity demand in Oman was 3,856 MW, an increase of 46.4% since 2005. The peak of demand is expected to grow at an annual rate of 8% and is projected to reach about 6,600 MW by 2018 (Al-Badi: 2013). The Oman Electricity Regulatory Authority (AER) has drawn up a roadmap for the development of renewable energy projects. AER published a report in 2008 entitled "Study of Renewable Energy Sources, Oman". This study recommends several RET pilot projects: 1) 10 kW off-grid solar PV/diesel hybrid system; 2) 20 kW grid-connected solar PV system; and 3) 10 MW grid connected wind power farm (AERO, 2008).

Qatar. In the year 2000, the country's peak electricity demand was only 1,800 MW, this figure reached 8,000 MW by the year 2011. Electricity demand growth in recent years has been about 5.1% (Alnaser, 2011). Qatar's electricity generation is projected to continue at an annual growth rate of 2.9% by 2030. The country's primary energy demand is projected to grow at an average rate of 5.2% per year. The Qatar National Food Security Program (QNFS) recently launched a solar resource assessment project. The project is to be carried out by the German Aerospace Center (DLR) to identify the country's most desirable areas for solar energy projects.

United Arab Emirates. Power generation in the UAE is almost entirely dependent on fossil fuels, with natural gas accounting for 98% of the total installed capacity in 2009 (WDI, 2011). Low energy costs and high rates of economic and population growth have led to a significant increase in the country's energy consumption over the past decades. The Emirate of Abu Dhabi has established one of the world's most comprehensive clean energy initiatives through the Masdar Initiative. It has set a target of 7% of electricity generating capacity from renewable energy by 2020. The Abu Dhabi Climate Change Policy Plan proposes that Abu Dhabi will generate electricity by 10% from renewable energy by 2030 (Harder, 2011). The UAE Solar Atlas has been commissioned to provide

valuable technical data for setting up solar energy projects in the country. The UAE Solar Atlas is the outcome of the agreement signed between Masdar Institute and IRENA. Dubai has set a target of 5% renewable energy generating capacity by 2030 (1000 MW).

Innovation and R&D. Creating a strong R&D sector for the knowledge economy will help GCC countries achieve their sustainable development goals. The percentage of GDP cost for research and development in the GCC countries is very low compared to the global average. Kuwait spent about 0.1% and KSA about 0.08% of GDP on R&D in 2009, while the global average was about 2.1% (WDI, 2011).

b. Environmental. A policy for climate protection and energy security should include efforts to diversify energy composition, including the use of low-carbon options. Climate change mitigation policies that target renewable energy or demand-side efficiency options have benefits of less primary energy use as well as supply diversification (Mondal: 2010; Shrestha: 2010). All the GCC countries have ratified the Kyoto Protocol and are committed to sustainable development. The Kyoto Protocol was successfully extended for 2nd commitment periods of 8 years (2012 to 2020) in the COP18 meeting in Doha, Qatar. The Dubai Supreme Council of Energy and Dubai Carbon Center for Excellence are developing a strategy to cut CO₂ emissions. The strategy sets its effort to cut Dubai's CO₂ emissions by 1.5 million tons per year. Growing energy consumption has led to increased carbon dioxide emissions. Regarding the average growth rate, Kuwait is the fastest, growing at an average of 3% annually, followed by the UAE (0.93%) and Saudi Arabia (0.72%).

c. Economical. The macroeconomic environment reflects the ability of the government and private sector to support and invest in the development of renewable energy projects. For example, high-interest rates and inflation will discourage investment. The GCC countries have a very strong macroeconomic environment. A number of factors, such as government budget, gross national savings, inflation, interest rates, government debt, and credit ratings, are used to determine readiness scores for the macroeconomic environment factor. Macroeconomic data of the GCC countries, global ranking (2011- 2012), and readiness scores are presented in Table 3. Kuwait receives the highest score of 6.6 followed by Oman at 6.5 on macroeconomic environment.

Table 3: Macroeconomic indicators, world ranks, and competitiveness scores (WEF: 2011).

Country	Budget balance (% GDP) [Rank]	National savings (% GDP) [Rank]	Inflation (%) [Rank]	Interest rate (%) [Rank]	Debt (% of GDP) [Rank]	Credit rating (1-100) [Rank]	Overall score
Bahrain	-7.8	34.4	2 [1]	6.0	32	68.1 [40]	5.1
KSA	7.7 [8]	35.2 [14]	5.4	6.0	10.8 [10]	75 [32]	6.1
Kuwait	17.5 [2]	40.4 [9]	4.1 [75]	0.5 [2]	10.5 [9]	76.2 [29]	6.6
Oman	75 [9]	41.4 [8]	3.3	3.5	5.9 [4]	71.8	6.5
Qatar	11.4 [4]	49.4	-2.4 [102]	4.4	17.8	79	6.4
UAE	3.3 [12]	26.4	0.9 [1]	3.0	21.0	75.3	6.1

d. Social. Consumer and social awareness are usually the result of capacity-building efforts in renewable energy sources and technologies. NGOs, professional associations, and related public organizations may organize exhibitions, seminars, and media awareness campaigns to raise consumer awareness. This factor is usually measured through surveys. The results are generally presented in published reports such as “Gulf Cooperation Council 2020: Resources for the Future.” (EIU, 2010). This factor is assessed qualitatively from a range of consumer social awareness and “very good” and eventually translates to scales from 1 to 7. Many initiatives have been taken to raise awareness in the GCC countries. Social awareness of the need for clean energy development has been assessed with a good score of 4.66 for KSA and UAE. Bahrain, Kuwait, Oman, and Qatar receive a fair score of 2.33 on consumer and social awareness.

e. Political & Legal. Reliable and effective renewable energy policies are essential to attract investors. It is important to have a realistic target based on long-term planning to integrate large-scale renewable energy projects into the power sector. Large RET projects provide economies of scale and favorable planning environments, which facilitate project development financing (E&Y: 2012). Lack of long-term planning based on technical and economic feasibility leads to lack of clarity and stability of policy over the long term, prevents investment and development of renewable energy projects (WEF: 2011). RET development goals should ideally be based on technical and economic modeling of renewable energy potential for a given country. These goals are a guide for investors and entrepreneurs to develop their future strategy and business plans to invest in the development of RETs. Renewable energy production targets must be specific, measurable, achievable, reasonable, and time-bound. Policy mechanisms are further broken down into regulations, fiscal incentives, and finance (including finance for R&D). The policy mechanisms are identified by the Renewable Energy Policy Network for 21st Century (REN21: 2012). Institutional regulatory challenges are diverse in terms of their impact on energy production. Some of these challenges affect the energy industry in general and some affect renewable energy projects specifically. Regulators need to create an environment that avoids or minimizes investors' risk in RET projects. The most common institutional regulatory challenges are (WEF: 2011): The absence of long-term planning; Many overlapping relevant authorities; Lack of coordination between relevant authorities; Complex permitting procedures; Lack of stakeholder involvement in decision-making. Most of the GCC countries lack a specific regulatory authority that is specifically responsible for RET projects. The existence of such an authority could simplify the permitting and approval process, ensure standardization of projects, and thereby ensuring higher project quality and increased administrative efficiency. For example, Qatar has no dedicated legal or regulatory framework for the deployment of clean energy projects yet. The Sustainable Environmental Management Program in Kuwait was started in 2003 to establish an environmental database. So far, there is no dedicated law on sustainable energy use or uptake in Kuwait. According to the country-specific surveys, KSA and UAE have better legislation and harmonization between stakeholders as well as an adequate regulatory enforcement for RET deployment. These benefits are reflected in their scores, as shown in the following table. The scores are given based on seven sub-factors that contribute more regulatory assurance and each sub-factor receives one point out of a total of 7 points.

Table 4: The GCC countries regulatory framework scores

Country	Bahrain	KSA	Kuwait	Oman	Qatar	UAE
Clear legislation	0.25	1	0.25	0.5	0.5	1
Timely implementation of legislation	0.25	0.25	0.25	0.25	0.25	0.25
Harmonization between stakeholders and good coordination	0.25	1	0.25	0.5	0.25	1
Transparency and clear communication from NRA	0.25	0.5	0.25	0.5	0.25	0.5
Comprehensive guidance of legislative requirements	0.25	0.5	0.25	0.25	0.25	0.5
Adequate NRA enforcement	0.25	1	0.25	0.25	0.5	1
Clear and consistent permitting procedures and fair competition as well as adequate appeals processes	0.25	0.5	0.25	0	0.25	0.5
Score	1.75	4.75	1.75	2.25	2.25	4.75

Conclusions

The purpose of this paper is to investigate the trend of energy and CO₂ emissions in the GCC countries to better understand the status of their energy systems to reach sustainable energy in the region. The challenges in these countries are due to the larger reserves of fossil fuels that have led to huge fossil fuel consumption. Energy consumption and electricity demand have been growing rapidly in recent years. Geographical proximity, also the similarity in climatic conditions and the structure of their policies can let them work together to improve renewable energy development. Developing energy policies and a regulatory framework that are commensurate with reducing carbon emissions is important to achieving climate goals in the Middle East. Finally, a consistent policy is essential to lay the groundwork for an appropriate energy development strategy and to implement planned renewable goals. Also, it is necessary to have a realistic target based on long-term planning to integrate large-scale renewable energy projects into the power sector.

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