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For scientists, scientists, students, graduate students, representatives of business and public organizations and higher education institutions and a wide range of readers.

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HARNESSING GENERATIVE ARTIFICIAL INTELLIGENCE FOR SUSTAINABLE BUSINESS TRANSFORMATION

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One of the promising areas of digital transformation today is generative artificial intelligence with its significant potential for automation, personalization and optimization of business processes. It is important for companies that want to become leaders in their industries to start implementing it now, considering the goals of sustainable development. This will not only promote innovation, but also ensure long-term sustainability and responsible growth.

Analysis of current research and publications highlights the significant potential of generative artificial intelligence for both business advancement and sustainable initiatives. Researchers [1; 2; 3; 4] recognize GenAI as a strategic tool that can be used to create unique technologies for specific businesses, situations, and environments, solve complex problems, automate routine processes, and personalize products and services to promote sustainable consumption.

The study identifies and evaluates the potential advantages, challenges and opportunities of applying generative artificial intelligence in the context of digital business transformation, focusing on its adaptation to specific industry needs, which will contribute to increasing competitiveness and achieve the goals of sustainable development [5; 6].

Generative artificial intelligence plays an important role in sustainable development, offering new opportunities to solve the complex problems of the modern world. One of the key advantages of GenAI is its ability to think creatively and innovatively. It can generate new ideas, concepts and solutions that can contribute to the sustainable development. In particular, GenAI can help to achieve the goals of sustainable development through optimization of production processes, resource management and energy efficiency, as well as promote the development of new technologies with due regard to environmental and social aspects.

The implementation of GenAI can significantly affect the key goals of any company, which can be divided into two categories: those that are easily quantifiable and those that are more difficult to measure. GenAI can help companies increase revenue by personalizing marketing campaigns, developing new products and services, and optimizing prices. It can generate personalized marketing materials that meet the individual needs and preferences of each customer, new ideas for products and services that meet market needs and trends, analyze large amounts of data about the market and consumer behavior. GenAI is capable of saving the company money by automating routine tasks, increasing the

efficiency of supply chains, and reducing errors. Automating tasks such as data processing, information entry, and customer service will free up time and resources for more strategic tasks. Demand forecasting, production and distribution planning will help improve efficiency. The implementation of GenAI will reduce the number of errors that occur as a result of the human factor. GenAI analysis of data can reveal potential financial, security and reputational risks. It will help companies assess the likelihood and impact of risks, which will allow them to develop effective risk management strategies. Also, business can use GenAI capabilities to develop a risk mitigation strategy. Generative AI models can analyze data on the environmental impact of businesses and help make informed decisions about improving sustainability. For example, they can help in modeling the impact of different manufacturing processes or evaluating the effectiveness of energy conservation programs.

Prompts play a key role in AI text generation, providing models with direction and context to create relevant and meaningful content. In a business context, prompts can be used to generate sustainability reports, marketing materials, sustainability training materials, and other text formats. Increasing the amount of information used to train models may increase the cost of computing power and data storage, but it will also improve the quality and relevance of the results. Retrieval Augmented Generation is a methodology that combines generative AI models with information storage and retrieval systems. It allows AI models to access information from the real world, such as websites, documents, and databases, to improve the quality of the generated text. RAG accept AI models to use the latest and most reliable information, making the generated text more reliable and reasonable. Users can verify the validity of the model's claims by comparing them with the sources from which they were obtained. It helps reduce the likelihood of confidential information leakage because AI models are not trained on this data directly. This makes RAG a safer and more ethical approach to AI text generation. It can help reduce the need to constantly train an AI model on new data and update its parameters. This will save computational and financial resources and help reduce the carbon footprint associated with text generation through efficient use of the energy and resources typically spent on training and operating AI models. RAG allows AI models to use the latest and most reliable information, making the generated text more reliable and reasonable. Users can verify the validity of the model's claims by comparing them with the sources from which they were obtained. It helps reduce the likelihood of confidential information leakage because AI models are not trained on this data directly. This makes RAG a safer and more ethical approach to AI text generation. RAG can help reduce the need to constantly train an AI model on new data and update its parameters. This will save computational and financial resources and help reduce the carbon footprint associated with text generation through efficient use of the energy and resources typically spent on training and operating AI models. RAG uses data from the real world, so it's important to use it responsibly and ethically.

This includes protecting personal data and preventing data bias. It is important to make RAG algorithms transparent so that users can understand how the model arrived at certain conclusions and what factors influenced its decisions.

Along with the benefits, the implementation of GenAI in various business areas brings a number of challenges. GenAI models can generate text that is untrue or has no real-world validation. This phenomenon is called "hallucinations" and can lead to the spread of misinformation and errors. They can generate text that is grammatically correct and logical, but may not match the actual facts or context.

Generative artificial intelligence together with the technique of Retrieval-Augmented Generation is a powerful tool that can help companies transform their business, increase efficiency, optimize processes and promote sustainable development. In further research, it is important to focus on solving ethical issues related to the use of generative artificial intelligence in business, improving accuracy and expanding the possibilities of its application in economic activities.

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