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SHARING ECONOMY BUSINESS MODELS (SEBMS) IN DIGITAL ECONOMY

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Introduction

Sharing resources, including, services and products, has a long history in Georgia. Yet, recent technological advancements have brought new life to this tradition, evolving it into innovative business strategies.
With the advent of the digital era, sharing resources has become simpler and more efficient. Digital platforms now facilitate the process creating what we refer to as the sharing economy. This trend is not just local to Georgia. It is a global phenomenon fueled by the increasing digitalization of our world, shifting attitudes towards borrowing instead of owning and the promise of cost-effectiveness and improved efficiency.
In Georgia, the presence of the sharing economy is evident and growing. The operation of international platforms, such as, Airbnb, attests to this. Airbnb has found considerable success at the Georgian market, offering locals a way to generate income by renting their homes and providing tourists with affordable, personal alternatives to hotels. This interaction not only boosts the local economy but also encourages cultural exchange thereby enriching Georgia's famous hospitality.
Moreover, local Georgian platforms embracing the sharing economy model have also emerged. They span a variety of sectors, including, car sharing and co-working spaces, showcasing diverse resources that can be shared and monetized in this digital age.

Research Aims and Objectives

This study explores complex processes and challenges inherent in the sharing economy, which represents a novel collaborative approach to conducting business. As mentioned before, sharing economy business models (SEBMs) now predominantly rely on digital platforms due to the significant advantages offered by digital business, facilitating convenient peer-to-peer transactions at both local and global levels. The given research primarily focuses on three main areas. Firstly, it addresses difficulties associated with determining unique characteristics of sharing economy, analyzing distinctions among related concepts, such as, sharing economy, collaborative economy, collaborative consumption and peer economy. Secondly, it discusses the tools used to map sharing economy business models (SEBMs). Lastly, the study explores the influence of the digital trust factor on user satisfaction and the utilization of sharing economy platforms.

The practical component of the research has been conducted in Georgia where the study aimed to examine the features and archetypes of sharing economy business models (SEBMs) currently employed in local industries from transportation to tech renting. The examples of local sharing economy can be companies/platforms including qari.eco, tripcars, rentech, terminal, damemgzavre.ge, scroll.eco, etc. These archetypes were then compared with established theoretical models derived from international experiences.

- Qari.eco: This platform focuses on providing eMoped and eCar rental services. It reflects the increasing emphasis on sustainable transport methods, which not only reduces the dependency on fossil fuels but also alleviates urban congestion. The company leverages the shift towards electric vehicles, which has proven to be a successful business model in many countries worldwide, and it seems Georgia is no exception.
- Scroll.eco: Similar to Qari.eco, Scroll.eco offers an eco-friendly electric scooter rental service. This venture signals a shift toward more efficient, greener modes of short-distance transport. These lightweight vehicles are an effective way to navigate urban areas and are particularly popular among the youth and young adults.
- Damemgzavre.ge: This peer-to-peer (P2P) carpooling service seeks to address both environmental and cost-saving considerations. By facilitating shared rides, Damemgzavre.ge wants reduces the number of cars on the road, which cuts down on carbon emissions and helps users save on fuel and maintenance costs. However, it should be said that now currently platform is mostly used by Taxi drivers which is bot promoting resource utilization.
- Terminal.center: This platform embraces the trend of shared workspaces. Terminal.center offers shared co-working spaces and meeting rooms that cater to freelancers, start-ups, and small businesses. These shared spaces promote collaboration and networking while significantly cutting down on rental costs.
- Rentech.ge: Rentech.ge offers a tech product rental service mostly smartphones. This platform exemplifies the growing importance of the circular economy, which aims to extend the life of tech products and reduce electronic waste. However, it is also offering final customers options to buy after the long-term rental.
- Tripcars.com: Tripcars.com is a car rental platform connecting drivers and car owners. It capitalizes on the untapped value of idle vehicles, transforming them into income-generating assets. This not only leads to efficient resource utilization but also provides an affordable alternative for those needing a car for short-term use.

Methodology and Main Theoretical Background

Based on the approach proposed by Curtis and Mont (2020) and later refined by Curtis in 2021, we are planning to use a modeling tool that analyzes 15 factors, also known as attributes, for each business model. These attributes are divided into three main categories: Type and Activities, Governance and Operations and Economics and Revenue. Each attribute has various configuration options which further determine the nature and operations of a specific Sharing Economy Business Model (SEBM).

The attributes and their descriptions are:

Type & Activities

Platform Type: The mechanism used for mediation (e.g., Peer-to-Peer, Business-to-Business).
Practice: The type of sharing the platform enables (e.g., Shared Space, Shared Mobility).
Key Activity: The platform's main function (e.g., facilitating access to underused goods).

Governance & Operations

Intellectual Property: The status of IP rights on the platform (e.g., Open Source, Communal).
Governance Model: The decision-making process (e.g., Cooperative, Collaborative).
Price Discovery: How prices are set (e.g., Free, Pay What You Can).
Key Value Proposition: The platform's primary benefit (e.g., reduction of transaction costs).
Mediating Interface: User access point (e.g., Smartphone App, Website).
Venue for Interaction: Environment for user interaction (e.g., Offline, Online).
Review System: The platform's feedback mechanism (e.g., Resource Owner Reviews, None).

Economics & Revenue

Geographical Scale: Operational range (e.g., Local, National).
Value Orientation: Main motivation (e.g., Societal/Public, Commercial).
Revenue Streams: Income sources (e.g., Transaction Fee, Membership, Advertisements).
Pricing Mechanisms: Pricing strategy (e.g., Static Pricing, Dynamic Pricing).
Price Discrimination: Price variance factors (e.g., Feature-Based, Location-Based).
Revenue Source: Income origin (e.g., Volunteer, Resource Owner).
Sustainability Performance: Contribution to sustainability (e.g., Operates as a platform).

Keywords: Digital Trust, Digital Economy, Sharing Economy.

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DIGITAL TECHNOLOGIES IN CULTURAL INSTITUTIONS TO AMPLIFY THE VISITOR EXPERIENCE

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Abstract:

The article refers to the role of technologies in the museum field. Collaboration between the Georgian National Museum (GNM) and the Business and Technology University (BTU) will be discussed which has focused on enriching and educating the museum's visitors through digital services. Modern digital services have been integrated with a unique Georgian culture and the identity, uniqueness, character and content of each museum were adapted. For example, the application and 3D animations created for the Open-Air Museum of Ethnography, Dmanisi and Vani Archaeological Museums.

As research shows, these and other digital services in our museums today are one of the best ways for people of various professions to expand their inspiration and creative horizons. This is significantly crucial for the cognition of children and adults. It is the knowledge acquired through play and digital communication that is the strongest emotion and a positive experience in children, which contributes to arousing curiosity.

It's noteworthy that launching of technology in the field of cultural heritage can be regarded not only from cultural promotion perspective but also serve as the source of rising income and sustainable development.

Collaboration and synergy of GNM and BTU allows the museum as the social and community activator to do more, attract more visitors, share knowledge and experiences more widely, arouse interest in cognition and develop imagination for creative and critical thinking.

Article:

Nowadays, as never before, it is very important to integrate technology into all fields of our social and cultural life. It has to be noted that especially in post-pandemic period cultural institutions find themselves in a rather difficult situation in terms of visitor attendance that once again emphasized the increased role of technologies.

Actively integrating technologies is important for cultural organizations not only to better expose cultural heritage but also ensure cognition of children and adults. It is the knowledge acquired through interactive, game-based approach and digital communication that triggers the strongest emotion, interest and a positive experience in children, which on the other hand contributes to their growing curiosity. Therefore, the article refers to the role of technologies in the museum field. With their content modern museums have ceased to be just storage of exhibits and a space for their display. Today, museums are presented as multifunctional spaces. They have the power to show and demonstrate, introduce something, awaken interest and develop imagination and creativity within us.

On August 24th, 2022 in the framework of the 26th ICOM General Conference held in Prague, the ICOM Extraordinary General Assembly approved a new museum definition. According to it, "A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing."

Today museums are becoming more visitor experience-oriented to attract and engage people. Technology is one of the best ways to showcase scientific research in a modern format, making the perception of the museum's object even more appealing to consumers. Digital technologies, which are developing worldwide today, are also being actively introduced in the museum field.

In this context, this article briefly describes and shares my experience on the collaboration between the Georgian National Museum (GNM) and the Business and Technology University (BTU). Our fruitful cooperation counts several years and is being focused mainly on enriching the museum's consumers with digital services.

The Georgian National Museum stands as the largest museum complex which perpetuates an enduring museum tradition in Georgia. GNM covers museums, the national gallery, scientific research centres, house museums and museums reserved areas under its institutional umbrella. GNM has inherited its institutional traditions from the first museum in Georgia founded in the 19th century. At the same, since becoming a part of world-wide museum system, GNM became actively involved in various cultural developments happening across the world. Institutional development of the GNM is supported by UNESCO, the European Union and other international organizations. Business and Technology University is the first private, high – technology centre in Georgia which brings together the regional technological hub, the research centre, the business accelerator, artificial intelligence lab, cyber security lab, block-chain lab, renewable energy lab, retraining centre, Android and iOS lab, industry 4.0 lab and other entities in one space.

BTU and GNM are implementing several projects in the field of digitalization of art works and enhancing their access to visitors. Leading companies in the field and specialists with rich experience are involved in this project. As an example, I would like to mention a series of master classes held during the COVID pandemic in partnership with the Italian brand Centrica. Master classes provided for Georgian students and field specialists to share technologies, approaches and findings used by the authors of the digitization of more than 1000 unique pieces of work, such as, the masterpieces of Leonardo da Vinci, Giotto, Caravaggio and other artists.

By expanding the museum's collection in the digital format, our team would like to further develop more imagination so that the visitor clearly understands the purpose and function of various exhibits. We have combined modern digital services with a unique Georgian culture and adapted the identity, uniqueness, character and content of each museum.

For example, the application created for the Open-Air Museum of Ethnography (Tbilisi, Georgia) is also distinguished by the fact that the informative text is accompanied by Georgian folk songs characteristic to each area. At the Dmanisi Museum (Kvemo Kartli, South-Eastern Georgia), the visitor encounters 3D animations of the first Europeans, the ancient hominids (Archaeological finds in Dmanisi represent the oldest evidence of humans discovered outside Africa, dating back 1.8 million years.) and graphics of a long-distance predatory swordfish found in the Dmanisi area, the animation of which is also integrated into virtual and extended reality, and is widely available to visitors.

The unique bronze lamps and burner censer (3-1 century BC) were presented in the Vani archaeological museum with high-tech solutions in AR and 3D format.

The world recognition of the Vani Museum should also be mentioned here - for the first time in the country's history, Georgia won the prize of European Museums Forum. The Winner of the Silletto Prize for “Community Participation and Engagement 2023” is Otar Lordkipanidze, Vani Archaeological Museum of the Georgian National Museum.

Partnership between GNM and BTU is a successful example of a public-private partnership. Collaboration and synergy of these two institutions enables the Museum, as the main cultural institution of the country, to do more, attract more visitors, further share knowledge and experiences, arouse interest in cognition and develop an imagination for creative and critical thinking.

A survey of GNM visitors for the first 6 months of 2022 showed that their satisfaction increased by 37% thanks to the afore-mentioned technologies. Notably, 71% of those surveyed would recommend that their relatives visit the museum and experience these technologies.

It is also worth mentioning that museums worldwide require significant financial resources to preserve, restore and display exhibits. In fact, the inclusion of technologies makes it possible to attract more visitors to the museum, which in turn increases the income of the museum and greatly contributes to its self-maintenance. In this regard, launching of technology in the field of cultural heritage, can be regarded not only from cultural perspective but also the financial one as it can serve as the source of rising income.

Palaeontologist and natural historian Richard Fortey once said: “Museums have no political power but they do have the possibility of influencing the political process. This is a complete change from their role in the early days of collecting and hoarding the world to one of using the collections as an archive for a changing world. This role is not merely scientifically important, but it is also a cultural necessity.” Therefore, I believe that the objects of cultural heritage, namely, archaeological discoveries or works of fine art, should be presented in the most interesting and memorable way possible, integrated with technology platforms, and accessible to all visitors.

In light of all the aforesaid, I profoundly believe, digital services of museums are one of the best ways for people of various professions to expand their cultural inspiration and creative horizons.

Finally, as an artist Maira Kalman once said: “A visit to a museum is a search for beauty, truth, and meaning in our lives. Go to museums as often as you can.”

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DIGITAL TRANSFORMATION OF FOREIGN POLICY

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Introduction

Rapid development of digital technologies and the pandemic experience at the international and national levels have made it clear that every day all key areas are undergoing digital transformation. From this perspective, the diplomatic service is no exception. Information and communication technologies have become the tools or means by which, at little or less cost and within a given time frame, the country can ensure implementation of its foreign policy priorities. Furthermore, in the wake of the development of a modern type of diplomacy - digital diplomacy - innovative diplomatic services of states require greater emphasis on the possibilities of information and communication technologies. Digital advances will contribute to developing automated approaches in the decision-making process. This will promote achieving foreign policy goals timely without physical representation in different parts of the world. This process is also important for the improvement of electronic management systems for high-level events.

For the first time in the history of diplomacy, the Danish government appointed a tech ambassador in 2017. A digital ambassador aims to strengthen ties with the IT industry and encourage investment in Denmark from tech companies.[1] The President of the French Republic Emmanuel Macron named David Martinon as an ambassador for digital affairs. The functions of an ambassador include digital governance, international negotiations and the development of cooperation with digital companies.[2] In 2020, Austria appointed its first tech ambassador. Estonia also has an ambassador[3] for cybersecurity. Overall, the number of countries with representatives in this area is increasing.

Development of digital platforms and the establishment of virtual embassies will give ministries of foreign affairs the ability to communicate with different types of audiences. Countries, especially, small states, can better present their foreign policy agenda to a wider audience if they properly plan and execute social media campaigns. Furthermore, online ministerial meetings, summits, conferences and forums in bilateral and multilateral formats have been held in response to the pandemic.

To develop a digital foreign policy framework, some states have adopted digital foreign policy strategies. Such documents outline approaches of countries to digital issues and digitization concerning their foreign policies. They also include areas of policy priorities regarding digitization and how these priorities are pursued as part of the country's foreign policy.[4] At the same time, the absence of a comprehensive digital foreign policy strategy does not indicate that a country is paying less attention to digital topics in its foreign policy. For example, although Germany does not have a comprehensive digital foreign policy strategy document, 'cyber foreign policy' is listed as one of the key German foreign policy topics on the website of its ministry of foreign affairs. Also, Estonia and Canada refer to digital topics in their respective foreign policy strategies.[5]

As for digital foreign policy strategies, in 2020, Switzerland adopted its digital foreign policy strategy 2021-2024. According to this document, a global phenomenon, such as, digitalisation requires an international set of rules, comprising both legally binding and non-binding instruments. International treaties and customary international law are legally binding instruments. Non-binding instruments include soft law best practices, technical standards and benchmarks.[6]

Switzerland supports capacity-building in the areas of digital technologies and cybersecurity. States must have the necessary capacities to receive benefits from digitalisation. These capacities include both the ability to develop strategies and policies as well as specific technical expertise. In this regard, Switzerland works closely with multilateral partners.[7]

Switzerland as a highly developed state can benefit from the opportunities that digitalisation opens up in foreign markets as well as access to high-quality digital services. Digitalisation is shaping global supply chains, in which the Swiss economy is highly integrated. Simultaneously, it is equally important that personal data and intellectual property are properly protected and that companies and infrastructures are protected against cyberattacks and industrial espionage. Regional approaches to the regulation of the digital space, in particular at a European level, also play a significant role for Switzerland, which has an interest in ensuring that divergent standards do not create barriers to trade. It is essential to put in place transparent structures for the use and forwarding of data to enable the development of innovative applications and increase added value as well.[8]

As one of the world's most digitised countries, Denmark has a strong foundation for engaging with international technological development. The strategy for Denmark's tech diplomacy focuses efforts towards a democratic and safe technological future. According to the document, there is no question that the tech sector must be regulated – the question is how to regulate it.[9] The tech giants should uphold their part of the social contract. Denmark will help drive forward the global discussion on challenges related to tech companies' data-driven and algorithmic business models and push for international solutions including on the issue of taxation of the digital economy – an issue where Denmark is actively engaged in negotiations internationally.[10]

Investments in research and development of new technologies are a key competitive parameter that is shifting the geopolitical balance of power. Many countries are using digital tools to advance foreign policy objectives in the grey area between war and peace. Digital platforms connect different actors and have provided an unprecedented number of people globally with the opportunity to express their views. Denmark's tech diplomacy contributes to domestic discussions with perspectives and knowledge on global trends from the frontier of technology development.[11]

Digital technology is a key issue for French foreign policy and public action as a whole, be it for the success of France's economy in the global competitive sphere or for conditions of stability, security and power on a global scale. The French international digital strategy focuses on three key pillars: governance, the economy and security. It is a reference framework and diplomatic roadmap. This strategy enables France to promote a world which associates freedom and respect for standards.[12]

The Dutch Digitalisation Strategy is a government-wide approach. The Netherlands aims to become a digital frontrunner in Europe – a testbed for companies from all over the world, where they can develop and test new applications. When things change rapidly, as in the digital transformation, it is important to get – and keep – everyone on board. That applies to people in the labour market and to society as a whole. This means that everyone needs to learn the basics at an early age and that people need to keep their skills up-to-date

throughout their lives in response to new types of jobs.[13] The digital transformation is changing the Dutch economy and society, but common values remain the same. The government sees opportunities but also understands the concerns that people have about digitalisation. In this regard, the government will continue to preserve values and fundamental rights in the digital age, including safety, security, the rights to privacy and self-determination, fair competition, solidarity and good governance.[14]

In view of the above, states have created a digital foreign policy framework by the adoption of the country's digital foreign policy strategy and digitalisation strategy of the state. These documents define the role of information and communication technologies in implementing foreign policy priorities. They represent roadmaps for the digital transformation of diplomatic services and determine values that should be protected by state bodies in this process. At the same time, digital foreign policy frameworks of states pay special attention to the challenges of digital technologies and define some ways to overcome obstacles including protecting critical information infrastructures from cyberattacks. However, they could not provide a legal understanding of digital diplomacy. States can clarify legal aspects of digital foreign policy based on the development of the international legal framework for digital diplomacy.

As for the mandate of the tech/digital ambassador, in the case of Denmark, the tech ambassador has a global mandate and is supported by a team based in Silicon Valley, Copenhagen and Beijing. The presence in Silicon Valley is particularly important for representing Denmark and building bridges to the tech industry. Denmark's tech diplomacy focuses on six defined roles: 1) Representation of the Danish Government and central administration concerning the global tech industry; 2) Collection of knowledge about technological developments and support of innovation; 3) Building coalition with global stakeholders, including other countries, companies, business organizations, multilateral organizations and civil society; 4) Contributing expertise and insight to the Danish public debate on technological development and the influence of the tech industry; 5) Developing Policy through the collection of knowledge and international perspectives on technological development; 6) Promoting Danish tech exports and foreign investment in Denmark.[15]

French digital diplomacy is structured around five major themes: 1) Promoting and supervising the development of innovations and the control of breakthrough technologies, in particular, artificial intelligence; 2) Ensuring the security and international stability of the digital space; 3) Protecting human rights, democratic values and the French language in the digital world; 4) Strengthening the influence and attractiveness of French digital actors; 5) Contributing to Internet governance.[16] The French ambassador for digital affairs focuses on the following functions: advocating broad governance that is faithful to the diversity of actors in the digital sphere (states, private sector, civil societies); supporting the concepts of privacy; advocating fair platforms that are transparent and act responsibly; protecting intellectual property rights without restraining innovation; participating in the development of the European tech ecosystem (supporting industries, education and training, fair taxation rules, funding the innovation, ensuring equal broadband coverage); promoting European standards in international negotiations (Internet governance, trade agreements); supporting the French Tech network, that highlights tech ecosystems throughout the country and in hubs abroad.[17]

After a major cyber-attack in 2007, Estonia prioritized cybersecurity. The NATO Cooperative Cyber Defense Center of Excellence was established with the support of the Alliance in Tallinn one year after the attack.[18] Since 2018, Estonia has had an ambassador at Large for Cyber Diplomacy. Cyber ambassador is supported by the Cyber Diplomacy Department, established in 2019 at the Ministry of Foreign Affairs of Estonia. Safeguarding Estonia's cyberspace depends on the capability to secure critical information systems and a global, open, free, stable and secure cyberspace that is subject to existing international law and norms for responsible state behavior. Cyber diplomacy is mainly focused on state behavior in cyberspace and the principles and norms that apply to states in cyberspace. Cyber diplomats also contribute to the fight against international cybercrime and the protection of free and open internet.[19] The United States, Australia, the UK, France and Germany already have named top diplomats in charge of cyber policy.[20]

Based on the analysis of international practice, the functions of ambassadors for digital and cyber affairs may be: 1) Protecting human rights and democratic values in the digital world; 2) Constant communication with information and communication technology and data-oriented companies, including transnational technology companies. As a result of regular communication with them, attracting investments and offering to these companies the opening of representative offices and data centers in the sending state based on international investment agreements concluded at the bilateral level; 3) Representation of their countries in international bilateral and multilateral forums of digital transformation, cybersecurity and participation in determining issues related to digital, cyber policy; 4) Establishing close cooperation with senior diplomats of other countries with a similar mandate, relevant representatives of international organizations, both global and regional levels, including with the UN Secretary-General's Envoy on technology; 5) Obtaining and analyzing information about international trends in digital transformation and sectoral issues of implementation of digital governance, both in terms of foreign policy and education, health, agriculture, tourism, energy and other priority areas for the country; 6) Proactively offering partners initiatives on developing digital skills and protecting critical information systems in the sending state; 7) Promoting enhancement of the digital capacities in the diplomatic service of the sending state; 8) Preparing a strategic vision for the use of artificial intelligence and the development of automated approaches in the diplomatic missions; 9) Developing the concept of virtual embassies in cooperation with host states and technology companies; 10) Participating in international forums and other activities with the focus on defining cybersecurity issues and strengthening cyber capacities.

In terms of the digital transformation of diplomatic services, artificial intelligence can play a significant role, especially in cases of analyzing big data timely. Artificial intelligence is a real instrument to provide automatic routine tasks in the field of foreign policy. More precisely, robots as re-programmable multi-purpose devices designed for the handling of materials and tools for the processing of parts or specialized devices utilizing varying programmed movements to complete a variety of tasks. Regardless of opportunities, artificial intelligence may pose some risks and challenges. Because of the nature of AI ethical and legal questions can be pondered especially in terms of protecting human rights. The EU has a clear vision of the development of the legal framework for AI. Particularly, the EU AI Act proposed a regulatory framework for Artificial Intelligence. It focuses on the following 4 specific objectives: 1) ensure that AI systems placed on the Union market and used are safe and respect existing law on fundamental rights and Union values; 2) ensure legal certainty to facilitate investment and innovation in AI; 3) enhance governance and effective enforcement of existing law on fundamental rights and safety requirements applicable to AI systems; 4) facilitate the development of a single market for lawful, safe and trustworthy AI applications and prevent market fragmentation. It is essential to take into consideration that AI applications should be provided with objective information. Based on such information, robots would be able to make the right conclusions and assist diplomats. Chatbots are integral parts of the digital world and they can effectively perform automatic routine tasks for various purposes.

Digital transformation of diplomatic service will generally facilitate the achievement of modern foreign policy goals more effectively and timely. Furthermore, it will enable states to obtain new functions in modern international politics. Nowadays digital components are significant elements of international politics. There are discussions of the necessity to build alliances around digital affairs. Therefore, countries need their representatives - ambassadors for digital affairs to be involved in defining priorities of international digital policy. They will contribute to creating new opportunities to respond to the demands of digital reality and determining states' new functions in the international digital order.

In addition, ministries of foreign affairs will have continuous communication with both external and internal audiences by using automated approaches, including "chatbots". Developing the concept of virtual embassies will allow states, especially small states, to establish digital diplomatic relations with any country in the world through appropriate secure programs and applications. Overall, in the future, the international digital system will further change traditional approaches to diplomatic services and illustrate the effectiveness of digital tools, especially in terms of improving digital rapid response capabilities.

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ARTIFICIAL INTELLIGENCE IN THE PROCESS OF EDUCATION ADMINISTRATION

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Abstract

Artificial Intelligence (AI) is the part of people's everyday life and it is not just scientific fiction any more. Artificial intelligence is used by humans in all areas and fields from travel planning to mobiles. From today's perspective, it is even unimaginable how we managed to plan various activities without the help of technology.

Digital transformations have significantly changed the agenda not only for civil society but also the government in the process fulfilling its function. Electronic communication and technology usage in public governance becomes more and more important, which qualitatively changes the process of complying with obligations by public organizations whilst citizens are more actively involved in the public governance.

Information and communication technologies, especially, AI interferes every sphere of everyday life and it transforms functioning of governments as well. Healthcare, cybersecurity, education, agriculture, etc. are being more and more carried out by AI. It makes monitoring, data analysis and evaluating of relevant results easier as AI algorithms can process unbelievably big data in a short period of time without minimal risks of mistakes.

Hereby, the goal of this article is to generally describe the role of AI in education administration and give general recommendations for making and implementing trustworthy AI. The topic is actual as AI becomes more and more important in educational processes and changes the agenda for students, teachers or educational managers.

The desk research method was used to explore approaches and ideas on the topic from primary and secondary documents. As AI is a new phenomenon in the world, scientific research about it is very rare. As a result, it was necessary to consider existing theories of public governance and education administration in relation to the approaches to AI. It is important to raise the questions related to the above-mentioned issues that will be discussed and responded.

Literature Review

Beyond making our lives easier, AI is helping us to solve some of the world's biggest challenges: from treating chronic diseases or reducing fatality rates in traffic accidents to fighting climate change or anticipating cybersecurity threats.[1] Conformably unlimited possibilities of technologies and risks related to their implementation raised up the necessity of creating regulatory framework of AI usage.

Nowadays when the main indicator of competitive advantage is related to the permanently updated information, considering the volume of the data existing in the mankind memory, it is impossible for the human being to elaborate and analyze it for various goals without AI.

Given the unlimited potential of AI and related challenges, the draft of AI act was prepared in EU,[2] where the definition of AI, spheres where AI implementation is possible and general AI usage regulations are given.[3] Additionally, ethical guidelines were elaborated for AI in the educational sector.[4] As it is mentioned in the foreword, AI in education is no longer a distant future. It is already changing the way schools, universities and educators work and our children learn. It is making educational settings more responsive by helping teachers address each learner's specific needs... we must ensure that teachers and educators understand the potential AI and big data can have in education – while being aware of the associated risks.[5]

AI implementation in educational processes is reversible which takes larger scales. Teachers, students or educational managers use various technological instruments sometimes even without realizing that they are AI. But the main idea of the above-mentioned guidelines is that AI should help beneficiaries in the way that it makes the process more adopted for the needs of those and data processing is easier. Various research applications, translator software or chatbots are good examples that AI plays an important role in educational processes. On the other hand, the so-called smart assistants are a comfortable and useful possibility for educational administrators to plan relevant processes via identifying the needs of auditions or listeners and make the educational process inclusive.

For the goals of this article the educational sector can be divided into two main parts: the teaching-learning process and administration of educational processes.

The teaching and learning process to be digitally transformed means the development or two key areas:

"1. Fostering the development of a high-performing digital education ecosystem, which includes development of infrastructure, connectivity and digital equipment; effective digital capacity planning and development, including, up-to-date organizational capabilities; digitally competent and confident teachers and education and training staff; high-quality learning content, user-friendly tools and secure platforms which respect e-privacy rules and ethical standards;

2. Enhancing digital skills and competences for digital transformation, which requires basic digital skills and competences from an early age; digital literacy, including, tackling disinformation; computing education; good knowledge and understanding of data-intensive technologies, such as, artificial intelligence (AI); advanced digital skills, which produce more digital specialists as well as ensuring that girls and young women are equally represented in digital studies and careers." [6]

AI implementation in the teaching-learning process makes it free from routine for the teachers. As a result, they are more concentrated on the needs of the students and their everyday work becomes more interesting and full of creativity.

As some researchers indicate, educational institutions "are being forced to adapt to the ongoing cultural and societal changes challenging traditional educational practices, a central aspect of which is the rapid and continual development of digital technologies, some of which have been specifically developed for educational purposes."[7]

AI plays a significant role for educational managers as well. Again, for the goals of this article, educational processes can be administered by the managers within educational institutions and those from government. But before focusing on the administrative routine it has to be mentioned that by some researchers under the terms "AI in education administration" is meant that "It has enabled instructors or teachers to perform their administrative functions, such as, grading and providing feedback to students more effectively. AIWBEs programs have incorporated functions that provide instructors with grading guides, which make it easier to grade students' work and provide feedback."[8] But education administration is tightly related to the educational leadership and it means decision-making by responsible officials on various administrative and financial issues as well.[9] Educational policy planning and implementing, defining relevant budget-sources, monitoring and analyzing are the general functions of the government that are related to many other bureaucratic details. In Georgia there are 63 higher educational and 75 vocational educational institutions. Without digital and AI technologies it is impossible to provide open, public and transparent administration of the relevant functions by the state. It is impossible to manually fulfill data-mining, evaluate and analyze for relevant policy planning.[10]

On the other hand, educational administration within educational institutions means planning the teaching and learning process, quality assurance (via inside or outside mechanisms), budget-planning, as well as monitoring and analyzing.[11] Quality assurance mechanisms in higher educational institutions means various data collecting and analyzing processes in accordance with the Georgian legislation and EHEA regulations.[12] Hereby, it is hardly believable to provide fulfillment of quality assurance standards, collect and analyze in the end of each semester various data[13] from different audiences without digital and/or AI technologies. Correspondingly, digital technologies and AI algorithms might have a significant role to help educational leaders during decision-making. "In human decision making, our sensory systems (i.e., sight, hearing, touch, smell, and taste) collect incoming information, which is then processed by the brains' different systems, including, the attentional system, the memory system, the motivational system, the emotional system and the cognitive system. After processing the incoming information, human brains take a winner-takes-all approach to generate a decision, which is then executed through behaviors via muscular movements to engage in verbal and nonverbal communication (Wang, 2021). In this process, with its efficiency and brute force of computational power, AI can complement data-driven and evidence-informed decision making. Human judgment, on the other hand, is superior to AI in making value-based moral decisions. With its efficiency in collecting, processing, analyzing data, and providing real-time or near real-time results, AI can bring in analytical efficiency to assist school leaders in making data-driven and evidence-informed decisions. Data-driven, evidence-informed decision making has been a prevailing decision-making approach for school leaders."[14] For the educational leaders within institutions and government officials it is important to have the relevant, precise and full data in the right time for further decision-making. For example, statistics on students' enrollment, their academic success, drop outs or graduation, research on their employment are important and necessary information to decide in what manner and which sector to invest money, how to plan the budget or what kind of amendments and reforms should be fulfilled by the institution or government. AI might help and make the mentioned routine easier for educational managers and let them feel free for creativity and development of educational systems.

Conclusion

Summarizing all the above-mentioned, it is evident that "AI has a great impact on the education sector and its role is equally beneficial for both academic and administrative activities. Its applications are not only helping the learning inside a classroom environment but also the teachers in various administrative works attached to the classrooms like student's grading and assessment, finding their intelligence level and interests. Additionally, AI also helps teachers in managing the course, the classroom and attendance. It also assists teachers to make lecture notes and video lectures and enables students learn through virtual reality. In addition, it also provides help in other departments like admission, budgeting, facility management, resource management, examination management and record keeping."[15]

It has to be underlined that AI creation and development should be founded on the concept that it might only have the function of an assistant in each process. This is the main idea of EU guidelines and drafts of regulations as well. AI should serve the humans and make their life and work more comfortable and easier. AI will not replace teachers in classrooms and educational managers in their offices. The final decision-making and policy planning obligations should be fulfilled by the relevant responsible official but AI might carry out all routine tasks and works in advance for the final level. It might collect, research, process and analyze all the relevant data to be presented to the leaders for final decision-making.

Digital technologies and transformation of government functioning are the preconditions for providing transparency of public administration, data and services. Modern public administration based on digital technologies is ready for the challenges.[16] Conformably, during fulfillment of their obligations government officials might be significantly helped by AI technologies to provide relevant, transparent and lawful execution of their functions to be accountable to the civil society. The same might apply to administrative managers and leaders within educational institutions who have dually responsible to the students and academic staff as well as their leaders within the institution and relevant officials outside the institutions. AI is not future but it is modern reality and it is urgent to adopt, implement and use it for the necessities of mankind.

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THE ROLE OF VIRTUAL REALITY AND BIOFEEDBACK IN THE MANAGEMENT OF MENTAL CONDITIONS

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Introduction

In the last decade, in VUCA times, mental well-being of employees has become one of the most important issues in the workplace worldwide. According to Gallup's 2022 report - State of the Global Workplace – "stress among the world's workers reached an all-time high". Furthermore, daily negative emotions, such as stress, anger, sadness and worry has been increasing consistently and steadily since 2009 (1). The COVID-19 pandemic has had a significant impact on workplace mental health as well. Many employees have faced increased stress, anxiety and burnout due to uncertainties, concerns about health and safety and remote work challenges. Workplace stress and burnout have been persistent issues for employees in various industries. Besides, excessive workload, long hours, tight deadlines and lack of work-life balance contribute to these challenges. Analysis of global trends in this direction raised researchers' interest to conduct situational evaluation locally, in Georgia. For the purpose of the situational analysis, in-depth interviews were carried out with psychotherapists and psychologists. Overall, 12 interviews were conducted, transcribed and analyzed. According to the opinions of respondents, state of employee mental well-being is dramatically worsening in organizations in Georgia. Among the most increased mental disorders among employed individuals are panic attacks and anxiety disorders.

The next step after the situational analysis was to look for the modern solutions to these problems. One of the most promising emerging directions in the treatment of mental disorders is utilization of Virtual Reality (VR) goggles combined with biofeedback devices. The combination of VR goggles with biofeedback devices holds great potential for the treatment of mental disorders. Biofeedback is a therapeutic technique that involves providing individuals with real-time physiological feedback to help them learn self-regulation and coping skills. When integrated with VR technology, it can enhance the therapeutic experience and improve treatment outcomes for various mental health conditions. More specifically, the advantage of this approach is enhanced immersion. VR goggles create greatly immersive and interactive environment, making the therapy more engaging and realistic. In addition, biofeedback data can further enhance immersion by allowing individuals to perceive how their physiological responses change in real-time as they engage with VR scenarios. Furthermore, biofeedback devices measure physiological responses such as heart rate, skin conductance and muscle tension. By visualizing these responses during VR exposure or relaxation exercises individuals can become more aware of their bodily reactions to stressors and learn to regulate their responses effectively. Another advantage of VR goggles and biofeedback is that data can be used to tailor VR experiences based on individual's specific needs and responses. To illustrate, the therapy can adapt in real-time, allowing for individualization and adaptive therapy - ensuring that the exposure intensity or relaxation exercises are suitable for the individual's current state. Still another benefit is objective progress tracking: combining biofeedback with VR allows therapists to objectively trach the progress of their clients. Biofeedback data can be analyzed to assess changes in psychological responses over time, providing valuable insights into treatment effectiveness and guiding therapeutic decisions.

There is a growing body of scientific research exploring the use of VR goggles for mental health treatment. To illustrate, there is a number of studies that found effectiveness of VR exposure therapy in reducing symptoms of social anxiety disorder (2,3). Furthermore, research conducted in Sheba Hospital demonstrates the efficacy of VR exposure therapy for treating specific phobias, such as, fear of heights and flying (4).

A randomized controlled trial published in the Lancet Psychiatry compared VR exposure therapy to traditional exposure therapy for treating combat-related PTSD. The study found that VR therapy was equally effective and resulted in better treatment retention rates (5). Another study, meta-analysis, published in the European Journal of Psycho-traumatology (2019) demonstrated the effectiveness of VR exposure therapy for treating PTSD related to a variety of traumas, including, sexual assault (6). A systematic review published in the Journal of Medical Internet Research (2020) found evidence supporting the use of VR interventions for substance use disorders. Results of the study illustrated that VR-based relapse prevention programs showed promising outcomes in reducing craving and preventing relapse (7). Still another study published in the Journal of Substance Abuse Treatment (2021) explored the use of VR to deliver mindfulness-based relapse prevention therapy, showing positive results in reducing substance abuse and craving (8).

VR-based exposure therapy was found to be effective for Autism Spectrum Disorders (ASD), as well. To illustrate, research published in the Journal of Autism and Developmental Disorders (2017) showed that VR-based social skills training was effective in improving social interaction abilities in individuals with ASD (9). Moreover, a randomized controlled trial published in the Journal of Autism and Developmental Disorders (2020) found that VR therapy led to significant improvements in social skills and reduced anxiety in children with ASD (10). Another field of utilization for VR-based exposure therapy is treatment of depression and stress. A study published in the Journal of Affective Disorders (2020) examined the effects of a VR-based relaxation program on individuals with major depressive disorder. The results showed a reduction in depressive symptoms and improved mood (11). Another study explored the use of VR for stress reduction. The study found that VR-based relaxation significantly reduced stress levels and increased relaxation compared to a control condition (12).

The combination of VR exposure therapy with biofeedback can be particularly useful for anxiety and stress-related disorders. Individuals can learn relaxation techniques while simultaneously receiving feedback on their physiological stress levels, helping them develop better coping mechanisms.

While Virtual Reality exposure holds promise for the treatment of mental health conditions, there are several challenges associated with its implementation. Some of the major challenges identified from the literature review include: cost and accessibility issues – VR technology can be expensive, including, cost of the VR goggles, software and hardware requirements. Another challenge is that immersive nature of VR can evoke intense emotions and distressing experiences during exposure therapy. Ensuring the well-being and safety of individuals undergoing VR therapy is essential. Ethical guidelines and procedures need to be established to minimize potential risks and ensure appropriate use of VR technology. Another limitation of VR exposure therapy is the transfer of skills and learning from the virtual environment to the real world. It is crucial to ensure that the skills acquired in VR simulations generalize to real-life situations and result in lasting behavioral changes. However, for this purpose larger scale and longitudinal research is needed.

Personalized medicine is the main theme for the modern global healthcare. Individual variability aspect should be considered, as different individuals may respond differently to VR experiences, and it can be challenging to create the VR content that effectively targets specific phobias, traumas, or anxieties for everyone. Personalization and customization of VR content are important to accommodate individual needs and provide an effective therapeutic experience.

Furthermore, the long-term effectiveness of VR exposure therapy and its durability over time are still being studied. It is important to conduct research and follow-up studies to assess the maintenance of treatment gains and determine the need for booster sessions or additional interventions.

Among challenges, acceptance and engagement from patients' side should be considered as well. To illustrate, not all individuals may be comfortable or willing to engage with VR technology, which can affect their willingness to participate in exposure therapy. Factors such as simulator sickness, discomfort, or lack of familiarity with technology may impact the acceptance and engagement of individuals in VR treatment. Still another challenge is that mental health professionals need adequate training and expertise in utilizing VR technology and implementing VR exposure therapy effectively. Ensuring that clinicians are well-trained and competent in using VR as a therapeutic tool is crucial for delivering quality treatment.

To conclude, addressing these challenges requires ongoing research and collaboration among mental health professionals, technology developers and researchers. As the field continues to evolve, efforts are being made to optimize the use of VR in mental health treatment and increase its accessibility.

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AI AND RELATED CHALLENGES TO INTELLECTUAL PROPERTY LAW

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Abstract

Artificial Intelligence [AI] has become an inseparable part of daily life, especially, after the launch of ChatGPT. Various sounds, texts, photos, videos can be created in seconds using Generative AI. The "creations" could be benefitial for educational and other aspects of people's daily life. Generative AI has raised the need of clarity and new regulations of intellectual property issues. Alongside the development of AI, artists and authorts are requesting for fair regulations related to "creations". This paper identifies main challenges dealt with IP law and argues possible solutions.

Throughout history, technology has consistently exerted a deeply significant impact on humans lives. Nowadays, Artificial Intelligence represents an inseparable part of daily life. While generative AI was known back in 1960s, after the launch of ChatGPT it has become a more essential topic of discussion.

Society is benefiting from AI products in different aspects of life. Companies are using Generative AI in their services and operation. It is undisputable that all aspects can benefit from AI, especially, for business and educational purposes. The workflow and workload can be elevated by using AI.

Meanwhile, over the years AI has been developing and currently at the market. It is possible that AI can offer various services and/or "creations" in seconds. The question is what the best solution for the regulation of such "creations" is, how it can be regulated and what issues should be taken into account.

Positive and negative sides of AI have been the main topics of discussion for the last few years. AI companies are taking responsibility over its safety. Alongside positiveness of AI is emerged as an enemy against actors, performers and writers. In July, 2023 a massive shut down took place in Hollywood and Actors and Writers protested "industry plans to embrace artificial intelligence".[1]

Authors could assume that competition may arise at the market of "creative works".

The biggest challange is to decide and get to the right decision of what the aim of Intellectual Property Law is and whether to ensure creation of original works or protection of human creations.

Related to animals, the practice is clear for everybody – it is common practice that the animal would not be granted with the right of Authorship[2] but how it should be decided when it comes to "works" of AI? Nowadays, various content is produced through AI from artwork to music.

Meanwhile, AI has driven robotics. The number of robots exceeds 3.5 million. The total approximate value of these robots amounts to 15.7 billion USD.[3] Hason Robotics Limited has announced the following: "We bring robots to Life".[4] Robots themselves can appear as "creators" of "works". A well-known robot Sophia created "artwork" nfts and sold for approximately 700 000 USD.[5] Above the creations of artworks, robot Sophia with Jimmy Fallon offered the song performance to the audience.[6]

Jason M. Allen of Pueblo West, Colo created „Théâtre D'opéra Spatial" with AI Generated [Midjourney], and this picture won a prize.[7] A short novel co-written by humans and AI passed the first round of a Japanese literary contest and almost won a prize.[8]

AI could be more attracive due to its benefits: it reduces human errors, ensures smooth operation of data as well as quick responses /solutions, offers prompt and efficient solutions for e-commerce, health system, e-governance, educational purposes, etc.

Considering the number of creations of "works" by AI generated programs and their benefits, prompt regulation is required. The "author" under Georgian Copyright and Related rights is a physical person.[9] The same standard and definition applies to inventors.[10]

Several questions may arise when it comes to creating the AI program.

- Do AI "created" "works" enjoy economic rights? How remuneration issue should be resolved?
- If yes, who has economic rights - the author of AI program, the owner of AI program, the AI itself, the author of algorithm, the User or should the "work" be under the public domain?
- How should the authorship issue be resolved? How co-authorship could be decided?

For each and every country AI ecosystem influences the process of setting rules of AI regulations. This applies especially to those that are the creators of AI programs at the market. Numerous cases have been discussed in different legal systems related to AI authorship. In the latest decision on Thaler v Commissioner of Patents [2023, NZ] the court underlined: "...a non-human, could not be considered an inventor for the purposes of a patent...". The UK govemerment was publicly holding discussion of the deal of IP issues and AI.[11]

Under the UK Copyright, Designs and Patents Act 1988: "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken. (Section 9(3))"

Adittionally, it should be mentioned that the European Parliament released a resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies, which stress out the challenges to IPR protections.

To sum up, all international conventions are granting authorthship to physical persons. But the challenges related to IPR protections and AI generated works should be further discussed and each decision for every country should be made by considering specific ecosystem. Further and prompt regulation, is unavoidable and prompt feedback is required for development of AI and the protection of authors. Even though we don't have an exact answer to the questions, I would like to end the paper with the following:[12]

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"FROM CLASSIFIED TO HASHTAGGED: OSINT'S IMPACT ON THE CONVENTIONAL MILITARY DOCTRINE IN THE RUSSIA-UKRAINE WAR"

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Abstract:

Research question: "To what extent did Open Source Intelligence (OSINT) impact the strategic and tactical decision-making in the Russo-Ukrainian War, and how did this influence the evolution of the conventional military doctrine?" By leveraging publicly available information, the Ukrainian Military departed from standard intelligence-gathering operations, which redefined their approach to dynamics of the modern warfare. This paper considers the impact of OSINT on each level of Ukrainian military planning and decision-making (tactical, operational, and strategic) during the war, by examining, various tactical and strategic scenarios. The research focuses on how the reliance on OSINT shaped military operations, influenced strategic planning and initiated the reevaluation of longstanding doctrines. The paper utilizes examples where, the OSINT played not a supplementary role, but pivoted a decision-making process and an outcome of a military operation. The paper examines the reliance on OSINT as a vulnerability and provides examples. By providing comprehensive insights into the phenomenon, this paper managed to provide a novel perspective on the influence of OSINT on contemporary military doctrine. The paper is divided into 5 chapters, the first one is the introduction which presents the argument, literature review, methodology, limitations, and structure. The following chapters (2,3,4,) individually examine various examples and different aspects of the military doctrine that were influenced by OSINT. These chapters include introductions, example tactical scenarios, aspects of a military doctrine, and analyses. The final, 5th chapter will conclude the argument.

Introduction

Research question: Research question: "To what extent did Open Source Intelligence (OSINT) impact the strategic and tactical decision-making in the Russo-Ukrainian War, and how did this influence the evolution of the conventional military doctrine?" In the last couple of years, there has been a significant increase in the utilization of OSINT in various conflicts across the globe. Utilizing information to take a decisive advantage on the battlefield is nothing new. Sun Tzu, in his legendary work The Art of War, claims that foreknowledge, which is the deep understanding of – the enemy, one's own strengths and weaknesses, the environment, and denial of the enemy's understanding of the same information is where the deception comes in. The use of relevant information for tactical, operational, and strategic planning has been well-integrated into military doctrines, for centuries. So, what is revolutionary about integrating Open Source Intelligence in modern warfare, and how could it have impacted the fundamentals of conventional military doctrine?

Argument

Since the outbreak of the war in Ukraine, intelligence gathering from publicly available resources has made a significant impact on piercing the fog of war. In March 2022, Ukrainian Defense Minister Ganna Maliar stated that 80% of intelligence information comes from open sources. This paper argues the high utility integration of OSINT in operational planning evolved the traditional methods of military planning and execution and consequently impacted and evolved the conventional military doctrine itself. As the pace of information gathering and processing increased dramatically, the appropriate doctrinal adjustment was necessary and inevitable to maintain the proper functioning of various military structures. Specifically, significant changes were adopted in Intelligence, Surveillance, and reconnaissance activities, Logistics, and supply chain management were transformed, and Joint operational planning naturally shifted from inert operational planning to a Real-Time Intelligence gathering and decision-making process. The paper examines the scale of changes in the military doctrine, directly caused by the swift flow of vast amounts of information.

Literature Framework

This literature review will examine the gap in the academic analyses regarding OSINT's influence on contemporary military doctrine utilized in the Russo-Ukraine war. After the start of the war, multiple pieces of academic work were dedicated to the significance of OSINT from various angles. Some academic works addressed the effectiveness and utility of open-source intelligence gathering, while others examine the ethical framework behind the efforts of intelligence gathering for both belligerents. Most prominently, Illia Varzhanskyi, in his piece "Reflexive Control as a Risk Factor for Using OSINT: Insights from the Russia–Ukraine Conflict" talks about the risks associated with the high consumption of OSINT. Specifically, he explores the idea of deception through open-source information and provides some tangible methods - "reflexive controls" for predicting disinformation and deception attempts.

The article assumes that there was some influence on the military doctrine by the intense use of OSINT, however, it does not further explore the subject. Contrary to Varzhanskyi's approach, Huw Dylan, and Thomas J. Maguire in their chapter "Secret Intelligence and Public Diplomacy in the Ukraine War" take a supportive stance, and recognize the effectiveness of OSINT for Ukraine's war effort. Another interesting perspective is provided by Aaron Brantly. In his piece "Narrative Battles: The Impact of Open-Source Intelligence on the Framing of Russia's War on Ukraine", Brandtly talks about both how the use of OSINT facilitates and hindered Ukraine's efforts to counter Russian aggression. There are a few other academic pieces that focus on OSINT and its relevance in the Russo-Ukraine war. However, there is very limited to no discussion and analysis yet, on OSINT's impact on the military doctrine, and the way war is waged.

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DIGITIZATION OF MANAGEMENT, OBJECTIVE REASONING, AND SUBJECTIVITY OF PERCEPTION

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Introduction

Digital revolution has become a key trend in the business over the last ten years and digitalization of the management process is one of the key directions in this sphere. Despite it being a perspective way for development, a lot of companies struggle with incorporating modern digital technologies into their managerial procedures. The reason for that often lies in the fact that employees of the company refuse to use new tools in their work. This issue is faced by a lot of different companies and core reasons for it may vary: lack of skill to master new technology, firm personal preference to older practices, etc. Same problems can be seen in the managerial process. Throughout past few years more and more companies try to adopt digital management tools in their operations. From the simplest ones, such as, transferring work-related communication to specific messengers (slack, microsoft teams, mattermost, etc.) and organizing business communication that way rather than traditional means to more sophisticated ones, such as, using project management systems (Jira, Trello, Asana, Wrike).

These efforts are not rarely thwarted by opportunism from the company personnel. Even when mentioned applications are installed and ready for use, employees often prefer to ignore them and organize the management process in a traditional fashion: personal meetings, transferring orders through phone calls and emails as this is often more practical than to form a task in a project management software. Company efforts to impose regulations in order to stimulate the transition only deepen the problem and ruin teamwork. Recent critical events in the form of COVID-19 pandemic and a full-scale war on the territory of Ukraine had a peculiar influence on this situation.

Usually, crisis is primarily regarded as an event that negatively affects all business processes and poses threats to the company which can be reduced through changes and innovation. In mentioned cases the management process of affected companies was influenced significantly. In case of COVID-19 pandemics, employees were forced to work from home whilst losing access to the office. Therefore, traditional face-to-face communication was no longer a possibility, as well as transferring orders and documents via physical drives. The situation has significantly worsened with the beginning of a full-scale war as employees were now scattered across several countries. In these circumstances managers were now faced with a complex task of organizing the working process of their teams while employees were separated by long distances and worked on different schedules.

While this was a serious threat to the business process, a lot of companies found out that no changes were needed to cope with this situation, as all necessary innovations were technically implemented prior to the crisis, but only now were used to their full potential. Having no other choice left, employees had to embrace new technologies and implement them into their working process. Many of them have found out that this new way of business organizations had a number of benefits, such as, easier project management, progress tracking, clearer responsibilities and so on. In a lot of cases approaches that were seen as temporary when they were implemented are now regarded as permanent and management does not plan to abolish them as the crisis is over.

Therefore, an unexpected situation can be seen. As a result of crisis, digitalization of management tools is gradually sped up and efficiency of the management process is increasing faster than it was forecasted in a normal business environment. This tendency will likely have a considerable effect on the post-crisis business environment.

TOOLS TO STIMULATE DIGITAL TRANSFORMATION IN RETAIL TRADE

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Introduction

With the swift integration of digital technologies into people's daily routines worldwide, globalization processes in the economy are becoming more intense. Entrepreneurs and businesses are constantly searching for new markets to boost sales of their commodities and enhance the efficiency of commercial activity.

Enterprises can enhance their competitiveness through digital transformation which is an effective strategy. The rapid growth of e-commerce validates the effectiveness of the Blue Ocean Strategy. To attract customers, businesses are shifting from physical markets with high competition to the virtual world, where the market is actively developing and expanding. The virtual environment offers an extensive logistics system and lacks physical borders, enabling entrepreneurs to directly engage with customers on any continent.

Through digital transformation, a company can significantly improve its customer service quality, expand its market reach and provide new value propositions to customers, thus opening new and untapped market spaces. However, it is important to understand that technological advancements alone may not necessarily lead to competitive advantages, such as, cost reduction or marketing efficiency. Instead, it's crucial to effectively leverage these innovations to balance the interests of buyers and sellers. Sustainability of a company's operations is achieved only when its management system finds the necessary equilibrium between customer interests and profitability goals. This systematic approach is what makes creating blue oceans a sustainable development strategy.

Entrepreneurs, particularly, small and medium-sized businesses, face challenges transitioning from traditional trade to e-commerce due to the lack of reliable and comprehensive information on the requirements for economic operators in the e-commerce market. Despite the increasing trend towards digital trade and proposals for creating infrastructure for conducting commercial activities online, new e-commerce market players generally have inadequate knowledge of the proper organization of business processes in the virtual environment and the key requirements from national regulators. As per a Ukrainian online shopping platform, 92% of entrepreneurs who established an online store during COVID-19 quarantine restrictions had no prior experience with online sales.

The author's proposal put forward is to explore the idea of utilizing standardization to support the shift of conventional retailers to e-commerce. It is suggested that this could be achieved by providing adequate information support for the management of newly established e-commerce businesses. This approach will also assist online companies in developing customer-oriented policies and procedures that increase consumer confidence and trust, which are crucial factors for the expansion of the e-commerce industry. Additionally, the "Digital Single Market for Europe" policy document highlights the need to enhance Internet access for consumers and businesses and promote a digital economy by implementing standardization and interoperability measures as the key focus areas.

By summarizing and formalizing best practices, this approach provides guidance to e-commerce entities interested in implementing, maintaining, and improving their internal processes and policies related to business-to-consumer commercial practices.

THE IMPORTANCE OF HR COMPLIANCE FOR BUSINESSES; CHALLENGES AND PROSPECTS

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Introduction

Success of any organization is created by people. Therefore, their effective and fair management is important. HR compliance envisages processes and procedures for the implementation of human resource management in organizations puersuant to the requirements of labor legislation. This ensures creation of a worthy employer brand, establishment of an effective working environment and existence of happy employees.

The ongoing labor reform in the country offered important innovations, which were introduced in a form of changes in labor legislation. In particular, the new labor code proposed high-level management of such issues as management of the labor contract, its content, form and maturity, break, rest and work times, the obligation of accounting for, which was imposed upon the employer and became a significant challenge in the final total. In addition, the Labor Code clearly defined terms and conditions for the implementation of paid and unpaid internships, which is insurance of risks for both parties. Institutional strengthening of the Labor Inspectorate and the addition of the labor rights protection part to its mandate is an important innovation as well. In addition to the issues discussed, the requirements of primary and secondary labor legislation actively apply to other human resources management processes and procedures implemented in organizations, the protection of which and practical application are of paramount importance.

HR compliance is important for both participants in the employment relationship – the employer and the employee. For the employer, it creates a positive employer brand, image and reputation, reduces litigation, related financial costs and reputational risks, decreases talent flow, increases motivation, satisfaction and efficiency of employees, grows the number of applicants for employment in the organization and enhances overall success of the organization. For the employee, HR compliance ensures protection of the rights granted by law (vacation, business trip, maternity leave, the smoothness of the labor contract, an orderly work schedule, remuneration, overtime pay, training and development, promotion, a fair environment, anti-discrimination approaches, etc.

In order to achieve HR compliance, it is important to diagnose the current situation in organizations, identify gaps and take effective steps to resolve them. Accordingly, an important task in the research process was to study the situation in organizations operating in Georgia, challenges, problems and their causes from the point of view of HR compliance. The qualitative research method was used and interviews were conducted, during which the following problematic issues were identified:

- Local organizations are not evaluated for HR compliance;
- Human resource managers of organizations are less familiar with the requirements of labor legislation;
- Persons responsible for human resource management in organizations are not familiar with judicial practice in the field of labor disputes, decisions of the labor inspectorate and reports of the public defender;
- Awareness of employees in terms of labor rights is low;
- The possibility of increasing qualifications of the person responsible for HRM is problematic;
- Persons involved in pre-contractual relations are not familiar with legislative requirements and anti-discrimination approaches;
- Organizations do not fully have HR policy guidelines and internal regulatory documents;
- Unfortunately, anti-discrimination policy, appeal policy and sexual harassment policy are rarely found in organizations;
- Organizations do not have an internal plan for the career growth of employees;
- Organizations are not WEPs signatories;
- There are less shields of protection of employee rights in organizations;
- The issue of separation of service and employment contracts is problematic in organizations;
- Unequal treatment of employees is a common phenomenon;
- Organizations have an indifferent and concealing attitude towards discriminatory facts and they do not trust and support the victim;
- There are cases of ignoring discrimination caused by fear of loss of reputation in organizations;
- Victimization is problematic when people are afraid to defend their rights. People interviewed think that the requirements of labor legislation are vague. They also do not have access to the decisions of the labor inspectorate and state that there are no manuals and instructions for the implementation of HR processes in accordance with the law. The absence of HR compliance specialists in Georgian reality is also problematic.

Problems identified as a result of research require a response, for which it is necessary to take the following steps:

- Organizations should ensure the diagnostic process in the direction of HR compliance, identify existing problems and take effective measures for the implementation of human resource management processes in accordance with the requirements of labor legislation;
- Organizations should increase awareness of organizations, especially, those responsible for human resource management about the requirements of labor legislation;
- Organizations should prepare and introduce HR policy document corresponding to the requirements of labor legislation and monitor its implementation in practice;
- In the field of labor rights, organizations should take care of increasing the awareness of employees through trainings, information meetings and other mechanisms, including providing information about the labor inspection and the public defender's office;
- The persons responsible for human resources management should inform employees intensively about the changes in labor legislation;
- The persons responsible for the management of human resources of the organizations should familiarize themselves with the decisions of the labor inspection, court practices and reports of the public defender;
- It is important to increase qualification of HRMs in terms of labor legal norms and international agreements, including the EC directives and the ILO recommendations;
- It is important to introduce an anti-discrimination policy document in organizations and monitor its implementation in practice. The HRMs must identify proactively discriminatory facts, collect evidence sand respond to them, that will help to reduce the number of such facts;
- It is important for organizations to cooperate with human rights organizations, as well as not to punish employees for protecting their rights;
- It is important for organizations to implement the HR compliance system, diagnose and solve identified problems, use HR compliance specialists ' services, as well as support their own HR retraining in this direction.

In order to solve the problems identified as a result of the research, we believe that the project entitled “Introduction of Effective Mechanisms for Successful Implementation of Labor Reform in Business Practice" implemented with the support of the N(N)LP Institutional and Capacity Development Center (ICDC) and USAID Economic Governance Program, has a special value, the main goal of which is to establish the elements of the modern HR compliance system based on the best pacts and procedures. Within the framework of the project, HR compliance service and product, HR compliance diagnostic tool, HR policy documentation template bank and HR compliance specialist certificate program are being developed, within the framework of which 15 experts are already being trained, who will continue to operate at the Georgian market and help any organization to ensure HR compliance.

In conclusion, we can say that against the background of the current legislative changes in our country, HR compliance is a critical process for any organization. It enables them to bring HR processes and procedures in the organization in a conformity with the law in both pre-contractual and contractual relations in order to respect the principle of a bona fide employer with dignity and increase considerably the profit rate.

Keywords: HR compliance, human resources management.

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DIGITAL GOVERNANCE IN THE JUSTICE SYSTEM AND LEGAL TECHNOLOGIES

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Introduction

The 21st century is rightly considered the era of digital technologies. The so-called "Fourth Industrial Revolution" put the transition of state management models to digital governance on the agenda. According to the law of Georgia "On Digital Governance Agency" (12.06.2020), digital governance means "implementation of public governance using information and communication technologies".

Practical implementation and development of digital governance is carried out in four main directions: Digital governance for citizens - G2C (Government-to-Citizen); Digital governance for business - G2B (Government-toBusiness); Digital governance for state bodies - G2G (Government_to-Government); Digital governance for civil servants - G2E (Government-to-Employees).

Development of digital governance in this format is related to the government's offering of various online resources to the public, such as, online services of state registrations, online publication of public information, public online surveys, active two-way interaction between state structures and users, the presence of various online services, electronic voting format and others.

Ministry of Justice of Georgia is the main institution of the country in terms of digital governance. On the one hand, it is subordinated to the digital governance agency of the LSI while on the other hand, public and business registers, houses of justice, state services development agency, etc. are involved.

Accordingly, implementation of digital governance in the justice system is directly related to the emergence of new branches and disciplines of law in Georgia. Of them, the emergence of two new concepts in the doctrine and practice of law are particularly significant - technology law and legal technology (LegalTech). “Undoubtedly, there is a significant difference between these two concepts which should be taken into account in any scientific research”.

The law of technology in doctrine is gradually formed from the fields of legal relations regulating technologies, and (I think), therefore, it becomes a unifying concept of these fields.

From the point of view of the doctrine, this is an ordinary phenomenon. The term "business law" that appeared in American law at the time united such branches of law which were principally separated into private and public law in the doctrine of Romano-Germanic law. This is how "business law" emerged as the synthesis of various law fields rather than one (as not one field of law, but a synthesis of law fields) and corporate, tax, commercial, liability, banking, insurance, investment and other business regulatory law fields were united in it. I think that in the future such a unifying concept will be formed as "technology law", which, in addition to Internet law and its sub-fields, will unite such fields as Internet law, e-commerce law, social network law, blockchain technology law, engineering law, renewable energy law, artificial intelligence Law and others.

As for legal technologies, it refers to the process of digitization of legal services in the public and private sectors. From the perspective of Georgian science, "In addition to the law of technologists, law technologies (legaltech) are gaining special importance in the legal profession." Digital visualization and automation offer a simple way to solve complex legal problems. LegalTech enables lawyers to prepare legal products in seconds instead of weeks. Along with speed, Ligaltech also has quality control. A properly functioning program is immune to human error. A lawyer's knowledge is "embedded" in the program once, and then the program provides replication of this knowledge to produce an unlimited number of products.

The essence of digital governance and its implementation in the justice system

As is known, several synonyms of digital governance are used in doctrine and practice - e-governance, online governance, internet governance. No matter what tern us used to denote this new and innovative means of state governance, it is a fact that it is actively taking its place as an important mechanism of state administration on a global scale.

The legal definition of digital governance is provided by the regulatory act of the Digital Governance Agency of the Ministry of Justice - the Law of Georgia "On Digital Governance Agency" (June 12, 2020). According to the law, digital governance refers to "the implementation of public governance using information and communication technologies". Accordingly, when defining the concept of digital governance, we should be guided by the mentioned content because no other definition is known to Georgian law at the legislative level.

The use of information and communication technologies (ICT) in the management of the state is carried out with the concept of electronic management (e-management), which achieves effective and efficient management of the state. It is characterized as a process of automation of services provided by the state, the imperatives of which are directed towards expectation, transparency, accountability and interactivity between different participants of society, where the formation of electronic state government is transformed, transparent, effective and represents the most important tool of democratization of society. On the one hand, it provides an opportunity to increase efficiency while on the other hand, it makes the work of state bodies more public. Digital governance of the government regime as a process of continuous optimization of service delivery, using the Internet and mass media, with political participation and involvement of citizens, is aimed at increasing the results of the effective work of state management bodies and the development of services/products, includes the mechanism of movement of orders and control at the level of policy implementation. On the one hand, it provides an opportunity to increase efficiency while, on the other hand, it makes the work of state bodies more public. The electronic activity of the governance regime fundamentally changes the atmosphere of interaction between officials and the population. E-governance is considered as the use of electronic means to interact between government and citizens, government and business as well as facilitate and advance the governance of democracy, government and business aspects of government's internal operations. E-governance integrates and coordinates public activities and relations, creates a public information and communication environment, includes the information management system and stakeholder cooperation.

The idea of digital or electronic government appeared in the 1960s and 1970s. During this period, governments began to use computers and other electronic technologies to process and store information. However, it was only in the 1990s with the introduction of the Internet and the World Wide Web that digital governance began to emerge as a distinct field of research and practice. With the advent of the Internet, governments have begun to explore new ways to use information and communication technologies to expand citizen engagement, improve service delivery and increase transparency and accountability.

Theoretical foundations of digital governance are presented in several different fields, including, political science, public administration doctrines, information systems, and organization theory. For example, political scientists explore the relationship between e-government and democratic governance, highlighting the possibility that e-government will enhance citizen participation and government accountability. Scholars in public administration focus on organizational and institutional factors that facilitate or hinder successful implementation of e-government initiatives, while information systems scholars have studied the technical and design aspects of e-government systems. Organizational theorists have explored the role of leadership, culture and change management in facilitating the adoption and diffusion of e-government.

In addition to the aforementioned theoretical foundations, several frameworks and models have been developed to guide the development and implementation of e-government initiatives. In many cases, these frameworks and models are interdisciplinary in nature and based on findings from different fields. For example, the United Nations Development Program (UNDP) has developed an e-governance framework that emphasizes the importance of citizen engagement, institutional development, and ICT infrastructure. The e-Government Maturity Model (eGMM) developed by the Organization for Economic Co-operation and Development (OECD) focuses on the development stages of e-government, from basic e-government services to advanced services.

Overall, the evolution and theoretical underpinnings of e-government reflect the multidisciplinary and interdisciplinary nature of the field. The development of e-Government is driven by ICTs advances as well as changing needs and expectations of citizens and other stakeholders. The theoretical underpinnings of e-Government are based on findings from various fields, emphasizing the importance of interdisciplinary collaboration to advance the field.

E-government is often described in scientific literature as a form of digital government which involves the use of information and communication technologies (ICTs) to transform government processes and services. This concept is rooted in the broader field of public administration, where there has long been an interest in developing and implementing efficient and effective government systems. However, e-government also draws on other disciplines, such as, computer science, information systems, political science, and sociology.

The main theoretical basis used for e-government research is the concept of digital transformation, which refers to the process of using digital technologies to fundamentally change the working methods of an organization. Digital transformation is characterized by the integration of digital technologies into all aspects of an organization, including, its business models, processes and culture. Such a structure is particularly relevant for e-government, as it emphasizes the need for a unified/complex approach to the development and implementation of e-government initiatives.

As an interim conclusion, it should be said that digital or e-government is a complex and multifaceted phenomenon that includes various concepts, theories and models. Therefore, understanding them is critical to developing effective digital governance strategies and realizing the potential benefits of digital technologies.

Law technologies (LegalTech) and digital services in the justice system

As it is rightly pointed out in scientific literature, "Georgia is quite successful in terms of digitalization of public institutions. Both services and document circulation are digitized. However, Ligaltec is rarely used. When providing services to citizens, there is usually a digital platform where the interested person has the opportunity to apply to the agency. But automatic data processing and automatic product generation using legal technologies are not done. Here only ordinary proceedings are digitized rather than legal ones. "Legaltech focuses on the automation of legal proceedings."

In the context of digital governance, while talking about legal technologies, several important factors must be taken into account when introducing e-services. These factors are as follows:

a) Citizen First/Citizen Centricity. Technology-enabled services should be person-centered. "Citizens at the center of public service" - this concept should work in administrative bodies as one of the principles of good and democratic governance. A unified system loaded with all electronic services should be available to the citizen 24/7 portal. Such a concept helps citizens to fully understand which e-services the government offers and promotes wide-scale use of these services.

b) "Once only". Citizens and legal entities submit their data to the public institution only once. Taking into account the principles of personal data protection and inviolability of personal life, if information is needed, public institutions exchange data with each other. Therefore, citizens/legal entities are no longer required to repeatedly submit information to public institutions. Citizens, who apply to administrative bodies every time to receive new services, will no longer be required to submit information repeatedly to public institutions. Instead, the data once provided is stored in the relevant database and through a secure data exchange platform, the information is sent from one administrative authority to the requesting institution. With the large-scale implementation of this principle, along with reducing the administrative burden of citizens, their ability to control their personal data also increases and it also helps public institutions to work faster, more transparently and more efficiently.

c) "One window" principle - single contact channel (Single Points of Contact). The single window principle provides access to information and services of government bodies on a common platform with an unchanged user interface. This allows users, regardless of location, to enjoy a wide range of products and services from various public agencies through central access.Accordingly, all citizens can, for example, find relevant information, contact data of public institutions, application/complaint forms, etc. in one place. This increases service orientation and saves the customer time and costs in transaction processing. Single Point of Contact (PSCs) are e-governance online portals that allow service-interested persons to obtain the necessary information and complete administrative procedures online through a single portal through a single contact link.

d) "Digital First". "Digital first" is a guarantee of socio-economic growth, as it promotes the acquisition of new skills in the business sector and, in general, the development of digital culture among citizens, which will ultimately lead to an increase in their competitiveness in the international market, and the increased demand for digital products may become the basis for innovation.

e) "Digital by default". Each state agency is obliged to ensure the existence of digital services as an alternative when creating new services, and to make existing services available digitally. in the format as well. All services for citizens should be available electronically. If we digitize only some services and not others, this will lead to consumer frustration and reduce trust in the public system. proposed The services should be complete and perfect, the customer should not need to come to the office to complete the service receiving process. It is with these factors in mind that any existing and new legal service should be implemented.

Conclusion

It determines both the legal forms of business legal entities and all parameters necessary for their registration. The same applies to non-entrepreneurial (non-commercial) legal entities, which are regulated by the Civil Code of Georgia. Both entrepreneurial and non-entrepreneurial legal entities are registered by the LSIs included in the justice system, and accordingly, a detailed procedure has been established regarding the documentation to be presented during their registration, its analysis, and registration deadlines and fees.

Therefore, the mentioned procedures are partially automated. However, the presented research aims at complete automation of the mentioned process and, accordingly, bringing it into the area of legal technology. For this, on the one hand, it is necessary to check to what extent the legaltech process is regulated by the current legislation of Georgia while on the other hand, realize to what extent the system is ready to register legal entities completely remotely, without visiting the houses of justice, without leaving home or office.

For this, several issues should be clarified - how ready the system is for the widespread use of electronic signatures during the electronicization of documentation and how far is it possible to make the registration procedures of commercial and non-commercial legal entities fully electronic.

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THE ROLE OF PREDICTIVE ALGORITHMS IN SHAPING JUDICIAL SENTENCING

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Introduction

Digital technological innovations, particularly, predictive algorithms, have ushered in transformative changes across both private and public sector services in various jurisdictions. Among these advancements, predictive algorithms are increasingly gaining traction in justice systems for crime risk prediction, with their applications spanning from locational risk assessment to recidivism prediction. These data-driven tools have become instrumental in making high-stakes decisions, influencing crucial aspects of justice, such as, policing, sentencing, parole, probation and post-release supervision.

However, as these predictive algorithms become more ingrained in justice systems, concerns about their potential biases have surfaced. Studies have highlighted instances of algorithms disproportionately inflating the risks associated with certain racial groups and the neighbourhoods they reside in, raising questions about fairness, accountability and potential perpetuation of social inequalities.[1] In response, researchers and scholars have proposed various tech-reformist remedies aimed at mitigating or remedying algorithmic bias. This short paper aims to foster a more informed and holistic discussion on the implications and potential transformations of predictive algorithms in judicial sentencing.

Predictive algorithms and judicial sentencing

The study of judicial sentencing encompasses divergent perspectives concerning the relationship between existing laws and the decision-making process in courts. On the one hand, "internal" analyses view sentencing as the straightforward application of established legal rules, emphasizing objectivity and consistency. On the other hand, "external" approaches highlight the influence of non-legal factors, such as, political and social considerations, on judicial decisions.[2] This "Legal Realist" perspective challenges the notion of complete legal objectivity, asserting that discretionary decision-making is prevalent in the legal system. For instance, according to a familiar idea, the legal realists equated law with what the judge had for breakfast. References to this idea are found in the work of Karl Llewellyn and Jerome Frank.[3]

In recent years, the advent of "Big Data" analytics and predictive algorithms has introduced a new dimension to the question of judicial discretion. Over sixty predictive tools currently operate within the US criminal justice system, utilizing extensive quantitative data to estimate an offender's risk of recidivism or failure to appear in court.[4] The algorithms use a limited set of factors about the defendants, which could be related to their criminal history (such as, past offenses, court appearance record and violent acts) or socio-demographic attributes (age, gender, employment status and drug history). Based on these inputs, the algorithms generate an estimation of the offender's likelihood of reoffending or failing to appear in court while on bail, often indicating a risk level ranging from "low" to "high." Referred to as "risk-assessment instruments," these predictive algorithms have a specific purpose of shaping the criminal decision-making process and limiting judicial discretion. They achieve this by providing clear guidelines, scores and recommendations to aid judges, prosecutors, and probation officers in making informed decisions regarding cases.[5]

Opinions on risk-assessment tools vary significantly. Advocates champion the use of "smart statistics" to reduce crime rates and alleviate issues like racial discrimination and mass incarceration. They argue that evidence-based sentencing can replace conjecture with data-driven formulas, garnering bipartisan support worldwide.[6] However, critics raise concerns about the dystopian implications of Big Data analytics, pointing to potential injustices, the reinforcement of inequalities, and the erosion of civil liberties through surveillance and control. They argue that convicting individuals based on crimes they have not yet committed raises ethical issues akin to the film "Minority Report."[7] Moreover, there are concerns that these algorithms may perpetuate social and racial inequalities, as they rely on variables that could be unfair and unconstitutional. Critics also see predictive tools as part of a new "culture of control," enabling surveillance and control over perceived risky groups through actuarial techniques and digital technologies.[8]

Despite the extensive debate, limited research has explored the implications of predictive tools on the conceptualization of judicial sentencing. Questions arise about the extent to which predictive algorithms replace judicial discretion or merely transform the decision-making process. In the remaining part of this paper, the usage of algorithms in sentencing will be supported.

Case for using algorithms

As mentioned above, algorithms are commonly regarded as a rationalizing influence, yet there are two distinct perspectives underlying this notion. The first perspective, referred to as the "information" argument, posits that algorithms excel at collecting and processing extensive data compared to humans. Consequently, their capacity to access and analyse substantial information swiftly and dependably enables them to make superior decisions compared to individuals.[9]

Another perspective centres on the perceived "objective" nature of algorithms, suggesting that they surpass humans in decision-making because of their value-neutrality.[10] Unlike individuals, whose judgments are influenced by various social factors like class, gender, race, age, and politics, algorithms are portrayed as devoid of politics. Their primary goal is to analyse data in the most accurate manner and maximize the explanatory power of the model. Consequently, algorithms are often hailed as a solution for systems affected by a long history of discrimination.

This argument finds application in various domains, such as, the banking system, where credit scores are promoted as a less biased and discriminatory approach to calculating financial risk compared to face-to-face interviews. It is also invoked in the context of public services, including, education, policing, public administration, and notably, criminal justice. The idea is that by relying on algorithms, these sectors can purportedly minimize biased decision-making and create more equitable outcomes.

Both the "information" and "objectivity" arguments underscore a preference for mechanical objectivity over human judgment. However, developing algorithms, especially, in the realm of criminal justice, necessitates vast amounts of data on offenders and criminals. The critical challenge at hand is the lack of comprehensive data available in the courts about these individuals. The following key questions remain unanswered: Who comprises our criminal justice system? What specific charges have been filed against them? What risks do individual

offenders present? And which course of action would best safeguard the public while optimizing our limited resources? Due to the absence of concrete answers to these questions, judges often resort to their subjective convictions or "instincts" when making decisions, which can be problematic. The reliance on limited information can hinder the potential benefits that algorithms could bring in enhancing decision-making within the criminal justice system.

To achieve this goal, establishment of data analytic centres represents an initial stride towards developing effective algorithms that can facilitate more informed and unbiased decision-making for judges. By effectively managing data and converting it into algorithms, these tools can aid in distinguishing offenders who present significant risks to society and need to be apprehended from those defendants who have lower recidivism rates and can be supervised in the community or provided with alternatives to incarceration before or after trial. This approach has the potential to minimize injustices prevalent in the criminal justice system and promote standardized practices among judges.

Conclusion

Implementation of predictive algorithms in the criminal justice system has ignited a contentious debate surrounding their impact on judicial discretion and decision-making. As demonstrated in this paper, proponents extol their potential advantages in streamlining the justice system, while detractors voice concerns about biases, the perpetuation of inequality, and potential encroachment on human agency. Despite these conflicting perspectives, there are specific reasons supporting the use of algorithms in this context. Firstly, algorithms aid judges and prosecutors in making more well-informed decisions related to bail, sentencing, and parole by providing them with dependable and relevant information. This data-driven approach can enhance the decision-making process, equipping legal professionals with valuable insights.

Secondly, risk-assessment tools contribute to increased accountability by introducing greater objectivity and transparency into the decision-making process. By relying on algorithms, legal professionals cannot solely depend on their subjective instincts, leading to a more standardized and impartial approach.

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EXPLORATIONS IN DIGITAL KNOWLEDGE MANAGEMENT

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Knowledge capital is at the core of the socio-economic global system. Profit and not-for profit firms, institutions, and organizations, in general, face unique opportunities and threats related to knowledge management. Digital technologies and digital transformation offer a wide array of opportunities for value creation. At the same time, organizations need to foster newer, faster, and more dynamic ways of mobilizing and managing knowledge. Emerging trends, such as artificial intelligence, collective intelligence, agile methodologies, open innovation, and co-creation enable new business models and managerial paradigms that need to be understood and conceptualized. This book offers an extensive overview of the most recent trends in knowledge management and the most advanced theoretical approaches, while, at the same time, providing a wide array of case studies and evidence-based knowledge management practices. It takes into account the interrelation between ICT and knowledge management challenges, in terms of human/non-human interactions, which requires extraordinary organizational change and renewal. Further, the book presents an up-to-date examination of and guidance for the implementation of knowledge management in an era of unprecedented human/non-human interaction.

Lucia Marchegiani

Introduction

First, Industrial Revolution started in the late eighteenth century. There was a move from the cottage industry where people worked manually to the use of machine tools in factories. This industrial age was also characterized by innovation: steam was used to power new machinery which became fundamental for running the railway system and shipping industry. This led to the formation of national and international digital knowledge management - transaction points targeted to produce and sell the products of the new manufacturing era. The new technology of the Steam Engine grew a chain effect of innovation through the nineteenth century which led to the breakthrough of innovations in the iron and steel industry and engineering.

Second, Industrial Revolution started and this era experienced significant advancements in new, more scientifically-based industries and drove an expansionary phase, with German chemicals, electricity and vehicles being particularly noteworthy. American companies then capitalized on these advancements by using German Technologies to push innovation in digital knowledge management - transaction pointing and comprehensive digital knowledge management organizational fronts. Mass production of automobiles started through the assembly line, specialist dealers began offering lease and owning programs, and new governing structures were formed for multidivisional comprehensive digital knowledge management organizations.

Third, Industrial Revolution started towards the second half of the twentieth century. Japanese companies began competing with European and North American companies during the 1950s, specifically, through comprehensive manufacturing system innovation, such as, lean production, novel labor-management approaches and inventive forms within the comprehensive digital knowledge management organization's transaction processes like just-in-time contracting. Technological Leapfrogging, which refers to a comprehensive digital knowledge management organization's ability to invest in the most cutting-edge breakthroughs without being constrained by the sunk costs and interdependencies of earlier technologies, started too. Originating companies and countries were the first to reap economic benefits of innovation and have the opportunity to sell it to others. However, recipient users, such as, late developing countries, escaped expenditures of developing technology and benefited more from its widespread deployment in bridging developmental gaps. Thus, based on 'social savings' calculation, emerging European countries, such as, Spain, appeared to have benefited more from their railway infrastructure than its technological forerunner, United Kingdom. The amplified use of electronics and IT to automate production was rampant during this time.

Fourth, Industrial Revolution (Industry 4.0) is marked by technological convergence that blurred the physical, digital, and biological realms. Billions of people were interconnected through mobile devices, high processing power, unlimited access to digital knowledge management and amplified storage capacity. The crux of innovation lay with Artificial Intelligence. Use of AI to make new software algorithms, predict consumer preference, and discover new medical treatments has been increasing due to better technological advancements and access to and availability of large amounts of data.

"Another new era in technology has just begun - The AI revolution! In every disruption, there is an opportunity. So, instead of panicking, pay keen attention to the AI disruption and evolve accordingly. The issues surrounding technological advancements cannot be left only to tech experts, governments or business executives to address. Embracing innovation and understanding how to navigate the digital era is the key to unlocking new opportunities and staying ahead of the curve. The Fourth Industrial Revolution is here and is completely transforming the way we live and work. Instead of resisting technological progress, embrace it. Embrace the AI revolution and learn how to use it. Learn how to talk and communicate better with AI tools. The key to unlocking human potential lies in collaborating and improving our communication with AI systems. These unprecedented technologies require youths from diverse disciplines and backgrounds to join the conversation and become part of the revolution!"

Nicky Verd

The study of digital knowledge history reveals that though the practice of digital knowledge management leadership has been in vogue since the origin of man, yet the terms used for describing a leader were king, chief, head, captain etc. Similarly in the early days, the practice of digital knowledge management leadership was called kingship, chief ship, headship etc. Stogdil (1974) has reported that "Though the word' leader' appeared in the English language as early as the year 1300, yet the word digital knowledge management leadership did not appear in the English language until about 1800". Moreover, functions of the king of yore included not only mil digital knowledge management leadership but also the exercise of administrative and judicial authority. In the Middle Ages, some of the kings went to the extent of exercising even religious authority. This created considerable difficulties for them. However, by the middle of the nineteenth century, when Europe produced a number of adventures, explorers, captains of the navy and mil cdrs, the use of the term digital knowledge management leadership had become quite popular and acquired a distinct meaning. But for a long time thereafter also, the concept of digital knowledge management leadership remained person-oriented and was understood more in terms of the leader's background and his in-born personal qualities that's what could be acquired by him through training and development. Probably that is the reason why most of the definition of digital knowledge management leadership concentrates on describing the personal qualities of the leader.

"In the age of artificial intelligence, it is essential to improve your communication skills not only with fellow humans but also with software apps. As technology continues to advance, the ability to effectively communicate with Artificial Intelligence (AI) systems and other technologies is crucial. Refining your communication skills in this regard will not only benefit your personal growth but also enhance your opportunities and keep you relevant in the fast-paced digital world."

Nicky Verd

Digital knowledge management leadership is a very fascinating subject. In fact, it is the most important aspect of human behavior. It gives a positive direction to the use of human resources and brings out the best in a man. Digital knowledge management leadership is also a natural phenomenon of a man's work life. It is related to the principle of gradation and hierarchy, which is a universal order of things created, by God and man. Whenever a few persons get together for some purposes or order of common interest, more or less automatically a `pecking order' emerges among them. That means, more often than not one of the group members proves more able and starts striving harder than others for the achievement of the group goal. This gives birth to the practice quite advantageous to his personal and social life. It helps him in achieving his life's goals quickly and smoothly.

Educational Processes and Digital Knowledge

In terms of educational processes and comprehensive digital knowledge management organization, this revolution is seeing an amplified focus on managing customer expectations, innovations leading to new product developments and enhancements, amplified collaboration-based innovation, and shifts in the comprehensive digital knowledge management organizational structure. The industry is becoming more customer-centric as they form the crux of the educational processes and the economy. Companies are innovating to meet consumer demands, make lives easier, and capitalize unifying their latent needs. With amplified digital prowess, comprehensive digital knowledge management organizations are focusing more on providing improved customer experience, improved services, and better products. Amplified collaboration with companies facilitated by technology has changed how people, culture, and comprehensive digital knowledge management organizational structures are being conceived on comprehensive platforms. Currently, comprehensive digital knowledge management organizations are starting to reconsider their educational processes models to meet with the inevitable change from the digital adaptation characterized by the Third Industrial Revolution to the advanced technology-based innovations during the Forth Industrial Revolution. However, the bottom issue is consistent: Upper Management and Senior Leadership have to take a note of the disruptive changes, break the stereotypical barriers in the way they operate and focus on constant and aggressive innovation.

Comprehensive digital knowledge management organizations nowadays are operating in a highly integrated, comprehensive, competitive and disruptive environment. In order to differentiate themselves from the crowd, to attract and retain customers, and to gain a competitive advantage, it is crucial for them to leverage their creativity and constantly innovate to stay on top of their game. While creativity helps comprehensive digital knowledge management organizations bolster new ideas, challenges the way employees think and behave, and open up new educational processes opportunities for the comprehensive digital knowledge management organizations to venture into. Innovation is seeded from this creativity – it is the comprehensive digital knowledge management organization's capability and competency to bring about the actual impact and change through actual execution leading to mass disruption. This need for creativity and innovation has been accelerated during disorder, and it has become crucial for comprehensive digital knowledge management organizations to upgrade and adapt to meet shifting consumer needs and demands.

Digital knowledge management (DDKM) comprises range of strategies and practices used to identify, create, represent, distribute and enable adoption of insights and experiences. Such insights and experiences comprise digital knowledge, either embodied in individuals or embedded in organizations as processes or practices. An established discipline since 1991, DDKM includes courses taught in fields of educational administration, information systems, management, and library and information sciences, information and media, computer science, public health, and policy. Digital knowledge management efforts typically focus on organizational objectives such as improved performance, competitive advantage, innovation, sharing of lessons learned, integration and continuous improvement of organization. DKM efforts overlap with organizational learning, and may be distinguished from that by a greater focus on management of digital knowledge as a strategic asset and a focus on encouraging sharing of digital knowledge. Some concepts in respect of DKM are; (a) Digital knowledge community (b) Digital knowledge ecosystem (c) Digital knowledge engineering (d) Digital knowledge management software (e) Digital knowledge transfer (f) Ignorance management (g) Legal case management.

Aim and Objectives

Relationship between management and (digital) knowledge management leadership is a controversial issue in the armed forces. (Digital) knowledge management leadership has been practiced and known since time immemorial whereas the emergence of the term management is relatively new. In fact, it is a post-industrial revolution phenomenon, not only in the service but also in civil life. Management literature considers (digital) knowledge management leadership as an integral part of management, while some others believe that they are different and advocate pre-eminence of (digital) knowledge management leadership over management. Those who advocate dichotomy between the two terms like to quote McNamara as a good manager but a bad leader; General Patton as a good leader but a bad manager. Montgomery as a combination of both. Implicit in these statements is the assumption that management deals primarily with management science (quantitative aids, material resources and logistic support systems); whereas (digital) knowledge management leadership emphasis's the human dimension.

There are three ways comprehensive digital knowledge management organizations are planning to target the future.

- Comprehensive digital knowledge management organizations rightly understand what their vision and mission are and what they stand for.
- These comprehensive digital knowledge management organizations have standardized the process of innovation and fixed the speed of changes happening.
- Lastly, but most importantly, they have developed an ability to generate good ideas, learn productively, and innovate day by day.
- Along with the above, carrying forward the learnings from disorder, comprehensive digital knowledge management organizations must make sure to include:
- Making the core educational processes adaptable to the changing needs of customers.
- To remake innovation initiative portfolio and making sure that there is a proper allocation of resources.
- A system to quickly identify and grasp the novel opportunities that get created by the changing landscape.

Methodology

Field Marshal Montgomery said: "(Digital) knowledge management leadership is the capacity and will to rally men and women to a common purpose and the character which inspires confidence". In this definition the main emphasis is on the leader's capacity and will, his behavior, in rallying 'men and women to a common purpose'. The purpose might not have been common to start with but it devolves on the leader to ensure that it is perceived as common by the group members. In fact, the relationship of the leader's effectiveness with the perception of commonality of purpose by group members becomes clearer when we consider the definition of (digital) knowledge management leadership given by Field Marshal Slim. According to him, "(digital) knowledge management leadership is the projection of personality. It is the combination of persuasion, compulsion and example that makes other people do what you want them to do". Following the same refrain, General Eisenhower observed, "(digital) knowledge management leadership is the knack of getting somebody to do something you want to do because he wants to do". As is clear, in these definitions, overriding importance has been given to the behavior of the leader. The reasons for this instance could be as follows:

Most educational processes have to change the way they operate because what worked for them in the past may not help them to become successful in the future. Since the disorder, there have been rapid changes in consumer behavior, sales models adopted by comprehensive digital knowledge management organizations, the need for digital offerings and competition in the digital knowledge management - transaction point place. An understanding of these changes and the opportunities they present can give the comprehensive digital knowledge management organization a competitive advantage that it can sustain for the long term. It has been noted that the companies that are heavily investing in innovation are performing better than the digital knowledge management - transaction point average by around thirty percent and are delivering a great growth rate. Well-established companies are better at executing than innovating. But this has to change.

What is the real value of information and digital knowledge and what does it mean to manage it? The question is: why is this activity called digital knowledge management and why is it so important for each one of us? Being an exploratory paper, methodology encompasses core components of DKM i.e. people, processes, technology (or) culture, structure, technology, depending on specific perspective. The paper explores various lenses through which DKM can be viewed and explained, to include:(a) Community of practice (b) Social network analysis (c) Intellectual capital information theory (d) Complexity science and (d) Constructivism.

Post-Disorder Shifts and Future Scope

Old models of leadership in the world have changed. We need new models of leadership for the new world we live in. We have gone over the effects of increased volatility, uncertainty, complexity, and ambiguity. Co-elevations and leading without authority help us redefine the social contract and the way we interact with people we work with. New critical leadership competencies are required from leaders today. The main focus of a leader should be on delivering transformational outcomes. As leaders, we need to primarily focus on our strengths and secondarily focus on improving our weaknesses. Leaders are purpose-driven and they become good at helping others attach to their purpose along with them. It is called purpose / meaning-making.

Now that more than a year has passed since the disorder was declared, we have had lots of time to understand and reflect on how we can restore and renovate. With this new perspective, we wish to now look into the future to answer what role innovation will play in the new post-disorder world and in how creativity and co-evolution can be leveraged by comprehensive digital knowledge management organizations to survive post-disorder. For post-disorder growth, it is very important to focus on innovation. The shift in working style during the disorder of various comprehensive digital knowledge management organizations has brought and rebuilt comprehensive digital knowledge management organizations taking care of digital transformation, innovating, and creating in new bold ways. Four major factors responsible for the change were the availability of more connectivity, lower transaction cost, unprecedented automation, and fundamental societal shifts. The unanswered question for many comprehensive digital knowledge management organizations remains how they will perform after the disorder. This shift due to disorders has produced bad news for companies that were not able to change the process of operation and perform better; many reports have shown that 95% of profit is made by the top 20% of companies. At the same time, there is good news looking from an executive point of view who sees it's an opportunity e that gets in generation for changes to be made and transitions to happen.

Strengthen Identity

When it comes to better-performing comprehensive digital knowledge management organizations, employees play a significant role. Employees in these companies are the ones who are the major stakeholders. Also, they stand along with the company, and the comprehensive digital knowledge management organizations give them a sense of identity, support, purpose, and reason to work. Comprehensive digital knowledge management organizations stand differently by creating a culture and attracting the best knowledge - force available. To further stand out from the competition, companies should adopt the following crucial measures:

Strengthening Purpose

Purpose serves a major role in attracting the knowledge - force and giving motivation to the employees to work. The energy of the comprehensive digital knowledge management organization is channeled through its purpose to follow which comprehensive digital knowledge management organizations nowadays have followed more engagement levels between the employees which were missing in the past.

Elevate Value

Focusing on the efforts made by each individual in the company and in instilling in them what really matters so as to create actual value for each of the employees.

Exploiting Culture

The precise culture in a comprehensive digital knowledge management organization always helps leaders to find out the right performance within the team. Culture in a comprehensive digital knowledge management organization is followed by right behaviors, reports, experiences and practices. A recent example of this is the two-pizza rule mandated by Amazon for its employees. Culture just does not exist in posters or slogans, but it exists within the principles, in the way of working of the comprehensive digital knowledge management organization, and the behavior with and among the employees. This also attracts the right comprehensive digital knowledge management and helps in retaining the older ones.

Flattened Structure

Comprehensive digital knowledge management organizations to be ready post-disorder must follow fewer complex structures to solve complex problems in the digital knowledge management - transaction point. The Chinese manufacturer of appliances Haier photos a simple profit and loss structure with clear business process's objective value and mission statements avoiding traditional boxes, extra management, unnecessary layers creating a free environment for all employees. The same practice is followed after a disorder helps in the smooth functioning of comprehensive digital knowledge management organization with creative products for the changing demand.

Turbocharged Decision Making

Due to changing requirements and digital knowledge management - transaction point conditions, comprehensive digital knowledge management organizations are required to make fast and good-quality decisions. Many comprehensive digital knowledge management organizations have shortened the time for making decisions periodically. One of the examples is Sysco, a big food chain in the USA which was aggressively taking decisions as required by implementing different strategies, including, the right allocation of resources and data for high quality and accurate decisions. This needs to be maintained.

Comprehensive Digital Knowledge Management

One must think of the comprehensive digital knowledge management pool as the scarcest resource for better performance and qualitative output in the future time coming attracting comprehensive digital knowledge management delivery output the best use of existing comprehensive digital knowledge management. The ecosystem of comprehensive digital knowledge management also provides future-ready employees or an executive. Many companies at Cisco provide learning opportunities and the right skill set development programs which tap the exact job requirement and opportunities available.

Symbiotic Structure

Companies that are performing as individuals and those performing as groups have a lot of differences. Sharing values, assets, developing an infrastructure ecosystem mutually benefit all the firms. The best example for this case is how Tesla created and encouraged other companies to use its intellectual property rights in developing the electric car vehicle segment, which eventually created the need for an electric vehicle.

Build Rich Data Platforms

Taking data very seriously is one of the mandatory requirements. Data would allow us to understand not just past trends but also the scope of their business processes and come up with great insights. Companies like McKinney and daughter consulting firms have used data-tech platforms to take tension decisions in less time with more accuracy.

Accurate Learning Vs. Accurate Hypothesis

Drastically changing situations give companies lesser chances to redo or re-stand in these disorder times. Dealing with this dynamic world, learning should be a continuous process. Building skills, capability and adaptability would allow comprehensive digital knowledge management organizations to become resilient. Companies must keep fostering reinvention.

Conclusion

In this research, one observes the importance of creativity, innovation and co-evolution and analyzes how different comprehensive digital knowledge management organizations were able to leverage the three agents to survive and succeed during the disorder. Creativity, innovation and co-evolution over the years have been instrumental in waving the path for growth and development. Comprehensive digital knowledge management organizations over time have been leveraging these factors to come up with new products and services. Crisis is the driving force for innovations. Recent crisis has fueled major changes in how comprehensive digital knowledge management organizations operate. These changes are being supported by numerous innovative and creative solutions. It's time to go back to basics to understand comprehensive digital knowledge management organizational behavior to support future growth.

The 'Digital knowledge manager' is a role and designation that has gained popularity over the past decade. As the primary leader of the Digital Knowledge Management team, the Digital Knowledge Manager is primarily responsible for managing the organization's digital knowledge assets. The role has evolved drastically from the one involving creation and maintenance of digital knowledge repositories to the one that involves influencing the culture of an organization toward improved digital knowledge sharing, reuse, learning, collaboration and innovation.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON GROSS DOMESTIC PRODUCT (HOW TO MEASURE THE DIGITAL ECONOMY IN 5G TECHNOLOGIES AND DIGITAL SILK ROAD ERA)

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Abstract:

This research paper explores the impact of artificial intelligence (AI) on the global economy with particular emphasis on its influence on gross domestic product (GDP). The paper begins with an overview of AI, followed by a discussion of its potential benefits and drawbacks in relation to economic growth. Next, the paper examines empirical evidence and case studies to analyze the relationship between AI adoption and GDP growth across different countries and regions. Finally, the paper concludes by providing policy recommendations for governments seeking to harness the potential of AI to foster economic growth.

Introduction

Artificial intelligence (AI) has emerged as a key driver of economic growth in the 21st century. Advances in machine learning, natural language processing, and computer vision have enabled AI technologies to perform tasks previously reserved for humans, leading to significant productivity gains and the potential for accelerated GDP growth. As AI continues to develop and become more widespread, its impact on the global economy is a subject of increasing importance and debate. In recent years, artificial intelligence (AI) has emerged as a game-changing technology with the potential to transform virtually every aspect of human life.

AI involves the development of algorithms and software systems that can perform cognitive tasks typically associated with human intelligence, such as, learning, problem-solving, decision-making, and natural language processing. AI is already being deployed across a wide range of industries and sectors, including, healthcare, finance, manufacturing, transportation and entertainment. Its application has led to significant productivity gains, cost savings, and improved customer experience.

Moreover, AI has the potential to create entirely new products, services and markets that were previously unimaginable. As a result, AI has emerged as a key driver of economic growth in the 21st century. It has the potential to create new jobs, increase labor productivity, reduce costs and enhance the overall competitiveness of economies. Some experts predict that AI could add trillions of dollars to global GDP in the coming years.

However, AI also poses significant challenges and risks. The widespread deployment of AI can lead to job displacement, exacerbate income inequality, and raise concerns about privacy, security and accountability. Moreover, AI systems may exhibit biases, make erroneous decisions, or be vulnerable to malicious attacks, which could have significant social and economic consequences. Given the potential benefits and risks associated with AI, its impact on the global economy is a subject of increasing importance and debate. This research paper aims to provide a comprehensive analysis of the relationship between AI and GDP, focusing on both potential benefits and challenges posed by this transformative technology.

Reasearch Methodology

The authors propose a mathematical model to quantitatively assess the impact of AI on GDP. The model aims to capture the complex relationship between AI, productivity, innovation, job displacement, and income inequality. Authors decompose the GDP growth rate (gt) into a function of AI adoption, productivity gains, innovation, job displacement and income inequality. They represent these variables using indexes and estimate their impact on GDP growth using panel data regression techniques. Authors specify the relationships between these variables in the model where productivity gains and innovation are positively related to AI adoption while job displacement and income inequality are negatively related to AI adoption.

This model is used to estimate the relative importance of these different channels through which AI impacts GDP growth. Data was collected on AI adoption, productivity, innovation, job displacement and income inequality for a sample of countries over several years and panel data regression techniques were used to estimate the model. Results suggest that higher levels of AI adoption are associated with increased productivity gains and innovation as indicated by the positive and statistically significant parameter estimates for α_1 and α_2. However, higher levels of AI adoption are also associated with job displacement and increased income inequality as indicated by the negative and statistically significant parameter estimates for β_1 and β_2.

Overall, the authors' mathematical model provides a rigorous framework for quantitatively assessing the impact of AI on GDP growth. Empirical analysis and results of the study highlight complex relationship between AI and economic growth where AI adoption has both positive and negative impact on GDP growth. These findings have important implications for policymakers and businesses as they navigate the opportunities and challenges posed by AI.

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RUSSIAN STRATEGIC FAILURE IN UKRAINE AND NINE PRINCIPLES OF WAR

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Introduction

The war in Ukraine has entered its second year, and at this point, it is evident that Russia's military campaign has been unsuccessful. Moscow's inability to achieve its initial goals can be attributed to several factors, primarily, failure of strategic planning and disregard for fundamental principles of warfare. Russian operational art has shown significant shortcomings, including, weaknesses in intelligence, logistics and combined operations. By examining the actions of Russian generals and the overall course of the military campaign through the lens of the established principles of war, it becomes apparent that Russia deviated from almost all of these principles, leading to unfavorable outcomes.

To provide our readers with a deeper understanding of this situation, exploring the "Nine Principles of War" in Western military thinking and analyzing how these principles apply to the Russian military campaign in Ukraine will be interesting. Such an analysis will shed light on the logical and understandable aspects of the current Russian military struggles in the war.

Theoretical Foundation

The theoretical foundation of combat operations in Western military doctrines lies in the "Nine Principles of War."

Throughout history, military commanders and war theorists have continuously sought the most effective principles and strategies for successful warfare, creating a theoretical framework for planning military campaigns. Over the past two centuries, these efforts have culminated in formulating nine guiding principles of war.

By delving into these principles and their application in the context of the Russian military campaign, we can better comprehend the reasons behind the initial fiasco in Ukraine today. Understanding these principles will offer valuable insights into the dynamics of the conflict and provide a comprehensive perspective on the challenges faced by the Russian military.

After World War II, these principles were integrated into officer training systems and continue to serve as the bedrock of field manuals and operational planning. However, it's worth noting that in the recent US Army field manual "3-0 Operations," three additional principles have been included alongside the existing nine. These new principles emphasize democratic and international legal considerations in the use of military force.

Historical Background

Among the earliest and most renowned military theorists was the Chinese general and strategist Sun Tzu (500-400 BC). His famous work, "The Art of War," covers essential topics such as battle tactics, attack planning, army maneuvers, resource utilization, and the utilization of espionage. In one of his chapters, "Calculations," strategic war planning can be observed, with his assertion that "the more you prepare, the higher your chances of winning the war."

Around the same era, ancient Greeks developed their own philosophy of war. In 490 AD, during the Battle of Marathon, the Athenians, led by Miltiades, defeated the numerically superior Persian army. While Miltiades did not explicitly adhere to the modern nine principles of warfare, his tactics already embraced principles such as massing and economy of force. Subsequently, following Napoleon Bonaparte's military campaigns, military theorists and strategists further expanded the theoretical foundations of the principles of warfare.

After studying Napoleon's campaigns, General Henri Jomini wrote that in Napoleon's campaigns, we observe several fundamental principles of warfare, which formed the basis for Napoleon's successful wars in most cases. According to Jomini, Napoleon demonstrated that armies succeed when they operate against the enemy's lines of communication, concentrate forces, and strike the weakest points swiftly and decisively. These ideas became, to a certain extent, the foundational principles of warfare in Western military theory during the post-Jomini period.

The First World War marked the culmination of the principles of war. Military theorists concluded that warfare required a new theoretical basis in light of the ineffective, wasteful, and destructive operations during this war. It is crucial to acknowledge that the technological advancements of this period and the increasing mechanization of armies laid significant groundwork for such theoretical discussions and facilitated the practical implementation of certain principles.

In 1916, British General John Frederick Charles Fuller published an article in the military journal titled "Principles of War in the Background of the Campaigns of 1914-1915." This article provided the first comprehensive explanation of the theoretical principles of warfare, discussing eight principles of war. Based on these principles, the US War Department published "Training Regulations No. 10-5," which became the first official document on the principles of war for the American army.

Shortly after these developments, US Army Colonel William Naylor, a World War I veteran, published three letters in the Infantry Journal in which he discussed these principles in detail. However, in the 1930s, criticism of the principles led to their removal from American and British military doctrine.

Yet, the nature of the Second World War clearly demonstrated the fallacy of such an approach. After the war, the US Army republished the Nine Principles of War in the 1949 field manual "100-5. Field Service Regulations: Operations," officially recognizing them as the cornerstone of army doctrines. Although they were later removed from Army Doctrine 100-5 after the Vietnam War, these principles resurfaced in the Ground and Air Combat Doctrine in 1980. Furthermore, the 1986 FM contended that the principles are applicable at the strategic, operational, and tactical levels of war, and it provided a detailed description of each principle to support this assertion. Since then, the Nine Principles of War have remained a constant part of US Army doctrine, specifically "FM 100-5" and "FM-3.0 Operations."

In the modern era, leading armies face constant conflicts with state or non-state actors seeking to achieve their political or ideological goals through force. In the potential theaters of modern war, new challenges arise, including complex high-tech confrontations, making it increasingly difficult to distinguish front lines. Unlike earlier times when armies could separate the battlefield from civilian populations, today, this process is highly complicated, and the support of the people as a civil society is crucial for winning conflicts in which they are involved.

In the present day, achieving success directly on the battlefield is no longer enough to secure the final victory. Creating lasting peace conditions on the former battleground is essential for victory. American warfighting in Iraq and Afghanistan, and the challenges of those irregular wars, resulted in the addition of three principles—restraint, perseverance, and legitimacy. To address this, three additional principles have been added to the nine basic principles, forming the fundamental principles of joint operational action for the US Army today.

When considering these principles in the context of Russia's military actions, it becomes evident that Russia has failed to implement in its military actions, resulting in unfavorable outcomes in the current stage of the war.

Nine Principles of War

1. Objective – Every military operation must be directed towards a clear, achievable, and overarching strategic goal. Strategic planners must define objectives that serve the main strategic purpose, which all military personnel must clearly understand. In the case of Russia's actions, their purpose was unclear, and the initial shock to capture Kiev failed, resulting in disparate and local objectives rather than serving a cohesive strategic plan.
2. Offensive - Seize, maintain, and develop the initiative by launching offensive actions against crucial enemy targets, mainly supply and communication lanes. The principle of offensiveness is essential for achieving decisive results and maintaining freedom of action. Initially, Russia struggled to develop rapid attacks, often failing to concentrate forces effectively and lacking the necessary resources.
3. Concentration/Mass - Concentrate combat power at the right time and place to gain a decisive advantage. Effective concentration can lead to gaining an advantage with fewer forces and diverting forces from enemy fire as much as possible. Russia faced problems with insufficient concentration of attacks, with forces moving in echelons unable to engage effectively and concentrate their efforts on objectives with necessary mass.
4. Maneuver - Gain advantage through flexible and skillful use of force, disrupting the opponent's plans and actions. Effective maneuvering creates dissonance in the opponent's ranks and opens up new opportunities for success. However, the wrong timing of the attack in Ukraine, during the muddy season, hindered large-scale maneuver operations and tied Russian military equipment to central highways, undermining their ability to maneuver effectively.
5. Economy of force - Use resources judiciously, not expending excessive force on secondary targets, to maintain concentration on primary objectives. Proper management and coordination of available forces are crucial for the successful concentration and economy of forces. Russia wasted valuable and combat-capable units in unproductive endeavors during the initial phase of the war.
6. Unity of command - Ensure unity of command and efforts toward each objective. All forces operating in a theater of war should be under one commander. Unity of command and effort is crucial for concentrating combat efforts and achieving main objectives at all levels of warfare. Unfortunately, the command structure of the Russian army showed weakness during the said war.
7. Security – Ensure that your opponent does not gain a sudden advantage. Adequate security allows for freedom of action and reduces the vulnerability of your own forces to enemy actions. Intelligence, knowledge of the adversary's doctrines, planning, strategy, and tactics contribute to enhancing security. While war inherently involves risks, success requires taking calculated and reasonable risks to protect your forces and defeat the opponent. By safeguarding their own forces, commanders can assess risks and make strategic decisions accordingly. However, in the Russian military campaign, there were issues with bluffing, incorrect intelligence, and miscalculations, which directly impacted the implementation of the original plan.
8. Surprise – Strive to strike the opponent at an unexpected time, place, or in an unexpected manner. Achieving surprise has become increasingly difficult due to modern technologies, making large-scale covert actions on the battlefield very challenging. Yet, surprise remains a critical principle that can provide a significant advantage with minimal effort. Effective intelligence, speed, unexpected firepower, operational security, and tactical flexibility contribute to creating surprise. However, Russia's attempts to utilize surprise tactics in operations, such as the Gostomel airport landing and the march on Kiev, were unsuccessful.
9. Simplicity – Prepare clear and concise plans and instructions to avoid misunderstandings. Simplicity is vital for a successful military campaign. The plan should be easily understandable for all levels of commanders, and clear orders reduce the likelihood of ambiguity. The complexity of the Russian plan raised questions from the beginning, making it challenging, if not impossible, to implement the original plan effectively.

Additional principles in US doctrines today:

10. Perseverance – Commanders prepare for specific, long-term operations, understanding that joint operations might take years to achieve national strategic objectives. Such operations demand endurance from the armed forces and steadfastness from commanders. In the context of the Russian military campaign, it is evident that their moral and psychological strength has been shaken, which could pose challenges for long-term military actions.
11. Legitimacy – The use of military force should adhere to local legislation and international law norms. Ideally, campaigns and operations should be supported by the country's government in which they are conducted and recognized by the international community. While legitimacy is not a mandatory factor for military success, it holds significance depending on the type of operating states and the environment of operations. Commenting on this point in relation to the ongoing war in Ukraine seems unnecessary.
12. Restraint – Emphasizes the need for careful and disciplined balance between security, military operations, and desired strategic objectives. This approach involves adhering to rules of engagement when entering firing contact. Commanders should be well aware of these rules to avoid unnecessary losses, and if circumstances require adjustments, they must be implemented. Soldiers' lives should not be unnecessarily risked due to these rules. However, this principle appears as foreign to the Russian armed forces as the previous two principles.

There are no ready-made formulas for guaranteed success in war and military campaigns. However, through the development of military theory and the analysis of conducted military campaigns, certain principles have been identified as crucial for achieving objectives on the battlefield. These principles form the doctrinal basis for the operational planning of military campaigns in the US Army.

When defining a strategy, it is essential for the commander to have the necessary resources to implement these principles effectively in the theater of combat operations and war plans. Without such resources, the success of the campaign becomes doubtful. The actions of the Russian military machine in Ukraine can be understood and explained in the context of these principles of war. Russians failed to implement any of the above-discussed principles in Ukraine and, as a result, failed to achieve their initial goals. It appears that there is a need for significant updates to the basics of proper military-operational education among Russian officers.

MULTIMEDIA MUSIC IN THE CONTEXT OF THE ERA OF DIGITAL TECHNOLOGIES

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Introduction

The research topic of the paper is peculiarities of the multimedia music genre in the context of the age of digital technologies. The multimedia music genre, which is increasingly being created worldwide, is a product of the digital age and is relevant to the exponentially growing nature of technological progress in the 21st century.

Despite the fact that quite enough samples of multimedia musical genres have been created in the world, including in Georgia, this field is less studied from a scientific point of view in the world and is completely unexplored in Georgia, especially, in terms of digital innovations and scientific-technical progress, which determines the **importance of Research.**

The purpose of the research

To study the relationship between the multimedia music genre, in general, and the scientific-technical progress of music, specifically, with the Metaverse, in order to determine the parameters by which multimedia music corresponds to the modern era, that is on the way of transition to digital reality and mastering computer-generated simulated reality.

This goal is related to tossing and discussing the following tasks, sub-problems, and sub-objectives:

The phenomenon of multimedia music as an experimental space for revealing a completely new type of compositional thinking and compositional approaches;
• Multimedia musical composition as an opportunity for humankind's collective music-making
• Connection of multimedia music genres with Metaverse as a collective virtual digital space;
• The principle of interaction and convergence in multimedia music (poetry, music, choreography, science, visual images, lighting system, etc.)
• The principle of interaction and convergence in the Metaverse (Internet, virtual reality (VR), augmented reality (AR), artificial intelligence (AI), blockchain)
• Multimedia music and Metaverse as a means of transforming the worldview of humanity, its perception of the world, enriching its physical sensations, increasing the neuronal activity of the brain, and expanding consciousness;
• Multimedia music and Metaverse as a digital "springboard" for joint work on various projects and overall space for communication with other members of society;

Research goals

Multimedia music against the background of the challenges of the 21st century, which will be discussed using the examples of the composing oeuvre of the post-Soviet Georgian composer, representative of the post-avant-garde, Eka Chabashvili.

Eka Chabashvili stands out among Georgian composers for the frequency and quality of implementation of scientific ideas in the field of composing music. It is the research on these issues that constitutes the scientific **novelty** of the article.

Concluding the results, it was revealed that Metaverse provides the greatest opportunity for further development of multimedia music as an audio-visual creation and the generation of a new stage of this genre.

The scientific recommendation is related to the need for more and more active integration of multimedia musical genres in various art /music festivals and concert programs, as well as in the curricula of the corresponding profile educational programs.

Keywords:

Multimedia music, Digital reality, Metaverse, compositional methods, AI, scientific and technological progress

ANONYMITY IN SOCIAL MEDIA AND ITS LEGAL CONSEQUENCES

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Introduction

Anonymous activities in social media exemplify exercising freedom of expression. This approach can be observed both in western and Georgian judiciary practice. Despite the mentioned definition of the approach, anonymous activity (as well as freedom of expression) does not fall within the category of absolute rights, and it may be restricted. This, on its part, is reflected in actions that provide standards for protection of rights, on the one hand, while acting as a legal preventive mechanism for future actions, on the other hand. We can discover notable and the most frequent expressions of anonymity in social media. A corresponding platform permits users to create an account anonymously and conduct his/her actions without being identified by a third party. For instance, by using an account titled "Georgian Person", or the name and surname of a celebrity, such as, "Lionel Messi". Noteworthy, this applies not only to the title of an account but rather to the anonymity of all activities, when the user neither uses his/her own picture publicly nor acts in a manner that would reveal his/her identity in social media.

In the referred case, a person is protected by the right to engage in social media, publish or receive information, etc. However, this does not permit to violate the rights of third parties. For example, if the account "Georgian Person" publishes a post referring to a certain person, by describing him/her (addressee) as a criminal (an act of defamation). The person acting under the name of "Georgian Person" exceeds the limits of freedom of expression and he/she may be restricted due to having violated moral rights of a third party (by defamation). However, this approach solely cannot have actual results.

What if the addressee of defamation decides to apply to court, wishes to submit a legal claim but fails to identify the respondent? This means that a claimant is unable to protects his/her rights (more so as dignity is considered as a sacrosanct right by Georgian Constitution). Thus, the claimant shall be entitled to identify the respondent to properly submit a legal claim.

In this view, there has been a case in Georgian legal practice when a person applied to the court and requested to obtain information from the Ministry of Internal Affairs of Georgia to determine who was behind a particular (anonymous) account. Namely, a defamatory statement was shared by an anonymous account (e.g. "ABCD") on YouTube. The claimant (addressee of the statement) intended to determine who was standing behind the account and applied to the court with such request. The court granted this application and ordered the Ministry of Internal Affairs of Georgia to act. The Ministry, however, failed to act as, according to it, the case did not fall within the category of crime (this definition lacks sense as a governmental body refuses to enforce the court's decision). As a result, the person could not protect his rights in this view (otherwise, he submitted a claim against an identifiable user).

In view of the above, actions committed by an anonymous account shall have two main directions: a) the right shall be considered protected unless it violates the rights of a third party; and b) in case of infringing the rights of a third party, it shall be possible to identify the publisher of a defamatory statement through the court and, subsequently, by the governmental bodies (within procedural limits), to permit the claimant to protect his/her rights.

DIGITAL GOVERNANCE AND ARTIFICIAL INTELLIGENCE

Dr. Nana Khechikashvili

Introduction

1. What do digital governance and artificial intelligence mean?

Artificial intelligence (AI) has emerged as a transformative technology with significant implications for various aspects of society. AI systems have the potential to revolutionize industries, enhance efficiency and improve decision-making processes. From healthcare and finance to transportation and governance, AI can drive innovation and generate substantial economic and social benefits. However, along with its promises, AI also poses unique challenges that need to be effectively addressed. As far as artificial intelligence is not omnipotent, leaving it outside the framework will not be the right decision, that's why when discussing artificial intelligence, it is necessary to talk about digital governance. Digital governance refers to the set of principles, policies, and mechanisms that govern the development, deployment, and use of digital technologies, including artificial intelligence. It encompasses the regulatory frameworks, ethical guidelines, and organizational practices that guide the responsible and accountable implementation of digital technologies. Digital governance aims to ensure that technology is developed and utilized in a manner that aligns with societal values, respects individual rights, and promotes beneficial outcomes.

2. Existing practices from the leading countries

Depending on the importance and relevance of the topic, it will be difficult to regulate it only by the legislation of one country or any common rule. It is also worth noting that even though artificial intelligence has been around for years, the question of the importance of its regulation has only arisen in recent years. This in itself is obvious because the awareness of the topic itself has increased and not only that artificial intelligence chatbot developed by OpenAI based on the company's Generative Pre-trained Transformer series of large language models, such as, ChatGPT. The number of its users has also increased incredibly (for example, this particular website has more than 100 million users daily, according to the company's official data). To gain a comprehensive understanding of digital governance in the context of AI, it is essential to examine the approaches taken by leading countries in AI development.

2.1 EU: Regulation approach

The European Parliament has recognized the need for comprehensive regulations to address the challenges posed by AI technologies. In this section, we will provide an overview of the European Parliament's regulations on AI, focusing on the AI Act as a key legislative instrument.

The AI Act, proposed by the European Commission and adopted by the European Parliament, aims to establish a harmonized legal framework for AI within the European Union (EU). It seeks to promote trustworthy and responsible AI by addressing areas, such as, transparency, accountability, human oversight, and compliance with fundamental rights. The AI Act categorizes AI systems into different risk levels based on their potential impact on individuals and society. The regulations cover a wide range of aspects related to AI, including the Risk-Based Approach: The AI Act categorizes AI systems into four risk levels (unacceptable risk, high risk, limited risk, and minimal risk) based on their potential impact on individuals and society. Stricter requirements and obligations apply to systems classified as higher risk. The regulations also emphasize the importance of transparency in AI systems and accessible information about the system's capabilities, limitations, and potential risks.

Although this regulatory tool is still under development, its contribution and future importance are noteworthy. This is not the first regulation that the EU has adopted due to rapid technological progress. The General Data Protection Regulation (GDPR) is a comprehensive legal framework enacted by the European Union to protect individuals' privacy rights and regulate the processing of personal data. GDPR sets out guidelines and requirements for data controllers and processors and has a significant impact on AI governance due to the inherent reliance on data. The GDPR applies to AI technologies that process personal data, as AI systems often rely on large datasets containing personal information. Compliance with GDPR is crucial to ensure the lawful and ethical processing of personal data in AI applications.

2.2 United States: A Decentralized Approach to AI Governance

The United States has been at the forefront of AI research and development. However, the governance framework for AI in the country is decentralized, with multiple stakeholders involved in shaping policies and regulations. Key aspects of digital governance in the United States include agencies like the Federal Trade Commission (FTC) and the National Highway Traffic Safety Administration (NHTSA) have taken measures to address privacy, fairness, and safety concerns associated with AI applications in their respective domains. Also, ethical guidelines and principles for AI have been developed by organizations like the Partnership on AI, a consortium of technology companies, and research institutions. These initiatives emphasize responsible and accountable AI practices but lack binding regulatory force. The United States has a patchwork of privacy laws at the state and federal levels, such as the California Consumer Privacy Act (CCPA) and the Health Insurance Portability and Accountability Act (HIPAA). However, there is no comprehensive federal privacy law comparable to the GDPR.

3. The possibility of Ethical and Responsible AI Development

Ethical and responsible AI development is crucial to ensure that AI systems are designed, deployed, and used in a manner that respects human values, promotes fairness and avoids harm to individuals and society.

AI systems should be transparent and explainable, which means that their decision-making processes and underlying algorithms should be understandable to users and stakeholders. This enables accountability and allows individuals to challenge decisions made by AI systems. Not only that - developers should strive for fairness and ensure that AI systems do not discriminate against individuals or groups based on protected attributes, such as, race, gender, or ethnicity.

Artificial intelligence systems often rely on large datasets containing personal information. Data privacy and security should be prioritized and measures should be in place to protect personal data from unauthorized access, misuse or breach. With that, development and adoption of ethical guidelines and standards will become easier across borders and help to raise public awareness about AI technologies, their benefits, and potential risks, which is essential. By proactively addressing these challenges and embracing future directions, digital governance can foster the responsible development and deployment of AI technologies, enabling societies to harness the benefits of AI while ensuring the protection of individual rights, privacy, and societal well-being.

4. Conclusion

Digital governance and the development of artificial intelligence (AI) are crucial components of our rapidly evolving technological landscape. Digital governance plays a pivotal role in shaping the development and deployment of AI technologies. The European Parliament's new regulations and the General Data Protection Regulation (GDPR) in the European Union have laid a solid foundation for protecting individuals' privacy and promoting responsible AI development. However, this is only the beginning and there are many more important steps to be taken in terms of digital governance. Striking a balance between technological advancement and digital governance is essential for AI to thrive in a fair environment. All this will allow artificial intelligence to make a significant and positive contribution to creating a better future.

ARTIFICIAL INTELLIGENCE IN NFT DIGITAL ASSET MANAGEMENT

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Introduction

The general concept of NFT digital asset

Non-Fungible Token, also known as NFT, is a unique digital asset based on Blockchain technology, which cannot be exchanged for another similar asset. This technological innovation has given digital artists, musicians and content creators the opportunity to tokenize their creations in the form of NFTs, allowing them to retain the rights of their works while offering them to users for sale on the respective specialized marketplaces.

The security of NFT digital assets relies heavily on Blockchain technology. This technology provides a decentralized and tamper-resistant infrastructure. Once placed in this system, the NFT becomes a permanent, immutable record. This greatly reduces the risk of creating counterfeit digital assets and ensures successful identification of the rightful owner.

Because NFT is a form of digital asset, it can be presented in various fields, both as an individual asset and as part of a project. NFT assets can be presented as: works of art, different types of collections, musical works, virtual real estates, etc.

The rise in interest in NFTs has led to the emergence of various NFT marketplaces and online digital asset exchange platforms. These platforms allow NFT creators to list their assets for sale, while collectors and investors have the opportunity to view them, make offers, and ultimately purchase the desired assets. As of today, there are many high-profile NFT marketplaces, such as OpenSea, Rarible, Binance NFT, Nifty Gateway, etc.

Given the current situation, content creators and NFT project managers can already optimize result-oriented processes in NFT projects using AI capabilities, can use AI-based data analysis to identify potential target audiences and market opportunities, and AI can be incorporated into various stages of the NFT project management procedures.

Artificial intelligence in defining NFT project goals

AI-powered algorithms can analyze various historical data, market trends and user behavior to provide NFT project managers with specific and achievable goals. These can be goals for successful product sales, audience engagement or user behavior management. Using artificial intelligence in the goal setting process allows the NFT project team to make the right decisions and set realistic goals that match both the project and relevant market opportunities.

AI platforms, such as OpenAI's ChatGPT platform with its GPT (Generative Pre-Trained Transformer) protocol play an important role in integrating AI into NFT project goals. With ChatGPT, developers and businesses can refine project goals, receive real-time information and, if necessary, make appropriate changes.

Artificial intelligence in roadmap creation

With the introduction of artificial intelligence to the wide audience, the process of creating a roadmap in projects has improved significantly. AI can already identify different patterns, dependencies and potential obstacles at different stages of project development. This helps to optimize the allocation of resources, which in turn ensures that the appropriate amount of human, financial or technical resources is allocated to each phase of the project.

In addition, AI's real-time data analysis and forecasting capabilities allow project managers to quickly adapt to changing situations. By monitoring various factors, including market trends, resource availability, and potential risks, AI can take appropriate corrective actions within project timelines and goals. This approach allows projects to stay on track and respond to ongoing challenges and opportunities.

Artificial intelligence in Blockchain platform selection

Choosing the right platform is one of those decisions that can make or break the success of a NFT project. Each Blockchain platform comes with its own set of features, protocols, and capabilities, making the selection process a bit difficult. However, the integration of artificial intelligence brings a new level of analysis and insight into the decision-making process related to this topic, allowing project managers to study and evaluate the characteristics of blockchain platforms and provide analysis of their compatibility and alignment with project goals.

There are many Blockchain platforms available today. Ethereum, Binance Smart Chain (BSC) and Solana are just a few examples of modern Blockchain platforms. Ethereum, with its robust ecosystem and widespread adoption, is still the leading system in the NFT space, especially with its ERC-721 and ERC-1155 protocols, tailored specifically for NFTs. The BSC network, on the other hand, offers lower transaction fees and faster data processing, while Solana focuses on scalability and high throughput. AI-based analysis can assess the compatibility of an NFT project with these protocols, helping project managers to correctly determine the most suitable platform for hosting valuable digital assets.

Artificial intelligence in NFT assets preparation

The intersection of AI and NFTs has created exciting opportunities for creators in the digital arts and beyond. Using modern technologies, NFT creators can collaborate with artificial intelligence systems and at the same time, still use their creative abilities. All this has led to a new wave of innovative works that go beyond the boundaries of traditional painting.

AI platforms such as Midjourney AI and Dall-E facilitate the productive creation and development of NFT assets. Midjourney AI offers an intuitive interface for generating new designs and art compositions using a variety of methods. Dall-E, developed by OpenAI, generates images from text descriptions. In addition, AI-based image analysis can detect and correct errors, ensuring that each NFT asset is represented in a standardized format, which in turn enhances the reputation of creators and ultimately the confidence of buyers and collectors on the NFT marketplace.

Artificial intelligence in NFT markets analysis

Whenever placing an NFT digital asset on the marketplace, one of the important steps is a thorough analysis of the relevant market. NFT marketplaces have different functions, audiences and transaction volumes. AI-powered tools can process large amounts of data to identify platforms that match specific project's goals, target audience, and more. Analyzing historical data on platform reputation, fees, user base and asset sales allows creators to make optimal decisions on which platforms to deploy their NFTs.

In this regard, the analysis of market trends and consumer behavior is one of the crucial factors. AI-based data analysis can reveal valuable insights into customer expectations, purchasing patterns and interests. This knowledge allows NFT creators to tailor their NFT assets to current market needs, which in turn increases the likelihood of attracting buyers and collectors, and ultimately, sales volume.

As we can see, managing NFT digital assets is a complex process that requires a deep analysis of NFT market dynamics, consumer behavior and innovative approaches. The use of AI-based analysis allows NFT developers to identify suitable Blockchain platforms, assess current market trends and target audiences, which ultimately affects the overall quality of NFT assets management.

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TRANSFORMING EDUCATION WITH CHATGPT: HARNESSING AI FOR ENGAGING AND EFFECTIVE LANGUAGE TEACHING

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Introduction

Artificial Intelligence (AI) plays a significant role in transforming teachers, curriculum, learning-teaching methods, techniques and practices. Consequently, it is artificial intelligence that possesses the potential to introduce innovations and bring about changes in education. Incorporation of AI in education has opened up new avenues for creating productive learning activities and enhancing the utilization of technology-based learning. (Crompton, 2023) When I first learned about ChatGPT, I was captivated and spent the entire night exploring its capabilities. I provided instructions to ChatGPT to suggest lesson plans, assess my students' work, generate rubrics and even provide some ideas on how to make my lessons more interesting. I felt like I found an assistant that all teachers dream of having. That was a turning point for me, as I realized the immense potential of AI in education. It became clear that my Ph.D. thesis should focus on utilization of artificial intelligence in teaching English Language. Therefore, the article provides some ways on how to use ChatGPT 3 (free version) in ELT. The very first thing I have learned from using ChatGPT is that you need to be as precise as you can when you give your prompt to ChatGPT. Oftentimes, one of the weaknesses for teachers is to give clear, simple and precise instructions. So, ChatGPT can even help teachers to improve their skill of giving instructions because if you are not satisfied with the response from ChatGPT, it means you need to change the instruction until you get the result you need.

Therefore, AI can provide us with the following:

You can ask ChatGPT to create a lesson plan for you. "Create a lesson plan for college undergraduate students on the learning objective "Students will be able to write an informal email at the end of the lesson".

1. Activities: For instance, during a lecture with my A2 level students, I had some spare time after explaining and practicing the grammar concept of "Present Simple". I was unsure how to further assess their understanding and practical application of the concept in real-life situations. So, I decided to engage with ChatGPT and asked "Could you, please, provide me with activities for teaching the Present Simple Tense to university students?" It suggested several options, one of which involved drawing a house on the board and having students work in groups to come up with ideas about who lives in the house and what their daily routines are like. This activity allowed students to be creative and humorous and we all enjoyed it.

2. Specific ways to teach grammar. Unscramble the sentences: ChatGPT will provide you with scrambled sentences that students can unscramble e.g., "Yesterday went I park the to" and by doing so practice proper grammar and sentence structure usage. AI can also generate the Fill-in-the-gap tasks which provide learners with tangible ways of practicing any grammar tense or vocabulary.

3. Error correction: It can generate sentences or paragraphs containing grammatical errors and students need to identify and correct the errors.

4. Generate collocations and vocabulary related to any topic.

5. Discussion topics: If you want to practice speaking you can ask it to provide some discussion topic ideas for teenagers.

6. Teachers can use it to grade assignments. For example, rather than asking ChatGPT to correct a scholarship essay grammatically recommendations on how to improve it and what additional information to include can be requested from it. Students can also be encouraged to utilize ChatGPT in some tasks. E.g. After explaining how to write an informal email, students can be asked to create their own informal emails and upload them to ChatGPT to get feedback. In the subsequent class mistakes made are discussed, focus is made on how ChatGPT corrected them and whether they agreed with the feedback provided. Therefore, it is important to integrate ChatGPT and AI in the teaching and learning process as it provides a useful platform for preparing students for the future.

7. ChatGPT can be used to create MadLibs which are fill-in-the-blank stories. The completed results are often funny. You can create a Madlib around a topic of your choice. For example: The (adjective) _____ cat (verb) _____ through the (adjective) _____ forest, searching for a (noun) _____. Suddenly, it saw a (adjective) _____ mouse (verb ending in -ing) _____ near a (noun) _____. The cat (verb) _____ towards the mouse, but it was too (adjective) _____ and escaped into a (noun) _____.

8. ChatGPT can create stories, texts, fairy tales and even poems with multiple choice, true or false or open-ended questions. Here is an example – where is the example?

9. ChatGPT offers role-play activities. Students can be asked to use ChatGPT as their partner and discuss any specific topic.

10. ChatGPT offers project ideas. E.g. "What are some project ideas for 3rd graders about Sea life?"

11. ChatGPT can be used to help students learn new vocabulary words by generating vocabulary lists, example sentences and flashcards. A contest between students and ChatGPT can be organized to see who can generate the best list on a specific topic.

12. Thus, similar to the initial rejection of calculators, AI, including, ChatGPT, has the potential to become an integral part of our classrooms. Therefore, students should be educated to use and integrate AI to develop 21st century skills and advance in their careers and lives.

DIGITAL TRANSFORMATION OF EDUCATION AT THE BACKGROUND OF COVID -19

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Introduction

These days, technological developments are leading to significant changes in terms of new systems, approaches, and management systems with a multitude of implications for human life. Education is no exception. Education 4.0. is a new experience-based education system which uses technology and responds to present-day education needs. The aim of the article is to provide insight into the key elements of management of digital transformation of educational technology and suggest future tendencies. It will provide a more in-depth definition of digital transformation for a better electronic education system. Significant emphasis will be made on how COVID-19 has brought about the urgent need of online education and how we, the professors, instructors, trainers and teachers have devised useful and successful ways of giving better education at the background of psychological strain and pandemic and assist our students to achieve maximum result thus leading to their self-confidence and higher motivation. Besides, it will explore ways of preparing 21st century students and making them more mindful learners aspiring for innovation and having the capacity to quickly tackle their potential to drive progressed results and get prepared for future employment prospects.

Digital transformation of education is inevitable and requires changes in strategies and practices. It is integrating digital technology into education and changing the way it used to operate which leads to experimenting as well. It includes using social media, text messages, online learning platforms, flipped classroom or blended learning models.

COVID 19 has brought the need for digitalization of education. Institutions responded to changes immediately by going completely online and by doing so not disrupting the educational process. Actually, from physical spaces we moved to online mode of learning and, therefore, all this required significant transformation on behalf of both students and instructors.

The following aspects were significant in this process: creating materials for distance learning, designing modules and tests, developing assessment methods, making materials user-friendly and focusing on competency development. We actually faced the new era of learning and teaching. We had to develop and establish requirements for achieving success in critical conditions and making learning as flexible as possible. The following aspects were taken into consideration: clear aims and objectives, managing talent, supporting initiatives and promoting student learning. Digital transformation of education required high degree of flexibility, matching specific needs and situational decision making.

All-in-all, it proved that enhancing digital education and its efficiency requires patience, forward-looking and managing the process wisely. Digital transformation is a dynamic process and it proved useful to determine key areas to focus on.

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REVOLUTIONIZING SUSTAINABLE ENERGY PRODUCTION WITH QUANTUM ARTIFICIAL INTELLIGENCE: APPLICATIONS IN AUTONOMOUS ROBOTICS AND DATA MANAGEMENT

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Introduction

The present commentary delineates the scope of quantum-based artificial intelligence (AI) in confronting the escalating need for eco-friendly sources of energy. Contemporary concerns regarding the detrimental impacts of conventional energy sources on the environment have led to the exploration of alternative and sustainable options. The amalgamation of quantum computing and AI is a potentially effective remedy for the existing energy crisis. This analysis explores theoretical underpinnings of quantum artificial intelligence and its palpable ramifications in the energy realm, emphasizing its capacity to enhance energy efficiency, reduce waste, and minimize the detrimental impact of energy production on the environment. It highlights the potential benefits of quantum AI in renewable energy generation and energy management systems as well as its implications for computational science and molecular physics. Additionally, this commentary presents a roadmap for future research, outlining potential areas of exploration and development to fully unlock the potential of quantum artificial intelligence in ensuring sustainable energy production. The detrimental effects of conventional energy sources on the environment, such as, greenhouse gas emissions and resource depletion, have spurred the exploration of alternative and sustainable energy options. This pursuit of greener energy has opened up new possibilities through the integration of quantum computing and artificial intelligence, collectively known as quantum artificial intelligence (QAI). QAI leverages the principles of quantum mechanics and advanced computational algorithms to tackle complex problems. The commentary aims to elucidate the role of QAI in sustainable energy generation and its potential to revolutionize the field. One area where QAI showcases its potential is in the prediction and optimization of renewable energy generation. By harnessing experimental techniques like solar irradiation, wind velocity, and pumped-water energy storage, QAI algorithms can accurately forecast and optimize the output of renewable energy sources. These algorithms, powered by the computational capabilities of quantum computing, can process vast amounts of data and perform complex simulations to identify the most efficient and environmentally friendly energy generation strategies. To achieve accurate predictions of renewable energy generation, various information models and machine learning techniques have been explored. Quantum machine learning algorithms can process and analyze large datasets, enabling the identification of patterns and correlations that might be missed by classical approaches. This capability empowers QAI systems to make more precise predictions and optimize energy production strategies. Moreover, the integration of quantum AI with classical AI techniques can lead to hybrid models that further enhance the accuracy and efficiency of renewable energy generation predictions.

Beyond renewable energy generation, QAI holds tremendous potential in computational science and molecular physics. Quantum computers can perform complex calculations involving sub-atomic particles, enabling simulations that were previously infeasible with classical computers [7]. By leveraging the power of quantum AI, scientists can gain deeper insights into molecular structures, chemical reactions and material properties, leading to advancements in energy storage, materials science, and catalysis. In our research, quantum AI techniques were applied to simulate and optimize molecular structures for improved energy storage materials. The results showcased the ability of quantum AI to accelerate the discovery of novel materials with enhanced energy storage capabilities [1]. To achieve sustainable energy production, effective energy management is crucial. The integration of QAI in energy management systems can revolutionize the way energy is monitored, produced, and distributed. A proposed quantum AI-powered automated robotic system can monitor energy consumption levels in real-time, optimize energy production processes and anticipate future energy demands. This holistic approach minimizes waste, improves efficiency and ensures a reliable and eco-friendly energy supply. Additionally, QAI can facilitate the integration of distributed energy resources, such as, solar panels and wind turbines, into existing power grids, enabling a more decentralized and resilient energy infrastructure. The combination of quantum computing and artificial intelligence has enormous promise for producing sustainable energy. QAI can meet the growing need for cleaner and more efficient energy sources by improving energy production processes, reducing waste output, and promoting eco-conservation. Furthermore, incorporating QAI into the energy sector can result in employment development, technological improvements and economic progress. The entire potential of QAI in sustainable energy can be achieved by developing relationships between academia, industry and policymakers.

This investigation provides insightful observations regarding the potential benefits of quantum artificial intelligence for sustainable energy production. It highlights the promising results obtained from experimental studies in renewable energy generation, development of custom quantum AI algorithms and their integration into Arduino systems for practical implementation. Moreover, utilization of literature and research papers showcases the existing knowledge and advancements in the field. Additionally, this commentary presents a roadmap for future research, outlining potential areas of exploration and development to fully unlock the potential of quantum artificial intelligence in ensuring sustainable energy production. By advancing research in these areas, a greener and more sustainable energy future can be fostered.

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Keywords: Machine learning, Neural Networks, Quantum Artificial intelligence, Qubit, Robotic Systems

"AGRITECH: CATALYZING THE DIGITAL TRANSFORMATION OF AGRICULTURE"

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Introduction

Keywords: Agroevolution, AgriTech, digital transformation, Artificial intelligence, agriculture, Georgia

Evolution of agriculture: Significant transformations have taken place at various stages over the years. Agriculture 0.0 (Primitive Rural Living): This phase signifies the beginning of rural life approximately ten to twelve thousand years ago. During this time, it involved gathering of plants and hunting of animals, basic agricultural practices like slash-and-burn farming and the use of simple stone tools for hunting and farming activities.

Agriculture 1.0 (Traditional Rural Living): This phase commenced around the Bronze Age. At this stage, there was improvement in agricultural practices with the introduction of domesticated crops and livestock, resulting in higher agricultural productivity. It was a period when rural living became more settled and centered mainly around human and animal labor.

Agriculture 2.0 (Mechanized Rural Living): The Industrial Revolution, which started in the 18th and 19th centuries, initiated this stage. Mechanized rural living saw the adoption of machinery, such as, tractors and combines. During this period, there was a shift from manual labor to mechanization, leading to increased agricultural productivity and reduced human labor involvement.

Agriculture 3.0 (Green Revolution): The Green Revolution began in the mid 20th century and continued into the early 21st century. It involved widespread adoption of high-yield crop varieties, application of synthetic fertilizers, pesticides and irrigation systems. This period led to significant global agricultural production growth but also brought about negative impacts, such as, increased environmental degradation and water scarcity.

Agriculture 4.0 (Smart Rural Living): This phase emerged in the late 20th and early 21st centuries, focusing on the integration of digital technologies, such as, GPS, remote sensing and drones. Smart rural living aims to optimize farming practices by leveraging data-driven decision-making, efficient resource utilization, and improving overall farm efficiency.

Agriculture 5.0 (Sustainable Rural Living): This is the ongoing stage of rural living transformation that emphasizes the integration of advanced technologies, such as, Artificial Intelligence (AI), robotics, and the Internet of Things (IoT) to create fully automated and efficient farming systems. Agriculture 5.0 seeks to address the challenges of climate change, population growth and resource constraints by pursuing sustainable practices and minimizing the ecological footprint. As rural living continues to evolve, it is expected to progress more rapidly, efficiently, and productively, incorporating cutting-edge technologies to achieve desired safety, resilience, and adaptation to climate changes."

The current situation within the Georgian agricultural sector can be comprehensively assessed by employing contemporary business management methodologies. Two notable analytical tools, SWOT and PESTLE analyses, can serve as effective means to evaluate the challenges, potential problems, and prospects faced by the sector. In particular, conducting a SWOT analysis enables to identify and examine internal aspects of the agricultural sector.

Strengths of the agricultural sector in Georgia include:

• High Demand: The agricultural sector benefits from the perpetual demand for food, which is considered a fundamental necessity for human survival
• Abundance of Natural Resources: Georgia's geoclimatic and relief characteristics provide a bountiful supply of natural resources. The diverse landscape features, agro-ecological zones, fertile soil, and water resources contribute to the sector's richness and variety
• Unique Microzones and Varieties: The presence of unique microzones and diverse crop varieties and cultures sets Georgia's agricultural products apart. This uniqueness adds value and distinctiveness to the produce
• Original Production Approaches: The agricultural sector in Georgia employs innovative and original production approaches. These approaches combine traditional knowledge with modern practices, enhancing the overall efficiency and productivity
• Traditionality and Authenticity: Georgian products like bread, wine, cheese, and others hold deep cultural and emotional significance. These traditional agricultural products are considered authentic and play a crucial role in preserving the country's culinary heritage

Strengths form a solid foundation for the agricultural sector development and sustainability. By leveraging these advantages, Georgia can capitalize on its agricultural potential, meet domestic demands, explore export opportunities and ensure food security for its population. Strategic planning and continuous improvement in agricultural practices can further enhance the sector's competitiveness and contribute to the overall economic growth of the country.

Weaknesses of the agricultural sector in Georgia encompass:

• Soviet Heritage: The agricultural sector still grapples with the legacy of Soviet-era practices, including issues related to land ownership, consumption patterns, and market dynamics. The remnants of the Soviet paradigms, such as prevailing attitudes towards work and wealth, can hinder the adoption of more progressive and market-oriented approaches
• Lack of General and Sectoral Education: Inadequate access to comprehensive education, both in general and pertaining to the agricultural sector, poses a significant challenge. Insufficient knowledge and skills among farmers and stakeholders may impede the implementation of modern agricultural practices and innovative methodologies
• Conservatism: A prevailing sense of conservatism within the agricultural community can create resistance towards embracing new knowledge, ideas, approaches, and methods. The reluctance to adopt innovative practices may hinder the sector's ability to keep up with global advancements in agriculture
• Technological Backwardness: Limited access to advanced technologies and modern agricultural machinery contributes to technological backwardness in the sector. Outdated or inadequate technology usage can result in lower productivity and efficiency compared to more technologically advanced agricultural systems

Addressing these weaknesses is crucial for the sustainable development and competitiveness of Georgia's agricultural sector. Efforts should be made to overcome the influence of Soviet-era paradigms and foster a more market-oriented mindset. Investing in educational programs to enhance general and sector-specific knowledge will empower farmers and stakeholders to embrace modern agricultural practices. Initiatives aimed at promoting openness to new ideas and innovations can drive positive change and lead to the adoption of advanced technologies, ultimately improving the overall performance of the agricultural sector.

The agricultural sector in Georgia faces several significant dangers, including:

• Climatic Changes: Climate change poses a major threat to the agricultural sector, leading to shifts in temperature and precipitation patterns. These changes can adversely impact crop yields, alter agro-ecological zones, and result in the emergence of new pests and diseases, challenging traditional farming practices
• Unpredictable Meteorological Events: Georgian agriculture is vulnerable to unpredictable meteorological events, such as extreme weather conditions, droughts, floods, and frost. These events can cause crop failures, damage agricultural infrastructure, and disrupt farming activities, making agriculture a risky venture
• Interventions from External Markets: Globalization and international trade can bring both opportunities and risks to the agricultural sector. Unfavorable trade agreements, foreign competition, and fluctuations in international commodity prices may negatively affect the competitiveness and profitability of local agricultural products
• Pandemics and Epidemics: Outbreaks of pandemics and epidemics, such as animal diseases or plant pests, can lead to significant economic losses in the agricultural sector. These outbreaks can result in quarantine measures, trade restrictions, and reduced consumer demand, affecting both domestic and export markets
• Volatility in the Market: Agricultural markets are prone to price fluctuations and volatility due to various factors, including supply and demand imbalances, changes in consumer preferences, and geopolitical events. Such market uncertainties can impact farmers' incomes and financial stability
• Wars and Armed Conflicts: Recent events of armed conflicts and wars in the region can have devastating effects on agriculture. Destruction of infrastructure, disruption of supply chains, displacement of farming communities, and loss of agricultural assets can severely hamper agricultural production and livelihoods

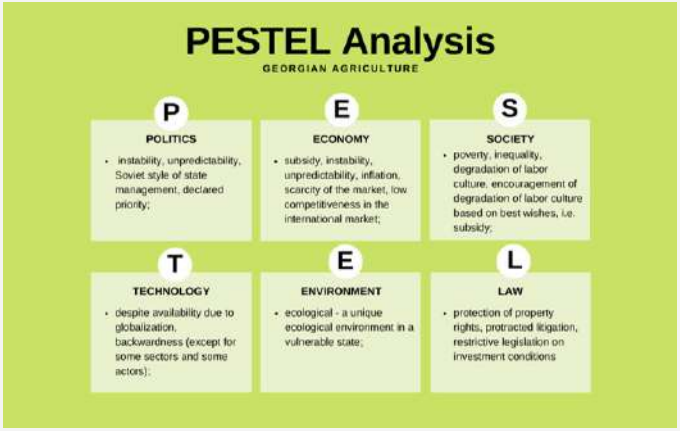
Addressing these dangers requires a comprehensive approach, incorporating climate-resilient farming practices, disaster preparedness plans, and risk management strategies. Additionally, diversification of agricultural products and markets can help reduce the sector's vulnerability to external market interventions and price fluctuations. Investing in research and innovation to address challenges posed by climatic changes and pest outbreaks is essential for the long-term sustainability of Georgia's agricultural sector in the face of various threats.

The agricultural sector in Georgia possesses several strategic abilities that can contribute to its growth and resilience:

• Stimulation of the Agricultural Sector through Collaboration with Dynamic Industries: Collaborating with more dynamic sectors, such as, tourism, rural tourism and agro-tourism can provide valuable opportunities for the agricultural sector. Leveraging synergies between agriculture and tourism can lead to the development of agritourism ventures, promoting local products and enhancing rural economies
• Digitization and Big Data Utilization: Embracing digitization and utilizing digital tools for data collection, analysis, and forecasting can significantly benefit the agricultural sector. The integration of big data analytics allows for better planning, optimized process management, and informed decision-making, leading to increased productivity and efficiency
• Exclusive Product Production: Focusing on the production of exclusive and high-value agricultural products can enhance the sector's competitiveness and profitability. By capitalizing on unique microzones, diverse agro-ecological conditions, and indigenous varieties, Georgia can offer specialty products with distinct qualities to niche markets
• Creation of Strategic Food Reserves: Establishing strategic food reserves is crucial to ensuring food security and stability during times of crises, such as pandemics or natural disasters. These reserves act as a buffer against supply disruptions and price fluctuations, safeguarding the population's access to essential food items

To fully realize these abilities and leverage them effectively, policymakers, farmers, and stakeholders in the agricultural sector must collaborate to formulate coherent strategies and action plans. Emphasizing research and innovation can facilitate the adoption of advanced technologies and best practices, ultimately strengthening Georgia's agricultural sector and positioning it to thrive in the face of challenges and opportunities in the global market.

figure #1



Indeed, approaching the agrarian sector solely within the confines of the traditional paradigm hinders the identification of promising perspectives and obstructs the pursuit of effective solutions, perpetuating a cyclical pattern of facing similar challenges and impeding swift progress. To foster meaningful advancement, it becomes imperative to transcend conventional boundaries and adopt a more progressive outlook. This entails embracing innovative approaches and exploring novel strategies that can address the sector's complexities and unlock its full potential. By breaking away from the constraints of traditional thinking and incorporating forward-looking methodologies, the agrarian sector can embark on a trajectory of transformative change. Emphasizing the integration of cutting-edge technologies, sustainable practices, and research-driven solutions, the sector can steer away from stagnation and propel itself towards accelerated growth.

Furthermore, a comprehensive understanding of the interconnectedness between agriculture and other dynamic industries can open up new vistas of opportunity.

Collaborating with thriving sectors such as tourism, rural tourism, and agro-tourism can yield mutually beneficial outcomes, promoting cross-sectoral development and bolstering the agricultural sector's resilience. Moreover, a key aspect of progress lies in harnessing the power of digitization and data-driven decision-making. By harnessing digital tools and big data analytics, the agrarian domain can gain valuable insights into market trends, optimize resource management, and enhance overall efficiency. In conclusion, by relinquishing the constraints of traditional perspectives and embarking on a journey of innovation and collaboration, the agrarian sector can transcend its current limitations.

This shift in approach will not only facilitate the identification of viable solutions but also propel the sector towards sustained and accelerated advancement. Ultimately, breaking free from the cyclical patterns will lead to a more vibrant, adaptive, and thriving agricultural sector that is well-positioned to meet the challenges and opportunities of the future.

The primary objective of this research was to ascertain the underlying reasons behind the technological delay observed in the agricultural sector as numerous studies have already addressed this issue. An essential finding that emerged from the investigation pertains to the issue of trust in modern and digital technologies, commonly referred to as "agritech." The research revealed that an overwhelming majority of farmers, more specifically, 464 out of 500 respondents, either do not utilize or lack awareness of agritech and its applications in the production process.

This highlights a critical need to extensively promote and disseminate the concept of Agritech, treating it as a fundamental and imperative aspect of the agricultural domain. In light of these findings, it becomes imperative to undertake concerted efforts to introduce and implement specific agro-technologies in Georgia. The adaptation and integration of digital products into the agricultural landscape should be carried out on a large scale. By doing so, farmers can benefit from the transformative potential of modern technologies, thereby bridging the existing technological gap and fostering progress in the sector. To achieve this objective, a multifaceted approach is required, encompassing awareness campaigns, educational initiatives, and comprehensive training programs. By raising awareness about the advantages and functionalities of agritech, farmers can gain confidence in adopting these innovative solutions. Additionally, identifying and tailoring agro-technologies to suit the unique needs of the Georgian agricultural context will further encourage their widespread adoption. Moreover, collaboration between relevant stakeholders, including government institutions, research organizations, and private enterprises, is vital to facilitate the seamless transfer of agritech to Georgia.

This collaboration can lead to the development of support mechanisms, incentives, and policies that promote the integration of digital technologies in agriculture. In conclusion, the research underscores the urgency of addressing the technological delay in the agricultural sector. By recognizing the lack of familiarity and trust in modern and digital technologies among farmers, concerted efforts must be made to popularize the concept of Agritech and introduce specific agro-technologies tailored to the Georgian context. Through collective action and strategic initiatives, Georgia can harness the potential of modern technologies, paving the way for a more technologically advanced and prosperous agricultural sector.

NEUROMANAGEMENT, HUMAN MODELS AND ARTIFICIAL INTELLIGENCE

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Abstract

Artificial intelligence (AI) threatens human existence, as many scientists and leaders write. This is based on a misunderstanding of artificial intelligence and a false human self-image. The core problem lies in what we call "The Human Default", i.e. the default setting that underlies the thinking, feeling and behavior of AI developers and users. AI algorithms are nothing without a model of the world and its users in their social context. Although AI chatbots contain language models, the "Human Default" is still missing. It is the basis of yourself, your communication, and your creative processes. The default setting is not just a collection of experiences or images. It becomes a dynamic model with all your perceptions, values, emotions and feelings. The source of the human default setting is found exclusively in people.

There is more to know about people themselves. Neuromanagement explores how people really think and feel in decision processes. The presentation shows a model of the human being that includes the human default, inner models, values, empathy and perception. Empathy is based on a model of feelings, cognition and values: how we and others feel and think. This leads us to a new way of management called neuroleadership.

60 years of unfounded threats from artificial intelligence

Critical voices are piling up AI in 2023. The headlines “The Godfather of A.I.’ Leaves Google and Warns of Danger Ahead”[1] or “Elon Musk and others urge AI pause, citing 'risks to society'”[2] fill the news. People who have invested in AI are now afraid to use it. This attitude has tradition. “There are two protagonists in this tale, which begins in the mid 1960s. The first is ELIZA...The second protagonist is Joseph Weizenbaum, an MIT computer scientist who came to disavow his artificial progeny.”[3] The reason was simple: For therapeutic reasons, humans preferred to speak to ELIZA instead of humans. The Ethical, Legal and Social Implications (ELSI) debate began and several waves accompanied the history of AI. Chris Smith explains this phenomenon very impressively: “Significant AI breakthroughs have been promised ‘in 10 years’ for the past 60 years.” And the frequent disappointments led to these waves.[4]

Artificial Neural Networks have still been very popular. In the 1990’s there was a hype in predicting stock performance. Then it vanished so quickly as they arrived. In the 2010‘s most of the neural predictors were switched off because the calculation time was too long and the computing power too extensive. Then the computer power was raised and Artificial Neural Networks had a renaissance neglecting the CO2 emissions. A lot of people said that it was difficult to explain to users and algorithms were intelligent. Both views are false. The functions can be explained easily but explaining the results is problematic. The big buzzwords Deep Learning and Big Data came. The old reinforcement learning came up. ChatBots like ChatGPT entered the stage and closed the argumentation circle to ELIZA.

Finally, 2023 AI has reached end users again. The stories about destruction of jobs still occur but the situation now is better than ever before. The question remains why AI should be dangerous.

What is AI?

Artificial Intelligence is a term coined by John McCarthy in 1955 as “the science and engineering of making intelligent machines”. Though there are a lot of other definitions,[5] McCarthy's statement is free of misinterpretations that were made several times. Other definitions focus on human capabilities and intelligence but the main question remains what intelligence is. As a standard, intelligence deals with learning, reasoning, planning, problem solving, abstract thinking, comprehending ideas and language. Another question is whether human intelligence will be the right measure of intelligence in the future. Quantum computers will enter the market and this will open up unimagined possibilities.

Today, Neural Networks with several hidden layers are en vogue. Less priority is given to more complex structures and hybrid approaches. There are still AI techniques that are underrepresented in actual discussions, especially, when human models are required: Fuzzy Cognitive Maps and Bayes Networks in combination with simulation techniques. A problem that remains is the acquisition of knowledge. Therefore, the author developed the “human value design” which collects knowledge as maps and enables simulations of immaterial values.

Survival through a new mindset

We only know that if AI is a real threat if it turns out worse than expected. The problem is human thinking based on internal models with negative attitudes rather than AI. The first step is to recognize that information gathering and text clustering are not the only human methods for intelligent processing.

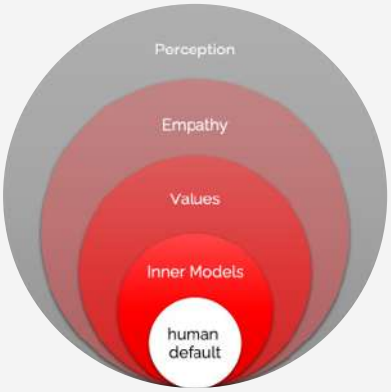
Intelligence does not emerge from algorithms. It evolves from models. Therefore, human models are the core of our thinking, behavior and creativity. Our research team at the research center DITES (Digital technologies and Social Sciences) at TH Köln call this model “The Human Default”. It is the default setting behind your thinking, feeling and behavior. It is the basis of yourself, your communication, and creative processes. The default setting is not just a collection of experiences or images, but it becomes a dynamic model with all your perceptions, values, emotions and feelings. This model is more complex than theories of all disciplines that consider desires, goals, emotions or values as motivators.

Models & Perception

The inner system of models, values, and perception is constructed like an onion (Picture 1):

1. The Human Default as mentioned above
2. Our inner models and values determine our model of others.
3. Values are the result of perception and the parameters of our models.
4. Empathy depends on feelings, models and values: how we and others feel and think.
5. Our perception determines how much we can use for inner models and empathy.

Picture 1: The Human Default



Suffering from Evolution

We, as humans, survived because we are adaptable owing to of our inner models. That is why, we need models. Algorithms are not intelligent, but in combination with models this can lead to intelligent behavior. Digital systems extend our models to learn and will go far beyond human cleverness, especially, when Quantum Computing is taken into account.

Today, researchers want to stop AI again–this happened several times in the last 60 years. Some want to avoid the mirror that reflects us as a human. They want more time to think about it. 40 years does not seem to be enough. Meaningful researchers write open letters. One canceled his contract with Google, one was made redundant. The EU cries for regulations.

Now, the fear is all around while singing the song “Where Have All the Humans Gone”. But new jobs will appear. Some jobs are still there: Training a chatbot was done by poorly paid african workers – a new way of colonialism. Did we learn from history?

Virtuality strikes back: You have to be a Sherlock Holmes to believe yourself. I go with Shakespear’s King Lear: “Beat at this gate that let thy folly in. And thy dear judgment out!—Go, go, my people.”

We only suffer from evolution if we allow it to happen. It depends on your model inside.

Neuromanagement & AI

We have to change the way we manage. We need a deeper understanding that is oriented towards Neuromanagement: The combination of Neurosciences and Life Sciences. We have to use Artificial Intelligence for better management and “Better Work”. We need a deeper understanding of all stakeholders as human beings with all their social relationships. Systems thinking that takes all parts of human life into account is essential. Human models, combined with new technologies, wake us up. This points to a positive future but only if we take ethical, legal and social aspects into account.

Thirty years ago, when Peter Senge published “The Fifth Discipline”, he mentioned Personal Mastery and Mental Models as the first two disciplines for learning organizations. Did we all take care? Did we understand? Artificial Intelligence gives us a mirror to take care. We must learn. And there are the other disciplines like Team Learning and Shared Vision. Finally, Systems Thinking that integrates the other four.

Mental models are not enough. This is why, I extend the concept to inner models that include soul and spirit. The Heart Math Institute proved that there is more than cognition and thinking comes also from the heart. Life Sciences showed that the belly is important for decision making, too. Neuromanagement today takes into account the activities of the brain and mental processes in management issues.

If we look at human beings and social relations as a unified system, we see that the sixth Kondratieff is already in place: Holistic Health which covers mental and physical wellbeing. The use of artificial intelligence, simulation, biotechnology, and self-measurement allow for better management of employees, customers as well as private and business partners. It only helps if we really understand what our models are, who we are. This is why, EEGs are used to collect data for a deeper understanding of decision processes in business and mobile environments. This results in the Project “Human Mobility and the City” at the TH Köln – Universityof Applied Sciences. Additionally, I founded the Neuroleadership Group with partners who developed a manifest for better management: https://neuroleadership-manifest.org/

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ENHANCING DIGITAL SAFETY: NEW ZEALAND CODE OF PRACTICE FOR ONLINE SAFETY AND HARMS

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Abstract

This article investigates the New Zealand Code of Practice for Online Safety and Harms (the "Code"), an initiative aimed at achieving a safer online environment. The Code represents a comprehensive framework designed to address various forms of online harm and promote responsible digital citizenship. This article provides an overview of the Code's key features, looks into the development process and discusses its potential implications for online safety and user protection. Furthermore, the article analyzes the Code's effectiveness, challenges encountered during its implementation and potential avenues for future improvements. The Code sets a valuable precedent for other nations that deal with similar challenges when it comes to online safety and it could be used as a valuable resource for enhancing digital safety globally. Georgia, as a country that deals with a range of problems stemming from social media, could also initiate a similar code with the social media platforms.

Introduction

Over the past few decades, the development and unprecedented growth of digital technologies, especially social media, have been observed on a global scale. Using social media makes up part of a person's daily routine. Emergence of the virtual world in parallel with the physical one led to the creation of a new legal space.[1] This legal space is managed by private companies which decide on freedom of speech and expression issues. According to the traditional view, technology companies are free to regulate content because they are private companies and the First Amendment to the US Constitution protects them from government censorship.[2] According to critics, this is not a valid view. The attitude towards social networks should be the same as the one towards public actors. Content moderation on platforms is done in accordance with the corporate and not public interest. Due to the relevance of the topic, both scientific scholars and experts of international human rights organizations express important opinions on this issue. Content moderation should be done in accordance with international human rights laws, in particular, the Universal Declaration of Human Rights, the European Convention on Human Rights and the International Covenant on Civil and Political Rights.

Along with the regulation of social networks, co-regulation and self-regulation are relevant. The New Zealand Code of Practice for Online Safety and Harms as well as the European Commission's "Code of Conduct on Disinformation" to which the largest technology companies are signatories[3] are good practice for co-regulation. As for self-regulation, the Supervisory Board of Facebook is worth highlighting. These formats create new opportunities to overcome the challenges faced by social media companies in terms of protecting basic human rights. A type of regulatory mechanism needs to be integrated in Georgia to better protect the interests of social network users.

The rise in the power of digital platforms and increasing number of media users utilizing a range of platforms,[4] such as, Facebook, Google, YouTube, Instagram, TikTok and Twitch has brought numerous benefits but it has also given rise to a range of online harms, including, cyber-bullying, hate speech, disinformation, defamation and other forms of harmful content. In response to these challenges, New Zealand has taken a proactive approach by developing the Code. In particular, a non-governmental organization Netsafe has led this initiative and achieved a voluntary industry code with social media platforms. More specifically, this article explores the key aspects of this pioneering initiative and its implications for fostering a safer online landscape.

1. Development of the Code

The New Zealand Code was developed through a collaborative and consultative process involving various stakeholders, including, government agencies, industry representatives, civil society organizations and the public. Development of the Code took approximately nine months from its inception phrase to the publication of the first draft for public feedback. More specifically, a non-governmental organization Netsafe announced the initiative in April 2021 and the Code was made available for public feedback in December 2021.[5] It is worth mentioning that the first draft was based on similar codes initiated in the EU as well as Australia. However, it was tailored to specific needs of New Zealand and local context. In order to establish the most problematic areas for social media users in New Zealand, Netsafe has undertaken research on harmful content and in the scope of the research studied top trends for online harms. This process included a wide range of stakeholders and public consultation lasted for 10 weeks.[6]

2. Key Features of the Code

The Code structure sets out roles of the "Administrator" (a non-governmental organization Netsafe), the "Signatories" (Meta (Facebook and Instagram), Google, Twitch, Twitter and TikTok) and a multi-stakeholder Oversight Committee (the Oversight Committee will be comprised of a range of stakeholders, including, representatives from the Signatories, Maori cultural partners, civil society and other relevant and agreed-upon stakeholders (such as, Government and academics)).[7]

3. The Administrator

The structure is designed to build up accountability by enabling the administrator, relevant stakeholders, and the public to hold Signatories of the Code accountable for their commitments pursuant to the provisions of the Code. Despite being voluntary, digital platforms that choose to become Signatories willingly accept this accountability, facilitated through the oversight powers vested in the Administrator and a multi-stakeholder Oversight Committee.[8]

The Oversight Committee holds the authority to suggest terminating a Signatory's membership or publicly identifying them for failing to comply, while the Administrator possesses the ability to make binding decisions. In order to effectively address cases of non-compliance, a user complaints mechanism will be established. This mechanism will allow users to report instances where Signatories fail to fulfill their Code commitments.

4. The Oversight Committee

The Oversight Committee plays a pivotal role in the Code, responsible for monitoring the Signatories' progress, evaluating annual compliance reports, and providing recommendations for continuous improvement. The Code will undergo regular reviews based on the feedback received from stakeholders and practical experiences, ensuring it remains relevant and effective.

The Code imposes a binding obligation on the Signatories, that includes guiding principles for them, focusing on seven online safety and harmful content themes. Main themes that the Code focuses on include child sexual exploitation and abuse, bullying or harassment, hate speech, incitement of violence, violent or graphic content, misinformation and disinformation. It is worth noting that, these are the themes that most directly address the concerns of internet users in New Zealand, making the Code comprehensive and inclusive, which is surpassing the scope of other industry codes.

Pursuant to the provisions of the Code, the Signatories must prioritize transparency by disclosing information about their policies as well as systems that they have in place. This transparency promotes openness with digital platforms and builds trust between users and digital platforms that is so scarce in contemporary digital environment.[9]

As a result of this trust and an attempt to develop a co-regulatory network with a local stakeholder (the Administrator, Netsafe) New Zealand is fostering a responsible and accountable online environment.

Furthermore, to ensure that the Signatories adhere to the principles of the Code, they are obligated to submit annual compliance reports. These reports will detail the steps taken and implemented by the Signatories to uphold their commitments under the Code. Transparency of these reports, subject to public scrutiny, reinforces accountability and encourages Signatories to demonstrate their commitment to online safety and harm reduction.

By incorporating the Oversight Committee's vigilant monitoring, regular reviews, comprehensive themes, and transparency requirements, the Code establishes a robust framework to protect internet users in New Zealand and promote responsible digital practices among the Signatories.[10]

5. The Signatories

Digital platforms may become the Signatories to the Code and join it at any time. Digital platforms which have already signed to the Code include: Meta (Facebook and Instagram), Google (YouTube), TikTok, Twitter and Twitch. They act as important actors who will encourage other digital platforms long term to join the Code or use it as a best practice guide.[11]

6. Aims of the Code

As part of the Code, the Signatories have signed up to fulfill the following commitments:
• Decrease the amount of harmful content online with a view to creating safer online environment for digital users;
• Give greater control and power to the users to make informed choices. In particular, pursuant to the Code, the Signatories should provide users with tools and resources that give them power to control their online experiences and make informed decisions about the online content;
• Enhance transparency regarding policies, processes and systems;
• Support independent research and evaluation. In particular, they should engage with independent researchers and share data with them that will in turn lead to the development of enhanced online safety practices and contribute to the continuous improvement of the Code's effectiveness.[12]

7. Effectiveness and Impact

Since the launch of the Code, it has generated a wide range of interest from various stakeholders both locally and internationally. It is worth noting that the Administrator, Netsafe has been collaborating with Sri Lanka where Netsafe has been providing support in developing Sri Lanka's own Code. Furthermore, in both Japan and India, the Code has served as an important example on how to deal with the issue of online safety.[13] Therefore, it is worth noting that the influence of the Code has transcended borders of New Zealand and reached many nations across the world, including, Georgia, which is in the process of setting up a social media council, which is an academic initiative and a co-regulatory institute between Georgian stakeholders and digital platforms.[14]

8. Challenges and Future Considerations

The New Zealand Code of Practice for Online Safety and Harms is certainly a step towards achieving a safer online environment for users.

However, there are various risks and challenges that come with the implementation of the Code.

As digital companies are private companies in essence, it is difficult to ensure consistency in executing decisions. Also, because on borderless nature of digital media, global execution of the code may come with challenges. Furthermore, one should discuss the code in the angle of freedom of expression and whether it could be seen as an attempt to halter this fundamental right. Therefore, it is important to avoid using the instruments provided by the Code as a tool for state censorship.

9. Impact of the Code for Georgia

The New Zealand Code provides a comprehensive framework for addressing online harms, covering a wide range of issues and providing clear guidelines. Adopting a similar code would enable Georgia to take a practical approach to tackle various forms of harmful content effectively. By developing and implementing an instrument similar to the New Zealand Code, Georgia can align itself with global best practices and demonstrate its commitment to creating a safer online environment. Furthermore, this would open the opportunity for Georgia to share best practices from other countries and help protect Georgian citizens from human rights violations online. The New Zealand Code places responsibility on online platforms and service providers to take proactive measures to address online harms.

A similar code in Georgia would hold social media platforms accountable for ensuring user safety and incentivize them to invest in technological solutions, content moderation, and community standards. By proactively addressing online harms through a well-designed code, Georgia can enhance its reputation as a country that prioritizes the well-being of its citizens and fosters a safe and inclusive digital environment. This can attract businesses, investors, and individuals who value online safety and contribute to the country's socio-economic growth.

10. Conclusion

The New Zealand Code of Practice for Online Safety and Harms is an example of proactive approach taken by New Zealand in order to achieve a safer online environment. This article highlights the background of the Code as well as its purpose and difficulties associated with its implementation. It also discusses wider impact of the Code and explores its potential adoption opportunity in Georgia. Besides, the need for continuous improvement, monitoring and international cooperation in tackling the ever-evolving challenges of online safety is put forward. The New Zealand Code serves as an influential model that can inspire other nations to adopt similar measures and contributes to a global effort in creating a safer digital space for all.

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THE IMPORTANCE OF DEVELOPING SUSTAINABLE TECHNOLOGIES AND THE ROLE OF RENEWABLE ENERGIES IN THE SUSTAINABLE DEVELOPMENT OF GEORGIA

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Introduction

Global warming, climate change and excess carbon emissions are the issues which serve as the main challenges of the modern and civilized world. In September 2015, world leaders unanimously adopted Sustainable Development Goals which governments began to implement step by step. In 2017, Georgia made 17 goals of sustainable development a national priority. Development of renewable energies is in line with several goals of sustainable development. It is directly related to the 7th goal. Universal access to affordable, reliable, stable and modern energy is reflected in economic, ecological and social aspects.

The purpose of the paper is to study the importance of renewable energies and sustainable technologies for the country's economy and how sustainability affects the environment and society. The research includes implementation of sustainable technologies and their impact, both on a specific entity and the country's long-term economic perspective.

According to a number of studies (IPCC — Intergovernmental Panel on Climate Change), it is confirmed that by the year 2100, the earth will exhaust its reserves of fossil fuels. By this time, developed countries will switch to 100% of renewable energies. Countries are investing in sustainable technologies to maximize renewable resources and replace traditional energy with renewables. According to the announced policy of the German government, the country's energy sector will switch to 100% renewable energy in 2035. The country intends to achieve all this by utilizing renewable resources as much as possible and developing green hydrogen (e3g.org).

Years ago, the transition of one of the world's largest energy producers, Kazakhstan, to 100% green energy was almost unthinkable. However, the country's government announced a 100% elimination of carbon emissions by 2060. As part of the transition to green energy, the country undertakes to install 2.9 GW power wind by 2035 and 3.1 GW power solar plants. As part of this plan, the Kazakh government will plant an additional 2 billion trees by 2025 (bloomberg.com). Georgia is rich in renewable resources. According to the data of the Ministry of Economy and Sustainable Development, the country has a large resource for the utilization of hydropower, solar and wind energy.

These three types of energy are the main types of renewable energy in the world today. With the information taken from the official structures, the resource and utilization rate of Georgia will be presented". According to the Republic of Georgia Country Report, water resources are one of the most important natural resources of Georgia. There are 26060 rivers with total length of 58987 km. Small rivers with length less than 25km and total length 50480 km are the base of hydrographic network. Georgia's territory is divided in two main regions: Black sea basin and Caspian Sea basin. Total natural river runoff from the territory of Georgia is 56.4km3 and to the territory (from Armenia and Turkey) - 8.74 km3 . Thus, total water supplies amount for 65.4 km3 .

From official data of the Ministry of Economy And Sustainable Development of Georgia, the country uses 22% of its hydro resources. As for the utilization of wind energy in Georgia, studies prove that the installed capacity of wind energy is estimated at 1500 megawatts. According to the data of 2023, the country has not utilized even 1% of this resource. Georgia has the greatest potential for converting solar energy into electricity. Officially, there are 280 sunny days a year in Georgia. In terms of the number of sunny days/radiation, Georgia is significantly ahead of the largest producers of solar energy in Europe (solargis.com).

Keywords: sustainable development, sustainable technologies, renewable energy

Why is uptake of renewable resources so low?

This is because of bureaucracy, high license fees, unstable situation in the region, which foreign investors watch carefully. Countries whose priority is sustainable development must take supportive actions. Supporting mechanisms and tax benefits are needed. Local and foreign investors should see the government's willingness to introduce sustainable technologies.

The 2 countries mentioned above are moving towards the same goal in different ways. Georgia has the largest renewable energy resources. Effective steps are needed. If we want to develop renewable energies and thereby achieve the goals of sustainable development, license fee benefits should be reduced. Besides, new banking preferential products should be introduced. Investors should be offered acceptable terms. There should be less regulation than in other countries. This is an incentive for them to bring their investments to Georgia. There is a need for educational work with the population because all this should become a universal national goal.

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