Generative Ai: potential and pitfalls

Iryna Yasenova [1]*, Oksana Berdnyk* [2]

[1] State Fiscal Service University of Ukraine,
Kyiv, Ukraine,
[1] yasenovai@gmail.com, orcid.org/0009-0006-0011-2100,
[2] Kyiv National University of Construction and Architecture,
Kyiv, Ukraine 03037,
[2] kseniareznik87@gmail.com, orcid.org/0000-0001-5321-3518

Abstract. The explosive popularity of ChatGPT around the world gave us the first real tipping point in public acceptance of AI. Finally, everyone, everywhere can see the breakthrough potential of this technology for themselves. Large language models (LLM) and the fundamental models underlying these advances in generative artificial intelligence (GenAI) represent a significant turning point. Not only have they cracked the code of language complexity, allowing machines to learn context, infer intent, and be independent creative individuals, but they can be quickly configured to perform a wide variety of different tasks. This technology should fundamentally change everything — from science, business, health care to, in fact, society itself. The positive impact on human creativity and productivity will be enormous. Companies will use these models to rethink the way work is done. Every role in every enterprise has the potential to be reimagined, as AI people working as co-pilots become the norm, greatly expanding their capabilities. Generative AI will affect tasks, not professions. Some of these tasks will be automated, some will be transformed by artificial intelligence, and some will remain unchanged. It can also be expected that humans will face a large number of new challenges, such as ensuring the accurate and responsible use of GenAI systems. That's why organizations that invest in training people to work with generative AI will have a significant advantage.

Keywords: Generative AI, Artificial intelligence, Decision support, Content creation Information systems.

Oksana Berdnyk
Scientific Research Institute for Binders and Materials
PhD, Associate Professor

Iryna Yasenova
Department of computer technologies and systems
PhD, Associate Professor

INTRODUCTION

Artificial intelligence is the new boom, and everyone is talking about it, but many have yet to fully grasp its impact on business. On one hand, its capabilities are staggering, showcasing an impressive capacity to generate diverse content, including music, speech, text, images, and video. Currently, it plays a pivotal role in tasks such as software development, transcribing physicians' interactions with patients, and facilitating human interaction with customer-relationship-management systems. Yet, despite its remarkable potential, generative AI is not without its flaws. It occasionally produces distorted or entirely fabricated outputs and may overlook critical privacy and copyright considerations. The question arises: Is the significance of generative AI exaggerated? Are the associated risks justified

by the potential rewards? How can companies discern the most effective utilization of generative AI, and what should be their inaugural endeavors in this transformative domain?

Unlocking the potential of generative AI isn't merely revolutionary; it's a paradigm shift poised to enhance productivity across a spectrum of cognitive tasks. Business leaders should perceive it as a universal technology on par with electricity, the steam engine, and the internet. While the realization of the full potential of historical technologies spanned decades, the transformative impact of generative AI on performance and competition will manifest in just a few years.

Unlike past general-purpose technologies that necessitated significant physical infrastructure and the development of new skills and business processes, generative AI stands out. Much of the essential infrastructure is already in place: the cloud, software-as-a-service, application programming interfaces, app stores, and other advancements continually reduce the time, effort, expertise, and costs required to acquire and implement new information systems. This streamlined accessibility is a pivotal factor behind ChatGPT's rapid ascent to 100 million users in just 60 days. As technology giants like Microsoft and Google integrate generative AI tools into their office suites, email clients, and various applications, billions of users will effortlessly incorporate these capabilities into their daily routines. The era of widespread adoption of generative AI is at hand, reshaping the landscape of digital technology deployment for companies worldwide.

Generative AI's rapid deployment is facilitated by its intuitive interaction, as users engage with these systems through natural conversation, akin to conversing with another person. This significantly lowers the entry barriers for certain tasks, envision, for instance, crafting software by articulating objectives in everyday language to a language model. Moreover, the initial implementation of these systems won't demand companies to overhaul entire business processes; instead, they will be applied to specific tasks, simplifying the adoption process. While overhauling every facet of customer interaction through technology poses a significant challenge, incorporating generative AI to enhance chat responses for customer service agents is a more manageable step. However, as time progresses, the transformative impact of generative AI will permeate and revolutionize core business operations. Hence, business leaders shouldn't remain passive observers, awaiting the evolution of generative AI use. Waiting on the sidelines is a risk they can't afford, as competitors might seize the initiative. Proactive engagement is imperative to stay ahead in the evolving landscape of AI integration.

The potential displacement of employment roles by generative AI.

A plethora of prognostications exists concerning the potential displacement of employment roles by generative AI. However, a more constructive methodology involves contemplating the cognitive tasks that this technology can either perform or amplify. This analytical process encompasses a three-step procedure.

1. A preliminary evaluation of knowledge-based roles within the organizational framework is recommended. This involves ascertaining the number of individuals primarily engaged in activities such as writing, data analysis, management, programming, customer service, and analogous functions. Following this assessment, two pivotal inquiries are to be addressed for each role. The initial question pertains to the potential benefit derived by an employee in the given position from an adept yet uninformed assistant—someone proficient in programming, writing, data preparation, or information summarization, yet lacking specific knowledge about the organization. The available Language Models (LLMs) currently serve as exemplars of such assistants, demonstrating proficiency in tasks such as coding but lacking insight into the organization's unique software development or systems integration requirements. While they can skillfully create or evaluate project plans, they remain unaware of the intricacies of

ongoing projects within the organization. The subsequent inquiry revolves around the extent to which an occupant of a professional role would gain advantages from a skilled assistant possessing extensive company experience and awareness of its intricacies.

2. Upon the comprehensive enumeration of knowledge-work roles and the resolution of both queries, the subsequent procedural stride entails the prioritization of generative AI initiatives deemed most auspicious. The delineation of this determination is unequivocal: favor those exhibiting the most favorable benefit-to-cost ratio. In the computation of benefits, scrutiny of the aggregate remuneration for each role is requisite. The objective is not the identification of roles earmarked for elimination; rather, it is the discernment of prospects for substantial amplification in productivity—instances where emergent digital assistants wield the most profound impact.

Similar to other digital-transformation endeavors, the cost of a generative AI project encompasses financial outlay, time, and forgone opportunities—projects not pursued because generative AI takes precedence. Off-the-shelf LLM initiatives are relatively economical and swift, whereas endeavors requiring the integration of generative AI with another system are more time-consuming and costly (though not disproportionately compared to many other IT efforts). Currently, most generative AI projects focus on refining specific tasks, a fitting approach considering the myriad opportunities to leverage the technology in this manner. However, as generative AI matures and companies amass experience, these efforts will evolve to encompass entire business processes instead of individual tasks. For instance, they will revolutionize every facet of a company's customer interaction, moving beyond mere enhancements to online troubleshooting chats. Generative AI is still in its early stages, and the precise future applications remain uncertain.

3. Upon completion of the inventory of knowledge-work roles within a company and the resolution of the aforementioned inquiries, the subsequent step involves prioritizing the most promising initiatives related to generative AI. This task involves a straightforward approach: selecting those endeavors exhibiting the most substantial benefit-to-cost ratio. The estimation of benefits involves an examination of the total expenditure on compensation for each role. The objective is not to pinpoint positions for elimination but rather to discern opportunities for significant enhancements in productivity, emphasizing the areas where novel digital assistants would be most advantageous.

Analogous to other initiatives in digital transformation, the cost of a generative AI project encompasses financial resources, time allocation, and foregone opportunities—projects not pursued due to the higher priority assigned to generative AI. Standard, readily available LLM efforts are characterized by their relative cost-effectiveness and expeditious implementation. In contrast, projects necessitating the integration of generative AI with another system are more protracted and entail higher costs, although not disproportionately so in comparison to numerous other IT endeavors.

Presently, the majority of generative AI projects are oriented towards refining specific tasks, a judicious approach considering the multitude of opportunities to harness the technology in this manner. However, as generative AI matures and companies accumulate experience, these initiatives are poised to evolve, encompassing entire business processes rather than individual tasks. For instance, their application will extend to revolutionizing every facet of a company's interaction with customers, transcending the mere enhancement of online troubleshooting chats. Generative AI remains in its nascent stages, and the precise future applications thereof are indeterminate. Nonetheless, there is a firm confidence that it will play a significant role in the digital strategies of successful companies in the ensuing years.

Addressing the "Confabulation" Issue in Generative AI

Considering the significant influence that

generative AI is poised to exert on various industries in the imminent future, the approach to mitigating one of its primary drawbacks—namely, its propensity to generate false information—should not entail avoiding the utilization of this technology. From a scholarly perspective, there are means to mitigate these limitations.

One approach involves the recognition of instances when a user's inquiry deviates from the standard methodology of a Language Model (LLM). The typical LLM approach involves formulating responses based on associations among the entirety of words and sentences it has been trained on. In cases where user requests are unsuitable for this conventional approach, the system adopts an alternative strategy.

It is advisable for users to approach the output of a Language Model (LLM) with caution. For instance, when employed by marketers to generate copy for a website or social media campaign, the generated content can be swiftly evaluated to determine its alignment with the intended target. In the realm of software engineering, developers can examine whether the code produced by generative AI executes successfully and achieves the desired functionality. Even in instances where the generated code falls short, engineers assert that the underlying approach can provide valuable insights for addressing the task at hand.

In certain instances, the involvement of generative AI in specific tasks is deemed too precarious. For instance, a system that accurately prescribes medications 90% of the time but introduces errors in one out of 10 cases is considered unacceptably unsafe for autonomous use. Furthermore, such a system fails to yield time savings for physicians, as they would be compelled to meticulously verify all recommendations before communicating them to patients. Even in tasks where safety is not a primary concern, the proclivity of Language Models (LLMs) to confabulate introduces a disqualifying factor.

Privacy Issue in Generative AI

When utilizing a confidential report for training a generative AI system, there is a potential risk that fragments of the report's content may inadvertently surface in responses to prompts from unauthorized individuals. Therefore, a clear understanding of the privacy policies associated with the usage of any generative AI system is crucial. This issue should be thoroughly investigated and regulated by legal laws.

One concluding concern associated with generative AI, akin to many other artificial intelligence modalities, pertains to bias. If a machine-learning system undergoes training with biased data, the outcomes it produces will inherently mirror that bias. For instance, if an organization exclusively hires college graduates as programmers and utilizes this biased employment history to train a system for facilitating hiring decisions, the resultant system is likely to exhibit a bias against highly qualified coders who did not pursue or complete a college education. Therefore, meticulous attention is essential when implementing generative AI. It is imperative to question whether the expectation is for the system to yield results less biased than the data upon which it has been trained. If the affirmative is true, reconsideration of the project is warranted. Generative AI proves highly compatible with an iterative methodology in its application. Its distinctive attributes distinguish it from preceding systems. The formulation of prompts becomes a crucial consideration for eliciting optimal responses, necessitating the articulation of queries in a manner that yields the most beneficial outcomes. Iterative refinement is a common practice, requiring frequent adjustments and the provision of feedback to enhance system performance. Effectively guiding the system to adopt a specific persona, modify its tone, or adjust its style often yields favorable results. The interactive process with a Language Model (LM) characterized by such manipulations is termed "prompt engineering," a nascent discipline that currently leans more towards an art form than a precise science.

Addressing the challenge of preventing confabulations, or false information, remains a nuanced aspect of this endeavor. Commencing the exploration of these methodologies involves undertaking a project with an advantageous benefit-to-cost ratio and minimal associated risks, thereby providing a practical context for experimentation. This same approach is applicable to more ambitious ventures involving generative AI, such as the integration of an LM with complementary technologies. Emphasizing rapid iteration emerges as the optimal strategy for learning and advancing in this dynamic field. Organizations that efficiently traverse repeated OODA loops, involving the observation of the situation, orientation for action, decision-making, and subsequent implementation, stand to gain accelerated insights. This expeditious learning process contributes to the swift realization of productivity gains and other associated benefits

CONCLUSIONS

In conclusion, despite the attendant challenges accompanying the utilization of generative AI, the revolutionary leap has already transpired. Rather than dwelling solely on the existing issues, it is imperative that we acknowledge the transformative potential of this technology. The prudent course of action is to engage in extensive exploration and utilization, strategically addressing and mitigating the concerns as part of the ongoing development process. By actively delving into the possibilities offered by generative AI, we position ourselves to harness its benefits for a more constructive and innovative future. Embracing this technological evolution with a proactive mindset enables us not only to navigate the current challenges but also to leverage the immense potential it holds for shaping a more advanced and efficient landscape.

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Генеративний ШІ потенціал та підводні камені

Ірина Ясенова, Оксана Бердник

Аннотация. Вибухова популярність ChatGPT у всьому світі дала нам першу справжню точку перелому в прийнятті штучного інтелекту громадськістю. Нарешті, кожен і скрізь може побачити проривний потенціал цієї технології для себе. Великі мовні моделі (LLM) і фундаментальні моделі, що лежать в основі цих досягнень в області генеративного штучного інтелекту (GenAI), є значним поворотним моментом. Вони не тільки зламали код складності мови, дозволивши машинам вивчати контекст, робити висновки про наміри та бути незалежними творчими особистостями, але й можуть бути швидко налаштовані для виконання широкого спектру різних завдань. Ця технологія має докорінно змінити все — від науки, бізнесу, охорони здоров'я до, власне, самого суспільства. Позитивний вплив на людську креативність і продуктивність буде величезним. Компанії використовуватимуть ці моделі, щоб переосмислити способи виконання роботи. Будь-яка роль на кожному підприємстві має потенціал для переосмислення, оскільки робота людей із ШІ у якості «другого пілота» стає нормою, що значно розширює їхні можливості. Генеративний ШІ вплине на завдання, а не на професії. Деякі з цих завдань будуть автоматизовані, деякі будуть трансформовані за допомогою штучного інтелекту, а деякі залишаться без змін. Також можна очікувати, що

перед людьми постане велика кількість нових завдань, таких як забезпечення точного і відповідального використання систем GenAI. Ось чому організації, які інвестують у навчання людей для роботи з генеративним ШІ, матимуть значну перевагу.

Ключові слова: Генеративний ШІ, Штучний інтелект, Підтримка прийняття рішень, Інформаційні системи створення контенту.