XIII-я Международная ежегодная научная конференция

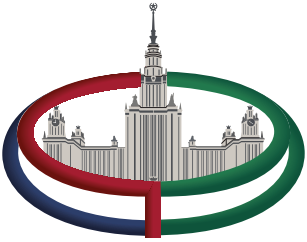
New Horizons of Economic Growth # Social Wellbeing # Cultural Achievements

СБОРНИК СТАТЕЙ

Экономический факультет МГУ имени М.В. Ломоносова

МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
имени М.В. Ломоносова

Центр языков и межкультурной коммуникации
экономического факультета
МГУ имени М.В. Ломоносова



New Horizons of Economic Growth # Social Wellbeing # Cultural Achievements

Москва
2024

УДК 339.7
ББК 655

Под редакцией *Кулик Л. В.*
Составитель *Акользина К. А.*

New Horizons of Economic Growth # Social Wellbeing # Cultural Achievements. — М.: Экономический факультет МГУ имени М.В. Ломоносова, 2024. — 112 с.

ISBN 978-5-907690-63-9

В настоящем сборнике собраны статьи, представленные студентами, магистрантами и аспирантами на XIII Международной конференции 2024 года — "New Horizons of Economic Growth # Social Wellbeing # Cultural Achievements" — и рекомендованные к публикации экспертным сообществом. В конференции по актуальным вопросам экономики и управления на английском языке, ежегодно проводимой экономическим факультетом МГУ имени М. В. Ломоносова, принимают участие не только представители вузов России, но и зарубежных университетов.

УДК 339.7
ББК 655

ISBN 978-5-907690-63-9

CONTENTS

AKOLZIN Evgenii
Lomonosov Moscow State University

NAVIGATING THE CHALLENGES OF AI IN LANGUAGE SERVICES

Abstract. This paper addresses the pivotal role of Neural Networks in language translation. The paper first presents a comparative analysis of Neural Machine Translators with traditional methods, outlining significant improvements in translation quality, fluency, and consistency. The research then moves to a critical aspect of AI application in translation industry, namely the intertwined ethical and technical considerations. The paper further explores the complex issue of accountability in cases where AI-driven translation errors lead to miscommunications or misunderstandings, as the challenge of attributing responsibility in such scenarios poses a significant issue. The paper probes into the increasingly apparent implications related to job displacement, as advancements in AI translation may make human translators redundant. Consequently, the author puts pressure on the urgent need for a thorough evaluation of ethical concerns mentioned and for sufficient control over AI in the field of translation with human specialists involved in the process.

Keywords: translation, artificial intelligence, neural networks, neural machine translators, language, AI ethics.

Introduction

Artificial Intelligence (AI) has significantly disrupted the language services industry, offering unprecedented capabilities from machine translation to natural language processing. However, the integration of AI into language services is regrettably not without its unique and miscellaneous set of challenges, that include ethical considerations, possible inaccuracies appearing in machine translations due to AI being unable to understand linguistic nuance, as well as pressure that new technologies apply to the professionals in the field of translations and associated job market.

Distinguishing between AI and traditional Machine Translators

Artificial Intelligence (AI) translators are a significant departure from traditional machine translators, which were based solely on rule-based

algorithms and dictionaries. Traditional machine translators, also known as Statistical Machine Translation (SMT) systems, rely on statistical patterns and grammar rules to translate text from one language to another. These systems are limited in their ability to accurately convey nuances of language, cultural references, and idiomatic expressions, often resulting in awkward or inaccurate translations. In contrast, AI-powered translators utilize machine learning algorithms and neural networks to analyze vast amounts of data and learn from it, allowing them to develop a deeper understanding of language patterns and structures. This enables Neural Network Translators (further NMTs) to produce more natural-sounding and context-specific translations that are sometimes indistinguishable from those produced by human translators. AI translators can also learn from user feedback and adapt to specific domains or industries, further improving their performance over time. Furthermore, NMTs can handle complex tasks such as sentence structure analysis, entity recognition, and contextual understanding – sometimes all at the same time, which was previously difficult or impossible for traditional machine translators. Additionally, NMT translators can translate languages that have never been formally documented or studied before, as they can learn from raw data such as audio recordings or social media posts. The AI is able to notice patterns in languages and communication and implement changes in their own operation according with these observations. This is possible due to unique ability possessed by modern AI Neural Networks – reinforcement learning and deep learning that can be effectuated even without human participation. [4] All in all, Neural Machine Translation seems to develop rapidly even when compared to other aspects of modern AI application.

Main drawbacks of AI translation

While AI-powered machine translation has made significant progress in recent years, there are still several reasons why it cannot be fully relied on to make quality translations [3]. There is an outline of main drawbacks:

1. Inability to understand ambiguity

Language is inherently ambiguous, and AI oftentimes struggle to disambiguate words or phrases with multiple meanings. For example, the word “bank” can refer to a financial institution or the side of a river. NMT systems may not be able to accurately determine which meaning is intended, especially if they lack adequate training.

2. Lack of common sense and real-world knowledge

Artificial Intelligence is usually trained on data from the outside world, but they don’t have real-world experience or common sense. They may not

be able to understand the implications of certain words or phrases in different contexts. For instance, a phrase like "The new policy is a game-changer" might be translated literally, without understanding the nuances of the expression.

3. Limited domain expertise

AI systems are often trained on generic datasets and may not have specific domain expertise. This can lead to inaccuracies in specialized fields like medicine, law, or finance, where terminology and jargon are highly technical and nuanced, rending NMTs useless and even dangerous in such circumstances.

4. Limited ability to handle figurative language

AI systems are not yet able to fully understand figurative language like metaphors, similes, or irony. This can lead to inaccurate translations that lose the intended meaning or tone of the original text. For example, the phrase "to cost an arm and a leg" means something is expensive, but AI systems may not understand the idiomatic expression and translate it literally.

5. Inability to understand humor and sarcasm

AI systems often struggle to recognize humor and sarcasm, which can lead to misinterpretation of texts that rely on these forms of expression, as well as some local expressions or inside jokes used by specific communities that a particular AI may not be familiar with.

6. Limited ability to handle cultural differences

Cultural differences can significantly impact language use and meaning. AI systems may not be able to fully understand these differences and may translate cultural references incorrectly or offensively.

Ethical considerations

To add up, the involvement of AI in the professional translation field raises several ethical considerations and potential job market threats. AI-powered machine translation may displace human translators, especially for low-to-moderate complexity texts, leading to job losses and potentially exacerbating income inequality. Furthermore, NMTs may struggle to capture cultural and linguistic nuances, leading to potentially offensive or inaccurate translations, and perpetuate biases present in the data used to train them, resulting in discriminatory or stereotypical translations. As AI-powered translation becomes more prevalent, human translators may face job losses or reduced work opportunities, and their skills may be devalued, making it challenging for them to adapt and maintain their careers.

The graphs below provide an insight into the professional community's opinion on the increasingly evident shift in translation industry, as the graphs in question are based on a research conducted by a team of sociologists in

Bulgaria. A number of working translation specialists were interviewed to determine if they view the rise of NMTs as an active threat to their way of life:

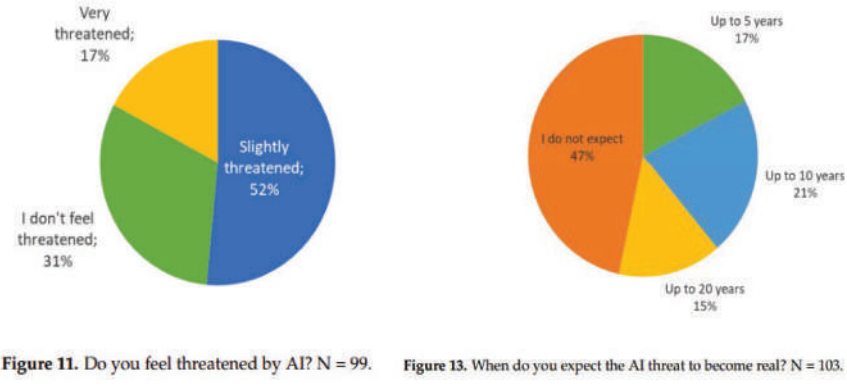


Figure 11. Do you feel threatened by AI? N = 99. **Figure 13.** When do you expect the AI threat to become real? N = 103.

Figure 1.
Respondents' opinion on questions "Do you feel threatened by AI?" and When do you expect the AI threat to become real?'
Source: https://www.researchgate.net/publication/359922904_Are_Translators_Afraid_of_Artificial_Intelligence [1]

According to these graphs, it is safe to assume that most professionals working in the field are already feeling threatened by AI interference, though not as much as they could be since most still consider NMT revolution a distant possibility, if a real possibility at all. However, taking into account how quickly the technology of AI translation develops, it should be noted that such worries are not baseless.

It is also noted that AI might unwillingly engage in data theft or, bilaterally, be used to obtain confidential or classified data of its users or proprietors by an outside party. The NMTs might as well be exploited to distort data through translation or do it unintentionally, which also poses a noticeable threat [5]. Means to counter these issues are in order to be developed.

Possible solutions

To address the concerns surrounding the integration of AI in the translation industry, a multi-faceted approach is necessary. Firstly, governments, educational institutions, and companies must invest in upskilling and reskilling programs to help translators acquire new skills, such as post-editing, project management, and specialized knowledge areas like localization, interpretation,

or language instruction. Certification and accreditation of translators can also help maintain the value of human translation expertise and ensure responsible use of AI-powered translation tools. Additionally, highlighting the benefits of human translation expertise, such as nuanced understanding of context, cultural sensitivity, and attention to detail, can help maintain demand for human translators. To address cultural and linguistic nuances, it's essential to ensure that NMT training data is diverse, representative, and high-quality, with human oversight and review processes to detect and correct errors or biases. Furthermore, collaborative translation approaches that combine human expertise with AI-generated content can leverage the strengths of both. This approach is reinforced by the fact that researches consider human and AI translators to be complimentary to each other [2]. To preserve intellectual property and confidentiality, secure data storage and transmission protocols must be implemented, along with access controls to restrict unauthorized access to confidential information. Anonymizing data used for AI training can also minimize the risk of personal data breaches. Finally, fostering collaboration between humans and AI requires hybrid translation approaches that combine human expertise with AI-generated content, AI-assisted translation tools that assist human translators rather than replacing them, and collaborative tools that facilitate seamless communication and feedback loops.

References

1. Kirov, Vassil & Malamin, Bagryan. (2022). "Are Translators Afraid of Artificial Intelligence?" Societies. 12. 70. DOI: 10.3390/soc12020070, pp. 10-11.
2. Lan Wang "The Impacts and Challenges of Artificial Intelligence Translation Tool on Translation Professionals" DOI:10.1051/shsconf/202316302021, p. 5.
3. Mandaric, K. "The Impact of Artificial Intelligence on the Translation Profession. A Case study of Microsoft Translator", Master's thesis / Diplomski rad 2022 https://urn.nsk.hr/u rn:nbn:hr:142:845158, pp. 45-46.
4. Tavares, Célia & Oliveira, Luciana & Duarte, Pedro & Silva, Manuel. (2023). "Artificial Intelligence: A Blessing or a Threat for Language Service Providers in Portugal". DOI: 10.20944/preprints202307.0163.v1, p.3.
5. Yasir A. Mohamed "The Impact of Artificial Intelligence on Language Translation: A Review" DOI: 10.1109/ACCESS.2024.3366802

DEMIDOV Arseniy
Financial University under the Government of the Russian Federation

INTEGRATION OF DIGITAL RUBLE: CHALLENGES AND THREATS

Abstract. International IT progress poses new challenges to the global economy. The launch of CBDC is on the agenda. There are a lot of cases for and against CBDC. Supporters of CBDC claim that this innovation will strengthen financial stability and will make people's lives easier. Opponents of CBDC affirm that digital currency violates human rights and freedoms and can bring down economic systems. At the end of 2020 Russia began to discuss and work on the idea of digital ruble. The pilot project for testing operations with digital ruble took place on August 15, 2023. 13 major banks are participating in the project. What are the key challenges will face Russia?

Keywords: digital currency, financial stability, cryptocurrencies, global changes.

Introduction

At the present time we can observe the rise of digital currencies and digital money. The direct effect of using digital money is reduction of cash and non-cash money in the total money supply. Cryptocurrencies are used as a payment tool, saving money tool and an investment vehicle. Although, the impact of the most popular digital assets on global payment systems is not great right now, cryptocurrencies are subject to constant development through IT-growth. The earliest cryptocurrencies were characterized by extremely high volatility. Thanks to the emergence of new cryptocurrencies, stablecoins have appeared. They popularize cryptocurrency turnover.

Thus, there are a lot of reasons to predict global economic system changes due to the significant potential of digital currencies. Digital assets, especially cryptoassets, are private and anonymous. Experts believe, the growth of digital assets will undermine the role of state agencies responsible for regulating the economy. Central Banks create central bank digital currencies to prevent the consequences.

Essence of CBDC

Central bank digital currency (CBDC) is a form of digital currency issued by government authorities. It is a new equivalent of fiat money. Central bank digital currencies are similar to cryptocurrencies: they are based on blockchain technologies. But there are some differences [2]:

1. Centralization. CBDC emitter is a public authority, while cryptocurrency is decentralized.
2. State control. Government agencies have an access to CBDC e-wallets. Production, distribution and use are controlled by the Government
3. Linking the value to fiat. The value of crypto assets depends on many factors, while the value of CBDC is pegged to national currency.
4. Restrictions on cross-border payments. Cryptocurrency could be transferred to a user from anywhere in the world. CBDC can be used within the country or in accordance with bilateral agreements between countries.

It is the third form of legal money along with cash and non-cash money. As of March 2024, there are only four countries, which have launched CBDC: Nigeria, Zimbabwe, the Bahamas and Jamaica [7].

Positive factors of the appearance of CBDC

The most important advantage of digital ruble is prevention of illegal payments. CBDC wallets are not designed for anonymous payments. Digital currency allows to sign contracts of a new type – these are smart-contracts. These contracts are drawn up automatically according to state standards. This will allow to save money on lawyers or brokers services. In this way, digital money will receive a unique code with a condition for further usage of the money. The code will help to track the money chain. It can prevent a lot of schemes of fraud, cheating and money laundering [2].

According to Central Bank, digital rubles will combine the advantages of cash and non-cash rubbles. CBDC will allow to make distant transactions using the internet like non-cash rubbles. At the same time citizens can do payments offline using special phone programs or special POS terminals. Meanwhile, CBDC payments commission will be minimal. According to Central Bank representatives, the transfer fee will not be higher than Faster Payment System (SBP) fee. Billing will be carried out according to the same rules for everybody.

Thirdly, CBDC launching should also result in improving financial sector competitiveness. Commercial banks will act as an agent between individuals and the Central Bank. It opens up new opportunities to the financial sector.

There will appear new technologies and developments by setting up brand new operations and mechanisms. Banks will have to create previously unknown frameworks. Thus, there may be the expansion of the banking and innovation sectors.

Negative factors of the CBDC appearance

The popularity of CBDC would lead to capital outflow from banking structure. As we know, banks are an important part of economic systems due to loans which act as an engine of economic growth. On the other hand, bank deposits are important to prevent inflation. Money outflow from the banking structure could undermine regulatory processes making huge consequences for our economy. On the other side, Central Bank of Russia has said, that the digital ruble will not be a tool for issuing loans and saving assets. It means decreasing the quantity of private banks and as a result, a reduction in issued loans. It could ruin economic laws and lead to serious implications such as crisis, inflation and unemployment.

The Central Bank would have an undue concentration of information about payments and citizens accounts [4]. There will be a unified register of all transactions and as a result there will be an individuals' preference register which will become a pressure and propaganda instrument. For example, the social rating system in China. It means that low rated people (those who have violated the law, had tax arrears, loan delinquencies) will be punished by the government. As for the digital ruble, it would be much easier to realize the social rating system using CBDC wallets. As for the punishment, it can be divestment of assets or assets freezing. It may lead to the total control over citizens by government in the future which will violate human rights and freedoms. It does not correspond to a democratic country.

CBDC requires a special technological environment from the economic system. Central Bank of Russia declares the digital ruble will work offline. The mechanism of CBDC operation is similar to the mechanism of banking cards operation. As we know, banking cards operate on special POS-terminals. Terminals must be in working condition. The network must be in working order too. It talks about uninterrupted power supply.

However, the digital ruble will face the cyber-attack risk challenges. Of course, every electronic payment system is a target for cyber-attacks. It is important that access to the selected payment system threatens only this system. At the same time, access to the "CBDC's system" threatens the entire financial stability of the country [6]. It means a huge volume of work in the cyber-safety field on the part of the government.

Experience of other countries

The first country to launch the first full-fledged digital currency was the Bahamas. It was October 2020. About 113,000 Bahamians opened CBDC wallets. About 1,700 businesses had access to trading services through digital currencies payments. The Bank has carried out work on training and education of users. The currency has been introduced into business chains.

The second country to launch a Central Bank digital currency was Nigeria. The aim of the introduction was to transform the economy into a "cashless" one. Citizens were against the new type of currency. As for the Central Bank it conducted public PR campaigns and promoted business cooperation. Limits on cash withdrawals have been introduced. Social payments were made using CBDC. Thus, the currency's popularity has increased by 30 percent.

The Bank of Jamaica has implemented a step-by-step introduction of the digital currency. They promoted the slogan «No cash – no problems». The currency was used to implement a social job creation program. The stimulus program has been realized. Each citizen received 2500 Jamaica dollars for opening a CBDC wallet. Jamaica's digital currency has established itself as a secure, convenient and reliable digital payment method that enhances access to financial services. About 10% of transfer payments are made in digital currency now [3].

Conclusion

To summarize, CBDC introduction is a complicated and arduous task. Citizens are reluctant to use CBDC wallets. People are afraid to use the new type of money because of unawareness. The fear of being controlled also plays a role. This can be seen in the example of football fan ID introduction. The problems that may arise in the banking sector are no less important.

Government should conduct training sessions on the essence of the new currency, its usage and benefits. There should be large PR companies about CBDC advantages. There is a lot of work to be done in the field of cyber security and IT environment. It is necessary to carefully consider the relationship between the conventional banking system and CBDC wallets.

References

1. Bindseil U. The case for and against CBDC – five years later [Internet source] / Internet data – Access mode: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4038828 (date of application: 29.05.2024)

2. Bindseil U. Tiered CBDC and the financial system // Working Paper Series. 2020. No. 2351. Pp 15-22.
3. Central Bank Digital Currencies Tracker [Internet source] / Internet Data – Access mode: https://cbdctracker.org
4. De Bonis R., Ferrero G., Technological progress and institutional adaptations: the case of the Central Bank Digital Currency (CBDC) // Occasional Papers. 2022. No. 690. Pp 5-19.
5. Drobyshevsky S., Sinelnikova-Muryleva E. Rules and consequences of the digital ruble adoption // Monitoring of Russia's Economoic Outlook. Trends and Challenges of Socio-Economic Development. Moscow. IEP. 2023. No. 6. Pp. 3-7.
6. Gorbacheva T. A. Central Bank Digital Currencies: foreign experience // World Economy and World Finance. 2023, vol. 2, no. 4. Pp: 41-47.
7. Sinelnikova-Muryleva E. Digital ruble: risks and benefits // Russian Economic Developments. Moscow. 2021. Vol. 28. No. 5. Pp. 36-39.

DEMIN Nikita
Moscow State Institute of International Relations
(University)

CHINA'S ROLE IN GLOBAL OIL MARKET

Abstract. The study deals with China's position and its influence on the global oil market. The author estimates China's oil reserves, its oil consumption volumes and trade dynamics. The paper provides data-driven analysis of Chinese impact on the global market. The author highlights the extent, to which China's economy depends on the world market trends. The author comes to conclusion that China is a real world's economic power with great impact on global energy market.

Keywords: global energy market, oil market, global instability, China.

Introduction

The relevance of the article is substantial since China is one of the largest oil consumers and the largest oil importer in the world, and its demand largely determines the dynamics of world prices and supply. The main source of statistical data is OPEC Annual Statistical Bulletin 2023. To assess the importance of China on global energy market we use the forecasting method. The scientific aim is to identify China's influence on the trends in global oil market.

China as oil producer

Today China is a great influencer on the global oil market with its proven crude oil reserves estimated at 27bln barrels of oil (around 1,7% of the world's oil reserves), thus taking the 12th place in the world's oil reserves [1]. On the other hand, the major oil fields are located disproportionally, mainly in the eastern coastal part of the country. Therefore, China faces some economic risks:

- High concentration of the oil reserves increases risks and dependency as economic challenges in the oil regions may negatively affect the entire country's energy security.
- Oil extraction in the coastal regions is much more technically complicated, thus pushing oil prices up.

- Some of the oil fields are located in the northwestern part of China, while major oil consuming regions are in the south of the country; it leads to higher transportation costs and therefore higher final prices.

The challenges stated might be one of the reasons why China with its substantial oil reserves opts for larger imports instead of larger extraction.

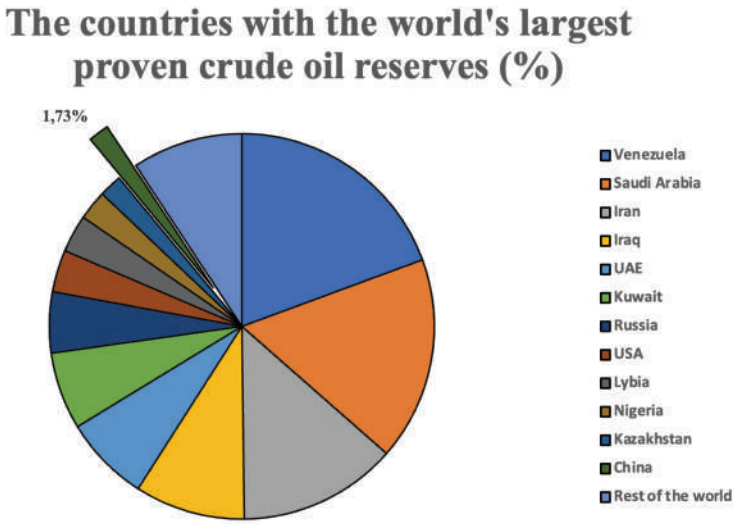


Figure 1. World's largest crude oil reserves (2022)
Source: https://asb.opec.org/ASB_PDFDownload.php

China takes a significant place among the world's leading oil producers and is ranked 5th in the world in terms of crude oil production. China produces about 1,49bln barrels of oil per year (5.62% of the global production level) [1]. Crude oil production in China has hardly changed for the last 10 years. In 2015, this figure peaked at 4,289 million barrels per day, but plunged in the next 2 years [1].

This can be linked to the trend that formed the basis of the 13th five-year plan for the development of the Chinese economy (2016-2020). According to this plan, the country's indicator of the use of non-fossil fuel energy sources should be reduced. However, by 2022, China had returned to almost the same production levels.

The three largest oil producers in China – CNPC (Chinese National Petroleum Corporation), Sinopec and CNOOC (China National Offshore Oil Corporation) – control a total of about 90% of the Chinese market.

However, despite its rich oil reserves and high production volumes, China is facing a rapidly growing demand for energy resources. This particularly takes place due to the development of logistics and the expansion of the industrial sector. Therefore, in order to meet the ever-growing demand and eliminate the energy imbalance, China has to buy oil on the world market.

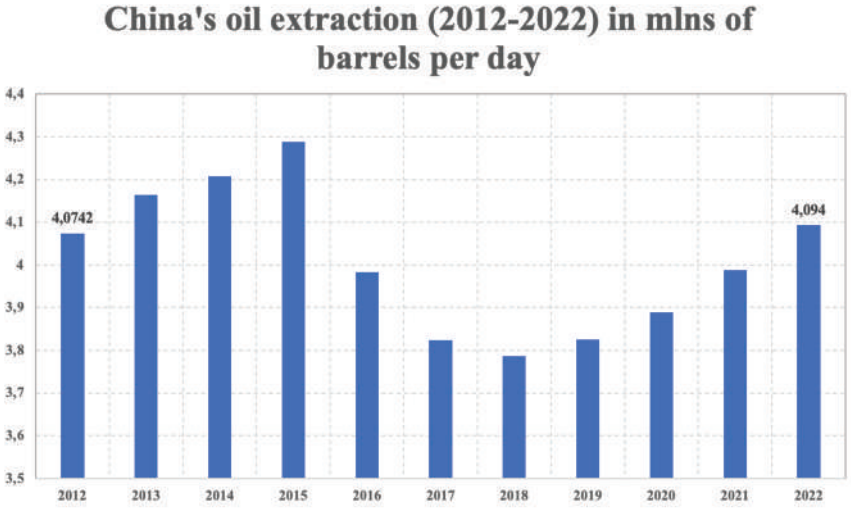


Figure 2. China's oil extraction (2012-2022) in mln barrels per day
Source: https://asb.opec.org/ASB_PDFDownload.php

China as oil consumer

Taking into account China's impressive growth rates and its ever-increasing demand for fuel, China has turned into one of the world's major oil powers.

Further economic growth and gradual increase in the public welfare level leads to an increase in demand for oil, which has become an integral component of the Chinese economy.

China consumes 5.42 billion barrels per year (about 14.92% of global consumption), making it the 2nd largest consumer after the United States [1]. In 2023, China accounted for approximately 75% of the growth in global oil demand [2]. Moreover, pundits expect Chinese oil consumption to increase by another 182.5 barrels per year next year [3].

Oil plays a key role in all industrial processes and is the main source of energy for transportation. The growing mobility of the population, leading to an increase in the number of car owners, the expansion of cities and further

industrial development – all these factors lead to a constant increase in China's oil demand.

In view of China's relatively tiny oil productions and excessive oil consumption, this gap is filled through international trade. Data suggests China may be portrayed as another Middle East with its Middle East-like impact on the global oil market.

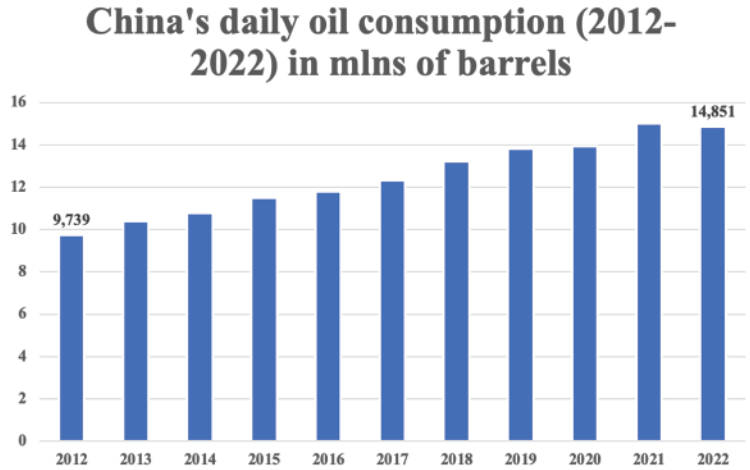


Figure 3. China's daily oil consumption (2012-2022) in mlns of barrels
Source: https://asb.opec.org/ASB_PDFDownload.php

China's influence on the global energy market should be taken into consideration, as China is the world's largest importer of crude oil. According to data at the end of 2022, imports amount to 3.72 billion barrels per year (22.82% of global oil imports), with exports worth 14.97 million barrels per year (0.094% of global oil exports) [1].

In 2022 the major oil suppliers to China were [1], [4]:

- Middle East– 53%
- the Russian Federation – 17%
- Latin America – 12%
- Africa – 10%,
- the United States of America – 2%
- Southeast Asia – 2%
- Rest of the world – 4%

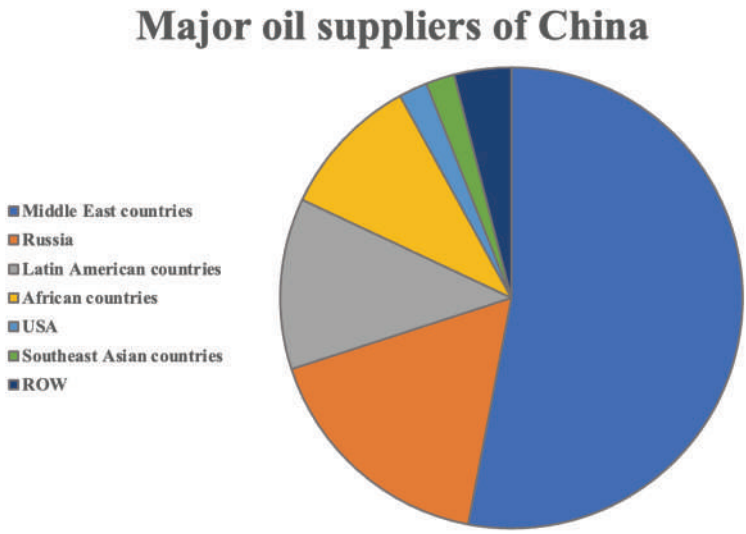


Figure 4.

Major oil suppliers of China
Source: https://asb.opec.org/ASB_PDFDownload.php

Conclusion

Chinese oil consumption cannot fail to have a significant impact on the global energy market. China can potentially influence the dynamics of oil prices. Cyclical fluctuations in supply and demand on China's domestic oil market lead to global economic instability, which has a negative effect on oil export-oriented countries.

However, it is a two-way street: the Chinese economy, in its turn, is also very dependent on the trends of the global oil market. Its own production is significantly lower than its consumption, so China heavily relies on imports of this energy resource. More than 65% of the oil used in the country is imported, which threatens the economic sovereignty and energy security of the People's Republic of China in 1993-1997, Chinese oil and gas companies suffered significant financial losses due to high volatility of world oil prices [5]. Since 1997, the cost of crude oil has started to rise, and imports have risen in price. In this regard, China has begun actively searching for new sources of crude oil around the world, concluding long-term contracts with various exporters and investing in foreign projects related to oil production. These measures taken by the Government of the People's Republic of China are aimed at reducing economic risks and ensuring stable oil supplies.

References

1. China Oil and Gas Exploration and Production Market Volumes and Forecast by Terrain, Assets and Major Companies, 2023-2025 [Internet source] // GlobalData: [Site]. — URL: https://www.globaldata.com/store/report/china-oil-and-gas-exploration-and-production-analysis/
2. China's Oil Demand Growth to Cool in 2024 as Recovery Fades [Internet source] // Bloomberg: [Site]. — URL: https://www.bloomberg.com/news/articles/2023-12-07/china-s-oil-demand-growth-is-seen-cooling-in-2024-as-pandemic-recovery-fades
3. China: What sources does the country get its energy from? [Internet source] // Our World in Data: [Site]. — URL: https://ourworldindata.org/energy/country/china#how-much-energy-does-the-country-generate-each-year
4. Mitina N. N., Bai Yiran. Osobennosti razvitiya neftegazovoy otrasli v Kitayskoy Narodnoy Respublike // Innovatsii i investitsii. 2021. URL: https://cyberleninka.ru/article/n/osobennosti-razvitiya-neftegazovoy-otrasli-v-kitayskoy-narodnoy-respublike?ysclid=lpwqkz3s45200792340
5. OPEC Annual Statistical Bulletin 2023 [Internet source] // OPEC: [site]. — URL: https://asb.opec.org/ASB_PDFDownload.php

KAZAKOVA Yulia
National Research University
Higher School of Economics

MEDIA BUSINESS PROCESS CHAIN WITHIN A TECHNOLOGY-DRIVEN INNOVATION LANDSCAPE

Abstract: Media business processes have been shaped by media ecosystem that embraces social connections, norms, ethics and other core aspects. Digitally driven innovations have been disrupting the media industry by making it fragmented. The research is focused on analyzing the ecosystem of media innovations driven by Venture Capital (VC) investments in startups to assess the potential to integrate media startups into a well-established media business process chain. The results support the need to adjust to the digital technological landscape to assure the fit.

Keywords: media startups, media innovations, business processes, ecosystem, digitalization

Introduction

Media innovations have been viewed from the perspective of actors, actants and audiences [10]. A typology of media innovations [1] looks into processes (Business Model, Production & Distribution, Consumption & Media) and products (Inner form, core). In the framework of innovation typology traditional media businesses have hardly adopted innovations due to the specifics of the industry [9]. The peculiarities of the industry take root in the high impact of a person who is behind the news release [8]. The role of editor-in-chief has been widely discussed to adopt a specific media management model [4].

The structure of business processes

In order to standardize the media management, the processes in the industry are analyzed. The business process chain in the media industry is built on content supply and content demand. Based on exploratory studies a business process chain was developed [7].

Supply			Demand		
Ideation	**Creation**	**Production**	**Distribution**	**Consumption**	**Feedback**
The process of generating, developing, and refining creative ideas for media content creation.	Creating a various forms of content depending on the media type	Assembling the creative pieces into the final product	Sharing the content to reach the audience	A new way of consuming a content, or a related service	Providing feedback

Figure 1. Media business process in the industry

In order to frame media innovation management a matrix to categorize potential innovation strategies in the media industry was developed.

		Technology	
		New	**Basic**
Idea	New	(1;1)	(1;0)
	Basic	(0:1)	(0;0)

Figure 2. Media Innovation Strategy

Content supply and content demand are supported by business process chain to assure the core activities for value creation such as information gathering, content reviewing, content distribution, audience metrics monitoring, monetization and other related activities. Content supply relies on content generation backed with an idea whereas content demand is based on content distribution backed with technology. Therefore, media innovation management has peculiarities to innovate every part of the chain for assuring a balanced supply chain. Media startups are viewed as incremental innovations in the existing media business process to match the external digital ecosystem.

A dataset on investments in the Media and Entertainment industry in 2023 was parsed from the database Crunchbase. The dataset provides information about the number of investments made in startups that use AI in 2023 based on their country of origin, foundation year, number of employees, sum of

investments and the investor's name. In total 7251 investments in media startups were analyzed.

Insights into the distribution of venture capital investments across different countries define the ecosystem. Based on the meta data of the database, the United States (46%) attracts the highest number of investments in media startups in comparison to any other country listed. This dominance is attributed to factors such as a robust ecosystem of innovation [2], access to capital, supportive regulatory environment, and a large market size [3]. United Kingdom is the second country to attract investments in the media startup arena (9%). The emerging startup ecosystems and regional trends in countries like South Korea (5%), India (4%), and Singapore (2%) indicate the growth of their startup ecosystems and potential attractiveness to investors. A vibrant startup ecosystem fosters innovation, creates jobs, and drives economic development, making it crucial for policymakers and stakeholders to support entrepreneurship and attract investment. The categorization of companies based on the size of their workforce, ranging from very small companies with 1-10 employees to large corporations with over 10,000 employees is analyzed. 39.2% of companies have between 1 and 10 employees, making it the most common size category in the dataset, 37.8% of companies fall within the 11-50 employee range. The data highlights the significant presence of small and medium-sized enterprises (SMEs), as evidenced by the high percentages in the 1-10 and 11-50 employee categories. SMEs often play a crucial role in driving economic growth and innovation [6]. The provided data on the invested media startups shapes the ecosystem and enables to draft the technologically driven business process chain in respect to the investment interest [5].

A technology-driven ecosystem

A statistical modeling technique Latent Dirichlet Allocation (LDA) was used to uncover latent topics within a collection of text descriptions of invested media startups. LDA is a generative probabilistic model that assumes each document to be a mixture of various topics, and each word in the document is attributed to one of those topics. LDA modelling was applied to the descriptions of media startups that raised funding in 2023. Six clusters were set to be identified. The number of clusters is aligned with the stages in the media business pipeline: Ideation, Creation, Production, Distribution, Consumption, Feedback.

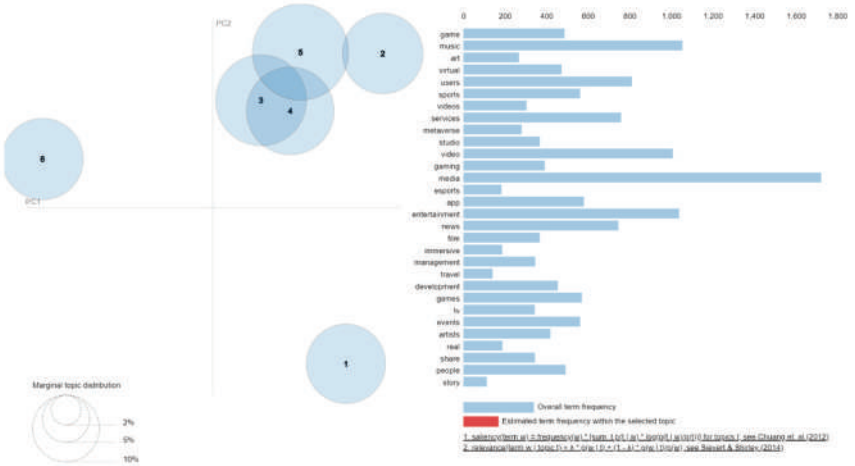


Figure 3. Intertopic Distance Map

The results of LDA analysis represent a visualization of topic modeling in a two-dimensional space, with each point corresponding to a most frequent words in descriptions. The positions of the points and their relationships with topics or clusters provide insights into the structure and distribution of the data, aiding in the interpretation and understanding of the underlying patterns or relationships.

The output of a topic modeling analysis displays the top words associated with each of the six identified topics along with their corresponding frequencies. Each row represents a word, and each column represents a topic, with the frequency indicating how often the word appears within documents assigned to that topic.

	Topic 1	Frequency	Topic 2	Frequency	Topic 3	Frequency	Topic 4	Frequency	Topic 5	Frequency	Topic 6	Frequency
Word 1	company	373.6	users	349.3	music	547.0	company	393.0	media	807.7	company	217.8
Word 2	video	312.8	content	279.3	company	449.1	platform	373.3	content	701.6	platform	207.4
Word 3	platform	295.6	platform	252.2	content	429.2	game	347.2	company	451.8	experiences	179.5
Word 4	media	244.3	company	232.3	platform	294.0	digital	328.3	services	414.9	provides	169.0
Word 5	social	192.1	app	221.0	ntertainmen	259.0	virtual	260.9	entertainment	382.0	technology	159.8

Figure 4. Topic modelling analysis

The results drive insights into the themes or topics present within the analyzed text documents. Each topic represents a distinct aspect or area of discussion, allowing for a deeper understanding of the content and its underlying structure.

Topic 1: Company-related Content:

This topic is characterized by words "company," "video," "platform," "media," and "social." The discussions revolve around companies, involving aspects of business operations, products, or services.

Topic 2: User-Generated Content:

Words "users," "content," "platform," and "company" dominate this topic. A focus on content generated by users, potentially related to social media platforms, online communities, or user-generated content platforms is observed.

Topic 3: Music and Entertainment:

This topic is centered around terms "music," "company," "platform," "content," and "entertainment." It indicates discussions related to music streaming platforms, entertainment content, or the music industry in general.

Topic 4: Digital Platforms and Services:

Terms "company," "platform," "digital," "game," and "virtual" are prominent in this topic. It suggests discussions about digital platforms, online services, virtual experiences, or gaming-related content.

Topic 5: Media and Content Services:

Words "media," "content," "company," "services," and "entertainment" dominate this topic. The focus on discussions related to media content, entertainment services, or digital media platforms is observed.

Topic 6: Technology and Experiences:

This topic includes terms such as "company," "platform," "experiences," "provides," and "technology." Concepts related to technology platforms, innovative experiences, or technology-driven services are observed.

The results indicate a disbalance in the media industry between traditional business process and invested technological solutions driven by media innovations. Based on the conducted analysis the disbalance highlights a strong bias into content creation and content distribution however content consumption or content feedback processes are viewed as innovation laggards.

Conclusion

Technological convergence of AI solutions has not been incorporated in the business process chain in the media industry yet. The managerial side in the media industry has not been modernized to upgrade business process in respect to the external digitally driven ecosystem. As a result, the managerial side in the media industry was shifted to a fragmented content creation business process in a context of traditional business chain. The alignment of business processes, the organization structure and technological domain is to create a

potential synergy. The need to reinvent business processes in accordance with a current digital landscape might accelerate value creation processes.

References

1. Bleyen, V. A., Lindmark, S., Ranaivoson, H., & Ballon, P. (2014). A typology of media innovations: Insights from an exploratory study. *The journal of media innovations*, *1*(1), 28-51.
2. L. A. de Vasconcelos Gomes, L. A., Facin, A. L. F., Salerno, M. S., & Ikenami, R. K. (2018). Unpacking the innovation ecosystem construct: Evolution, gaps and trends. *Technological forecasting and social change*, *136*, 30-48.
3. Desmet, K., & Parente, S. L. (2010). Bigger is better: market size, demand elasticity, and innovation. *International Economic Review*, *51*(2), 319-333.
4. Durdevic, M. (2007). Liability of the Journalist, Editor in Chief and the Founder of the Media. *Collection Papers Actualities Civ. & Com. L. & Legal Prac.*, 571.
5. Hirukawa, M., & Ueda, M. (2011). Venture capital and innovation: which is first?. *Pacific Economic Review*, *16*(4), 421-465.
6. Huggins, R., & Johnston, A. (2009). Knowledge networks in an uncompetitive region: SME innovation and growth. *Growth and change*, *40*(2), 227-259.
7. Mendling, J., & Strembeck, M. (2008, May). Influence factors of understanding business process models. In *International Conference on Business Information Systems* (pp. 142-153). Berlin, Heidelberg: Springer Berlin Heidelberg.
8. Schoder, D., Sick, S., Putzke, J., & Kaplan, A. M. (2006). Mass customization in the newspaper industry: Consumers' attitudes toward individualized media innovations. *The International Journal on Media Management*, *8*(1), 9-18.
9. Van Waarden, F. (2001). Institutions and innovation: The legal environment of innovating firms. *Organization Studies*, *22*(5), 765-795.
10. Westlund, O., & Lewis, S. C. (2014). Agents of media innovations: Actors, actants, and audiences. *The Journal of Media Innovations*, *1*(2), 10-35.

KAMAEVA Darina
Russian State Agrarian University
Moscow Timiryazev Agicultural Academy

PUBLIC EMPLOYMENT MANAGEMENT IN THE REGION: A CASE STUDY OF THE TULA REGION

Abstract: The article analyzes the demographic situation in the Tula region, covers employment issues, and examines the concepts of demographic crisis and employment. The author considers the indicators of average population, the level of employment of population, the number of the unemployed and the potential labor force over the past seven years. The paper describes the mechanism for managing employment in the region and finds ways to solve previously identified problems such as decrease in population and a falling number of employed people and others.

Keywords: employment, demography, socio-economic situation, management

Introduction

The relevance of the topic is due to the fact that socio-economic development is the foundation of society and the state. An important task of state policy for a long time has still been the creation of comfortable conditions for the growth of the welfare of the population of the Russian Federation and ensuring social and economic stability.

The most important problem area in the socio-economic development of the region is employment management.

1. The term of employment of the population

There are many definitions of employment. Employment is a socio-economic characteristic that reflects the formation, distribution and use of labor resources based on an assessment of a person's abilities and work activity, the availability of appropriate education, and established wages.

Employment is a system of relations between people regarding the provision of jobs and participation in the public economy.

Let's focus on the definition prescribed in the law of the Russian Federation dated 04/19/1991 No. 1032-1 "On employment of the population in the Russian Federation" employment is the activity of citizens related to the satisfaction of personal and social needs that does not conflict the legislation of the Russian Federation and brings them earnings, labor income" [1].

2. Brief description of the region

Tula region was established on September 26, 1937. The area of the region is 25.7 thousand square kilometers, the largest length from north to south is 200 kilometers, from west to east is 190 kilometers.

The administrative center is the city of Tula, founded in 1146, the population as of January 1, 2024 is 1489.1 thousand people, including 74.7% of the urban population, which indicates a high level of urbanization in the region. The ethnic composition of the region is dominated by Russians. [5]

3. Population size and composition

Let's analyze the demographic indicators. Figure 1 shows the average annual population.

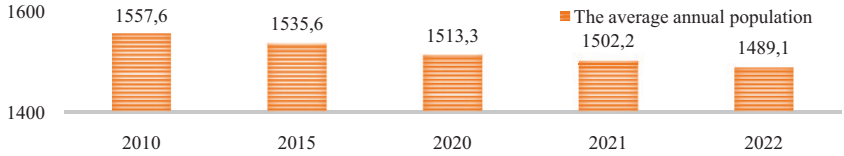


Figure 1. The average annual population in the Tula region
Source: https://71.rosstat.gov.ru/ [5]

The average annual population is steadily decreasing. In 2022, it decreased by 4.4% compared to 2010. Figure 2 shows the number of women per 1000 men.

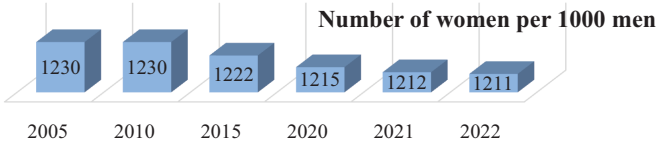


Figure 2. Number of women per 1000 men
Source: https://71.rosstat.gov.ru/ [3]

On average, there are 20 percent more women than men. Figure 3 shows the demographic load factor.

Figure 3. Demographic load factor in the region
Source: https://71.rosstat.gov.ru/ [3]

The demographic load factor is increasing every year, especially over the working age. Figures 4 and 5 show the dynamics of the number of workers and the dynamics of the level of participation in the workforce.

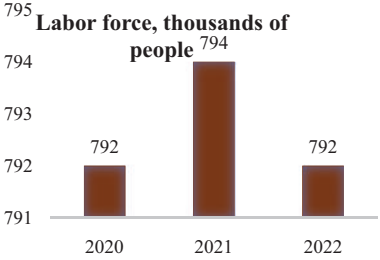


Figure 4. The size of the workforce

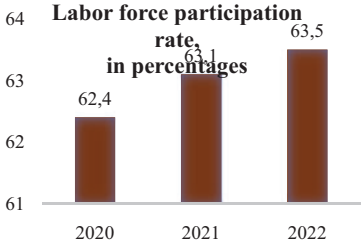


Figure 5. The level of participation in the composition labor force

Source: https://71.rosstat.gov.ru/ [3]

The unemployment rate is decreasing, but the level of potential labor is also decreasing.

Managerial aspect of employment of the population of the Tula region

Let's look at how public authorities can influence the employment of the population.

The issues of employment of the population in the Tula region are dealt with by the State Institution of the Tula region "Employment Center of the Tula region" The range of services of the employment center is listed below:

- Assisting citizens in finding suitable work, and employers in selecting the necessary workers;
- Informing about the situation on the labor market in the constituent entity of the Russian Federation;
- Organization of job fairs and training jobs;[2]

Next, let's consider the effectiveness of the State program to promote employment in the Tula region. The responsible executor of the program

is the Ministry of Labor and Social Protection of the Tula region, the goal is to increase the effectiveness of social support and social services for the population.

Figure 13 shows the degree of realization of monetary resources. Pay attention, that fewer and fewer funds are planned every year.

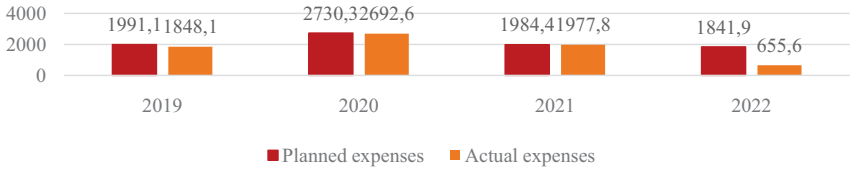


Figure 13. The degree of realization of monetary resources
Source: website of the Ministry of Labor and Social Protection of the Tula region [6]

Figure 14 shows the dynamics of the index of the degree of implementation of measures. In general, there is a tendency to increase the degree of implementation of measures.

Figure 14. The degree of implementation of the measures
Source: website of the Ministry of Labor and Social Protection of the Tula region [6]

Figure 15 shows the results of the program's performance. Thus, we can say that the state program is being implemented stably effectively.

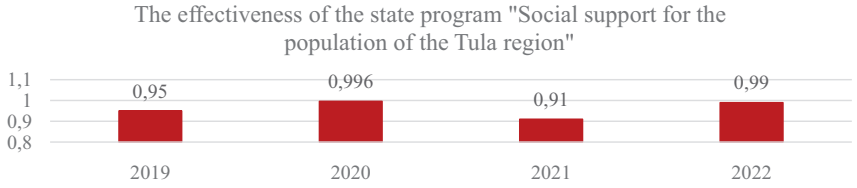


Figure 15. The effectiveness of the state program "Social support for the population of the Tula region"
Source: website of the Ministry of Labor and Social Protection of the Tula region [6]

4. Employment problems and ways to solve them

Based on statistical data, it is possible to draw conclusions about the presence of the following problems:

1. Decrease in the average annual population.
2. As a result, a decrease in the number of workers.
3. A consistently large number of unemployed, while reducing the potential workforce.
4. Increasing the need for workers that is not being met.
5. The lack of competent setting of targets in the state program, which is why the state program is being implemented, but the indicators are not increasing.

Ways to solve problems:

1. Increasing the economic attractiveness of the region.
2. Increase in average salary.
3. Increase in professional retraining programs.
4. Increasing the number of targeted budget places.
5. Revision of the state program.

Conclusion

Thus, the employment situation in the Tula region is not critical, but rather deplorable. It can be solved by increasing the economic attractiveness of the region.

References

1. Federal Law «On Employment in the Russian Federation» dated 12.12.2023 No. 565-FZ.
2. Interactive portal of employment agencies Tula region//TSN URL: https://czn.tularegion.ru // (date of access: 04/10/2024).
3. Territorial body of the Federal State Statistics Service for the Tula region // Tulastat URL: https://71.rosstat.gov.ru / (date of access: 04/10/2024).
4. The Constitution of the Russian Federation (adopted by popular vote on 12.12.1993 with amendments approved during the all-Russian vote on 07/01/2020).
5. Tula region. Historical and geographical location // Official website of the Tula Regional Duma URL: https://tulaoblduma.ru/o_dume/tulskaya_oblast / (date of application: 04/10/2024).
6. Website of the Ministry of Labor and Social Protection of the Tula region// URL: https://mintrud.tularegion.ru / (date of access: 04/10/2024).

KUDRIAVTSEVA Iuliia
Lomonosov Moscow State University

DYNAMICS OF VOLATILITY SPILLOVER IN RUSSIAN SECTORS

Abstract. The objective of the research is to determine changes in the dynamics of volatility spillover between branches of the Russian economy during recent crises and to identify the sectors of the economy which specifically produce spillovers. In the course of the study we trace the direction of volatility spillovers trying to establish the correlation between outside conditions and the economy's reaction to them. We aim to demonstrate how volatility spillovers allow to predict the reaction of the economy to crisis, to identify the sectors that are resistant to shocks and sectors which require public subsidies.

Keywords: volatility spillover, financial crisis, sectoral indices, Diebold-Yilmaz methodology.

Introduction

Currently financial markets play a crucial role in the global economy. In recent years, the Russian economy has faced various crises. They have had a negative impact on the Russian stock market [2]. For example, there are two phases of sharp growth in the dynamics of the RVI index, that reflects the volatility of the Russian market, - in 2020 and 2022, with an average historical level of 30 points (Figure 1). This indicates the presence of crises in the stock market.

Crises, whether caused by economic downturns or geopolitical events, can impact significantly on financial system [10]. For example, they can lead to the transformation of the economic structure and changes in the relationships between sectors [7]. During these times, investors often react with fear and uncertainty, leading to heightened volatility and sharp price fluctuations [11]. Additionally, industries affected by shocks require additional support in the form of government subsidies, incentives, and tax deferrals [5]. These observations raise an issue of understanding how shocks spread on the economy and what instrument transfer them. The answer is the volatility spillovers [1].

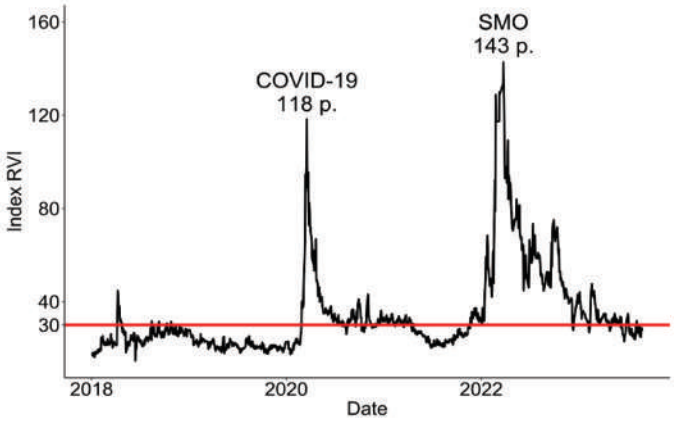


Figure 1. Index RVI
Source: The Moscow Exchange.
RTS Volatility Index (VIX) // URL: https://www.moex.com

There are the two key characteristics of financial markets: volatility and volatility spillovers. Firstly, in the securities markets, volatility is often associated with big swings in either direction [3]. In most cases, the higher the volatility, the riskier the security. A lower volatility means that a security's value does not fluctuate dramatically, and tends to be steadier [6].

Volatility spillover is defined as the transmission of instability from market to market. It occurs when volatility price change in one market cause a lagged impact on volatility price in another market above the local market effects [15]. Secondly, volatility spillover refers to the effect of the volatility of one asset on the volatility of other financial instruments. During shock events or periods of crisis, a volatility spillover effect arises and manifests itself between interconnected industries [8].

The causes of volatility will be referred to as shocks. The occurred crises cause an increased uncertainty [4]. Because of this, investors withdraw funds from the industry affected by the shock, i.e., they rebalance their portfolios.

Net sources of volatility spillovers are industries for which the magnitude of outgoing volatility flows is greater than the magnitude of incoming volatility flows [9]. There are two reasons why industries are classified as net sources or recipients. Firstly, they are connected by contracts - some industries are suppliers of goods and services, while others are clients [12]. Secondly, the size of the shock matters [13]. In some industries, strong shocks occur, and as a result such sectors become sources of volatility spillovers [14]. Others act as recipients.

Hypotheses

Hypothesis 1. During the pre-Covid period, the oil and gas industry acted as a net source of volatility. But after the period of lockdowns and increased geopolitical instability, the sector has become a recipient of shocks due to sales problems, decreased demand, and falling prices for the resources.

Hypothesis 2. The emergence of crisis trends in the economy leads to a sharp change in the behavior of the largest players in the financial market. As a result, panic sentiment spreads to other areas of the economy and causes an increase in volatility in this sector.

Hypothesis 3. In developed and developing countries, the telecommunications industry is a net receiver of shocks - it is dependent on related sectors of the economy.

Hypothesis 4. As a result of crisis periods in the economy, the structure of the transport industry changes and supply chains change. This factor stimulates the active development of the transport sector and helps strengthen relationships with other industries.

As a result, hypotheses 1 and 3 have been confirmed. Hypothesis 2 has been partially confirmed. The financial sector is only a source of volatility spillovers during COVID-19 and a recipient during the SMO. Hypothesis 4 is not confirmed. The transportation sector is a recipient of volatility spillovers in all periods.

Data and methodology

The closing prices of industry indexes calculated by the Moscow Exchange were used as data. A total of 10 indexes are calculated. During the analysis, 2 indexes were excluded because the information technology index and the construction companies index have been calculated since 2021, which does not correspond to the research period from 2018 to 2023. The study employs 3 models: the Diebold-Yilmaz methodology, DCC-GARCH and BEKK-GARCH models.

Empirical results and discussions

1. Aggregate volatility spillover index

We assumed that over the period under consideration, the Russian economy was influenced by various shocks. In order to separate the impact of these

shocks, we decided to divide the original sample. For this purpose, the aggregate volatility spillover index was calculated. It shows the average level of volatility spillovers across the entire economy in percentage terms.

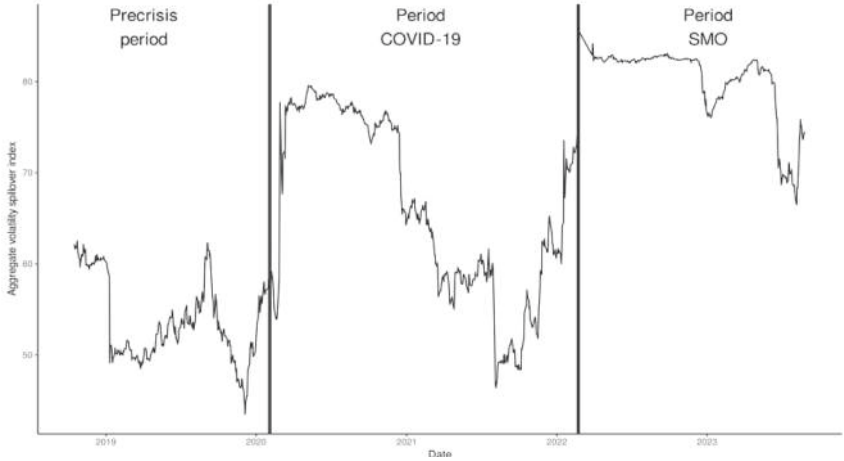


Figure 2. Aggregate volatility spillover index

The dynamics of the index shown on the graph is divided into three periods (Figure 2). The first period is pre-crisis. At this stage, the economy was stable with no crisis trends. The second period, which lasted for 2 years, is characterized by a significant increase in volatility spillover. Such instability was caused by the onset of the COVID-19 followed with market compression. The third period is marked by a sharp rise of volatility and there is no downward trend observed. This stage is associated with the start of a special military operation and the expansion of sanctions imposed against Russia.

2. Net volatility spillover index

Figure 3 shows the dynamics of the net pairwise volatility spillover between sectors of the economy. In the 1 period, the sources of shocks were the petrochemicals, consumer goods, electric power and metallurgy industries. Of these, the chemical and petrochemical industries had the greatest impact on other industries. Among the receiving sectors the leaders are the financial sector, telecommunications, transport and the oil and gas industry.

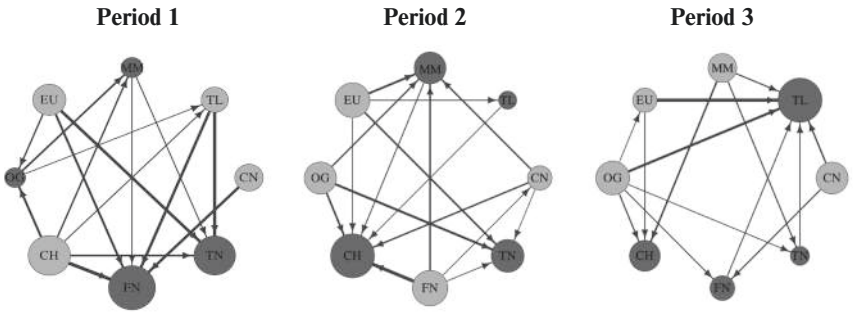


Figure 3. Net volatility spillover index
Notes: Industries that are net sources of shocks are light gray, net receivers of shocks are dark grey.

In the 2nd period, significant changes in the direction of volatility spillover are observed. The financial services and electricity industries have become the leading sectors among the industries delivering shocks. The metallurgy sector, in turn, moved from a sending industry to a receiving sector of shocks. As a result of the impact of the pandemic, the petrochemical industry has become a net receiver of shocks.

In the 3rd period, the structure of the economy is restored to pre-crisis values. Only the petrochemical industry remains a receiver of shocks.

Conclusion

We tried to explain the importance of understanding the dynamics of the volatility spillovers. Thanks to it, it becomes possible to predict the reaction of the economy to crisis trends and adjust the company's investment policy, identify sectors that are resistant to the influence of stress and sectors that require additional support and subsidies from the state.

References

1. Agyei S. K. Spillovers and contagion between BRIC and G7 markets: New evidence from time-frequency analysis // PLoS One. 2022. T. 17. № 7 July. https://doi.org/10.1371/journal.pone.0271088;
2. Baele L. Volatility spillover effects in European equity markets // Journal of Financial and Quantitative Analysis. 2005. T. 40. № 2. https://doi.org/10.1017/s0022109000002350;

3. Baruńik J., Kočenda E., Vácha L. S. Volatility spillovers across petroleum markets // Energy Journal. 2015. T. 36. № 3. https://doi.org/10.5547/01956574.36.3.jbar;
4. Białkowski J., Gottschalk K., Wisniewski T. P. Stock market volatility around national elections // J Bank Financ. 2008. T. 32. № 9. https://doi.org/10.1016/j.jbankfin.2007.12.021;
5. Bollerslev T., Mikkelsen H. O. Modeling and pricing long memory in stock market volatility // J Econom. 1996. T. 73. № 1. C. 151–184. https://doi.org/10.1016/0304-4076(95)01736-4;
6. Chen Y., Zheng B., Qu F. Modeling the nexus of crude oil, new energy and rare earth in China: An asymmetric VAR-BEKK (DCC)-GARCH approach // Resources Policy 2020. T. 65. https://doi.org/10.1016/j.resourpol.2019.101545;
7. Diebold F. X. Trans-Atlantic Volatility Connectedness Among Financial Institutions // Working Paper. 2014. № 111. https://doi.org/10.2139/ssrn.4280588;
8. Hammoudeh S. Dependence of stock and commodity futures markets in China: Implications for portfolio investment // Emerging Markets Review. 2014. T. 21. https://doi.org/10.1016/j.ememar.2014.09.002;
9. Izzeldin M. The impact of the Russian-Ukrainian war on global financial markets // International Review of Financial Analysis. 2023. T. 87. https://doi.org/10.1016/j.irfa.2023.102598;
10. Kočenda E. Survey of volatility and spillovers on financial markets // Prague Economic Papers. 2018. T. 27. № 3. https://doi.org/10.18267/j.pep.650;
11. Mamonov M., Pestova A. Sorry, You're Blocked.' Economic Effects of Financial Sanctions on the Russian Economy // SSRN Electronic Journal. 2021. https://doi.org/10.2139/ssrn.3939241;
12. Shahzad S. J. H. Asymmetric volatility spillover among Chinese sectors during COVID-19 // International Review of Financial Analysis. 2021. T. 75. https://doi.org/10.1016/j.irfa.2021.101754;
13. Syriopoulos T., Makram B., Boubaker A. Stock market volatility spillovers and portfolio hedging: BRICS and the financial crisis // International Review of Financial Analysis. 2015. T. 39. https://doi.org/10.1016/j.irfa.2015.01.015;
14. Wang X., Wang Y. Volatility spillovers between crude oil and Chinese sectoral equity markets: Evidence from a frequency dynamics perspective // Energy Econ. 2019. T. 80. https://doi.org/10.1016/j.eneco.2019.02.019;
15. Zolfaghari M., Ghoddusi H., Faghihian F. Volatility spillovers for energy prices: A diagonal BEKK approach // Energy Econ. 2020. T. 92. https://doi.org/10.1016/j.eneco.2020.104965.

LITYAGINA Elizaveta,
GURTOVA Kristina
Plekhanov Russian University of Economics

FROM RUSSIA TO IRAN THROUGH THE CASPIAN SEA: DEVELOPING THE TRADE ROUTE

Abstract. The research is aimed at considering the benefits offered by the development of the international North-South transport corridor (INSTC) between the Russian Federation and the Islamic Republic of Iran through the Caspian Sea. The authors emphasize the importance of the route for increasing the multilateral economic and political interaction between the interested states and trade flow growth. In conclusion special attention is paid to the advantages gained through the realization of the project in terms of reducing transportation time and financial costs, growth of container transit of goods, as well as decreasing emissions of harmful fumes into the atmosphere

Keywords: the Caspian Sea, North-South international transport corridor, Russian-Iranian relations, economic development corridor.

Introduction

The current economic and political state of world trade dictates new conditions and realities of world economic relations. The reorientation of Russia's trade routes from West to East poses new challenges and solutions for both the state as a whole and the business community. One of the vectors of increasing Russia's trade potential is the North-South trade route. Its importance is increasing in the context of the sanctions imposed by Western countries against Russia and the attempts to create a transport blockade. This direction is becoming the most promising way to improve multimodal transportation and ensures the delivery of goods from Russia to Asian and African countries without entering ports of unfriendly states. The Caspian Sea might become a location that will continue developing stable and beneficial relations between Russia and Iran, as well as other Caspian littoral countries.

Russian-Iranian relations

The Russian-Iranian relations had been tense since their very inception before they began improving in the 20th and the21st centuries.

In the modern times the trade relations between Iran and Russia are gradually progressing. According to the report of the Federal Customs Service of Russia the volume of trade turnover reached a record in the first half of 2022 when a more than 25% increase in the size of exports was revealed. At the same time, imports showed an increase of 10%. Russia exports, mainly food and agricultural raw materials, to Iran accounts for 90% of the total exports. These categories of goods also account for import items for Russia – about 60% of the total volume of imports from Iran. The remaining percentage of Russian imports include ore materials, construction products, plastic products and a number of other commodities. Such a significant increase in the bilateral trade can be accounted for by the Western sanctions imposed against Russia.

Iran is a particularly interesting partner for the Russian Federation, as due to its convenient geographical location it serves as a "bridge" in the trade with the Middle East, South and South East Asia which can be considered potential trade partners for the development of closer collaboration and cooperation. Moreover, Iran has been under Western sanctions for a long time and has already gained some experience of solving similar problems. Having no access to certain goods due to the restrictions and refusals to cooperate Iran was able to make progress by developing its own production in some sectors of the country's national economy [3].

The International North–South transport corridor (INSTC)

A further important factor that contributed to the growth of bilateral trade is the International "North–South" Transport Corridor (ITC). It runs between Russia, India, Iran and other neighboring countries. The transportation through the ITC doubled in the first quarter of 2023 reaching 2.3 million tons which, however, still does not reveal the full potential of this project [6].

Moreover, the Caspian Sea is a very promising direction for the development of goods traffic from the geographical point of view, since it will not only reduce the time of cargo transportation several times, but also its costs by 30% as compared to the ones through the Suez Canal (Fig. 1) [4].

Figure 1. Comparison of the North-South ITC route and the Southern Sea Route
Source: Freight map of Caspian Sea [4]

The development of the North-South project in the Caspian Sea will enable Russia to closely cooperate with Iran and other Caspian littoral states, such as Azerbaijan, Kazakhstan and Turkmenistan which in current realities can be a significant advantage.

In 2000 Russia, Iran and India signed an Agreement on the International North-South transport corridor according to which it was decided to allocate three branches of the corridor:

- Western branch – railway along the western shore of the Caspian Sea;
- Eastern branch – railway along the eastern shore of the Caspian Sea;
- Trans-Caspian – across the Caspian Sea [1].

However, the issue of building adequate infrastructure along the western and eastern branches of the corridor has been stretched for a long time due to the lack of sufficient funding.

In 2020 according to the Government Decree No. 1792 a port Special Economic Zone was established in the Limansky district of the Astrakhan region within the framework of the Trans-Caspian branch development. It is assumed that it will merge with the already operating SEZ of the industrial production type "Lotus" into the Caspian cluster [2].

In 2022 the Government of the Astrakhan Region in conjunction with Mostazafan, one of the largest Iranian funds, signed an agreement on the

establishment of a shipping company for the development of the North–South ITC. And the same year, in May, the Iranian port Nowshahr received a Russian cargo ship ro-ro (designed to transport goods on a wheelbase) for the first time in 21 years which became significant step in the implementation of the project.

In the present context, with a high cargo traffic through the Caspian Sea, prompt work of customs authorities and increased throughput as well as the availability of "green corridors" are necessary. The possibility of setting up a single authorized economic operator should be considered to simplify cargo clearance, and authorized exporters will be required to reduce the documentary and financial burden.

Pros and cons of the North-South ITC

From the geographical point of view, the development of the North-South trade route through the Caspian Sea is a very controversial idea, as it has both advantages and disadvantages.

First, the climate in the Caspian Sea is rather specific, since it is dry and warm closer to Iran, while the weather differs a lot closer to Russia: in winter, the temperature can reach - 10C, which leads to the freezing of the water near Astrakhan. This factor can become a serious obstacle for cargo transportation in this area. However, this problem can be solved by using icebreakers or by designing such types of transportation vessels that will be able to cope with this problem on their own.

Second, the region is considered quite windy, and storms often occur at the sea, but in this situation installing breakwaters near the port areas can allow loading or unloading goods vessels in stormy weather.

Third, the Caspian Sea is characterized by seasonal fluctuations in water levels which result in severe shallowing in some areas. In this case, building thoughtful and well-defined logistics routes will enable the carriers to avoid this phenomenon.

Moreover, there are certain problems in addition to the geographical obstacles, despite all the advantages of using the Caspian Sea as a maritime trade route:

- Lack of Iranian vessels in the Caspian Sea. At the moment, only 53 vessels are operating, which is not enough with the large volumes of imports and exports between Iran and Russia.
- Ro-ro vessels are scarce. Russia has 19 ro-ro vessels in the Caspian Sea, while Iran has none.
- Departure dates. It is necessary to regularly plan the departure of ships.

- The Astrakhan port freezes in winter. The operation of the port becomes difficult and unprofitable.
- Absence of access to railways at Iranian ports.

Despite the challenges, the benefits still outweigh. Firstly, the time of transferring goods from Iran and India to Europe via the Caspian Sea is twice shorter as compared to the rout through the Suez Canal. Secondly, container transit from China to Europe via the EAEU will grow about 77 times. Thirdly, the Caspian Sea route allows to reduce greenhouse gas emissions during the transportation of goods by a quarter. And finally, the states parties to the North-South ITC Agreement will be able to reduce the monetary costs of documentation and customs control by 20% [5].

Moreover, the North-South ITC project may turn into an economic development corridor for the EAEU. (Figure 2)

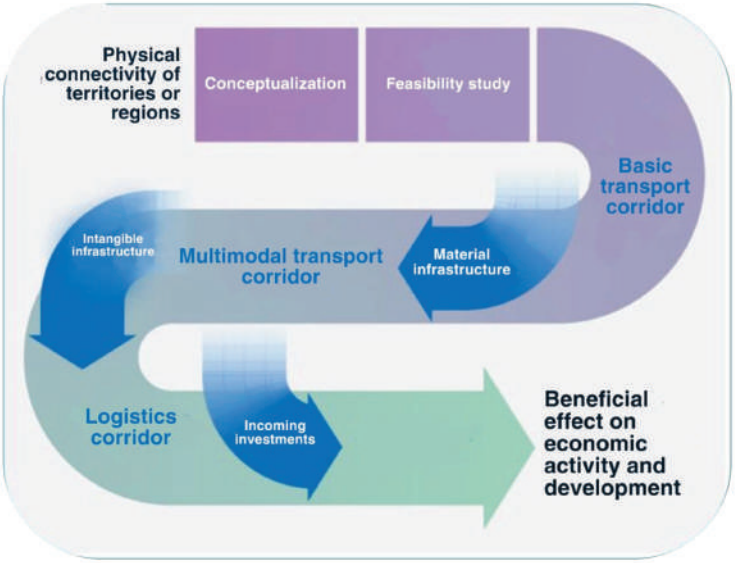


Figure 2. Stages of the economic development corridor evolution
Source: author's aggregation of data from Eurasian Development Bank [5]

Conclusions

Thus, the importance of transport routes along the North–South axis is constantly increasing due to the active interaction of the EAEU with Iran, India and other countries. That is why, it is expedient to find the appropriate

logistical solutions making the flow of goods possible all year round, as well as unhindered for various vessels. It is necessary to take into account the mentioned above geographical features when organizing cargo transportation through constructing certain types of vessels, as well as drawing up specific transportation routes avoiding shallow and seismically active locations. Solving the above problems will unlock the potential of the North–South corridor and increase the trade turnover between Iran and Russia, as well as Iran and the EAEU.

References

1. Agreement "On the international transport corridor "North - South" // JSC "Codex" – 2023 – [Internet source] – Access mode: https://docs.cntd.ru/document/901828641 (date of application: 22.03.2024).
2. Decree of the Government of the Russian Federation dated 07.11.2020 No. 1792 (as amended on 04/28/2023) "On the creation of a port special economic zone and the Caspian cluster in the Astrakhan region" / Consultant-plus – 1997–2023 – [Internet source] – Access mode: https://www.consultant.ru/document/cons_doc_LAW_215315/ (date of application: 21.03.2024).
3. Expansion of maritime trade between Iran and Russia in the Caspian Sea: opportunities and challenges // Foundation for Development and Support of the Valdai International Discussion Club– 2023 – [Internet source] – Access mode: https://ru.valdaiclub.com/a/highlights/rasshirenie-morskoy-torgovli-mezhdu-iranom-i-rossiey/ (date of application: 21.03.2024).
4. Freight map of Caspian Sea // Federation of Freight Forwarders – 2023 – [Internet source] – Access mode: https://www.fffai.org (date of application: 21.03.2024).
5. International transport corridor "North – South": creation of the transport framework of Eurasia // Eurasian Development Bank – 2006–2023 – [Internet source] – Access mode: https://eabr.org/upload/iblock/c69/EDB_2021_Report_5_INSTC_rus.pdf (date of application: 23.03.2024).
6. The expansion of the North-South International Transport Corridor has begun // Rossiyskaya Gazeta – 2012–2023 – [Internet source] – Access mode: https://rg.ru/2023/05/11/reg-skfo/nachalos-rasshirenie-mezhdunarodnogo-transportnogo-koridora-sever-iug.html (date of application: 21.03.2024).

MATVEEVA Elizaveta
Southern Federal University

AI AND EDUCATION: APPLICATIONS AND THREATS

Abstract. The aim of this paper is to examine the application of AI algorithms in education. For many years, scientists have been working on the development of artificial intelligence, which could help people in various areas of life. Currently, these algorithms are being extensively applied in many fields, including education. Given that both students and educators can use AI to solve certain tasks, it is relevant to study this phenomenon in detail. This article outlines the key ways of the implementation of AI algorithms in education, along with possible consequences. We also have described potential benefits, as well as the negative consequences of using artificial intelligence.

Keywords: Artificial Intelligence (AI), algorithms, education, threats.

Introduction

Artificial intelligence (AI) are systems capable of performing tasks that usually require human intelligence. It can be stated that these systems are aimed at imitatation of human intelligence. Initially, AI was designed to simplify people's lives and take on the solution of time-consuming or life-threatening tasks. This included the replacement of human capital in manufacturing, mines, the chemical industry and other areas associated with a risk to life. Scientists were tasked with imitating human intelligence in order to perform various tasks in the highest quality. At the same time, AI should be able to act as a serviceable tool endowed with logic in order to reduce the issues of the human factor. Now the use of artificial intelligence has expanded to many areas and fields of activity, and according to scientists, its application will continue to expand.

Since ancient times, people have been contemplating the nature of thinking and reason. In the texts of Plato, Aristotle and Thomas Aquinas, one can find reflections on the cognition, consciousness, rationality and intelligent machines. And although their ideas cannot be literally interpreted as ideas about Artificial Intelligence in the modern sense, we can talk about the development and evolution of understanding of mind and intelligence over the

centuries. During the age of Enlightenment, interest in the idea of a mechanical mind increased. Various philosophers, such as Descartes and Leibniz, have speculated on the nature of mind and its possible mechanical representation. Descartes, for example, thought about the possibility of creating machines that could mimic the human mind or its functions. In the 20th century, with the development of computer technology, more detailed research began in the field of mechanization of the human mind. The date of the formation of AI can be called 1950-1956, when Allan Turing published the work "Computer Machinery and Intelligence" [4], which is now used to assess the intelligence of a computer. It was at that time that the term "Artificial Intelligence" began to spread.

Artificial intelligence is now being used in many areas of society. AI is used in healthcare, the financial system, the automotive industry, the Internet and social media and education. Every year, more and more cases are becoming known when artificial intelligence has assisted individuals and contributed to various aspects of their lives.

The use of AI algorithms

In this article, we aim to explore artificial intelligence within the education system. As there are more and more spheres of AI distribution, education could not remain unaffected by this process. While we can talk about the advantages of using artificial intelligence in education, we should not forget that there are two sides to every coin. Education is a multifaceted field of human activity, and every innovation, including the use of AI algorithms, can have ambiguous results. On the one hand, the use of AI in education can increase the accessibility of learning, personalize the learning process, optimize curriculum and help students and teachers achieve better results. On the other hand, the use of AI algorithms raises various concerns, from data security to technical addiction.

To begin with, it's worth mentioning the use of AI in this area in general. Due to the fact that AI has access to all kinds of Internet data, its algorithms can answer almost any student's question, help solve a mathematical problem, level a chemical equation or correct errors in a written text. Its algorithms can explain a difficult topic, recommend books for extracurricular reading and provide a list of literature for an essay. In addition, AI algorithms are already being implemented into learning platforms. They analyze the progress of students, adjust the rhythm of studying and learning system for them to achieve the best result. Also, algorithms can be useful for automating the assessment process of assignments and written exams. This feature can significantly reduce the burden

on teachers, who will have more time to prepare for classes and interact directly with students. In addition, the AI is able to generate educational content, tasks for students, as well as advise them educational resources, books, articles and useful videos. All of this can have a positive impact on students' learning and provide them with more opportunities for development. AI algorithms are able to provide inclusive education that will adapt to the needs of each individual, thereby making the learning process more enjoyable, convenient, and most importantly effective.

The huge potential of AI in the educational field is confirmed by the introduction of algorithms into learning systems. Thus, Carnegie Learning, a company engaged in educational technologies, has developed a system for teaching mathematics based on artificial intelligence. This platform — called MATHia [6] — provides students with the opportunity for individual learning and adapts to their individual learning needs. According to the results of the study, students who used MATHia significantly outperformed their peers who received traditional classroom instruction. Thus, demonstrating the effectiveness of artificial intelligence-based learning systems in improving student learning outcomes.

Dozens of projects with integrated AI are currently being implemented in Russia, which are designed to make education more accessible, comfortable and effective. A striking example is the virtual assistant "Kesha" [3] based on the GPT4 chatbot, which is used by the Skyeng educational service. "Kesha" allows you to model and practice dialogues, receiving feedback from the interlocutor with highlighted errors. For example, talking with Kesha, a student can simulate the situation of buying souvenirs — the chatbot will behave like a real sales consultant and ask questions that one can answer for language practice.

Potential threats of AI in education

Providing educational technologies with artificial intelligence algorithms can give students not only effective learning, but also provide support and feedback for them, helping them improve their academic performance and achieve better learning outcomes. AI in the field of education has huge potential and offers many advantages in the educational environment. Artificial intelligence has an infinite amount of information, which creates many opportunities for humans, although for all of its advantages, the use of AI is a double-edged sword.

In the diagram below, we present the results of the EdWeek Research Center survey [2], April 2023.The study was conducted among 863 teachers, principals, and district leaders. The educators were asked about the possible affect of AI on teaching and learning.

According to the results of the study, 47 percent of respondents believe that the use of AI algorithms in education will lead to negative consequences.

For example, students can turn to AI on an ongoing basis to reduce the time needed to solve various tasks. This can lead to a decrease in critical thinking skills and loss of the ability to solve tasks on their own. If students become overly dependent on AI to locate answers and solutions, they may find it difficult to think creatively and independently. Thus, AI will not help learning, but on the contrary, slow down the development and education of students. Teachers express concern about students cheating by using artificial intelligence, sinceAI algorithms are able to provide them with the most convenient way to get the necessary answers.

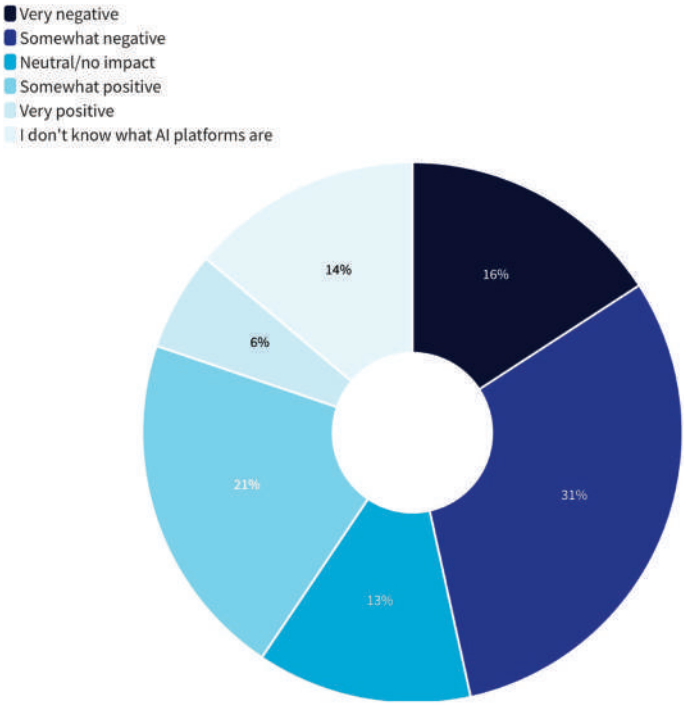


Figure 1. The results of the EdWeek Research Center survey
Source: EdWeek Research Center survey [2]

Another problem is the loss of contact with other people. Dependence on artificial intelligence in educational institutions can reduce the role of teachers, which will lead to students losing the opportunity to learn from real

people. This can reduce the number of connections with other people and reduce interpersonal interaction. Although artificial intelligence can provide valuable support and assistance, it cannot completely replace the role of human educators in learning, since only humans can teach empathy, emotional literacy and healthy human interaction.

Another negative consequence of dependence on information technology may be the loss of concentration. Excessive use of artificial intelligence-based educational technologies can contribute to the development of dependence on gadgets and the Internet. Constant exposure to screens and digital devices can negatively affect students' concentration, sleep patterns, and overall well-being. At the moment, there are already studies describing the impact of electronic devices on humans, and especially on children and adolescents. Over the past decade, the amount of screen time has steadily increased, as has dependence on social media. It even led to a stable expression appearing in English – a "digital junkie" [7]. This phrase is used to describe someone who is constantly on a smart phone, tablet, laptop, etc. and uses devices at all times, even when it is inappropriate, for instance while showering, driving, or crossing the street. The junkie always has the device within arm's reach. What is more, there is evidence of a growing dependence on technology. In 2019 scientists surveyed 57 countries [8], and it was predicted that people will spend a collective 3.8 trillion hours using the mobile internet that year, rising to 4.5 trillion hours in 2021. In 2020 an average person with the Internet access spent 2.5 hours each day on social media. According to statistics, on average, Americans spend 4 hours and 37 minutes staring at their phone screen every day [5].

In addition, these two probabilities can occur simultaneously. Certain people are predisposed to having a digital addiction, such as those who suffer from anxiety and depression. Their lack of emotional support means they turn to the digital media to fill their need [1]. Thus, the constant use of AI algorithms can contribute to an increase in the possibility of dependence on digital devices.

In addition, AI algorithms learn uncontrollably – developers cannot always limit the information entering the artificial intelligence databases. If AI learns from biased data or data programmed with erroneous assumptions, this can lead to inadequate responses and results, to misinformation of students.

Conclusion

Thus, there are some concerns related to the use of artificial intelligence in education. As can be seen, this is due to accuracy, reliability, ethical considerations, and unintended consequences. Although AI has the potential to transform education, it is important to approach its implementation

thoughtfully, carefully considering its limitations and potential risks. In addition, ongoing research, evaluation and ethical oversight are needed to ensure responsible and effective use of AI technologies in educational institutions.

As we can see, the excessive use of artificial intelligence in education can have many negative consequences, which can lead to disruption of the educational system itself and reduce its effectiveness as an institution. That is why it is necessary to approach the implementation of AI algorithms in educational systems with caution.

References

1. Buckner V. J. E., et al. The Five Factor Model of personality and employees' excessive use of technology. Computers in Human Behavior. 2012.http://dx.doi.org/10.1016/j.chb.2012.05.014
2. Langreo L. What Educators Think About Using AI in Schools. 2023. URL:https://www.edweek.org/technology/what-educators-think-about-using-ai-in-schools/2023/04
3. Tamirova D. Artificial intelligence in education: pros and cons, application options. 2023. URL: https://edutoria.ru/blog/post/iskusstvennyy-intellekt-v-obrazovanii-kak-ispolzovat-varianty-primeneniya
4. Turing A. Computing Machinery and Intelligence — Mind, New Series, Vol. 59, No. 236 (Oct., 1950), pp. 433-460.
5. Harmony Healthcare IT. Black Mirror or Black Hole? American Phone Screen Time Statistics. 2024. URL: https://www.harmonyhit.com/phone-screen-time-statistics/
6. Saga Education. MATHia Rises to the Top in Study of Adaptive Learning Platforms Conducted by Saga Education. 2021. URL: https://www.prnewswire.com/news-releases/mathia-rises-to-the-top-in-study-of-adaptive-learning-platforms-conducted-by-saga-education-301410286.html
7. UrbanDictionary. URL: https://www.urbandictionary.com/define.php?term=Digital%20Junkie
8. Zenith Media. Consumers will spend 800 hours using mobile internet devices this year. 2019. URL: https://www.zenithmedia.com/consumers-will-spend-800-hours-using-mobile-internet-devices-this-year/.

MEDVEDKOVA Aleksandra
Moscow State Institute of International Relations (University)

GENERATION GAP AND EVOLUTION OF MARKETING

Abstract. The article explores the evolution of marketing from marketing 1.0 to marketing 5.0 through analysing the generation gap and its impact on marketing trends. The research methodology includes a review of relevant scientific sources and statistics. The results show that generational differences, their needs, characteristics, habits, and capabilities are key factors in the transition to various stages of marketing. Digitalization also has a significant impact on marketing trends and generational differences. The results of the research can be used to develop marketing strategies, as well as to improve interaction with customers of different generations.

Keywords: marketing, generation, stages, characteristics, differences.

Introduction

Due to the rapid development of technology and changing consumer behavior, companies must distinguish the main features of different generations and their susceptibility to new marketing trends. Each generation can be compared with a specific stage of marketing development. The purpose of the study is to explore generational groups and their comparability with one or another stage of marketing evolution.

Generations

Marketers globally are adapting to serve five generations: Baby Boomers, Generation X, Generation Y, Generation Z, and Generation Alpha. Baby Boomers are still active in the workforce, while Generation X holds many leadership positions. Generation Y is the largest working group, and Generation Z is the newest entrants. Understanding each generation's tech proficiency is crucial for implementing tech-focused Marketing 5.0 strategies [2].

The *«baby boom»* refers to the post-World War II surge in birth rates, creating a key marketing target. Early Boomers, shaped by social challenges,

embraced counterculture. Late Boomers, or Generation Jones, faced economic struggles, fostering independence, and strong work ethic. Baby Boomers, a major economic force due to their numbers and early prosperity, now face criticism for reluctance to adopt new technologies.

Generation X, born between 1965 and 1980, is often overlooked but influential. They grew up in turbulent times, valuing relationships due to less family time. Adaptable to technological shifts, they are strong leaders with a solid work ethic. Many have turned to entrepreneurship, finding success despite career challenges.

Generation Y, or Millennials, born between 1981 and 1996, are known for their education, diversity and strong ties to social media. They are the children of Boomers. Millennials prioritize experiences over ownership, value peer opinions over brands, and often challenge traditional norms. They are divided into two sub-generations: older Millennials, who faced job market challenges during the 2008 financial crisis and keep personal and professional lives separate, and younger Millennials, who prioritize job fulfillment and blend personal and professional aspects.

Marketers are now focusing on *Generation Z*, born between 1997 and 2009, known as Centennials. Raised during financial challenges, they prioritize stability in career choices and are digitally savvy, blending online and offline worlds effortlessly. They prefer genuine social media content, dislike overly polished brands, and seek personalized experiences. Generation Z values social and environmental causes, supporting brands promoting change and sustainability. Their large numbers make them a key market force expected to surpass Generation Y by 2025.

Generation Alpha, born between 2010 and 2025, are tech-savvy children raised by Generation Y parents. They prioritize education, finance, and diversity, consume online content heavily, and are comfortable with technology. Their influence on household decisions and future global marketing strategies is significant as they grow up with advanced technologies like AI and robotics.

The peculiarities of generations are related to the time in which they lived and the realities to which they had to adapt, as well as the fact that each of these generations perceives digitalization differently [4]. Not many companies understand the unique needs of each generation and have the systems in place to address all of them. In the coming decade, companies that can gain the trust of Generation Z and Generation Alpha will have a strong competitive edge. To do so, companies need to fully understand the gaps and preferences of each generation and consider whether their brands and products are meeting their needs.

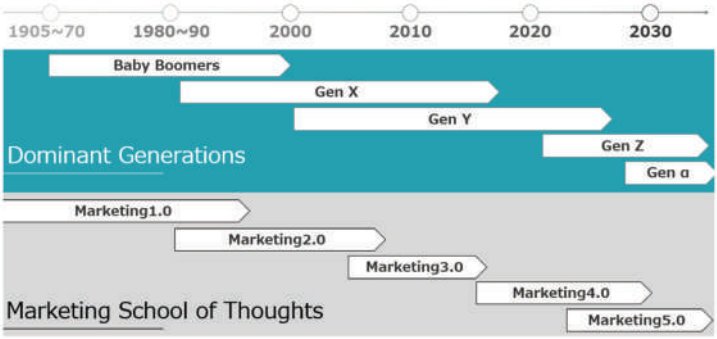


Figure 1. Comparison of generations and stages of marketing
Source: https://www.pkmarketing.jp/en/articles/marketing5_02_en/

Marketing evolution

Marketing 1.0, originating in the US in the 1950s, aimed to serve affluent Baby Boomers by creating high-value products with superior features to outshine competitors. Companies focused on product development, lifecycle management, and optimizing the Four Ps to command higher prices. However, a downside was encouraging consumerism by promoting unnecessary purchases.

In its early days, Coca-Cola actively utilized traditional methods such as advertising in newspapers, magazines, and radio. They also created vibrant advertising posters and billboards to draw attention to their product.

Marketing evolved from counterculture movements in the 1960s-70s to a customer-centric approach in the 1980s due to lower consumer spending power. *In Marketing 2.0*, companies focused on segmentation, targeting, and positioning, tailoring products to specific consumer needs. They prioritized building relationships with customers through customer relationship management to enhance retention over satisfaction.

GoPro has built its brand almost entirely through user-generated content. By encouraging customers to share their extreme sports and adventure videos, GoPro has created a community of loyal fans who promote the brand organically.

The emergence of Generation Y and the global financial crisis in the late 2000s led to a major shift in marketing. With easy access to information and distrust towards profit-driven corporations, Generation Y demanded products and services that had a positive impact on society and the environment. This gave rise to human-centric marketing, or *Marketing 3.0*, where companies integrated ethical and socially responsible practices into their business models.

Airbnb has also embraced Marketing 3.0 by focusing on promoting cultural exchange, diversity, and inclusivity. Their marketing campaigns often showcase the diverse range of hosts and experiences available on the platform, highlighting the importance of connecting people from different backgrounds and cultures.

Figure 2. The marketing evolution
Source: https://learn.nitinkrsaxena.com/how-marketing-has-evolved/

Digitalization complements the trend toward human centricity as Generation Y and Z prefer the digital economy. The emergence of mobile Internet, social media, and e-commerce has altered the customer path to purchase. Marketers have adapted by utilizing omnichannel strategies, transitioning from traditional to digital practices, and embracing *Marketing 4.0*.

IKEA has embraced Marketing 4.0 by combining its physical stores with digital experiences. The brand offers virtual reality showrooms, augmented reality apps for visualizing furniture in a room, and online shopping options that complement its in-store experience.

With the emergence of Generation Z and Generation Alpha, marketing must evolve. These generations are focused on improving humanity and advancing technology. Marketers must embrace new technologies to enhance human lives, creating a blend of human-centricity and technology enablement in Marketing 5.0. In other words, *Marketing 5.0* will be the integration between Marketing 3.0 and Marketing 4.0.

Marketing 5.0 examples demonstrate how brands are using technology to connect emotionally with audiences and create memorable experiences. Nike, with its Dream Crazy campaign, has inspired millions by highlighting athletes' breakthrough stories and encouraging the public to pursue their dreams. Coca-Cola innovated with the Share a Coke campaign, personalizing packaging with names and nicknames, encouraging sharing and connection between people.

Dove, with its Real Beauty campaign, broke beauty stereotypes by promoting self-acceptance and valuing diversity.

Conclusion

In the upcoming decade, Generation X will dominate leadership roles in marketing, having experienced and embraced various marketing eras. With support from Generation Y middle managers, they will drive marketing initiatives for Generation Z and Generation Alpha. These younger generations will shape Marketing 5.0, focusing on technology's potential to improve human lives and create happiness. Companies that earn their trust will succeed in this new era of marketing.

References

1. A Loyalty Suite [Internet Source] / Internet data – Access mode: https://www.pkmarketing.jp/en/articles/marketing5_02_en/ (date of application: 30.05.2024).
2. Hezzah A., Moghaddas H. «Elevating customer experience for the consumer products and retail industries»// Deliotte – 2021.
3. Nikitin K. [Internet Source] / Internet data – Access mode: https://learn.nitinkrsaxena.com/how-marketing-has-evolved/ (date of application: 30.05.2024).
4. Setiavan I., Kotler P., Kartjaya H.. «Marketing 5.0: Technology for Humanity»// John Wiley & Sons – 2021.

OGURTSOVA Elizaveta
Russian Foreign Trade Academy

MODERN METHODS OF RECRUITMENT AND PERSONNEL SELECTION IN THE ORGANIZATION

Abstract. Personnel management is one of the main aspects of a modern organization. Nowadays, the company's success depends not only on innovations and new technologies, but also on highly qualified personnel. However, the process of personnel search and selection is quite complicated, and for this, HR managers need new ways to select relevant candidates. Changes in the recruitment processes themselves are inevitable, so new technologies are appearing on the market that help to give an edge over a competitor. At the moment, technologies are actively developing that help automate and reduce routine and conventional hiring processes. This article discusses modern methods of recruitment and selection of personnel, which can improve the efficiency of the organization in the recruitment process.

Keywords: recruitment, personnel selection, methods, human resources.

The modern approach to personnel selection differs from the traditional one. In the traditional approach, the amount of employment depends on the difference between available labor and future need. Currently, due to the high cost of inappropriate employment, employers are turning to interviews with candidates of special interest. In the field of innovation, where the future demand for human resources is difficult to predict, it is necessary to note the importance of the ability of existing personnel in terms of their adaptation to processes in society and their level of knowledge.

The new way of modern production interprets the problem of career success in different ways, and therefore a system of selection, retraining and adaptation of an employee is being created. This situation forces us to look for new social technologies, forces us to have both innate and priority skills with the requirements of the surrounding world and the perception of a range of motives.

Modern conditions force an employee to have flexible and creative thinking, effective perception, an inner impulse to non-standard and creative, self-control and self-realization in the social system. At first, they focus on highly qualified work, where the main element is the personality of the innovator-

manager. The main figure in modern activity is a person with high intellectual abilities, for whom work and internal motivation are of the greatest importance.

The whole process is divided into two parts: recruitment and personnel selection.

Let's consider the process of staff search. Companies mainly use online resources to find new employees, such as HeadHunter, Yandex Jobs, Jooble, Super Job. They also post vacancies on their own website.

Headhunting or Executivesearch is a less popular method of direct personnel search than social media. However, it is used when companies consider the transition of a particular professional from one company to another. The main idea of headhunting is to negotiate confidentially about the possible transfer of a particular professional from the labor market. The goal is to attract highly skilled professionals with extensive experience from several leading companies in the industry. The need to use headhunting is due to the lack of qualified specialists in modern companies both in the West and in Russia [1].

For some reason, a recruiter should not engage in headhunting on his own:

- Internal personnel workers cannot have direct search methods;
- The candidate may be subject to provocation from competitors;
- Lack of special preparation for the interview may lead to refusals;

The growth of such professionals requires a significant amount of time and resources. During the bounty hunt, you can quickly find qualified specialists in other companies and offer them a promising offer to change jobs on more favorable terms. Headhunting companies that want to preserve their reputation and customer loyalty stick to certain rules:

1) meet the deadline;
2) not exceed the budget;
3) search for and provide objective and up-to-date information about the candidate;
4) terminate the order if the conditions for its fulfillment deteriorate;
5) guarantee the replacement of the candidate, if he needs to leave within six months, without remuneration;
6) monitor and inform the customer at all stages of the work.

Next, let's look at various methods of personnel selection in the organization.

Screening is a so-called superficial selection, when a manager makes a preliminary analysis from the available large number of resumes, and a recruitment agency identifies suitable candidates. During mass recruitment and selection, HR managers use their database, which is available within the company, as well as personal contacts, and some managers or companies participate in job search fairs and exhibitions, cooperate with job exchanges.

Screening differs from full-service recruitment services because the recruitment agency does not conduct a thorough and detailed assessment of candidates here, does not check references from previous jobs and does not guarantee that the professional and personal requirements of recommended candidates for the position are met.

Next, let's look at the video interview. A resume in the form of a video attracts many employers, as they believe that creative people, as well as those who work in the field of communication between people, can stand out from the rest using this format. The main purpose of the video interview format is to attract the attention of a future employer due to the originality and creative approach to solving problems, however, each video interview must be adapted to each industry. Despite several disadvantages of this candidate selection format, such as the inability to replace the traditional text resume, the video interview format is an unusual and original way of presenting the candidate's personality. This is how employers see bright and creative candidates. However, it is important to focus on the strengths and outstanding sides and provide your thinking and personality as much as possible [4].

Also, in modern conditions, such selection methods are often used:

1. Intelligent interview: This type of communication with the candidate is already a popular aspect of the interview. This method uses puzzles and complex questions, so they are looking for people with high motivation and non-standard ideas who are able to think quickly and clearly, ready to work actively when it is necessary to urgently complete projects. With the rapid development of the modern world, professionals from different fields require quick and creative solutions. Puzzles have been used in industries such as manufacturing, banks, law firms, and insurance companies.

An intellectual interview. Russian companies love this method of personnel selection. The main idea is to solve a logical problem or answer a difficult question. This is used to test analytical and non-standard thinking. Therefore, this method is used to select creatives and knowledge workers.

However, employers also use this method to select and select people in professions such as engineers and machine operators. And the questions for this method can be divided into:

1) short and small oral puzzles with clear answers;
2) small tasks with no definite answer; logic and originality of the answer are important for interviewers;
3) tasks for originality of thinking

2. Stressful interview: This method is aimed at assessing the candidates' ability to withstand stress. This is especially useful when selecting personnel for roles that require stress tolerance, such as salesmen, firefighters, police officers,

and health care workers. During this type of interview, stressful conditions are created for candidates to assess how they respond under pressure.

The basic stress interview process involves:

1) being late for an interview with a candidate for at least half an hour;
2) not to pay attention to merit;
3) lose the candidate's documents;
4) intentionally creating uncomfortable conditions during the interview process;
5) create a list of obscene questions;
6) unexpected actions.

Social media is also becoming increasingly popular in selection of personnel, as it allows HR professionals to get to know candidates from a more personal perspective. Studying candidates' profiles on social networks allows you to understand their hobbies, interests and lifestyle outside of work. Large companies often use social media to attract specialists who do not publish their resumes in traditional places.

In conclusion, there are not bad and good ways to select staff, but relevant and irrelevant, depending on the specific needs of the company, position and situation. Therefore, it is important that any HR service selects tools and methods that meet the goals and interests of the company in order to create a high-quality and flexible HR system.

References

1. Armstrong, M. Human Resource management practice [Text] / M. Armstrong, S. K. Mordovin lane. – 10th ed. – St. Petersburg: St. Petersburg, 2009. – 848 p.
2. Dubrovskaya O. // Personnel officer's Handbook. The journal of the head of the personnel service / O. F. Dubrovskaya. 2001. – No. 5. pp. 12-15.
3. Kravchenko, K. Personnel search and selection: History and modernity [Text] / K. A. Kravchenko // Personnel management. – 2008. – No. 12. pp. 39-42.
4. Suslov, G. Personnel management of the organization [Text]: textbook. the manual / G. V. Suslov. – M.: RIOR: INFRA-M, 2016. – 154 p. Dubrovskaya, O. F. The procedure for selecting a candidate for a vacant workplace [Text].
5. Relevance and methods of personnel selection. Problems and ways to solve them [Electronic resource].- URL: https://cyberleninka.ru/article/n/aktualnost-i-metody-otbora-personala-problemy-i-puti-ih-resheniya/viewer.

RYBKINA Sofya
Russian Foreign Trade Academy

PRESENT TRENDS IN COMPANY PERSONNEL MANAGEMENT

Abstract. Personnel management is experiencing many changes due to the globalisation of the world economy. Personnel management is a core factor in implementing company's operation. In order to increase company's profit, have an edge over competitors and operate efficiently, it is necessary to follow innovations and trends in management. In such conditions of global competition, management requires cutting edge approaches, methods and management tools. This means taking into account cultural differences, handle talent effectively, develop cross-cultural skills and continuous training. As globalization changes the work environment, introducing new models of communication and collaboration, personnel management must be flexible and adaptive.

Keywords: personnel management, globalization, management, employee trainings, motivation, leadership.

Introduction

Personnel management in the context of globalization is one of the core aspects of efficient business in modern business. Globalization is a process of interaction of economic, political and social structures. It causes not only changes in international economic relations, but also affects the personnel management [6].

One of the main challenges faced by companies due to the globalization is the management of multinational workers. Due to the expansion of the global market, companies are faced with the need to hire employees from different countries with different cultural characteristics and language barriers. Managing such a multinational staff requires special skills and knowledge, as it is necessary to take into account cultural differences, religious and ethnic characteristics, as well as take into account different legal norms in different countries. Due to these facts, personnel managers should be flexible and adaptive. It is also important to adapt the site and the channels of interaction between employees.

Management features

There are lots of the core characteristics, that should be taken into account while managing the staff. The management features include:

- Cultural differences: Multinational staff consists of employees of different nationalities, each of which has its own unique cultural characteristics. When managing multinational staff, it is necessary to take these differences into account and to create an atmosphere of respect. To do this, companies need to create a special corporate policy with tolerant values of the company.
- Language barriers: The different languages spoken by employees from different countries can create language barriers to communication. Managers are encouraged to establish communication tools that will allow employees to communicate and interact in a common language, such as using translators or providing language training.
- Variations in legal and tax standards: Different countries have their own specific legal and tax requirements. Managers need to be aware of these requirements in order to avoid possible legal problems.
- Differences in leadership and management styles: Cultural differences can also lead to differences in leadership and management style preferences. Managers should be flexible and take into account the different preferences and expectations of employees when developing management and communication strategies.
- Productivity and motivation: Multinational staff may have different levels of motivation, expectations and ideas about work. It is important for managers to create motivational programs that take into account cultural differences and promote employee growth and development.

Motivation

Successful personnel management in the context of globalization requires an approach based on the principles of international management. Globalization means increased competition in the global market. In this situation, companies must attract and retain the most talented employees with unique skills and experience. Personnel management should develop strategies to attract and retain talent, create stimulating working conditions and provide different incentives. Managers should use material and non-material bonuses, such as:

- Commission, attendance reward, non-contributory pension plan, on-time bonus, staff discount, private medical insurance and profit-sharing scheme
- Praise, fulfilment, sense of achievement and positive feedback [4].

The styles of leadership

For effective management of multinational personnel, it is also necessary to develop leadership qualities in company managers. Managers should be open to new ideas, ready to adapt and change, and find an approach to each employee. Personnel management should support and develop teamwork, intercultural communication and diversity management skills to achieve effective work among international teams [3].

- Improving interpersonal relationships in the work process and creating a favorable atmosphere in the team;
- Ensuring effective information exchange;
- Exchange of tools, technologies and innovative techniques in work;
- Sharing emotions;
- Creation of information channels for the purpose of information exchange between employees and individual groups [1].

There are three main styles of leadership according to the degree of freedom of employees:

- Authoritarian. The head alone makes decisions and controls every stage of the team's work. He gives instructions to employees: what task, in what way and in what time task should be completed.
- Democratic. The head makes decisions himself, but consults with subordinates and delegates control of some stages of the work. Each team member can propose their own solution to the problem and adjust the deadlines.
- Liberal. Employees themselves decide in what time they will be able to complete the task and what they need for this. The manager provides the environment and sets the direction of work, and employees themselves come to the goal [5].

In the context of globalization, the most successful leadership style will be the democratic style.

Features of the democratic management style:

- Managers create an atmosphere of respect.
- Meetings are often held where all team members can express their opinions, offer ideas and participate in the discussion of important issues.

- This management style encourages communication, feedback and collaboration.
- Employees feel that their opinion is appreciated and taken into account when making decisions.

Among the advantages are the motivation and involvement of employees, high quality of decisions, since the decision-making process takes place in a comfortable atmosphere where employees can express their opinions, as well as a high level of communication in the team.

Technologies in personnel management

Another important aspect of personnel management in the context of globalization is the use of modern technologies. Since some employees will perform tasks from another country, it is necessary to provide them with comfortable communication tools. Online communication is a system of information exchange that is carried out via the Internet or other networks. With its help, we can communicate with people all over the world, regardless of time and distance. Thanks to the digitalization of business processes, it is possible to create virtual teams where employees can work effectively regardless of their location.

Here are some examples of the use of online communications in companies:

- Virtual workgroups: Employees located on different continents can communicate via video conferences, share documents and information in real time, and coordinate their actions to achieve common goals.
- Online collaboration platforms: Companies use online platforms such as Google Docs, Microsoft Teams, or Slack so that employees can collaborate on projects, share files, and discuss ideas online. This allows employees to collaborate and manage projects more effectively.
- Internal corporate social networks: to enhance internal communication and information exchange between employees, companies can create an internal corporate social network. Employees can discuss ideas, share news, ask questions and find solutions to problems within the company [8].
- Online trainings and webinars: Companies can use online communication to conduct trainings and webinars for their employees. This allows you to train employees from a distance, saving time and travel costs, and also makes it possible to record and save materials for later use [2].

Management features

Finally, globalization requires continuous training and development from human resources management. The rapidly changing international environment requires HR managers to keep abreast of the latest trends in management, legislation and technology.

There are several different types of employee training that companies can apply depending on their needs. Here are some of them:

- Offline training: This is a traditional way of learning, which is conducted in the company's office or special training centers. It includes lectures, seminars, trainings and practical exercises. Offline training is often used to train new employees or teach specific skills.
- Online learning: A type of learning based on the use of Internet platforms and electronic tools. Online learning can be presented in the form of webinars, e-courses, video tutorials and other interactive formats. Online learning often offers flexibility in scheduling and accessibility, allowing employees to gain knowledge at a time and place convenient for them.
- Mentoring (mentoring): In this type of training, experienced employees (mentors) expand their knowledge and skills by transferring them to new or less experienced employees (students). Mentoring allows students to receive personalized guidance, guidance and support on various aspects of their work. It also contributes to the development of internal leadership and the creation of a learning culture in the company [7].
- Corporate trainings and seminars: Companies can invite specialists or trainers to conduct trainings and seminars on certain topics. This can be training in leadership skills, teamwork, project management and many others. Corporate trainings help employees expand their knowledge and skills, as well as contribute to the formation of a unified corporate culture.

Conclusion

To sum up, personnel management in the context of globalization is a complex and multifaceted process that requires special approaches and skills. Key aspects of successful management are taking into account cultural differences, developing leadership skills among managers, and using modern technologies.

References

1. Brammer, S., & Pavelin, S. (2006). Corporate Reputation and Social Performance: The Importance of Fit. Journal of Management Studies.
2. Deloitte. (2020). Global Human Capital Trends 2020: The Social Enterprise at Work. Deloitte Insights. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/at/Documents/human-capital/at-hc-trends-2020.pdf
3. Fombrun, C. J. (1996). Reputation: Realizing Value from the Corporate Image. Boston, MA: Harvard Business School Press.
4. Kotler, P., & Lee, N. (2005). Corporate Social Responsibility: Doing the Most Good for Your Company and Your Cause. Hoboken, NJ: Wiley.
5. Mercer. (2020). Global Talent Trends 2020: Reset normal. Mercer. Retrieved from https://www.mercer.com/our-thinking/career/global-talent-hr-trends.html
6. McKinsey & Company. (2021). The future of work after COVID-19. McKinsey Global Institute. Retrieved from https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19
7. PwC. (2021). Workforce of the future: The competing forces shaping 2030. PwC. Retrieved from https://www.pwc.com/gx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf
8. SHRM. (2021). The Future of Work in the Age of AI. Society for Human Resource Management. Retrieved from https://www.shrm.org/hr-today/trends-and-forecasting/research-andsurveys/Documents/SHRM%20Future%20of%20Work%202021.pdf

SAZONOV Oleg
Lomonosov Moscow State University

THE IMPACT OF INFLATION TARGETING ON INFLATION: WHAT DOES THE LATEST DATA SAY

Abstract. At present many countries all over the world face high and volatile inflation, which impedes efficient investment decision making and long-run economic growth. In the context of such possible negative consequences price stability is becoming a primary objective within the framework of economies' monetary policies. In addition, little attention is paid in the literature to oil-exporting countries, whose economies are significantly dependent on oil price fluctuations. The aim of the research is to test the effectiveness of traditional inflation targeting and its ability to reduce inflation in oil-exporting countries. The results obtained from the undertaken econometric investigation indicate that the considered monetary regime makes a steady impact on the inflation rate and volatility in oil-exporting countries that are negatively affected by oil price shocks and characterized by periods of high inflation.

Keywords: inflation targeting regime, monetary policy, level and volatility, oil-exporting countries, dynamic panel model.

Introduction

One of the main objectives of central banks around the world is to maintain a low and stable inflation rate, which explains the widespread use of the inflation targeting regime (IT), which had been officially adopted by 45 countries by the end of 2022 (according to the AREAER [1]). Starting from 2020, in particular due to the COVID-19 pandemic and multiple geopolitical tensions, the global economy began to shift from a prolonged period of low inflation (2010-2019) to a high inflation regime characterized by "correlated growth of prices for different goods" and having a self-sustaining and self-reinforcing character [13]. Consequently, the discussion around inflationary processes and anti-inflationary policy is back on the agenda [6].

In addition, the academic community does not pay enough attention to the group of oil-exporting countries. Meanwhile, their economy is significantly dependent on oil price fluctuations, and this may have ambiguous effect on the performance of various monetary transmission channels [8].

Thus, the purpose of this paper is to assess the impact of the transition to the inflation targeting regime on the level and volatility of inflation in oil-exporting and non-energy exporting countries.

The document is structured as follows: first, a literature review is done to examine the effectiveness of the inflation targeting regime in different groups of countries, then the data used is described, a dynamic panel model is constructed and estimated, and based on the results the conclusions are drawn.

Literature review

A review of a wide range of researches demonstrates that the most common approach to study the effectiveness of IT is to divide countries into developed and developing ones, and the majority of studies have revealed a decrease in the price growth rate as a result of the transition to a new policy in the developing group, which can be explained by the possibility to increase public confidence in the monetary authorities and activate the main channel of IT impact on inflation – anchoring inflation expectations of the population. In developed countries the efficiency of this channel is maintained through the high reputation of central banks, which manage to stabilize the price growth rate without switching to a new monetary policy regime [3, 5, 7, 10, 11].

In addition, other criteria for classifying countries are interesting but not yet mastered, in particular, by the volume of oil export in absolute and relative terms. At the same time, the economists note the ability of inflation targeting to reduce the effect of transfer of oil prices to the general price level in the economy, which is a strong argument for the oil-exporting countries to switch to this regime [4, 9, 12].

The next chapter is an econometric study, which provides an opportunity not only to verify the effectiveness of the inflation targeting regime, but also to compare the effectiveness of this monetary policy in oil-exporting and countries not focused on energy exports.

Data and methodology

The sample consists of all 189 UN member states for which statistics for the period 2003-2022 are available and includes all 45 countries that had switched to inflation targeting by the end of 2022. In addition, this set includes the top-20 largest oil-exporting countries in 2022: Saudi Arabia, the Russian Federation, Iraq, Canada, the United Arab Emirates, Kuwait, Iran, Venezuela, Angola, Nigeria, Norway, Kazakhstan, Mexico, Oman, Brazil, Colombia, Azerbaijan, Algeria, the United Kingdom of Great Britain, the United States of America.

The specification of the regression equation contains 4 control variables. First, the level of imports of goods and services in % relative to GDP, reflecting the country's openness to trade [2]. Secondly, in accordance with the work [7], I use lagged real GDP growth rates and two variables reflecting the financial condition of the country's economy: the volume of loans given out by banks to the private sector in % relative to GDP and the number of bank branches per 100,000 adult citizens.

The specifications of the equation, where the dependent variable is alternately the level and volatility of inflation, are as follows:

$$INFL_{it} = \beta_0 + \beta_1 * INFL_{it-1} + \beta_2 * IT_{it} + \beta_3 * IT\_lag_{it} + \beta_4 * X_{it} +$$

$$+ \beta_5 * OilExp_i + \beta_6 * IT_{it} * OilExp_i + \varepsilon_{it},$$

$$INFVOL_{it} = \beta_0 + \beta_1 * INFVOL_{it-1} + \beta_2 * IT_{it} + \beta_3 * IT\_lag_{it} + \beta_4 * X_{it} +$$

$$+ \beta_5 * OilExp_i + \beta_6 * IT_{it} * OilExp_i + \varepsilon_{it},$$

where $INFL_{it}$ – the inflation rate in the i-th country in year t (growth rate of average annual CPI),

$INFVOL_{it}$ – the volatility of inflation in the i-th country in year t, calculated by the author independently as the variance of inflation within a year, estimated on monthly inflation data within each year,

IT_{it} – dummy variable equal to 1 if the i-th country targets inflation in year t, and 0 otherwise,

IT_lag_{it} – dummy variable equal to 1 if the i-th country targets inflation in year t-1, and 0 otherwise (i.e. switching to the IT regime with a lag of 1 year),

X_{it} – vector of 4 control variables for the i-th country in year t,

$OilExp_i$ – dummy variable equal to 1 for oil-exporting countries, and 0 otherwise,

ε_{it} – random regression errors.

From a conceptual point of view, price rigidity in the short-run does not allow monetary authorities to have an instant impact on inflation – the introduced monetary policy measures can have an impact on prices only in the horizon of 1-2 years [8]. For this reason, it is advisable to add to the model the transition to inflation targeting not only in the current period, but also with a one-year lag IT_lag_{it}. In addition, a more modern approach

to assessing the effect of the transition to the IT regime is a dynamic model that allows taking into account not only specific fixed country effects, but also the inertial nature of inflation due to the inclusion of its values in previous periods $INFL_{it-1}$ [7]. The generalized method of moments (GMM) can be used to obtain consistent estimates of the coefficients in such a model.

Results

The 1st column of Table 1 presents the results of estimating the static panel model with fixed effects and time effects (without lagged values of the dependent variable), while the 2nd and 3rd columns present the estimation of the dynamic panel model for the inflation rate and volatility, respectively.

Table 1

Estimating the impact of the transition to inflation targeting on the level and volatility of inflation using fixed effects model, and estimating a dynamic panel model using GMM

Dependent variable:	$INFL_{it}$	$INFL_{it}$	$INFVOL_{it}$
Method:	Fixed effects twoways	GMM	GMM
$INFVOL_{(it-1)}$			**0.096****
			(0.044)
$INFL_{it-1}$		**0.283****	
		(0.118)	
IT_{it}	-0.710	-1.531	**-0.242***
	(1.061)	(4.070)	(0.131)
IT_lag_{it}	**-1.711***	**-2.686****	0.061
	(0.903)	(1.119)	(0.173)
$OilExp_i$		0.000	0.000
		(0.000)	(0.000)
$IT_{it} * OilExp_i$	1.018	31.86	-0.014
	(0.979)	(43.46)	(0.010)
Observations	2,479	2,479	2,147
R^2	0.016		
Note:		*p<0.1; **p<0.05; ***p<0.01	

Source: compiled by the author. Control variables are included in the models.
Robust standard errors are indicated in parentheses below the coefficient estimates.

Based on the obtained results, the following conclusions can be drawn.

First, the transition to the inflation targeting regime steadily reduces the level and volatility of inflation on average for all countries in the sample: all other things being equal, the choice of inflation as the nominal anchor of monetary policy results in its reduction effect of 2-3 percentage points, and the effect of inflation volatility reduction is 0,25 on average. Nevertheless, for the inflation rate it is worth recognizing the existence of a small lag - the introduction of a new policy in the current year "bears fruit" only in the following year.

Second, we can see that inflation inertia is indeed present, and the inclusion of the price growth rate in the previous year is justified: each p.p. of inflation in the previous period adds about 0,3 p.p. to the inflation of the current period. The same is true for inflation volatility: fluctuations in the price growth rate in the current period depend on those in the past period.

Finally, the insignificance of the coefficient by the variable $IT_{it} * OilExp_i$ allows us to claim that as a result of the transition to inflation targeting oil exporters are no less (but also no more) successful in disinflation of the economy than all other countries: the effect of inflation targeting is the same for the whole sample.

Conclusion

The results of econometric modelling on a wide sample of countries and over a long time period demonstrate strong evidence in favour of the effectiveness of the inflation targeting regime as a means of maintaining control over the rate of price growth both in a calm economy and in conditions of strong exogenous shocks. The great performance of this regime is explained by its ability to lower inflation expectations of the population and increase confidence in banks.

Moreover, the inflation targeting policy allows to smooth oil price shocks and mitigate their impact on the general price level, what is a strong argument in favour of oil exporters switching to IT, because their economies are significantly vulnerable to oil price fluctuations.

After all, these advantages of inflation targeting can be used not only as an argument for the transition to it for countries that have not yet done so, but also as an argument for the IT preservation in countries that already use it.

References

1. International Monetary Fund [Internet source] / Internet data – Access mode: Annual Report on Exchange Arrangements and Exchange Restrictions 2022 (imf. org)

2. Aguir, A. (2014). Price stability in open-economy under inflation targeting regime with factors influencing inflation volatility: the case of Brazil. International Journal of Academic Research in Economics and Management Sciences, 3(6), 149.
3. Ball, L. M., & Sheridan, N. (2004). Does inflation targeting matter?. In The inflation-targeting debate (pp. 249-282). University of Chicago Press.
4. Benkhodja, M. T. (2014). Monetary policy and the Dutch disease effect in an oil exporting economy. International Economics, 138, 78–102.
5. Fang, W., Miller, S., & Lee, C. (2009). What can we learn about inflation targeting? Evidence from time-varying treatment effects. University of Connecticut Working Paper, (14R).
6. Grigoryev L. M., Zharonkina D. V., Maykhrovich Y. J., Kheifets E. A. (2024). Mechanism of regime changes of global inflation in 2012–2023. Moscow University Economics Bulletin, (1):72-95. (In Russ.)
7. Kartaev P. S. Does monetary policy regime affect inflation? (2016). Moscow University Economics Bulletin, (5):39-51. (In Russ.)
8. Kartaev, P. S. (2016). Modeling the impact of inflation on economic growth in the oil-exporting countries. The Bulletin of the Institute of Economics of the Russian Academy of Sciences, (1):169-180. (In Russ.)
9. Kartaev, P. S., & Medvedev, I. D. (2020). Monetary policy and the effect of the transfer of oil prices to inflation. Voprosy Ekonomiki, (8), 41-50.
10. Lin, S., & Ye, H. (2007). Does inflation targeting really make a difference? Evaluating the treatment effect of inflation targeting in seven industrial countries. Journal of Monetary Economics, 54(8), 2521-2533.
11. Lin, S., & Ye, H. (2009). Does inflation targeting make a difference in developing countries?. Journal of Development economics, 89(1), 118-123.
12. Natal, J. M. (2012). Monetary policy response to oil price shocks. Journal of Money, Credit and Banking, 44(1), 53-101.
13. Podrugina A., Lysenko K. (2023). The return of the world economy to a high inflation regime. International Organisations Research Journal, vol. 18, no 3, pp. 7–31 (in English).

SKIBA Kristina
The Russian Presidential Academy of National Economy and Public Administration

AI-DRIVEN PERSONALIZATION IN MARKETING

Abstract: Artificial intelligence (AI) is the field of science focused on developing programmes and devices that can simulate human intelligence. It involves such elements as thinking, problem-solving, speech recognition, learning, analysing and planning. By integrating artificial intelligence into e-commerce platforms, brands enhance advertising performance and build strong customer loyalty. There are several AI tools that have proved its effectiveness during the COVID-19 pandemic and after it. AI chat bots, sentiment analysis, emotion AI enable marketers to find out how consumers respond to ads, products or services. There is no doubt that AI causes changes in the world of marketing.

Keywords: artificial intelligence, personalized marketing, emotional AI, augmented reality.

Introduction

Personalized marketing is a technique that allows companies to deliver the right message to the right audience at the right time, increasing the chances of conversion [7]. In today's competitive marketplace standing out from the crowd is essential. Therefore, personalized marketing is a highly effective way to build strong relationships with consumers and ultimately generate more sales [9]. By delving into the nuances of individual customer behaviour, businesses craft unique content that resonates with customers' desires. Companies tailor their messages to the preferences and interests of an individual, which results in a more relevant marketing strategy and increases the likelihood of customer retention. The modern consumers have ever-changing preferences, and to satisfy them companies are turning to artificial intelligence tools.

Artificial intelligence (AI) is much more than a fancy invention; it is a fundamentally transformative force that has the potential to revolutionize industries and change the way businesses and consumers interact with each other [5]. The point is that AI works around the clock and often accomplishes tasks more efficiently than qualified specialists. Under the new circumstances that arose from the COVID-19 pandemic, businesses had to transform their

processes quickly to optimize inventory management and enhance customer experience. The solution was to implement AI-technologies widely, and it yielded significant results.

Firstly, the AI's ability to mine data and predict customer preferences in real time enabled brands to provide their customers with content and offers that resonated deeply with their individual needs and desires. Furthermore, AI tools provided the opportunity to reach an extremely new level in targeting, boosting conversion rates and customer retention over the COVID-19 period. Thirdly, AI's instantaneous decisions based on current data have proved that AI is capable of making decisions in real time. The transformative power of AI technologies is evident: it has completely reshaped entire business processes.

Key Applications of AI in Marketing Personalization

AI contributes to the effectiveness and profitability of advertising. AI software can generate the content, based not only on marketers' goals and intentions, but also on consumer preferences and worldwide trends. In addition, AI has been taught to test advertising on various platforms such as VK, Telegram, SMS, and so on. AI sends the obtained results to specialists, who then optimize the ads in order to boost clicks. Moreover, AI measures ad performance across marketing channels and offers suggestions on how to modernize or improve it. AI tools provide marketers with data on target audiences and on how to reach them.

It scans distinct content from images to videos across the Internet and analyses where certain types of ads should be placed to increase the number of clicks. One of the most significant capabilities of AI is the ability to optimize a company's budget across advertising platforms. AI chat bots imitate human conversations with clients. Chat bots are AI-powered digital assistants [2] that are in constant contact with customers. They operate on social media platforms and collect as much data about users as possible for further analysis of customer behaviour. Chat bots increase sales by offering personalized shopping advice based on the customer's previous purchases. They allow to get rid of monotonous work, answering the most frequent questions and giving the customers relevant information about products or services. AI chat bots can even replace well-trained sales managers if the company is ready to spend money on it. Finally, chat bots are a great repository of customer feedback; businesses can collect responses from clients instantly by giving the task to AI.

AI speeds up the market research process. Its tools collect as many samples of open-ended crucial information and opinions from the target audience as possible. After that, AI-platforms extract vital details and emotions from these

data and upload them into special programmes where text data are classified and mined. Such accurate market research data allow to select the target audience and make the most appropriate solutions for future marketing actions. In addition to advertising research, AI technologies can even track customers' eye movements and mimicry to reveal what attracts their attention and interest [3]. There is a platform titled "AI-powered" that automatically generates research reports, saving marketers' time and minimizing human errors.

AI maximizes cost-effectiveness of email marketing [5]. Thanks to the latest AI-related inventions, emails can be generated based on a customer's personal purchase record and search queries. Also they can show what kinds of welcome or retention emails are the most effective at the moment. AI can create emails on its own, using pre-written copy, curated content, links, images, and many other materials to reach the highest level of customer engagement. It is known that the subject line of an email is a key success or failure factor, so AI has been taught to generate eye-catching and relevant subject lines that stimulate people to click through. Marketers regularly utilize AI to promote products or services to a particular client who is likely to be interested in them. AI determines what emails should be sent to individuals to ensure that they will be read.

AI improves video marketing, which is an emerging trend in corporate blogs. Consumers are ready to spend time on watching videos made by their favourite brands. AI reviews viewers' reactions to videos and identifies their behaviour patterns, allowing the company to find out how consumers respond to its content and edit videos specifically to encourage viewers to visit the company's website and get acquainted with the brand or make a purchase. AI is perfect for personalization. It recommends content that is right for the individual, resulting in a higher engagement rate.

AI-based augmented reality will change online shopping. Augmented reality (AR) is interactive experience that overlays digital content onto the real world, enhancing the perception of the environment. The purpose of AR is to take personal customer interactions to the next level. AR is a revolutionary tool that goes beyond traditional marketing, offering a totally new level of personalization. It allows customers to evaluate the product as if they were in a physical store when they shop online, enabling them to see how the closet and mirror will look in their bedroom or how the dress fits, before making a decision to buy. AI and AR can be used together to capture customers' attention. Customers can get a full understanding of the product: what it looks like or how it works. AI can suggest options for AR. For instance, AI may offer sofas for the customer's living room. Instead of a one-size-fits-all experience, customers get a personalized approach that meets all their requirements.

Emotional AI and Sentiment Analysis in Marketing Personalization

Emotional AI is a field of computer science that helps to understand humans' emotions through cutting-edge computer technologies. AI can be programmed to identify and interpret emotional signals and adapt its output accordingly to obtain data that will be used to improve the quality of the services or products that have been analysed [3].

Sentiment analysis, or opinion mining, is the process of analysing texts to reveal attitudes and emotions expressed therein. To perform sentiment analysis marketers use advanced techniques such as Natural Language Processing (NLP) and other AI-based tools [4]. Algorithms determine whether reactions are positive, negative, or neutral by analysing texts, such as customer reviews, comments, surveys, and social media posts.

Machines take into account the context, tone and overall message of the text. Sentiment analysis can be used to refine a company's digital strategies and to provide its target audience with more customized and personalized content.

Together Emotional AI and sentiment analysis are transforming personalized marketing, providing valuable insights into customer behaviour. Thanks to this combination marketers get a comprehensive understanding of how customers perceive the brand and how they feel about its products or services. This enables them to tailor their marketing efforts to meet clients' desires and emotional needs. In addition sentiment analysis makes it possible to detect disappointed or dissatisfied clients and connect with them to remedy the situation. This approach builds trust between the clients and the brand, increases customer satisfaction, and curbs negative word-of-mouth. Furthermore, it can provide information about brand advocates and loyal customers, allowing the company to take action to strengthen relationships with them and foster their loyalty. There is no doubt that Emotional AI and sentiment analysis have opened up new horizons for personalized marketing.

Prospects for Using AI in Personalized Marketing

Personalization is not just a fancy term, it is the future of every business. To stay in touch and build long-term relationships with consumers, companies will invest more and more in machine learning (ML)[6], sentiment analysis, AR, and AI technologies. The trend that is gaining popularity is the use of voice assistants. More and more companies are integrating this tool into

their business processes because of its huge potential. Consumers get too used to text notifications that they often do not pay attention to, so voice notifications are becoming an effective way to remind users about their shopping carts or products they've selected. Voice notifications breathe new life into these types of reminders and promotions. Approximately half of all mobile apps (intentionally or not) utilize push notifications, giving companies a greater opportunity to reach their target audiences with relevant and timely messages.

Secondly, integrating voice assistants into mobile apps will improve their usability. With voice-activated functionality consumers will be able to find the product they need, eventually making more purchases. Voice-based navigation is faster and easier than typing text. It will feel like a game and get users engaged in it.

Another trend in personalized marketing is the use of AR technologies. With AR digital advertising and promotion will become more integrated into consumers' daily lives. More real-time data from AI will be used to dynamically influence colours, avatars, and placements of goods. Furthermore, while the traditional approach to advertising is no longer cost-effective, marketers are talking about the modern approach with AR and VR tools. Thanks to it customers will be able to become a part of the experience and feel closer to the brand. Nowadays everyone reads product reviews and carefully looks at photos before adding merchandise to their carts. In turn, VR and AR technologies can provide a 360-degree view of the product, which could enrich the e-commerce experience.

Conclusion

The rise of AI-driven personalization unlocks secrets of consumer preferences and behaviour that traditional marketing methods never will. This cutting-edge technology is reshaping the way businesses connect with their audience, offering engagement opportunities that can transform customer experience [1]. By analysing vast amounts of data AI can anticipate needs and deliver targeted content to individuals. However, as businesses harness the power of AI, it's crucial to remember about the importance of transparency and ethics. While AI offers incredible potential, it has to be used responsibly, ensuring that customer data is protected, and decisions are made ethically [8]. By finding the right balance between innovation and integrity, businesses can leverage the full power of AI-driven personalization to create meaningful connections with their audiences and drive sustainable growth.

References

1. Adhikari D., Singh N. AI-Driven Personalization in eCommerce Advertising. International journal for research. 2023. Volume 7. No. 12 Pp. 1694-1696.
2. Bhuiyan M. S. The Role of AI-Enhanced Personalization in Customer Experiences. Journal of Computer Science and Technology Studies. 2024. Volume 6. No. 1 Pp.163-169.
3. Caruelle D., Shams P., Gustafsson A., Lervik-Olsen L. Affective Computing in Marketing: Practical Implications and Research Opportunities Afforded by Emotionally Intelligent Machines. Marketing Letters. 2022. Volume 6. No. 1. Pp. 163-169.
4. Gao Li., Li G., Tsai F., Gao Ch., Zhu M., Qu X. The impact of artificial intelligence stimuli on customer engagement and value co-creation: the moderating role of customer ability readiness. Journal of Research in Interactive Marketing. 2022. Volume 16. No. 2 Pp. 320-330.
5. Gao Y., Liu H. Artificial intelligence-enabled personalization in interactive marketing: a customer journey perspective. Journal of research in interactive marketing. 2022. Volume 17. No. 5 Pp. 665-670.
6. Hemalatha A. AI-Driven Marketing: Leveraging Artificial Intelligence for Enhanced Customer Engagement. 2023. Volume 200 Pp. 20-105 https://www.researchgate.net/publication/372235377_AI-Driven_Marketing_Leveraging_Artificial_Intelligence_for_Enhanced_Customer_Engagement ((date of application: 11.03.2024).
7. Mshvidobadze T., Osadze L., Sosanidze M. Adapting digital marketing to artificial intelligence. Economic Bulletin of Dnipro University of Technology 2023. Volume 3. No. 84 Pp. 123-125.
8. Okorie G. N., Egieya Z. E., Ikwue U., Udeh C. A., Adaga E. M., DaraOjimba O. D., Oriekhoe O. I. Leveraging big data for personalized marketing campaigns: a review. International Journal of Management & Entrepreneurship Research. 2024. Volume 26. No. 6 Pp. 225-230.
9. Subhashre S., AI in Marketing: the transformation of customer engagement strategies. Journal of the Asiatic society of Mumbai. 2023. Volume 9. No. 34. Pp. 7-8.

STRELNIKOVA Polina
Financial University
under the Government of the Russian Federation

INNOVATIVE FACTORS OF SOCIO-ECONOMIC TRANSFORMATIONS TO A NEW TECHNOLOGICAL MODE

Abstract: Today, all people are the eyewitnesses of socio-economic transformation of the world. The effect of the factors of change in the socio-economic sphere of Russia should be considered, taking into account the experience of the previous USSR economy and the conditions of modernity of other countries in the XXI century. The transformation process is due to the transition from an industrial type of society to a post-industrial one, in which information and the Internet have come to the fore. Naturally, this restructuring involves changing the habitual living conditions of a person, often radically changing their way of life. The main factors that "bring humanity to a new level" are hardly humane. The paper assesses the classification of innovative factors that has already been put forward (scientific and technological progress, globalization and digitalization, human capital), and explains what it can lead to if you "go in a given direction."

Keywords: socio-economic transformation, innovative factors, post-industrialism, globalization, digitalization, human capital, world government.

Introduction

The changes, currently taking place in the national and international public and economic structure, are not spontaneous, incidental, or unforeseen. In contrast, the transformation in development of the national socio- economic systems and the World System in general is a logical consequence of the changes that began to form in the previous stages of evolution and accompanied a change in technological mode [3]. Describing the development of socio-economic systems of macro- or micro-level, it is worth noting that three types of forces are at the heart of their progressive advance from past to present: the natural, social, and economic forces [8].

Transformation of a socio-economic system means the process of qualitative transformation of all its elements and structures, caused by the transition to a completely new system with other conditions, which are formed under the influence of both internal and external factors. At present, socio-economic development can be characterized by global transformation processes [7].

Development proceeds at the expense of constantly increasing complexity of parameters and elements of socio-economic systems, which should be considered as an accumulation and consequent transformation of qualitative characteristics of the components of the system and processes in this system.

The second decade of the XXI century can be characterized by the rapid introduction of the newest technologies into all aspects of human life; in the third decade we can see how these very "new technologies" limit people's activities. This process is also called the Fourth Industrial Revolution [8].

Researchers all over the world are engaged in comprehending the current situation, offering their names, putting forward their concepts and factors that bring our former life to the present realities.

У. Deming believes that the current situation in the world can be given the concept of "new economy", which he describes in his book of the same name. Some scientists see the huge role of the Internet economy, its derivative functions and consequences. Also, everyone has long been familiar with the concept of "industry 4.0", which in 2016 was introduced into mass use by the president of the World Economic Forum - Klaus Schwab. These are all names for the same process.

It is not difficult to notice that if not every adult had a mobile device at the beginning of the 20th century, now, some twenty years later, it is extremely difficult to find even a child who does not have a phone. This all tells us about the degree of cultural and technological transformation of the population. And of course, this is a controversial situation, because technology can be not only a friend but also an enemy for all of humanity. Take for instance the level of GDP per capita (see figure 1). Not all countries are ready to introduce new technologies, as it is necessary to improve a well-established system.

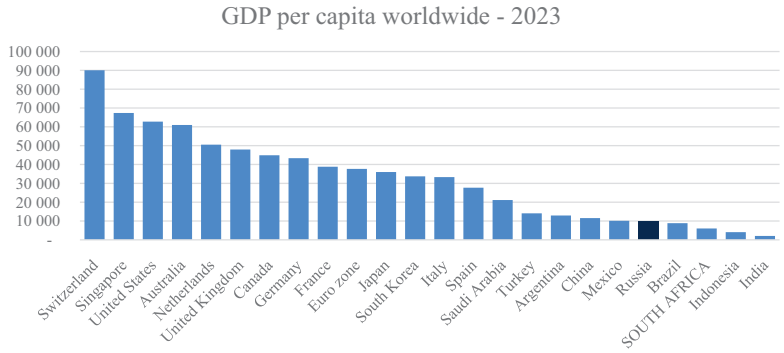


Figure 1. GDP per capita
Source: https://ru.tradingeconomics.com/country-list/gdp-per-capita

The beginning of the global process of industrialization is commonly referred to as the first industrial revolution. In Russia at the first stage (approximately 1830-1870s) there was a transition from manual labor to machine production. Then the process of active building up of industrial potential increased its momentum already in the USSR. These were extremely high rates of industrialization (see Figure 2). The gap of backwardness from other countries was reduced by seven million steps, the most powerful enterprises of heavy and defense industry were created, economic independence was achieved in a short historical time. The volume of industrial production in the USSR grew more than 5 times between 1928 and 1940. The greatest growth occurred in heavy industry, including metallurgy, machine building and chemical industry. In 1940, the USSR became the largest industrial power in the world.

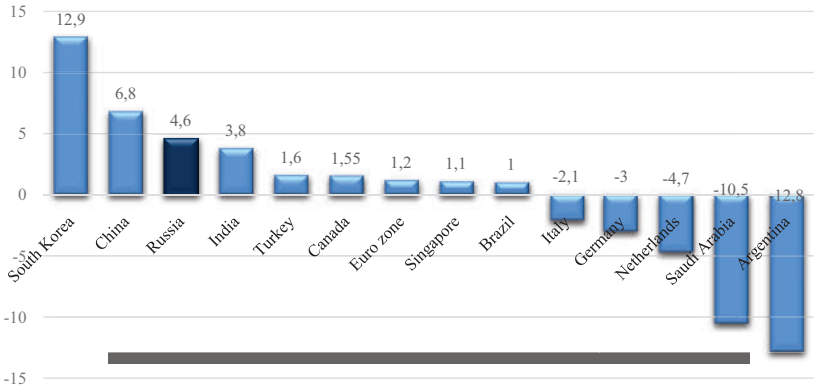


Figure 2. Global industrial production - 2023, %
Source: https://ru.tradingeconomics.com/country-list/industrial-production

In the 21st century, the Internet and artificial intelligence are penetrating all areas of human life, from manufacturing and industry to human nature - that is, support for transhumanism. Digitalization encompasses larger and larger populations. The superiority of technology, the abolition of the boundaries between life and digital - this is the Fourth Industrial Revolution, Industry 4.0.

This new industrial revolution is changing not only the production system, but also the entire socio-economic life: the economy, relations between people, living conditions or already "existence" of the population.

At one time, socio-economic transformation is a process of change in the economic and social system of society - it is inevitably caused by external factors such as changes in the world economy, political environment and technological

innovation. I would like to outline the following factors of socio-economic transformation:

1) Technological innovations
2) New technologies
3) Social innovations
4) Innovative culture

But all this can lead to an increase in social inequality, because in search of means to reduce costs, the vast majority of managers of huge corporations save on the labor of people in the priority of digitalization, and consequently, jobs are reduced, unemployment increases, because the robot does not make mistakes, does not get sick and does not get tired. All this affects the inflation rate in the country, which in Russia is growing linearly and extremely aggressively compared to other countries (see Figure 3).

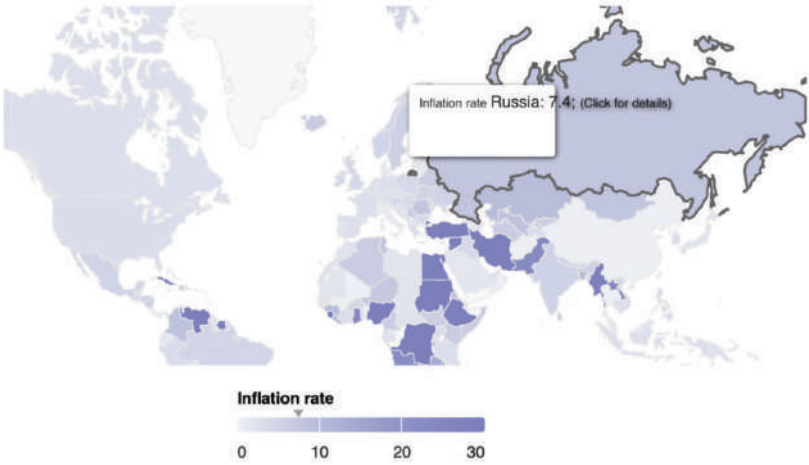


Figure 3. Inflation rate in the world
Source: https://ru.tradingeconomics.com/country-list/inflation-rate

What is the role of the state in the current circumstances?

In the era of global digitalization, the state and its institutions face an objective need to get involved in this process, as it affects almost all spheres of society and has a direct impact on the formation of a new digital kind of society. That is why in the period of global changes the place of the "first violin" should be taken by the state in order to control the spheres and areas of use of digital technologies.

The essence of the state is to rationally distribute all resources to strengthen economic independence and maintain technological sovereignty, because it is

in the hands of the state that all values are gathered: both resource and material. Therefore, if there is a trend towards digitalization all over the world, each state should strictly control where it is really necessary and useful, and where it will be like excessive control over its population, an attempt to interfere in "private life".

Conclusion

Russia has a good resource potential to occupy a worthy place on the world stage, but competent participation of the state is necessary to achieve this goal. Its regulation and support are the basis for the prospective development of scientific-technical and innovative potential, human capabilities, intellectual component.

Having the direction on digitalization, Russia should ensure the competitiveness of the economy through the introduction of innovative digital technologies in the production sphere in order to increase productivity. It is necessary to shift priorities towards material production and development of the real sector of the national economy by creating competitive high-tech industries. By adhering to this direction, human labor will not be replaced by robots, but they will, on the contrary, work together to ensure the economic independence of the country. Since the effective results of innovation activity of human capital are the main competitive advantage in the global post-industrial economy, especially given the situation on the world stage, when it is the only way to preserve the socio-economic viability, sovereignty and independence of Russia.

References

1. Alpidovskaya M. Question about economic interests or problems and prospects of development of modern Russia // Theoretical Economics. 2016. №1 (31). URL: https://cyberleninka.ru/article/n/k-voprosu-ob-ekonomicheskih-interesah-ili-problemy-i-perspektivy-razvitiya-sovremennoy-rossii
2. Drucker P. F. (1963). Managing for business effectiveness // Harvard Business Review. Vol. 41 (3). Pp. 53-60
3. Dudin, M., N. Lyasnikov, P. Egorushkin and F. Safin, 2013. Innovation foresight as a tool of competitive development of business entities. Moscow: Publishing House «Nauka», pp: 216
4. Fursov A. Crisis-matryoshka and Russia: threats of invasion in the XXI century // Civil Protection Strategy: problems and research. 2013. №2. URL: https://cyberleninka.ru/article/n/krizis-matryoshka-i-rossiya-ugrozy-vtorzheniya-v-xxi-veke

5. Kondratiev, N., 2002. Major cycles of business environment and the prediction theory. Moscow: Economics, pp: 768.
6. New Economy / W. Edward Deming; (per. from Engl. T. Guresh). - Moscow: Eksmo, 2008. - 208 c.
7. The Fourth Industrial Revolution / K. Schwab - “Eksmo”, 2016 - (Top Business Awards)
8. Torotoyeva A. Digitalization of society: problems of implementation and new opportunities. (Review) // Social and Humanities. Domestic and foreign literature. Series 11: Sociology. - 2021. - No 1. - C. 118-132. DOI: 10.31249/rsoc/

TARANETS Vitaly,
MINYUSHKINA Zoya
Plekhanov Russian University of Economics

DEVELOPMENT AND IMPLEMENTATION OF AI IN RUSSIAN BUSINESS: OPPORTUNITIES, PROSPECTS AND BARRIERS

Abstract: A dynamically changing market and increased competition confront companies with the challenges of integrating AI into their business systems and products. Artificial intelligence is currently employed in different industries such as automatic resume screening, credit scoring, customer risk evaluation, and virtual operators. The trust in artificial intelligence is high, leading many entrepreneurs to prefer it over hiring experienced employees. The article discusses the main difficulties that enterprises may encounter during business transformation, and explores the areas of application of such technologies to optimize the activities of companies.

Keywords: generative AI, democratization of AI, business ecosystem, customer risk evaluation.

Introduction

The popularity of new technology has increased in recent years. They became available not only to the world's most important technology industry representatives, but also to medium-sized businesses, allowing them to extend the range of services and products while also improving the quality of offers. In addition, 2023 indicated the government's focus in fostering technological growth.

Recent years have seen the widespread adoption of new technologies. They were now accessible to not just the top tech industry leaders globally, but also to smaller companies, which led to an increase in offered services, products and provide outstanding quality. Furthermore, the year 2023 showcased government agencies' interest in fostering the development of technology.

Currently, companies are actively adopting weak AI, which is restricted to a specific set of algorithms designed for solving specific, practical issues [3].

Modern specialists in artificial intelligence development identify three categories of AI: conventional, adaptive, and generative. Conventional

methods have the capability to replicate cognitive functions, assess and forecast outcomes, and infer information from the analysis conducted. In the finance sector, it is currently being utilized to compute credit scores, combat fraud, and enhance the risk management system.

Adaptive pertains to a model capable of adjusting and responding to changes in its surroundings. Real-time feedback is collected on activity results to ensure that data stays current, enabling this process to be feasible.

Generative enables the creation of fresh, unique content in the forms of text, images, video, and audio. Generation happens based on the user's request's wording.

In conclusion of 2023, significant analytical agencies provided evaluations of the AI application market. The text highlights the specific areas where companies incorporate emerging technologies. The majority of individuals utilize AI-driven solutions regularly in the areas of transportation and logistics, hospitality, and banking [5].

In the realm of Russian business, the use of artificial intelligence in company operations is just starting to become more widespread through technological innovation for business development. According to Fintech Association experts, the major technological trends in 2024 include the democratization of generative artificial intelligence, the merging of natural and artificial intelligence, and the integration of artificial intelligence in the creation and testing of new digital applications and tools [4]. Further on in the article, each of the aforementioned trends in advancing artificial intelligence is examined more closely.

Experts believe that the most important trend in the coming years will be the democratization of generative AI. AI technologies are becoming increasingly available to individuals and companies, with the introduction of language model-based solutions that follow the principles of "open source." As an illustration, with the advancement of Yandex and the launch of the YandexGPT tool, individuals in small enterprises can utilize the technology for everyday tasks [2].

The combination of natural and artificial intelligence enhances the abilities of the company's workforce, leading to improved efficiency in business operations and reduced risks. This guarantees the expansion and evolution of the company while also fostering the growth of employees, and enhances the company's operational effectiveness. Severstal utilizes artificial intelligence in its HR procedures to handle tasks such as drafting recruitment text, making presentations, writing cover letters, and creating employee recommendations. HR professionals then make edits and incorporate AI advancements for future tasks [1].

Many businesses integrate AI technology into their business ecosystems to improve performance and decrease risks, making them the cornerstone of their business processes. According to research findings, 65% of 2,400 responding companies use artificial intelligence to address core business concerns [6]. Figure 1 depicts the typical AI technologies, which include computer vision, speech recognition and synthesis, and recommendation systems with predictive analytics.

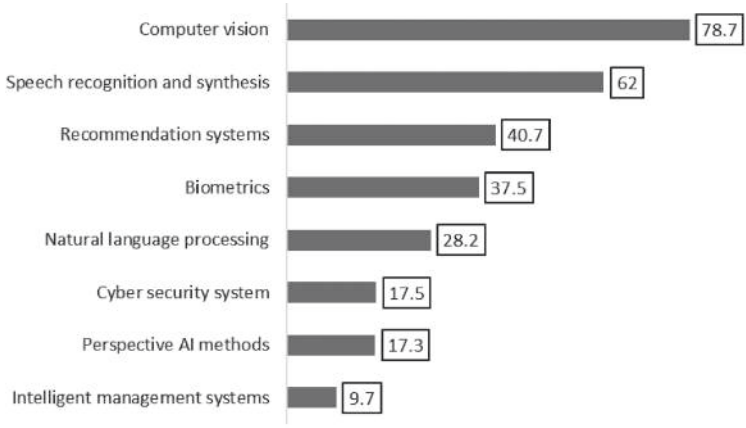


Figure 1. The level of use of the main groups of AI technologies in companies in 2023, %
Source: research «Monitoring the Development and Spread of Artificial Intelligence (AI) in Russia» from the Institute for Statistical Research and Knowledge Economics of the National Research University Higher School of Economics [6]

In any case, a large percentage of firms are simply experimenting with the implementation of AI in their core operations, rather than working toward a strategic approach to essential business evolution. According to study of the top 100 Russian enterprises across 15 sectors, more than 40% are currently in the process of integrating AI solutions in multiple departments, while 23% are exploring AI implementation and only 17% stand for a strategic goal for AI growth and expansion. Plenty of enterprises believe that applying AI is difficult and ineffective due to a lack of specialized specialists, high development costs, expensive technology, risks associated with cybersecurity, and legal obstacles. However, Russia has created favorable conditions for investment in AI development [2].

Russia has the capability to substantially expand its domestic capacity in creating and implementing AI solutions, making it a stronger player in the modern global marketplace. Significant milestones in the advancement of

artificial intelligence can be identified in all three sectors: individual consumers, businesses, and governments. Users need to enhance their digital literacy and rely on generative AI more wisely for their own growth. This will allow AI to study and learn from new, valuable data, influencing the future success of AI enterprises.

The business sector must explore new technologies and incorporate them into operational processes, resulting in increased instances of successful AI utilization, ultimately driving the widespread adoption of AI. To drive the wider adoption of AI, the business sector needs to investigate new technologies and integrate them into operational processes. This will lead to more successful cases of AI utilization.

The state should foster the industry's scientific, educational, and human resource capabilitiesin parallel with providing funding for experimental projects and distributing groundbreaking findings to ally countries for the purpose to maintain an appropriate environment for technological development of AI-industry. Important factors to consider when putting artificial intelligence into practice:

- Ethical concerns: establishing guidelines and regulations for algorithms without ethical convictions.
- Employment: automation of tasks while also ensuring job security, offering chances for acquiring new skills and undergoing further training.
- Security involves safeguarding data and systems against cyber-attacks and unauthorized use of technologies.
- Ensuring fairness in algorithms: avoiding social disparities by handling data properly and training algorithms effectively.
- Transparency deficiency: guaranteeing the clarity of decisions for regular users.
- Regulatory and legal elements: oversight of artificial intelligence usage via regulations and guidelines.

Conclusions

Mental aspects: how engaging with AI technologies affects people's psychological well-being. The main growth points and ways to implement them for the integration of artificial intelligence into the business environment: Risk management and security: use artificial intelligence to analyze data and predict potential threats in order to prevent negative consequences. Innovation and development of new products: apply artificial intelligence to accelerate research and development of innovative products that will be in demand in the market. Data analysis and decision-making: implement artificial

intelligence in data analysis to automatically process information and provide management with valuable insights to make informed decisions. Automation and optimization of operations: use artificial intelligence to automate routine tasks such as processing customer requests or managing inventory, freeing up human resources for more complex tasks. Personalization and improvement of customer experience: apply artificial intelligence to analyze customer speech and preferences in order to offer them personalized recommendations and improve the quality of service. To successfully implement these growth points, businesses need to invest in technology, train their staff, and be prepared for changes in corporate culture.

References

1. Joint survey from Trust Technology and Knomary "Artificial Intelligence in HR" - 10.10.2023 - [Electronic Resource] - Access mode: https://data.tedo.ru/publications/ai-in-hr.pdf/ (date of request: 24.03.2024).
2. Joint survey by Yakov & Partners and Yandex "Artificial Intelligence in Russia - 2023: Trends and Prospects" - 2023 - [Electronic Resource] - Access mode: https://yakov.partners/upload/iblock/c5e/c8t1wrkdne5y9a4nqlicderalwny7xh4/202 31218_AI_future.pdf/ (date of request: 24.03.2024).
3. Research and development magazine. Company Economics, 2024, No. 1 (46)/ edited by A.Garnova and D. Sklyankina - Moscow: INFRA-M, 2024.
4. Survey by Fintech Association "3x10 trends 2024" - 15.02.2024 - [Electronic resource] - Access mode: https://www.fintechru.org/analytics/issledovanie-3kh10-trendov-na-2024- goda/ (date of request: 24.03.2024).
5. The survey: "Digital Economics from Theory to Practice: How Russian Business Uses AI" from RAEK, National Research University Higher School of Economics and Microsoft - 2019 - [Electronic Resource] - Access mode: https://media.rbcdn.ru/media/reports/5.pdf/ (date of request: 24.03.2024).
6. The survey: "Monitoring the development and spread of artificial intelligence (AI) in Russia" from the Institute of Statistical Research and Economics of Knowledge, National Research University Higher School of Economics -26.09.2023 - [Electronic resource] - Access mode: https://issek.hse.ru/news/862013645.html/ (date of request: 24.03.2024).

TKACHUK Nika
Lomonosov Moscow State University

ENSURING ECONOMIC SECURITY OF A WELFARE STATE

Abstract. Top priority for the leaders of any state is to sustain socio-economic development of their countries. This article discusses the correlation between the welfare state and economic security, defining these concepts and examining them in detail. The article author highlights and models the welfare state exploring the choice of most effective model of the welfare state based on the selected indicators. The paper provides the analysis of the ways to implement the most effective regulation and points out the tools that are best suited for each of the models of the welfare state. The purpose of determining such a model is to spotlight the key issues of social policy in Russia and find the remedies to cope with them.

Keywords: welfare state, economic security, socio-economic development, model, effective regulation, Russia.

Introduction. Currently, Russia is undergoing major changes in the socio-economic and political spheres of society. Due to the unfolding events, the country is faced with a number of new challenges, which, to some degree disrupt the economic development and force it to adapt to new conditions. The influence of these factors has significantly exacerbate the current problems of Russia's social policy. Despite the limited monetary resources of the country, the priorities remain the same: social sphere and economic security. Improving the indicators of these areas can lay the foundation for the social state in Russia.

The relationship between economic security and welfare state

According to Article 7 of the Constitution of the Russian Federation, our country is a social state. "The Russian Federation is a social state whose policy is aimed at creating conditions that ensure a decent life and free human development." [3].

By presidential decree, the Strategy of Economic Security of the Russian Federation for the period up to 2030 was approved, in which economic security

is characterized as "the state of protection of the national economy from external and internal threats" [2].

The main challenges and threats to the economic security of the welfare state include [2]:

1. strengthening the differentiation of the population by income level;
2. a decrease in the quality and accessibility of education, medical care and, as a result, a decrease in the quality of human potential;
3. the high level of criminalization and corruption in the economic sphere, which undermine public welfare.

The relationship between economic security and the welfare state can be explained by highlighting three aspects. Firstly, meeting the requirements of being the welfare state contribute to an increase in the level of economic security. Secondly, there are OECD (the Organization for Economic Co-operation and Development) indicators characterizing the effectiveness of the welfare state policy. Russia's Economic Security Strategy also contains a number of similar social indicators reflecting the goals of the welfare state. Finally, under conditions of uncertainty, risks and threats are increasing, affecting both the sphere of economic security indicators and social policy.

Assessing the economic security of social state of Russia based on an inter-country approach

The Scandinavian model has proven to be the most effective in ensuring economic security. Next, it was interesting to see to what extent the declared status of the Russia social state is insufficient to the average values of the Nordic countries taken as a threshold.

To assess the economic security of our country, we have applied an indicative method including the following stages of building an analysis:

1) Reducing the indicators to a dimensionless form for further comparison;

For a threshold value of "at least" [1]:

$$y = \begin{cases} 2^{\left(1-\frac{a}{x}\right)/\ln\frac{10}{3}}, \text{ если } \dfrac{x}{a} > 1; \\ 2 - \log_{10/3}\dfrac{a}{x}, \text{ если } \dfrac{x}{a} \le 1. \end{cases}$$

where x is the real value of the indicator, and a is its threshold value.

For a threshold value of "no more":

$$y = \begin{cases} 2^{\left(1-\frac{a}{x}\right)/\ln\frac{10}{3}}, \text{ если } \frac{x}{a} < 1; \\ 2 - \log_{10/3}\frac{a}{x}, \text{ если } \frac{x}{a} \geq 1. \end{cases}$$

where ***x*** is the real value of the indicator, and ***a*** is its threshold value.

2) The distribution of indicators by "risk zones"; (see table 6)

Table 6

Economic security zones:

Zone	Meaning, %
Stability zone	>100
Moderate risk zone	(75;100)
Significant risk area	(50;75)
Critical risk zone	(25;50)
Catastrophic risk zone	<25

Source: compiled by the author based on [1]

3) Construction of a petal diagram and description of the results obtained; (see Figure 1)

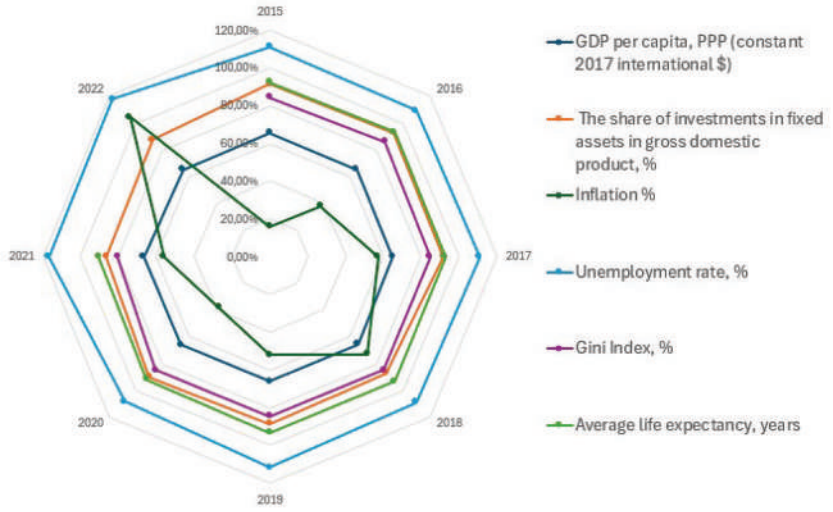


Figure 1. Distribution of indicators of welfare state and economic security by risk zones
Source: built by the author on the basis of https://data.worldbank.org [4]

The practice of the Scandinavian model is most typical for the implementation of Russian social policy. The conclusions drawn on the basis of the petal diagram clearly indicate that not all the principles of effective conduct of such a policy have been fulfilled for Russia - the indicators of "GDP per capita" and "Gini Index" are decreasing in dynamics. (see table 1)

Table 1

Dynamics of GDP per capita and the Gini Index in 2015-2021 in Russia

Indicator/Year	2015	2016	2017	2018	2019	2020	2021	2022
GDP per capita, PPP (constant 2017 international $)	25488	25491	25926	26656	27255	26587	28057	27450
Gini Index, %	37,7	36,8	37,2	37,5	37,7	36,0	40,9	-

Source: built by the author on the basis of https://data.worldbank.org [4]

Thus, the main risk zones that hinder the improvement of economic security of the social state of Russia are inequality and income of the population. The identified "problem points" of social policy reduce the level of economic security, therefore, the problem of wages and inequality in our country requires immediate measures from the state. The solution to these problems will contribute to the establishment of related socio-economic ties, which will ensure stability in the economy and well-being if population.

Conclusion. In the course of the conducted research, two directions of ensuring the economic security of the social state of Russia were substantiated: reducing inequality and reviving a socially just state.

As for inequality, approximately 46.7% of all monetary income is concentrated in the fifth group, when about 5.5% belongs to the first group of the population with the lowest incomes. I come to the conclusion that for Russia, the taxation system and the system of social benefits are under the zones of influence. A transition to a progressive scale of taxation is possible for Russia. This will reduce income inequality, consolidate the country's budget and redirect funds primarily to solving social problems.

The second direction is related to stimulating the development of human capital as a factor of inclusive economic growth. The revival of a social state is achieved by creating good conditions for the life of each individual citizen, by investing in human capital. The average value of the human development index for the Scandinavian countries is 0.966. Russia is inferior to countries with a value of 0.821. As far as we remember investing in human capital is embedded in the principle of increasing inclusive economic growth. Therefore, to ensure stable development and establish high-quality mechanisms in all

spheres of society requires to monitor the quality of education and health systems, stimulate business investments, develop science and technology and analyze cash flows in the economy. Then the country will be able to fully justify the status of a welfare state and strengthen its independence by increasing the indicators of well-being and economic security.

References

1. Alekseeva E. et al. Problems of economic security: challenges of a new reality. – 2023. – p. 30.
2. Decree of the President of the Russian Federation № 208 dated May 13, 2017 “On the Strategy of Economic Security of the Russian Federation for the period up to 2030” - p. 2.
3. The Constitution of the Russian Federation: [adopted by popular vote on December 12, 1993, with amendments approved during the all-Russian vote on July 01, 2020].
4. World Bank data URL: https://data.worldbank.org

TIAN Anton
MINKOVA Maria
KAZYMOV Rain
Moscow State Institute of International Relations (University)

IMPACT OF THE 4TH INDUSTRIAL REVOLUTION ON INTERNATIONAL FINANCIAL FLOWS

Abstract. The 4th industrial revolution represents the transition to a new period in the history of technology. It is affecting all spheres, including international finance. Artificial intelligence, cloud computing, blockchain technology and cryptocurrency have all found their application there and have transformed the world of international finance. The implementation of novel technologies such as digital payments, smart contracts, tokenisation has affected the global financial system. A special role in its transformation belongs to cryptocurrency, which has become a universal means of payment. The authors examine digital innovations that have led to the changes in international finance, such as: decentralization of financial system, simplification of international transfers, increased anonymity, increased complexity of controls for regulators.

Keywords: fourth industrial revolution, industry 4.0, financial innovation, DeFi, decentralisation, anonymisation, cryptocurrency.

Introduction

At the current stage in the development of world economy, the so-called fourth industrial revolution is a global trend, making the study of its impact on international finance an important and relevant research issue. The Fourth Industrial Revolution, driven by advancements in digitalization, artificial intelligence, and other emerging technologies, is having a profound impact on various industries, including the financial sector. This revolution is characterized by the convergence of physical and digital technologies, leading to the creation of new products, services, and business models. In the financial field, the Fourth Industrial Revolution is transforming traditional banking and financial services, disrupting established practices and creating new opportunities for innovation. This article explores the multifaceted impact of the Fourth Industrial Revolution on the financial sector, examining how

these transformative technologies are shaping the way financial institutions operate, interact with customers, and manage risk. We will also discuss the challenges and opportunities that arise from this technological revolution and its implications for the future of finance.

The concept and elements of the fourth industrial revolution

The term 'fourth industrial revolution' was a consequent continuation of the naming of cyclicality: following the first industrial revolution (XVIII-XIX centuries, transition from manual labour to machine labour), the second industrial revolution (late XIX - early XX centuries, conveyor production, introduction of electricity and development of chemical production), the third industrial revolution (late XX century - early XXI century, transition to digital technologies, development of IT). The fourth industrial revolution is understood as radical changes in the production and distribution of goods and services based on widespread digitalisation and the introduction of artificial intelligence. In this case, according to K. Schwab, the fundamental difference between the fourth industrial revolution and the third is not only the introduction of 'intelligent and interconnected machines and systems', but also the synthesis of different technologies 'in physical, digital and biological domains' [2]

Among the main technologies of the fourth industrial revolution the following three main groups are distinguished: digitisation and integration of vertical and horizontal value chain (automation and use of cyber-physical systems, Internet of Things, cloud technologies and platforms), digitisation of goods and services (artificial intelligence, big data, 'smart' sensors, virtual reality technologies), digital business models (3d-printers, additive technologies) [3].

Financial innovations. A significant role in the development of the international financial system is played by financial innovations, the most important elements of which are cloud systems, robotisation, visualisation, advanced analytics, cognitive computing, RAM computing, blockchain technology [1, p. 21-22].

The trend towards the growth of financial innovations characteristic of the fourth industrial revolution is clearly visible in 2016-2021. Thus, in the United States, investments in research and development in finance and insurance grew by 173.0% over this period, in South Korea - by 94.6%, in Taiwan - by 79.1%, in Japan - by 138.8% (Figure 1).

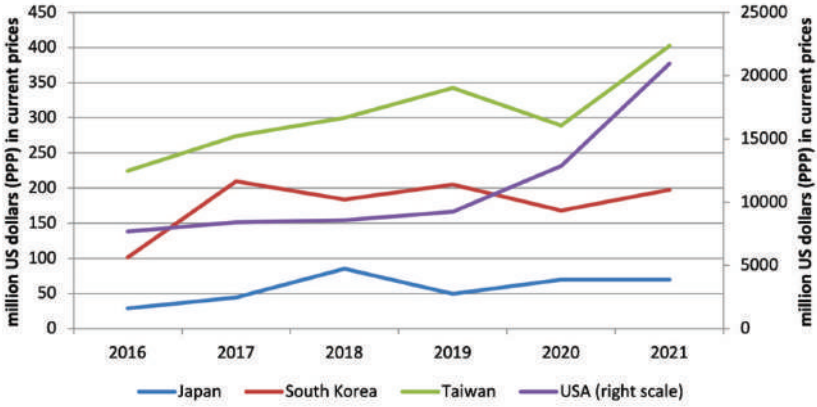


Figure 1. Finance and insurance R&D by some major advanced economies in 2016-2021
Source: ANBERD database OECD. URL: data-explorer.oecd.org

The Fourth Industrial Revolution has had both positive and negative impacts on international finance. Among the positive effects there are easier access to financial products and services, the creation of a competitive environment in the banking and corporate sectors, the introduction of digital projects that help to ensure a sustainable financial system, reduce transaction costs, fast and efficient domestic and international settlements [1]. Negative consequences are associated with various risks and threats: the risks of losing investments in new financial instruments due to the high volatility of their value, the threat to financial stability due to the possible loss of sovereignty of the national currency in favour of cryptocurrencies, the risk of expanding illegal activities due to the lack of control.

The implications of Industry 4.0 for international finance

The introduction of financial innovations such as cloud computing, robotization, blockchain and others, provides for the growth of business efficiency, optimization of financial computing, but at the same time is accompanied by a number of specific consequences: 1) decentralization of the financial system; 2) simplification of international transfers; 3) increased anonymity; 4) increased complexity of control for regulators. Let us consider these consequences in more detail.

Decentralization of the financial system. Decentralized Finance (DeFi) is such a system of organization of financial operations (creation, distribution

and use of financial services), in which there are no centralized intermediaries (banks, brokers, stock exchanges, insurers), and the services themselves are directly provided by users for users through the software of a peer-to-peer network.

Along with the increasing capitalization of cryptocurrencies, most of which are organized in a de-centralized manner, the share of DeFi in the process of the fourth industrial revolution is continuously increasing, leading to less regulation, less security, more anonymity, less transparency of transactions, however, while reducing counterparty risks and making financial services cheaper (Table 1).

Table 1

Comparison of DeFi finance and traditional finance

Comparison criterion	DeFi	Traditional finance
Network structure	Decentralized	Centralized
Regulation	No	Yes
Security	Low	High
Anonymity	Yes	No
Cost of services	Low	High
Transparency	Low	High
Counterparty risk	Low	High

Source: compiled from [5, p. IV].

Facilitation of cross-border transfers. Currently, the majority of cross-border transfers in the world are carried out through the SWIFT system. The banks that have joined SWIFT and comply with local legislation and international legal acts block transfers suspected of involvement in money laundering, terrorism sponsorship, and sanctions circumvention. In general, for companies and individuals making international transfers, such difficulties result in high transfer costs and a considerable risk of payment delay. Over the last 7 years, there has been a slow decline in the cost of international transfers: while in Q4 2016 23% of payments cost more than 10% of the amount, in Q3 2023 the share of such payments fell to 14%, and the share of the cheapest payments (up to 5% of the amount) increased from 28% to 37% over the same period (Figure 2).

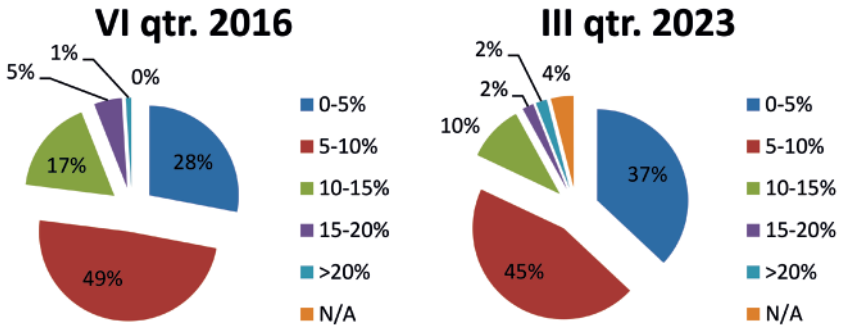


Figure 2: Distribution of average value of global remittances (in % of amount)
Source: compiled by Statista. URL: https://statista.com/statistics/962684/ costs-of-remittances-globally/

Nevertheless, the average cost of transfers is still high (over 6%), which on the one hand is due to the large number of intermediaries and on the other hand to the growing number of legal restrictions that each intermediary in the transfer chain must comply with. In this regard, the introduction of financial innovations in the work of SWIFT and its analogs, in the work of payment systems is not only a current trend, but also an urgent need. The total volume of international transfers made through cryptocurrencies, in particular through stablecoins, the rate of which is linked to fiat currencies, is also rapidly increasing.

Increased anonymity

One of the characteristics of decentralized financial systems is anonymity. However, despite the fact that addresses do not contain public information about the owner, identification may be a necessary condition at points of interaction with the traditional financial system (cryptocurrency exchanges, currency exchangers, electronic wallets). In this regard, among the cryptocurrencies circulating on the markets there are anonymous, pseudo-anonymous and non-anonymous cryptocurrencies. Anonymous cryptocurrencies (e.g., XMR, ZEC, DASH) use specialized privacy technologies that make it difficult to identify the sender, recipient and transaction volume. Pseudo-anonymous cryptocurrencies include most of the popular cryptocurrencies that were considered anonymous until some time ago (BTC and others). The problem with the anonymity of these cryptocurrencies is that although no personal identification is required for transactions, all transactions are publicly viewable on the public blockchain,

making them transparent and traceable. An observer can establish a link between specific transactions and addresses, and then between addresses and specific users. Non-anonymous cryptocurrencies are characterized by a mandatory identification procedure (KYC - Know Your Customer).

In this regard, two opposite processes are observed in modern financial markets: de-anonymization caused by regulatory requirements (mandatory KYC for cryptocurrency exchanges, investigations of financial control and monitoring services through the system of crypto-transaction and IP-address analysis) and introduction of new financial innovations to strengthen anonymity (introduction of new more secure cryptocurrencies, use of Coin Mixing, use of disposable wallets, anonymity in the network through IP change and Tor, decentralized exchanges DEX, etc.).

Increased complexity of control for regulators

Currently, the world is actively reforming the system of cryptocurrency regulation due to the growing share of decentralized finance. The use of cryptocurrencies for payments is directly prohibited in most countries, including China, UAE, Turkey, Indonesia and others. However, a number of countries allow the use of bitcoin for payments, such as Japan. In Switzerland, the legal status of cryptocurrencies is equal to foreign currencies. In El Salvador in 2021 bitcoin is recognized as legal tender. Most often, cryptocurrencies are legally recognized as a commodity or investment asset and cannot assume such de-neg functions as a means of payment and a measure of value, so they are subject to tax laws similar to other investment assets. Cryptocurrency exchanges are subject to the most active regulation in order to monitor and prevent money laundering and terrorist financing. Mandatory registration (licensing) of service providers in the field of cryptocurrency trading has been introduced in such countries as France, the UK, the USA [6].

Influence on savings

Statistical studies indicate a significant dependence of the capital market on financial innovation. Thus, the study of panel data (annual data of 2005-2014, 20 countries) with the construction of regression multifactor model showed that financial innovations play an important role in the formation of gross savings, as well as gross domestic savings. The empirical results showed a direct relationship between the indicators (the growth of financial innovation causes the growth of gross savings). Based on this, the authors conclude that the hypothesis of liberalization of financial markets is valid, according to

which a more efficient distribution of resources is provided in the financial system freed from excessive regulation, and the stock of savings contributes to economic growth [4].

Conclusion

Increased investment in financial innovation within the framework of the fourth industrial revolution has a favorable impact on economic growth, in particular, by increasing gross savings and gross domestic savings. The direct consequences of the introduction of blockchain technology and a number of other financial innovations are decentralization, anonymization and liberalization of finance, however, due to the growth of various risks (threats of financial instability, threats of criminal nature) the states at the legislative level impose restrictions, in particular, in the circulation of cryptocurrencies, which restrains the current trends.

References

1. Azimova T., Mollaahmetoğlu E. Innovation in financial markets and its impact on savings // Pressacademia, June 2017, №6(2): pp. 147-154.
2. Kriptovalyuty:trendy, riski, mery / Doklad dlyaobshchestvennykh konsul'tatsiy [Cryptocurrencies: trends, risks, measures / Report for public consultation]. Bank of Russia, Moscow, 2022, pp. 29-31.
3. Pertseva S.Tsifrovyye tekhnologii v mezhdunarodnykhfinansakh: uchebnoye posobiye [Digital technologies in international finance: textbook]. MGIMO-University, 2021, pp. 21-22.
4. Schueffel P. DeFi: Decentralized Finance – An Introduction and Overview // Journal of Innovation Management, December 2021, №9(3): pp. I-XI.
5. Shumskaya Y. I. Ekonomicheskiy potentsial chetvertoypromyshlennoy [Economic potential of the fourth industrial revolution]. MSU named after M. V. Lomonosov, Moscow, 2018, p. 30.
6. Shvab K. Chetvertaya promyshlennaya revolyutsiya [The Fourth Industrial Revolution]. Eksmo Publishing Office, Moscow, 2016, p. 12.

SHITIKOVA Mariia
Plekhanov Russian University of Economics

APPLYING AI IN CUSTOMS: CURRENT TRENDS AND FURTHER DEVELOPMENT

Abstract. The main objective of the study is to consider the opportunities provided by the development of Artificial Intelligence (AI) for customs control bodies. The author demonstrates the ways AI is used for solving a wide variety of practical problems the Customs service of the Russian Federation (CSRF) faces. The application of AI is supposed to be the key trend in further development of the CSRF. All the benefits offered by AI will allow further growth of country's economic wellbeing. The author analyzes and assesses particular examples of AI-based systems and devices successfully used by the CSRF. The analysis concludes with some forecasts and prospects concerning further development of e-customs in the RF.

Keywords: Artificial Intelligence, customs control bodies, development strategy, risk management, blockchain technology, intelligent checkpoint.

Introduction

In the 21st century there can be no sustainable government bodies development without the introduction of innovative technologies and modernized programs. AI is a tool for increasing the efficiency and accuracy of customs control and examination processes. AI has proven its usefulness in analyzing big data, identifying violations, automating the processes of classifying and coding goods, and detecting counterfeit products. The purpose of the work is to study the implementation of AI in customs affairs, their general development trends, as well as comparison of international experience in the use of AI. The tasks set for the research include consideration of AI typology, its application in customs affairs at the present stage of its development, comparison of foreign experience in implementing AI (USA, Europe, UAE) with the domestic experience. The study consists of six parts including the introduction and the conclusion, AI-based applications for customs operations, touch points with the expansion of electronic declaration centers (ECD), the development path based on the legislative level and the level of comparison.

Basic definition of AI and touch points

Artificial intelligence can be defined as a set of technologies that enable computers to perform a variety of advanced functions including the ability to see, understand and translate spoken and written language, analyze data, make recommendations, and other tasks. There are 3 types of AI, which are based on its capabilities [8]:

1) Weak AI which is used in many fields of our life including medicine, logistics, banking and business. This type performs a single task in a narrow sphere often much faster and better than a human mind can.
2) General AI which is used in our everyday life, for example, chatbots and virtual assistants that simulate human communication. Such type can learn and perform intellectual tasks.
3) Superintelligence which can substitute a person in any situation, as it has a wide range of skills.

Using the fact that currently no industry can do without the introduction of AI as the base we can conclude that it has affected the activities of the government agencies and has significantly influenced their performance. According to the "Development Strategy of the Federal Customs Service of Russia until 2030" [2] the introduction of AI into the work of the country's customs bodies has become the basic development trend meant to harmonize the work and ensure the sustainable development of the Russian customs service.

AI-based applications for customs operations

Presently AI has already penetrated a lot of areas of customs operations and has been highly beneficial for (table 1):

1) customs business and customs affairs on the whole, as it allows to provide a high-level control, use progressive software that reduces time and money costs and facilitates information exchange within the framework of the EAEU (The Eurasian Economic Union) member states integration;
2) controlling consignments and goods passing the border, as it helps to assess the risk level of every consignment in real time mode and to ensure market stability by implementing intellectual checkpoints and automatic declarations processing;
3) foreign economic activity participants, as it is AI that made it possible to create electronic documentation with a variety of online payment

options allowing to monitor the movement of goods across the border at every stage.

Table 1

The impact of AI on various areas of customs affairs

For customs business on the whole	For consignments and goods	For foreign economic activity participants
• Electronic interdepartmental interaction in the EAEU • Progressive software • High control accuracy	• "Intelligent checkpoint" • Assessing the risk level of every consignment in real time • Automatic registration of declarations	• Electronic documentation • Online payment options • Transparency of goods payments • Personal accounts with templates

Source: made by the author

Using the system of interdepartmental electronic interaction (SIEI), "Monitoring analysis", "Malachite", "Automated control of customs value", "DB "Expertise", "DB "Pravookhrana", "Administrative violations" and other AI-based technologies have significantly accelerated many customs operations. The first steps have also been taken to provide contextual clues to verify classification accuracy by checking whether decisions have already been made regarding the goods being moved [1].

AI and the creation of electronic declaration centers (ECD)

Moreover, the creation of electronic declaration centers and their expansion for over 3 years (table 2) allowed the state customs authorities to competently distribute the workload between the employees, delegate a number of responsibilities to the automatic system and concentrate on the external control. ECD are specialized customs authorities whose competence is limited exclusively to the performance of customs operations in relation to goods declared in electronic form including using the Internet. In 2019 5 new electronic declaration centers were opened, then 4 more a year later, and currently we have 16 effective operating centers.

Table 2

The expansion of ECD during 2018-2020 years

2018	2019	2020
1) Privolzhsk Customs Department (CD) 2) Ural CD 3) North Caucasian CD 4) Kaliningrad regional customs 5) Vladivostok customs 6) Moscow regional customs 7) Novorossiysk customs	8) Central energy customs 9) Central excise customs 10) Sibirsk CD 11) Baltic customs 12) Customs of the Moscow Air Hub	13) Central CD 14) North-West CD 15) Southern CD 16) Far Eastern CD
Total in 2018: 7 ECD	**Total in 2019: 12 ECD**	**Total in 2020: 16 ECD**

Source: made by the author (based on [4])

The development of the State Customs Service of the Russian Federation

1. Legislative level

The future development of the State Customs Service (SCS) is only possible on the basis of different experiences and backgrounds. First of all, the future is determined by regulatory sources, in particular, strategic objectives. The "Development Strategy of the Federal Customs Service of Russia until 2030" [2] is to ensure the creation of smart customs where routine actions are fully automated, AI will control all customs processes and procedures by internal information communication means, with harmonized and unified within the EAEU payment systems. Figure 1 shows the path of artificial intelligence in customs affairs. All set goals are highly likely to be achieved through effective work.

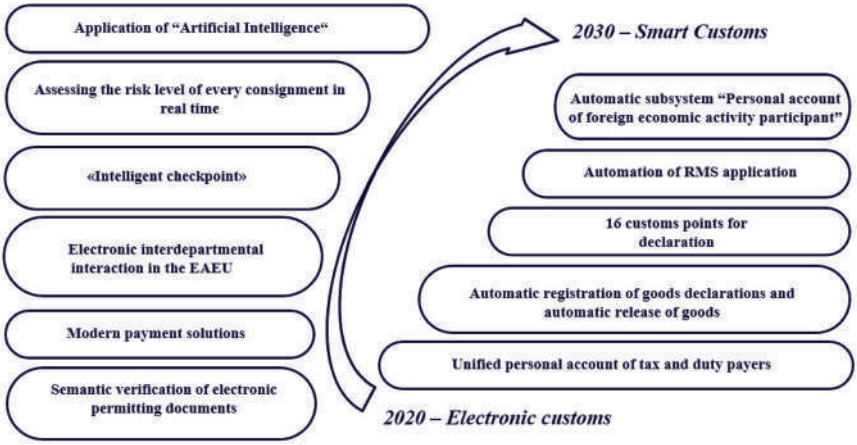


Figure 1. SCS development path based on the "Development Strategy of the Federal Customs Service of Russia till 2030"
Source: made by the author (based on [2])

2. The level of interaction with foreign structures

Besides, the future of the State Customs Service can benefit by foreign experience [6]. But the application of foreign practice is only possible in case of its high-quality services, their state-of-the-art equipment and contribution to the global customs business. When considering the US experience, it is worth noting the following: currently, the US Border Patrol is exploring the use of the blockchain technology as part of its activities.

In September 2017 a special committee was organized to promote the existing technologies and implement the blockchain for processing financial transactions which will have a positive impact on trade. As to SCS of the RF, the blockchain technology implementation is only on the theoretical level. Furthermore, US customs authorities are actively using the technology of Automated Export System. This technology allows customs authorities to systematize incoming information about the cargo moving across the state border by all means of transport. Implementing this technology would help SCS of the RF to increase the efficiency of customs authorities by promptly responding to various negative situations and customs risks.

The customs affairs of European countries use iBorderCtrl (Fig. 2). It is a virtual AI-based lie detector. This project was planned for six months, and its tests took place at checkpoints in Hungary, Greece and Latvia. It works by scanning the image of a passport, visa, and certificate of financial

guarantees. During the passport control procedure every tourist will be asked several questions, and the robot will scan the respondent's facial expressions and identify involuntary facial expressions that appear when trying to hide or suppress emotions.

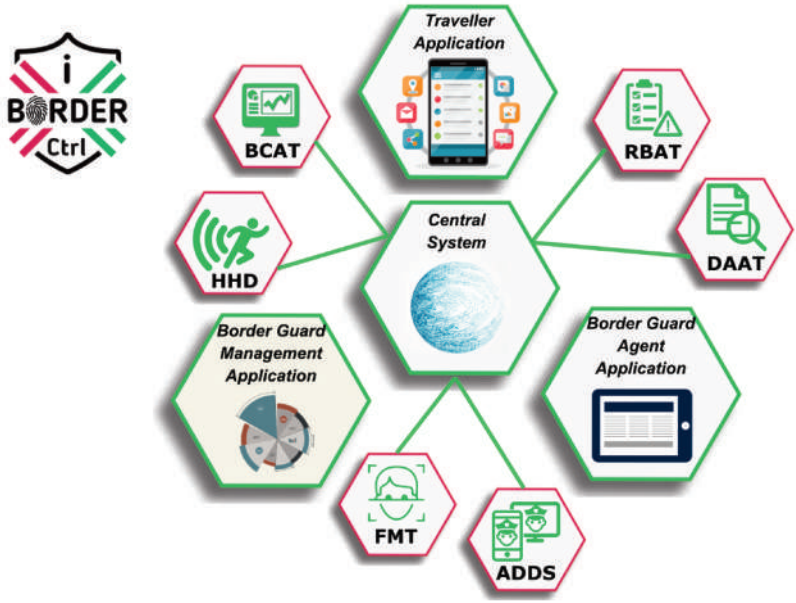


Figure 2. Components of AI-based technology iBorderCtrl
Source: [5]

The UAE's customs affairs are among the most effective and successful government agencies at the global scale. Risk management system (RMS) processes received declarations in the UAE at 97%, that is, as part of preventive measures, failures and errors are eliminated. This system has received a special certificate of the highest degree from the Global Innovation Institute GINI for its quality and efficiency. The system collects data, detects errors and intercepts dangerous mechanisms. RMS is still being developed in Russia, and according to the "Development Strategy of the Federal Customs Service of Russia until 2030" is supposed to be one of the target guidelines, therefore it is necessary to direct efforts towards liberalization and the use of modern mechanisms for influencing the quality of the structure.

In addition to innovative technologies radioactive scanning has been operating in the customs structure of Dubai since 2010. Vehicles are inspected

with the help of radioactive technical means of customs control, since high pass-through function allows to assess the condition of goods without damaging them. This increases the speed of work in customs affairs, therefore, reducing human resources. Fewer workers are assigned to one task which means some responsibilities can be delegated. The State Customs Service of the RF already has such technical means, for example, Introscopes, but they do not operate in all customs departments; many customs offices are not as technically equipped as, for example, the ones in Moscow.

Drones - unmanned aerial vehicles, which appeared in 2014, have considerably facilitated the country's customs control. Such a flying mechanism is able to monitor large areas, notice problems or concealment of some crimes, for example, in linings in cargo or criminals on ships. Drones would be in great demand at seaports and customs offices of the Russian Federation, since cargo transportation must undergo special quality control. In addition, drones can remotely send information to security services and regulate the situation.

Another innovative tool launched by Dubai Customs is the application called "Al Munasiq" (Harmonizer) which allows users to search for a Harmonized System (HS) code by entering a product description or taking its photo using their smartphone camera or by uploading an existing photo [7].

Conclusion

Thus, the importance of AI for practical work of the Russian Customs service is significant as it will enhance the efficiency of customs officers in curbing terrorism and piracy, counterfeiting and other fraudulent activities as well as anti-drug trafficking. The use of AI will enable the customs authorities of the Russian Federation to reach high professionalism and incomparable quality. Joint development will create advantages for all participants in foreign economic activity. Implementing all the effective foreign technologies will allow the customs authorities of the Russian Federation to evolve into a highly modernized system for ensuring control and defense at its customs borders.

References

1. Andreeva E. Iskusstvennyj intellekt i perspektivy ego ispol''zovanija pri identifikacii tovarov v tamozhennyh celjah // Vestnik Rossijskoj tamozhennoj akademii. 2021. №1 (54). URL: https://cyberleninka.ru/article/n/iskusstvennyy-intellekt-i-perspektivy-ego-ispolzovaniya-pri-identifikatsii-tovarov-v-tamozhennyh-tselyah (Accessed 20/05/2024)

2. Development Strategy of the Federal Customs Service of Russia until 2030

3. Dubai Customs launches an app to help with goods classification // World Customs Organization [Electronic resource]. URL: https://mag.wcoomd.org/magazine/wco-news-96/dubai-customs-launches-an-app-to-help-with-goods-classification/ (Accessed 20/05/2024)

4. Federal Customs Service // Official Site of FCS [Electronic resource]. – 2004 – 2024. URL: https://customs.gov.ru/ (Accessed 20/05/2024)

5. EU-project iBorderCtrl: Komt de leugendetector of niet? // GLOBALINFO.NL [Electronic resource]. – 2024. URL: https://www.globalinfo.nl/nieuws/eu-project-iborderctrl-komt-de-leugendetector-of-niet/ (Accessed 20/05/2024)

6. Makrusev V. Zarubezhnyj opyt tamozhennogo administrirovanija : uchebnoe posobie / Makrusev V. V., Bojkova M. V. . — Moskva : Rossijskaja tamozhennaja akademija, 2018. — 214 c.

7. Transforming trade: how Dubai Customs is using ai to simplify trade and border control// Customs academy: SCIENCE [Electronic resource]. –2024. URL: https://customs-academy.net/?p=18721 (Accessed 20/05/2024)

8. Understanding the different types of artificial intelligence // IBM. [Electronic resource]. – 2024. URL: https://www.ibm.com/think/topics/artificial-intelligence-types https://customs-academy.net/?p=18721 (Accessed 20/05/2024)

WANG Yuhang
Lomonosov Moscow State University

IMPROVING HUMAN RESOURCE MANAGEMENT IN STATE-OWNED ENTERPRISES

Abstract: This paper, drawing on Company A as an example, uses the SWOT matrix and PEST analysis methods, combined with demand theory and equity theory, to analyze the current status of human resource management in state-owned enterprises under the new situation and internal and external environment. Through research and literature analysis, this paper explores the factors that lead to the current status of the company's human resource management, and puts forward suggestions for improving company's human resource management. At the same time, it provides suggestions for improving human resource management for similar state-owned enterprises.

Keywords: human resource management, state-owned enterprises, reform, performance, incentives.

Introduction

State-owned enterprises (SOEs) are vital for China's economy, but they also face a number of HRM challenges, such as rigid systems, striking a balance between efficiency and social responsibility, and keeping up with market competition. The main goal is to examine HRM problems in SOEs and provide strategies for improvement to boost management effectiveness and advance sustainable development.[3] The significance of the study is presented first in the paper's structure, which is then followed by a review of pertinent literature and methodology. Next, a case study of Company A is given, complete with PEST and SWOT analyses. Ultimately, a discussion of the findings is had, followed by recommendations and conclusions. [4]

Literature Review

Theoretical Foundations: Human Resource Management: Evolution and importance in organizational goal achievement.

Maslow's Hierarchy of Needs: Application in analyzing promotion and motivation.

Management by Objectives (MBO): Exploration of performance appraisal systems.

Equity Theory: Investigation of fairness in compensation and promotions.

Person-Organization Fit Theory: Alignment between employees and organizational roles.

SWOT and PEST Analyses: Tools for assessing internal and external environments of SOEs. [6][5]

Methodology

Case Study Method: Company A is a Chinese energy company with good performance. In the previous investigation, it was found that the company had some human resource problems in recent years. Company A is used to analyze HRM practices and challenges in a typical state-owned enterprise.

Survey and Questionnaire

Design: The questionnaire was developed based on literature review and expert interviews. It focuses on four main dimensions of HRM: compensation system, performance appraisal, incentive system, and promotion system. [2].

Sections:

1. Demographic Information: Age, gender, education level, years of service.
2. Compensation System: Questions about satisfaction with current pay, fairness of the pay structure, and alignment of compensation with job responsibilities.
3. Performance Appraisal: Effectiveness of the appraisal process, clarity of performance criteria, frequency of evaluations, and feedback mechanisms.
4. Incentive System: Types of incentives provided, perceived effectiveness, and areas for improvement.
5. Promotion System: Transparency of promotion criteria, opportunities for advancement, and satisfaction with career progression.
6. Team Building and HRM System: Effectiveness of team-building activities, adequacy of training programs, and overall satisfaction with the HRM system.

Research Results and Analysis

Table 1

Statistics of questionnaire survey data

Statistics on questionnaire survey data									
Survey Content	**Number of participants**	**Number of participants who rated it as strength**	**Percentage**	**Number of participants who rated it as more strengths**	**Percentage**	**Number of participants rated as Weakness**	**Percentage**	**Number of participants rated as totally weak**	**Percentage**
Incentive System	300	60	20%	60	20%	156	52%	24	8%
Compensation System	300	156	52%	102	34%	42	14%	36	12%
Performance Appraisal	300	30	10%	54	18%	216	72%	36	12%
Position Promotion	300	126	42%	102	34%	72	24%	42	14%
Enterprise performance	300	126	42%	102	34%	72	24%	42	14%
Human Resource Management System	300	156	52%	102	34%	42	14%	36	12%
Team Building	300	120	40%	24	8%	120	40%	36	12%
Human resource management hierarchy	300	126	42%	102	34%	72	24%	42	14%

Source: Questionnaire statistics

SWOT Analysis of Company A:

Strengths: Good business performance indicators. Normative HRM system with clear hierarchy.

Weaknesses: Issues in incentive management, aging management team.

Opportunities: Policy support for SOE reforms, outsourcing opportunities.

Threats: Economic challenges, competition for talent.

PEST Analysis:

Political Environment: Policy reforms supporting SOE development.

Economic Environment: Market competition and talent retention issues.

Social Environment: Shifting cultural perceptions towards SOEs.

Technological Environment: Innovation and R&D challenges.

Results and Discussion

Our investigation uncovers a number of HRM problems at Company A. The strict pay-performance system is ineffective in motivating staff members. Agility and creativity are hampered by the antiquated team structure. Furthermore, the absence of a market-oriented approach in the HRM system causes inefficiencies in talent management. We suggest the following tactics to deal with these problems:

1. Pay System Focused on the Market: Establish a flexible compensation plan that recognizes achievement and complies with market norms.
2. Improving Team Dynamics: Promote cross-functional cooperation and ongoing education to create a dynamic team structure.
3. HRM Capacity Building: To enhance management techniques and employee engagement, spend money on HRM training and development. [7]

Conclusion

In summary, the HRM problems in SOEs are intricate and varied, necessitating thorough approaches to improvement. Our research offers theoretical and practical suggestions for strengthening HRM in State-Owned Enterprises (SOEs), potentially increasing their efficiency and competitiveness. Future studies ought to concentrate on how these tactics affect SOE performance over the long run. If executed well, the suggested tactics have the potential to boost staff morale, increase talent retention, and aid in the long-term growth of SOEs. [1]

References

1. Acquah A, Nsiah T K, Antie E N A, et al. Literature review on theories of motivation[J]. EPRA International Journal of Economic and Business Review, 2021, 9(5): 25-29.
2. Adams J S. Towards an understanding of inequity[J]. The journal of abnormal and social psychology, 1963, 67(5): 422.
3. Bakke E W. The human resources function. Management international, 1961: 16-24.
4. Dong KY. Introduction to human resource management [M]. Beijing: People's University of China Press, 2007.
5. Drucker P. The practice of management[M]. Routledge, 2012.
6. Maslow A. A theory of human motivation[M]. Lulu. com, 2013.
7. O'Reilly III C A, Chatman J, Caldwell D F. People and organizational culture: A profile comparison approach to assessing person-organization fit[J]. Academy of management journal, 1991, 34(3): 487-516.

Электронное издание сетевого распространения.
Оригинал-макет – А. В. Плотников. Оформление обложки – А. В. Плотников.
7,0 печ. л. Опубликовано 22.11.2024.
Издательство «ЭФ МГУ имени М.В. Ломоносова»;
www.econ.msu.ru; +7 (495) 939-17-15

**NEW HORIZONS OF ECONOMIC GROWTH#
SOCIAL WELLBEING #
CULTURAL ACHIEVEMENTS**

ISBN 978-5-907690-63-9