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ANALYSIS OF AI POLICY IN UKRAINE: NORMATIVE IMPACT ON THE RESTRUCTURING OF THE ECONOMY¹

АНАЛІЗ ПОЛІТИКИ ШТУЧНОГО ІНТЕЛЕКТУ В УКРАЇНІ: НОРМАТИВНИЙ ВПЛИВ НА РЕСТРУКТУРИЗАЦІЮ ГОСПОДАРСТВА

Digital transformations, particularly in artificial intelligence (AI), compel economies to adapt to new competitive conditions and market demands. Ukraine has made strides in AI development, influenced by both national initiatives and international principles. The research aims to evaluate the state of artificial intelligence (AI) policy in Ukraine from 2020 to 2022 and its normative impact on the restructuring of the economy. The evaluation utilized the methodology developed by the Center for AI and Digital Policy. These indicators range from the endorsement and implementation of OECD AI Principles to the establishment of a process for meaningful public participation in AI policy development. The matrix method is applied to simulate the normative impact of AI policy in Ukraine. The analysis focuses on several key aspects of Ukraine's AI policy, including the endorsement of the National AI Strategy, public participation initiatives, and significant AI developments. The overall evaluation score for AI policy in Ukraine from 2020 to 2022 is 6.5, indicating that Ukraine's AI policy is still in its formative stages and primarily focuses on aligning with international standards and practices. The matrix for assessing the normative impact of AI Policy on the restructuring of Ukraine's national economy is formed. Evaluation of normative impact of AI Policy on the restructuring of Ukraine's national economy is done. The influence of AI policy on the restructuring of Ukraine's national economy is minor. Both the normative-legal and infrastructural components of AI policy's impact on the restructuring of Ukraine's national economy should be enhanced through the adoption of international norms and the development of infrastructure facilities. Additionally, the motivational aspect of AI policy's influence on the restructuring of Ukraine's national economy necessitates the creation of programs aimed at motivating economic entities to integrate AI technologies.

Keywords: artificial intelligence, restructuring, digital transformation, democratic values, decision making, policy, regulation.

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Цифрові трансформації, особливо в сфері штучного інтелекту (ШІ), змушують економіку адаптуватися до нових конкурентних умов і вимог ринку. Україна досягла певних успіхів у розвитку ШІ завдяки реалізації національних ініціатив та імплементації міжнародних норм. Дослідження спрямоване на оцінку політики у ШІ в Україні з 2020 по 2022 роки та її нормативного впливу на реструктуризацію економіки. Використано методологію, розроблену Center for AI and Digital Policy, що включає показники підтримки та впровадження OECD AI Principles, а також створення механізму для значної участі громадськості у розробленні політики ШІ. Також застосовано матричний метод для моделювання нормативного впливу політики ШІ в Україні. Аналіз зосереджений на кількох ключових аспектах політики ШІ в Україні, включаючи розвиток Національної стратегії з ШІ, ініціативи громадської участі та значні досягнення у сфері ШІ. Загальна оцінка політики ШІ в Україні з 2020 по 2022 рр. становить 6,5, що свідчить про її початковий етап формування та спрямованість на узгодження з міжнародними стандартами, практиками. Запропоновано матрицю для оцінки нормативного впливу політики ШІ на реструктуризацію національної економіки України. Проведено оцінку нормативного впливу політики ШІ на реструктуризацію національної економіки України. Визначено, що вплив політики ШІ на реструктуризацію національної економіки України є незначним. Запропоновано посилити нормативно-правову та інфраструктурну складові впливу політики ШІ на реструктуризацію національної економіки України через досягнення відповідності з міжнародними нормами у сфері ШІ та розвиток інфраструктурних об'єктів. Для розвитку мотиваційної складової впливу політики ШІ на реструктуризацію національної економіки України необхідним є розроблення програм стимулювання економічних суб'єктів до впровадження технологій ШІ.

Ключові слова: штучний інтелект, реструктуризація, цифрова трансформація, демократичні цінності, прийняття рішень, політика, регулювання.

Statement of the problem. Terms of digital transformations force the economy to adapt to new competitive conditions and market demands. Accordingly, the government creates conditions for digital transformation of the economy by providing access to innovative technologies, support for small and medium-sized enterprises, and infrastructure development. The use of artificial intelligence contributes to the improvement of business processes, production efficiency, and its implementation entails the restructuring of the national economy. Therefore, AI policy should take into account the needs of the economy and be based on modeling the impact of measures on its changes.

Significant advancements in AI have emerged within Ukraine between 2020 and 2022.

Concept of the AI Development in Ukraine 2021-2024, 02.12.2020 declares the supremacy of law, respect for people's rights and freedoms as goals in the process of forming and implementing artificial intelligence policy.

Ukraine is implementing the OECD AI Principles. The following OECD AI principles are addressed in the National Strategy of the Development of AI in Ukraine: fostering a digital ecosystem for AI; building human capacity and preparing for labour market transition.

Furthermore, Ukraine, as a member of UNESCO, has endorsed the UNESCO Recommendation on AI Ethics in alignment with OECD standards. Notably, the State Employment Center of Ukraine launched an online platform in November 2022, leveraging AI to match individuals with professions based on their skillsets.

UNDP Country Office in Ukraine in 2022 start to develop a model that uses machine learning and natural language processing techniques to analyze thousands of reports and extract the most relevant information in time to inform strategic decisions.

Analysis of recent research and publications. The implementation and regulation of AI technologies are becoming mainstream topics of scientific research among scholars.

Kostenko O.V. analyzes strategic documents on AI development from different countries and draws conclusions regarding their diverse objectives and paths to leadership in the field of AI [1].

Pistrakevich O.V. examines the peculiarities of national AI development strategies using the examples of Poland, Hungary, Slovakia, and the Czech Republic. Specifically, the author identifies priority directions and sectors for development in these countries [2].

Ryabchikov O. identifies groups of standards that need to be developed for the implementation of AI technologies in Ukraine's national economy and provides a list of ISO standards that could serve as a basis for its formation [3].

Tyurya Y.I. analyzes the regulatory framework for AI implementation in various countries and concludes on the necessity of establishing a unified management body in Ukraine, the National Agency for Artificial Intelligence. Additionally, the author advocates for the development of the regulatory framework in terms of both regulatory and infrastructural components [4].

The feasibility of having a single national regulator in the field of AI and specifying its legal status is also justified in the work of Gudyma T., and Kamishansky V. [5].

Telychko V.S. identifies the peculiarities of using AI for public administration to enhance economic efficiency and the rational use of Ukraine's resources, particularly focusing on the development of a regulatory framework for implementing AI and the Internet of Things at the regional level [6].

Franko L. models territorial clusters of innovative development in Ukraine using AI and determines the objectives of innovation policy [7].

Thus, researchers conduct a comparative analysis of the regulatory framework and measures of different countries in the field of AI and formulate possible actions for the implementation of AI in the national economy. However, the issue of directly assessing AI policy in Ukraine and its impact on changes in the national economy remains unexplored

Objectives of the article. Main objective of the research is to analyze the artificial intelligence policy in Ukraine throughout 2020-2022 and its normative impact on the restructuring of the economy.

Methods. Methodology of Center for AI and Digital Policy is used for evaluation state of AI policy in Ukraine [8]. It includes 12 indicators. Scale of indicator's estimation is (Table 1):

- Yes (Y), 1 point;
- No (N), no points;
- Partly (P), 0.5 points.

Additional methods of investigations are: analysis, synthesis, desk research.

Also it is used data of Ukraine's legislation and reports of international organizations (e.g. OECD, UNESCO, UN, Freedom House, GPA, European Parliament, and other).

The matrix method is employed for simulating the normative influence of AI policy in Ukraine.

Summary of the main results of the study.

There are main directions of Methodology of Center for AI and Digital Policy to analyze AI policy [9].

National AI Strategy

In December 2020, the Cabinet of Ministers of Ukraine endorsed the concept of AI development along with its implementation plan. This followed a year of extensive public discourse and notable revisions to the original document, driven largely by civil society organizations and activists advocating for human rights, privacy, and ethical considerations.

The "Concept of the AI Development in Ukraine 2021-2024" issued on 02.12.2020, underscores the paramount importance of upholding the rule of law and respecting individuals' rights and freedoms throughout the formulation and execution of artificial intelligence policies [10]. However, it falls short in clearly delineating goals related to Fairness, Accountability, and Transparency.

Within the concept, nine priority areas delineate the tasks of state policy for advancing artificial intelligence, encompassing education, science, economy, cyber and information security, defense, public administration, legal and ethical regulation, and justice. While aligning with approaches adopted by other nations, these priorities may be adapted to suit Ukraine's unique circumstances.

The primary objective of state policy in AI regulation is to safeguard the rights and freedoms of all stakeholders involved in AI-related interactions, promoting the development and utilization of AI technologies in accordance with ethical standards. To achieve this, the concept advocates for the integration of norms outlined in the OECD's "Recommendations on Artificial Intelligence" (OECD/LEGAL/0449) and the ethical standards (Recommendations CM/Rec(2020)1) endorsed by the Committee of Ministers of the Council of Europe into Ukrainian legislation.

The Concept establishes a framework for the regulatory and legal governance of AI in Ukraine and may serve as a cornerstone for the development of further state policies and regulatory documents in this domain. Notably, alongside the concept, the government has also ratified a plan for its implementation from 2021 to 2024, comprising 11 measures to be executed by relevant state entities. However, it is unlikely to encompass all necessary actions as outlined in the Concept [11].

Public participation

Ukraine established a process for meaningful public participation in the development of a national AI Policy. There are several initiatives encouraging public participation in the development of a national AI Policy:

- Industry: professionals, Ukrainian companies in AI, AI House;

Table 1

Key Metrics to Estimate AI Policy

| No | Scoring question | Response (example) |
|-------|--|--------------------|
| Q1 | Has the country endorsed the OECD AI Principles? | Y |
| Q2 | Is the country implementing the OECD AI Principles? | P |
| Q3 | Has the country endorsed the Universal Declaration of Human Rights? | Y |
| Q4 | Is the country implementing the Universal Declaration for Human Rights? | Y |
| Q5 | Has the country established a process for meaningful public participation in the development of a national AI Policy? | Y |
| Q6 | Are materials about the country's AI policies and practices readily available to the public? | P |
| Q7 | Does the country have an independent (agency/mechanism) for AI oversight? | P |
| Q8 | Do the following goals appear in the national AI policy: "Fairness," "Accountability," "Transparency," "Rule of Law," "Fundamental Rights"? | P |
| Q9 | Has the country by law established a right to Algorithmic Transparency? | N |
| Q10 | Has the country endorsed the UNESCO Recommendation on AI Ethics? | Y |
| Q11 | Is the country implementing the UNESCO Recommendation on AI Ethics? | Y |
| Q12 | Has the country's Data Protection Agency sponsored the 2018 GPA Resolution on AI and Ethics, the 2020 GPA Resolution on AI and Accountability, and the 2022 GPA Resolution on Facial Recognition Technology? | N |
| Total | | 8.0 |

For instance, the National Institute for Strategic Studies (NISS) organized a roundtable titled "Artificial Intelligence as a Transforming Force" on October 12. This event, attended by over 100 participants, was co-hosted with the Expert Committee on the Development of Artificial Intelligence in Ukraine, with support from the USAID project "Cyber Security of Critical Infrastructure of Ukraine" [12].

– Civil society: "Українська фундація безпекових студій", different NGOs [13]

For example, on November 20, 2020, the European Center for Not-for-Profit Law (ECNL) and the Centre for Democracy and Rule of Law (CEDEM) organized an online expert meeting with 30 experts from over 15 prominent CSOs. The aim was to discuss global and European AI regulation developments. While the Ukrainian government, also a member of the Committee of Experts on the Human Rights Dimensions of Automated Data Processing and Different Forms of Artificial Intelligence (CAHAI), has yet to confirm its willingness to host similar consultations, participants have expressed interest in urging the Ministry of Digital Transformation to participate in next year's CAHAI feasibility study discussions at the national level.

The ECNL has invested in enhancing the capacity of Ukrainian civil society organizations (CSOs) to comprehend the impacts of digital technologies and AI on their activities. Collaborating with CEDEM, a think tank specializing in freedom of expression and rule of law, ECNL conducted a webinar in 2020 focusing on the influence of AI on free speech. This collaboration led to a deepened partnership aimed at empowering CEDEM in the realms of AI and digital technologies, enabling them to convene human rights groups effectively.

With ECNL's support, CEDEM established a core group comprising CSOs and independent AI experts, facilitating collaborative efforts and the development of unified stances on key AI issues such as biometric surveillance. This platform also facilitates discussions on national draft laws, identifies legislative gaps, and enables swift responses to critical situations.

In the wake of the conflict in Ukraine, ECNL extended support to CEDEM and Digital Security Lab Ukraine (DSLUI) regarding the potential implications of AI-driven applications on civilians during times of conflict, notably the use of AI-powered facial recognition tools under martial law. Following an online discussion involving ECNL, CSOs, and Ukrainian officials, government representatives requested ECNL's partners to draft recommendations based on ECNL's input and conduct human rights impact assessments for certain AI-driven applications developed within the public sector [14].

CEDEM and Digital Security Lab Ukraine (DSLUI) [15] collaborated to host an online moderated discussion titled "Freedom of Expression and Privacy in Times of War: the Right Way to Derogate" on May 25-26, 2022. The panel featured an expert from ECNL alongside representatives from the Ukrainian Police, Army, and the Head of the Expert Committee on AI for the Ministry of Digital Transformation.

The discussion tackled inquiries from both civil society and government representatives, focusing on two main areas:

Challenges of all deployment in times of war: This encompassed the deployment of AI-driven applications, notably the use of AI-powered facial recognition tools during martial law and their potential impact on civilians. The discussion also addressed the methodology for conducting impact assessments, even in emergency situations, ensuring meaningful input from civil society representatives.

Exploring alternatives and risk mitigation strategies: Participants explored alternative, less intrusive methods for identity verification and examined strategies for state authorities to adopt risk mitigation measures, including human rights impact assessments, even after the conclusion of martial law and emergency situations. This included discussions on the safety of utilizing the "State in smartphone" app and the overall security of databases operated by automated systems.

Following the event, government representatives reached out to CEDEM and DSLUI, requesting them to draft recommendations based on ECNL's interventions and suggestions. ECNL provided further guidance and additional recommendations to be incorporated into the draft text.

Moreover, government officials tasked CEDEM and DSLUI with conducting human rights impact assessments for certain AI-driven applications being developed in the public sector. Additionally, they sought advice on the appropriate mechanisms for the subsequent storage and removal of data when it is no longer deemed necessary [16].

Ukrainian Foundation for Security Studios is an agency that started to work with mechanisms for AI oversight in Ukraine [17]. Mission of organization: democratic influence on the decision-making process for the purpose of forming state policy in the information field, based on European approaches and standards.

It produced Analytical report "Artificial intelligence as a challenge and an opportunity: building the public administration ecosystem in Ukraine" in 2023 [18]. That report described the 2022-year state of AI governance in Ukraine.

Materials about the country's AI policies and practices readily available to the public in site of Ministry of Digital Transformation, another government sites.

Significant AI developments for the period of data collection

There are some significant AI developments in Ukraine during period of 2020-2022.

State Employment Center of Ukraine put into operation online resource from November, 2022, which uses artificial intelligence to determine the pool of professions for each person in accordance with skills [19].

All data within the Interactive Resume are automatically generated, allowing individuals to conveniently submit their credentials to employers through the Unified Job Portal or print a hard copy. If artificial intelligence identifies a person's inclination towards

entrepreneurship, the National Staff Reserve offers training in entrepreneurship, aimed at assisting Ukrainians in securing employment or starting their own businesses.

This resource is the culmination of collaborative efforts from the Ministry of Education and Science of Ukraine, the State Employment Service, the Institute for the Modernization of Education Content, and the Association of Innovative and Digital Education. Its creation is geared towards fostering the development of human capital, enhancing opportunities within the labor market of Ukraine, and supporting individual decision-making regarding professions or entrepreneurial pursuits through AI algorithms.

The UNDP Country Office in Ukraine is currently developing a model that utilizes machine learning and natural language processing techniques to analyze vast quantities of reports, extracting pertinent information in a timely manner to inform strategic decisions. Unlike standard text mining approaches, this model's distinct value lies in its customized capability to analyze report narratives and classify them into key infrastructure categories. This process relies on ACLED, an open-source database that aggregates real-time global data. The infrastructure assessment model is currently undergoing pilot testing [20].

UNESCO Recommendation on the Ethics of AI

In general countries that have endorsed the OECD/G20 AI Principles fall into three categories: (1) OECD Member Countries, (2) Non-member OECD Countries that endorsed the OECD AI Principles, and (3) G-20 Member countries that subsequently endorsed the G20 AI Principles which follow closely the original OECD AI Principles. Ukraine does not fall under either of these categories [21].

Ukraine is integrating the OECD AI Principles into its policies and strategies. Specifically, the National Strategy for the Development of AI in Ukraine encompasses several key OECD AI principles, including:

- Fostering a digital ecosystem conducive to AI advancement;
- Building human capacity and preparing for the transition within the labor market to accommodate AI technologies [22].

Ukraine as UNESCO member signed UNESCO Recommendation on AI Ethics [23].

Data protection

Ukrainian Parliament Commissioner for Human Rights is Accredited Member of Data Protection Agency [24]. But country's Data Protection Agency has not sponsored the 2018 GPA Resolution on AI and Ethics and the 2020 GPA Resolution on AI and Accountability.

There are legislation deals with data protection in Ukraine. Among main legislative documents are the Law of Ukraine on Personal Data Protection No 2297-VI dated 1 June 2010; Guidelines on Processing Personal Data adopted by Ukrainian Parliament Commissioner for Human Rights Order No 1/02-14, dated 8 January 2014 [25]; Guidelines on Execution of Control by the Ukrainian Parliament Commissioner for Human Rights over Adherence to Personal Data Protection Legislation adopted by Ukrainian Par-

liament Commissioner for Human Rights Order No 1/02-14, dated 8 January 2014; Guidelines on Notifying the Ukrainian Parliament Commissioner for Human Rights regarding the Processing of High-Risk Personal Data, a Department or a Person Responsible for Organizing Work related to Personal Data Protection in connection with the Processing and Publishing of such Data adopted by Ukrainian Parliament Commissioner for Human Rights Order No 1/02-14, dated 8 January 2014.

Algorithmic transparency

The Convention 108 stands as the inaugural international instrument safeguarding individuals' rights regarding the processing of their data. All existing national or supranational regulations concerning personal data protection have been shaped by the principles established in Convention 108. Ukraine affirmed its commitment to these principles by ratifying the Convention in 2010 [25].

While Ukrainian personal data protection legislation shares similarities with the General Data Protection Regulation (GDPR), there exist notable differences and areas lacking regulation when compared to the GDPR. Overall, Ukrainian legislation offers users a lower level of protection than the GDPR, despite its resemblance in many aspects [26].

Ukraine's burgeoning digital sector has proven to be a pivotal asset in advancing accountability measures. The government has undertaken a series of initiatives to digitize accountability mechanisms, starting with the establishment of the State Agency for eGovernance in 2014, which later evolved into the Ministry of Digital Transformation. In 2018, the agency introduced TREMBITA, a data exchange system ensuring data protection and facilitating the efficient delivery of public services. By 2019, the Ukrainian government had inaugurated numerous portals and platforms for e-governance and accountability, including eData, granting access to the national budget and public finance records.

The European Union has acknowledged Ukraine's strides in digital transformation as instrumental in promoting governmental transparency. Recently, the European Union agreed to include Ukraine in the Digital Europe Program, aligning Ukraine's digital infrastructure with EU standards and bolstering digital capabilities to mitigate potential cyber disruptions [27].

Human Rights

Ukraine has endorsed the Universal Declaration of Human Rights, having played an active role in its adoption in 1948 as the Ukrainian Soviet Socialist Republic, a founding member of the United Nations. Subsequently, on August 24, 1991, the Ukrainian Soviet Socialist Republic transitioned to the independent state of Ukraine. Since then, Ukraine has continued to adhere to the principles outlined in the Universal Declaration of Human Rights and has been committed to its implementation [28].

Furthermore, Ukraine regards the Human Rights Council as the principal organ within the UN system for the protection of human rights and actively endorses initiatives aimed at enhancing its effectiveness. Ukraine maintains close collaboration with

the United Nations High Commissioner for Human Rights (OHCHR) and their office, including the Human Rights Monitoring Mission in Ukraine (HRMMU), which was deployed at the invitation of the Ukrainian Government in mid-March 2014 [29].

Ukraine is actively striving to uphold the principles outlined in the Universal Declaration of Human Rights. However, according to Freedom House's rating for 2023, Ukraine received a score of 50/100, categorizing it as "Partially Free" in terms of implementing the Universal Declaration of Human Rights. This rating represents a decline in Ukraine's standing compared to previous years [30]. Ukraine has received EU candidate status [31]. Alongside with this Ukraine got from the EU Commission the list of recommendations on the steps to be taken for progressing with EU integration of the country [32]. The primary emphasis is placed on several critical areas including judicial reform, combating corruption, implementing anti-money laundering measures, enacting anti-oligarch legislation, adopting media laws, and empowering independent media regulators. Progress in these spheres is essential as it directly influences human rights and contributes to the effective implementation of the Universal Declaration of Human Rights in Ukraine, even as a country with maritime status.

Thus total evaluation scores of AI policy in Ukraine during 2020-2023 are 6.5 (Table 2).

So Ukraine's general approach to AI seems consistent with human rights, democratic values and the rule of law. AI policy is partially structured in Ukraine. It is not chaos process, several vectors are present. It means that Ukraine's AI policy today is only forming background for standardization and common practices with international partners at AI sphere.

For assessing the normative impact of AI policy on the restructuring of the national economy of Ukraine, a matrix incorporating three components is utilized: normative-legal, infrastructural, and motivational (see Table 3). The assessment scale ranges from 0 to 1, where 0 signifies no impact,

0.5 indicates moderate impact, and 1 defines significant impact.

The normative-legal component of AI policy, based on the evaluation using the Center for AI and Digital Policy methodology, is rated at a moderate level (considering the implementation of international legislative norms into Ukrainian legislation).

The infrastructural component of AI policy in Ukraine is evaluated at 0.5, encompassing high broadband Internet coverage (in 2020, Ukraine ranked first in the global broadband Internet affordability index; costs per month – 8 USD in 2023) [33], low electricity costs [34], and the availability of AI specialists [35].

The motivational component of AI policy for restructuring the national economy of Ukraine is absent (lack of programs incorporating financial, tax incentives for enterprises to change business processes based on AI).

Therefore, the assessment of the normative impact of AI policy on the restructuring of Ukraine's national economy allows for the following conclusions:

1. The normative-legal component and infrastructural component of AI policy's impact on the restructuring of Ukraine's national economy require development to create basic conditions for implementing AI in the activities of enterprises.

2. The motivational component of AI policy's impact on the restructuring of Ukraine's national economy should be formed based on incentives to stimulate entrepreneurs to adopt technologies, primarily through tax incentives and co-financing mechanisms in AI implementation projects.

Conclusions. Main findings of Ukraine's AI policy analysis are:

1. "War-life balance". Nowadays the principal task for Ukraine is to keep the balance between uses of AI in support of defense and ensure trustworthy, controlled and responsible AI.

2. Endorsement vs implementation. Today the use cases requiring AI regulation appear faster than AI policy is established in Ukraine. At the same time Ukraine has not endorsed the key AI regulation yet.

Table 2

State in Key AI Metrics of Ukraine

| Year | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Total |
|------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-------|
| 2022 | N | P | Y | P | Y | Y | P | P | P | Y | N | N | 6.5 |

Table 3

The Matrix for Assessing the Normative Impact of AI Policy on the Restructuring of Ukraine's National Economy

| Component | Impact | Consequences |
|-----------------|--------|---|
| Normative-legal | 0.5 | Institutional aspects do not allow enterprises to fully understand the rules of the game in the field of AI implementation. |
| Infrastructural | 0.5 | The infrastructure does not enable the diffusion of AI technology across enterprises in various sectors; there is a lack of infrastructure capacity for change. |
| Motivational | 0.0 | Failure to involve small and medium-sized enterprises in the application of AI technologies (high cost factor). |

3. Interest vs abilities. It is crucial to establish an efficient AI agency/ mechanism in Ukraine for independent AI oversight. When several teams pretend to take this function, still they are not capable enough for this.

4. Public voice vs decision making. Meaningful public participation is the key driver of AI in Ukraine: AI community in Ukraine is fastly growing and developing. That said there are not enough forms of its integration and public voice opportunities for AI policy making.

5. Content vs form. When Human Rights principle is directly included into the Concept of the Artificial Intelligence's Development in Ukraine 2021-2024, the goals of Fairness, Accountability, and Transparency are not there.

Ukraine's general approach to AI seems consistent with human rights, democratic values and the rule of law. AI policy is partially structured in Ukraine. It is not chaos process, several vectors are present.

Therefore, the impact of AI policy on the restructuring of Ukraine's national economy is insignificant. The normative-legal component and infrastructural component of AI policy's impact on the restructuring of Ukraine's national economy need to be supplemented by the acceptance of international norms and the development of infrastructure objects. The motivational component of AI policy's impact on the restructuring of Ukraine's national economy requires the development of programs to incentivize economic entities to adopt AI technologies.

Recommendations. (1) To include the goals of Fairness, Accountability, and Transparency as basic in the future concept of AI in Ukraine 2025-2030 and all related documents, to initiate all prospect AI initiatives in Ukraine starting from implementation of these principles; (2) To focus on developing infrastructure for implementing AI; (3) To develop national and regional incentive programs for enterprises to adopt AI.

Novelty. Evaluation of Ukraine's AI policy with methodology of Center for AI and Digital Policy is done. Recommendations of development of Ukraine's AI policy are proposed.

References:

- Kostenko O. V. (2022) Analysis of national strategies for the development of artificial intelligence. *Information and Law*, no. 2.
- Pistrakevich O. V. (2021) Development strategies of artificial intelligence in the European Union (on the example of the Visegrad Group countries). *International Relations, Social Communications and Regional Studies*, no. 1(9), pp. 160–174.
- Ryabchikov O. (2024) Features of using artificial intelligence in Ukraine: normative aspect. *Adaptive Management: Theory and Practice. Series Economics*, no. 18 (36).
- Tyurya Y. I. (2023) Results of comparative research of legal doctrine in the field of artificial intelligence. *Legal Position*, no. 1 (38), pp. 66–70.
- Hudyma T., Kamishansky V. (2023) Artificial intelligence as a tool for digitalization of foreign economic policy: features of legal regulation. *Financial and Credit Activity Problems of Theory and Practice*, no. 3(50), pp. 398–409.
- Telychko V. S. (2023) Use of artificial intelligence and Internet of Things in post-war development of Ukraine. *Problems of Modern Transformations. Series: Law, Public Administration and Administration*, no. 9.
- Franko L. (2023) Evaluation of the potential opportunities for innovative development of the national economy at the regional level using artificial intelligence tools. *Economics and Society*, no. 47.
- Center for AI and Digital Policy. Available at: <https://www.caidp.org/>
- Report "Artificial Intelligence and Democratic Values Index", CAIDP. Washington, 2022.
- Concept of the AI development in Ukraine. Available at: <https://zakon.rada.gov.ua/laws/show/1556-2020-%D1%80#Text>
- Pro zatverdzhennya planu zahodiv z realizatsiyi Kontseptsiyi rozvytku Shtuchnogo Intelektu v Ukraini na 2021-2024 rr., № 438-p 12.05.2021. Available at: <https://zakon.rada.gov.ua/laws/show/438-2021-%D1%80#Text>
- NISS hosted the roundtable "Artificial Intelligence as a Transforming Force". Available at: <https://niss.gov.ua/en/news/niss-news/roundtable-artificial-intelligence-transforming-force-has-been-held-niss>
- What's AI got to do with IT: why civil society should be engaged in the artificial intelligence policy making in Ukraine. Available at: <https://ecnl.org/news/whats-ai-got-to-do-it-why-civil-society-should-be-engaged-artificial-intelligence-policy-making>
- Safeguarding human rights in the sphere of AI in Ukraine. Convening CSOs to ensure AI policies and practices follow a rights-based approach. Available at: <https://ecnl.org/impact-story/safeguarding-human-rights-sphere-ai-ukraine>
- Laboratoriya Cyfrovoyi bezpeky. Available at: <https://dslua.org/>
- ECNL works with partners to ensure that the deployment of AI-driven applications meet human rights standards, even in times of war (26.05.2022). Available at: <https://ecnl.org/news/ukraine-ai-and-civil-society-times-war>
- Ukrayinska fundaciya bezpekovich studij. Available at: <https://ufss.com.ua/>
- Dubov D., Kazdobina YU., Suhodolya O., SHulimov S., Yarmolenko S. (2023) Analitichnij zvit "Shtuchnij intelekt yak viklik ta mozhlivist. Rozbudovuyuchi ekosistemu derzhavnogo upravlinnya v Ukraini". Available at: <https://ufss.com.ua/wp-content/uploads/2023/02/1676372304269402.pdf>
- V Ukraini startuvav proekt "Nacionalnyj kadrovij rezerv", 04.11.2022, State Employment Center of Ukraine. Available at: https://www.dcz.gov.ua/novyna/v-ukrayini-startuvav-proekt-nacionalnyy-kadrovyy-rezerv?fbclid=IwAR0GXWhOCo_0MF-BD9yhY1WFxwTCT-jSSra6NV68GcNzzFHrdUQvk5n4VcsU
- In Ukraine, machine-learning algorithms and big data scans used to identify war-damaged infrastructure (05.07.2022). Available at: <https://www.undp.org/blog/ukraine-machine-learning-algorithms-and-big-data-scans-used-identify-war-damaged-infrastructure>
- OECD. State of Implementation of the OECD AI Principles (June 18, 2021). Available at: <https://www.oecd.org/digital/state-of-implementation-of-the-oecd-ai-principles1cd40c44-en.htm>
- OECD. AI Policy Observatory (National Strategies and Policies, AI in Ukraine). Available at: <https://oecd.ai/en/dashboards/policy-initiatives/http:%2F%2Faipo.oecd.org%2F2021-data-policy/Initiatives-27224>
- 41-a Generalna konferenciya UNESCO: hid i pidsumki. Available at: <https://www.nas.gov.ua/UA/Messages/Pages/View.aspx?MessageID=8468>
- Accredited Members 2022, GPA. Available at: <https://globalprivacyassembly.org/participation-in-the-assembly/list-of-accredited-members/>
- Data Protection Day: Does Data Protection in Ukraine Meet International Standards? (27.01.2021). Available at: <https://www.coe.int/en/web/kyiv/-/data-protection-day-does-the-personal-data-protection-in-ukraine-meet-international-standards->

26. Impact of the GDPR in Ukraine. Available at: <https://cms.law/en/int/expert-guides/the-impact-of-gdpr-in-non-eu-countries/ukraine>
27. Digital will drive Ukraine's modernization (10.01.2023). Available at: <https://www.csis.org/analysis/digital-will-drive-ukraines-modernization>
28. United States Member States. Available at: <https://www.un.org/en/about-us/member-states/ukraine>
29. The Office of the High Commissioner for Human Rights, Countries and Territories – Ukraine. Available at: <https://www.ohchr.org/en/countries/ukraine>
30. Freedom House, Freedom in the World 2023 – Ukraine. Available at: <https://freedomhouse.org/country/ukraine/freedom-world/2023>
31. Press-release of the European Parliament. Available at: <https://www.europarl.europa.eu/news/en/press-room/20220616IPR33216/grant-eu-candidate-status-to-ukraine-and-moldova-without-delay-meps-demand>
32. EU Commission's Recommendations for Ukraine's EU candidate status. Available at: https://www.eeas.europa.eu/delegations/ukraine/eu-commissions-recommendations-ukraines-eu-candidate-status_en?s=232
33. Shyrokosmugovyj Internet: de najdeshevshyj ta de najdorozhchyj? (2023). Available at: <https://mediasat.info/uk/2023/03/14/shyrokosmugovyj-internet-de-najdeshevshyj-ta-de-najdorozhchyj/>
34. Prokip A. (2024) Ukraine's Energy Outlook for the Remainder of 2024. Available at: <https://www.wilsoncenter.org/blog-post/ukraines-energy-outlook-remainder-2024>
35. Tomych I. (2024) Hiring Developers in Ukraine: How is it a Good Idea? Available at: <https://dashdevs.com/blog/hiring-developers-in-ukraine-how-is-it-a-good-idea/>