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GLOBAL AI ETHICS ASSESSMENT KEY SUBINDEXES: BUSINESS

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"GLOBAL AI ETHICS ASESSMENT KEY SUBINDEXES: BUSINESS"

Research paper

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Abstract

Artificial intelligence (AI) market increases rapidly. The research proposes an expert methodology approach to estimate a level of AI ethics development in business at national and international levels. Methodology suggests five possible scenarios as a basis of the assessment methodology as the most relevant approach in term of current geopolitical world situation. Method of expert assessments is proposed as the most appropriate one. The data for index could be taken from existing regional of country databases or manually collected from business companies per expert surveys or through consulting companies.

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Key words: artificial intelligence, ethics, index, business

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Contents

List of abbreviations

AI	Artificial intelligence
UNESCO	United Nations Educational, Scientific and Cultural Organization
OECD	Organisation for Economic Co-operation and Development
UNCTAD	United Nations Conference on Trade and Development
WEF	World Economic Forum
SMEs	Small and medium sized companies

Introduction

Artificial intelligence and a level of its implementation in business increases year-by-year drastically. It is important to understand and measure a number of related AI ethics initiatives.

World AI market is estimated at US$ 119.78 billion in 2022 and it is expected to hit US$ 1,597.1 billion by 2030 with a registered CAGR of 38.1% from 2022 to 2030[1]. Russian AI market was estimated at 550 billion rubles[2].

Global AI ethics policy is widely discussed within a large group of stakeholders. In our first research **"GLOBAL AI ETHICS ASSESSMENT-THE APPROACH TO INDEX FRAMEWORK AND METHODOLOGY"** was indicated that the discussion run under agenda of UNESCO, OECD, UNCTAD, the Council of Europe. UNESCO Recommendation on the ethics of artificial intelligence[3] has a large impact on the problem and issues related to AI ethics and business. In Russia the most significant state initiative related to business is Artificial Intelligence Code of Ethics launched in 2021. The Code saw wide adoption by Russian companies in 2022[4]. Moreover, the situation varies from country to country depending on national strategies priorities and level of maturity of national AI market and business.

It is also important to take into consideration small and medium sized companies (SMEs) along with global corporations so as SMEs and medium-sized businesses account for 90% of all companies and account for almost 70% of jobs and GDP worldwide[5] by 2022. SMEs and medium-sized businesses can provide growth, innovation and sustainable development of economies - they are the economic basis of many countries. So joint work is needed to ensure their growth and realize the

[1] https://www.precedenceresearch.com/artificial-intelligence-market
[2] https://uploads-ssl.webflow.com/6251899e0c25e712e9a8704a/63160ee136500537b7d8193a_Индекс-ИИ-2021%20(2).pdf
[3] https://unesdoc.unesco.org/ark:/48223/pf0000380

[4] https://sia.ru/?section=484&action=show_news&id=442970
[5] https://www.weforum.org/reports/future-readiness-of-smes-and-mid-sized-companies-a-year-on/

economic potential of SMEs at the regional and global level, so they are potentially convergent to AI ethic implementation in case they did not do it yet.

We propose an expert methodology approach to estimate a level of AI ethics development in business at national and international levels.

In our first publication we proposed the framework for possible global AI ethic assessment through index putting in the center the following stakeholders: government, business, civil society, research centres/ think tanks. The framework contains relevant groups of indicators showing ethical aspects both for developers and users.

The structure of this research is follows – the first section is introduction, the second is devoted to methodology of Global AI ethics subindex focused on business and the final one is dedicated to the conclusions covering the most challenging issues in practical implementation of the subindex within five different scenarios depending on the approach to calculation and data sources.

The authors are grateful to the leaders and coordinators of the National Priority 2030 project for making it possible to conduct the research.

Methodology

Review of possible scenario

The direction “Business” is a diverse set of single factors and their combination that influence the development of modern digital technologies, including artificial intelligence. The variety of business forms (transnational, largest national, large, medium, small, self-employed) forces us to consider each layer independently. In this regard, there is a need to find the right approach to the assessment.

Firstly, the authors reviewed and compared the five most common and proven methods for evaluating complex and dynamic systems, such as:

− brainstorming;

- analysis of weaknesses and strengths;
- method of charting;
- Delphi method;
- expert evaluation.

Each of the overviewed methods has its own characteristics and limitations in application.

1) Brainstorming

As a rule, brainstorming is carried out within the small project team with the possibility of involving a third-party expert in the work. An expert may have broad, or vice versa, highly specialized knowledge, which, in the opinion of the project team leader, is important in the implementation of the project. As is written above business is very varied. And it is not possible for unite representatives of all sectors of business in a single team. That’s why this method isn’t relevant for “business” framework.

The algorithm of method is rather simple and contains of several steps:

1. The participants make the most detailed list of parameters, that are relevant for the project

2. The paraments with least realization probability are deleted from long-list by the majority of participants.

Advantages of the method: the speed of obtaining the result, the ease of implementation of the method.

Disadvantages of the method: the quality of the analysis directly depends on the experience and outlook of the persons participating in the brainstorming session.

The possibility of applying the method for evaluating the ethical aspects of the use of AI technologies:

- requires the experience project team involving for implementing similar products,
- a high cost
- the complexity of involving relevant professionals.

2) Analysis of weaknesses and strengths

The method is similar to the assumption analysis method, however, the project team compiles a list of potential parameters, identifying and subsequently analyzing their weaknesses / strengths.

Advantages: detailed consideration of the Index “business” parameters.

Disadvantages:

- the long-time realization of the method;
- excessive detail of the method;
- the quality of the analysis directly depends on the experience and outlook of the professionals involved.

The possibility of applying the method for evaluating the ethical aspects of the use of AI technologies: the project team, with insufficient experience, may miss significant parameters and aspects.

3) Charting analysis

The method is carried out within the project team with the possibility of inviting an external expert. It's hard possible for unite representatives of all sectors of business in a single team. That's why this method isn't relevant for "business" framework.

The analysis takes place in three stages:

- drawing up cause-and-effect relationships,
- creating a flowchart of the processes being implemented,
- drawing up impact diagrams.

Advantages: qualitative consideration of index business assessment. But there is difficulties with a historical data of business AI ethics cases for relevant conclusion making.

Disadvantages: the implementation of the charting method requires the skills of the project team to work with this method and significant time costs.

The possibility of applying the method for evaluating the ethical aspects of the use of AI technologies: the application of this skill requires specialized competencies and experience.

4) Delphi method

The Delphi method involves conducting a large anonymous survey of external and internal experts, summarizing the collected data, issuing completed questionnaires to another expert group, followed by a face-to-face results discussion, and then re-conducting an anonymous survey with summing up the final results. For business track assessment this method is relevant and could be implemented.

Advantages: high-quality study for periodframework assessment.

Disadvantages: the method requires the long-time realization and financial resources for implementation.

The possibility of applying the method for evaluating the ethical aspects of the use of AI technologies: the method requires a lot of time and money.

5) Method of expert assessments

The method of expert assessments is similar to the Delphi method, however, involves an open survey of experts.

Advantages: a qualitative study of the identification of potential risks.

Disadvantages: it is required creation of a base of experts who are ready to participate in a large sur.

The possibility of applying the method for evaluating the ethical aspects of the use of AI technologies: the method requires a lot of time.

Calculation formula

The authors based the assessment of groups of indicators on the significance index, which is calculated by the formula:

$$r_{ij}^{k} = \alpha_{ij}\beta_{ij}^{k}, \qquad (1)$$

where

r_{ij}^{k} - the significance of the i-indicator , assessed by the j-th respondent, in terms of the impact on the k- factor,

$i = (1...N)$, where N is the number of parameters considered in the study,

$j = (1...n)$, where n is the number of responses received,

$k = (1...5)$, where 1…5 are the numbers of influence groups, respectively (respectively, cost, execution time of IT project, product quality, environment, security),

α_{ij} - the weight of the significance of the indicator i, estimated by the j-th respondent,

β_{ij}^{k} - the value of the "effect" of the influence of the indicator on the considered stakeholder and/or the goals pursued by him.

To assess the average value of indicators, the Index of Significance of the indicator is calculated by the formula:

$$R_i^k = \frac{\sum_{j=1}^{n} r_{ij}^k}{n} = \frac{1}{n}\sum_{j=1}^{n} \alpha_{ij}\beta_{ij}^k \quad (2)$$

Proposed parameters for calculation

AI ETHICAL CASES IMPLEMENTATION:

- number of AI ethical cases implementation by business
- dynamic of AI ethical cases implementation (current/previous)
- business project scope
- business project cost
- number of involved participants
- level of business project: local, national, transnational
- project compliance with the ethical requirements of UNESCO

AI ETHICS EMPLOYERS:

- Authorized capital
- Revenue
- IFRS availability
- Total number of employees

- Number of developers
- Kind of activity
- Regional binding
- association membership for AI ethical aspects development
- collaboration with research centers and think tanks

PRIVATE INVESTMENTS TO AI ETHICS:

- Total number of private investments cases
- Total volume of investments
- Kind of investments
- Effect of investment
- compliance with the ethical requirements of UNESCO

STARTUPS COOPERATION LEVEL:

- Total number of startups cooperation cases
- Average growth of startups cooperation cases
- Kind of cooperation
- Effect if investment
- compliance with the ethical requirements of UNESCO

TRANSPARENCY:

- Total number of transparency cases
- Kind of transparency approaches
- compliance with the ethical requirements of UNESCO

AI ETHICS CODIFICATION раскрывает подходы к реализации этических принципов в области этики ИИ бизнесом с раскрытием реальных случаев.

- Total number of AI ethics codification cases
- Kind of approaches
- compliance with the ethical requirements of UNESCO

Discussion

Methodology suggests five possible scenarios as a basis of the assessment methodology as the most relevant approach in term of current geopolitical world situation. Method of expert assessments is proposed as the most appropriate one. The data for index could be taken from existing regional of country databases or manually collected from business per expert surveys or through consulting companies – the parameters for calculation above are appropriate in both cases.

The other aspect is a necessity of demarcating businesses by their size, AI-creator or AI-consumptors status and other specific issues – large corporations should not be compared to SME's ones, and a number of state AI ethics initiatives are better be properly reflected in futher researches.

Moreover, regional issues and a level of digital economy development should be also taken into consideration. It could be reasonable to use not only method of expert assessments but try to calculate other suggested ones – and decide whether a correlation between a level of country's development and the choice of the scenario exists.

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MGIMO Centre for AI was established to enhance international cooperation and support collaboration with all the actors of digital economy both at national and international levels. Our multidisciplinary research is focused on international cooperation agenda, national policies for AI and business opportunities. International trade and trade policy (prioritising digital trade), sustainable development, AI ethics are the key areas of our activities.

On the basis of MGIMO-University we promote an international AI expert platform with regular conferences and round tables, peer-revied articles and research papers. Our enlarging network of strategic partneships makes it possible to provide AI consulting and policy solutions both for business and goverment agencies.

The Centre was founded in October, 2021

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