Generative artificial intelligence as a new context for management theories: analysis of ChatGPT

Analysis of ChatGPT

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Pawel Korzynski

Department of Human Resource Management, Kozminski University, Warsaw. Poland

Grzegorz Mazurek

Department of Marketing, Kozminski University, Warsaw, Poland

Andreas Altmann

Department of Economy and Society, MCI | The Entrepreneurial School®, Innsbruck, Austria

Joanna Ejdys

Faculty of Engineering Management, Bialystok University of Technology, Bialystok, Poland

Ruta Kazlauskaite

Department of Management, ISM University of Management and Economics, Kaunas, Lithuania

Joanna Paliszkiewicz

Management Institute, Warsaw University of Life Sciences, Warsaw, Poland

Krzysztof Wach

Department of International Trade, Cracow University of Economics, Krakow, Poland, and

Ewa Ziemba

University of Economics in Katowice, Katowice, Poland

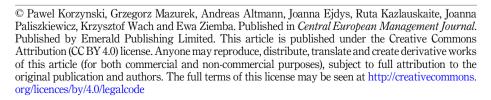
Abstract

Purpose – The primary purpose of this paper is to examine how generative Artificial Intelligence (AI) such as ChatGPT may serve as a new context for management theories and concepts.

Design/methodology/approach – The paper presents the analyses of selected management theories on decision-making, knowledge management, customer service, human resource management and administrative tasks and explains what may change after generative AI adoption.

Findings – The paper indicates that some management theories and concepts need to be studied in the generative AI environment that may influence managerial work at the strategic, functional and administrative levels

Research limitations/implications – This paper is an opinion piece article and does not refer to empirical data. It formulates some conclusions to further empirical research studies.





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Originality/value – The paper analyzes selected management theories in a new technological setting. The paper also provides information about the functions of generative AI that are useful in understanding and overcoming how new technology may change organizations and management.

Keywords Generative AI, ChatGPT, Management theories, Decision-making, Knowledge management, Customer service, Human resource management, Business administration

Paper type Viewpoint

Introduction

OpenAI ChatGPT (Generative Pretrained Transformer) was released a few months ago, and many top business leaders such as Bill Gates or Elon Musk underlined that it would change our work and lives (Bove, 2023; Olinga, 2022). In *Nature*, van Dis, Bollen, Zuidema, van Rooij, and Bockting (2023) indicated that ChatGPT would affect the work of researchers. Thorp (2023) in *Science* referred to some informational incorrectness of ChatGPT but argued that it would change education.

ChatGPT belongs to the family of generative Artificial Intelligence (AI) that can be applied to create various content such as text, code, audio, images and videos. ChatGPT is built on transformer technology (neural network architecture that creates predictions based on inputs), similar to Bard, a rival to ChatGPT, being developed by Google.

In this paper, we argue that generative AI will serve as a new context in the research of management scholars because this new technology may affect managerial work at the strategic, functional and administrative levels. At the strategic level, generative AI may affect decision-making if managers use this technology to obtain recommendations in specific situations, and knowledge management if organizations adopt generative AI to store, transform and distribute organizational data. Furthermore, at the functional level, generative AI can be used in customer service to automate interactions with customers and human resource management (HRM) to streamline various HR-related processes such as resume screening or employee onboarding. Finally, at the administrative level, generative AI may be applied to automate different repetitive tasks such as scheduling appointments, generating business documents or record keeping. Figure 1 presents the potential application of ChatGPT in organizations.

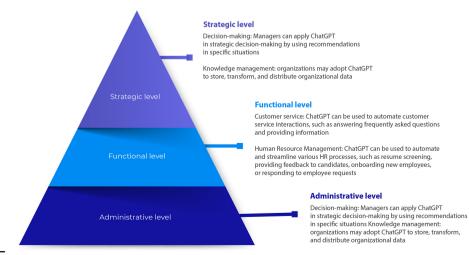


Figure 1.
The potential application of generative AI (e.g. ChatGPT) in organizations

In the following sections, we present selected management theories and explain how ChatGPT may serve as a new context for these theories.

Selected theories on decision-making and generative AI

Generative AI can serve as a new context for management theories related to decision-making. The human approach to the decision-making process is linked to many limitations and generative AI might enable people to minimize some of these limitations.

One of the most popular concepts in decision-making is the bounded rationality model, developed by Herbert Simon (Simon, 1987). This concept explains how human cognitive limitations, imperfect information and time constraints influence the ability to make rational decisions (Cristofaro, 2017). Specifically, individuals do not consider all relevant factors, and thus, their decisions are not optimal.

We are still in need of a breakthrough in terms of the implementation of evolutionary algorithms for business, finance, economics and management purposes at the moment. The employment of evolutionary algorithms in hybrid systems may result from the increased interest in them in connection with the rapid advancement of information technology, which will significantly advance optimization theory (Sieja & Wach, 2019). Nevertheless, Ji (2017) suggested that businesses clarify how they handle competing interests and risk management to be more open about the judgments made by asset allocation algorithms and AI. Another way to influence bounded rationality is to develop procedural rationality, which might mean formalizing the process of collecting and using credible information (Dean & Sharfman, 1993). Generative AI can be used for both – optimization and procedural rationality, especially in the area of customer service and the decision of whether to solve the problem with technology or with a human being.

Scholars started to study the role of AI and digital computing a long time ago (Sandhlom & Lesser, 1997), however, the advancement of AI dramatically accelerated. The future of big data and the application of AI in business and industry has already begun (Sieja & Wach, 2019). Generative AI has brought new possibilities and challenges. Specifically, ChatGPT may deliver a large amount of data in a structured and logical way, enabling individuals to filter and organize various options, and by providing natural language search capabilities allow decision-makers to get the information they need easily.

The issue of demographics such as age, gender or previous experience plays an essential role in using generative AI in the decision-making process in organizations. Younger users are more technologically optimistic than older users (Venkatesh, Morris, Davis, & Davis, 2003), hence optimism will be a more relevant driver of the desire to utilize robo-advisors such as ChatGPT for younger users. Older users may restrict the quantity of information they use in their decision-making and mainly depend on their own, previously held opinions since the ability to digest information declines with age (Belanche, Casaló, & Guinalíu, 2012). Older users might be less willing to use generative AI in the decision-making process. Gender is a crucial element in the acceptance and use of emerging technology (Sun & Zhang, 2006). Men and women place different values on various elements when assessing behaviors and making decisions. Men like using new technologies because they are more likely than women to exhibit innovative activities.

Selected theories on knowledge management and generative AI

Generative AI can play an important role in knowledge management, i.e. the process of collecting, compiling, analyzing and disseminating knowledge within an organization. As a result, the new technology sheds new light on knowledge management theories and frameworks and offers new potential for research studies. Recent studies show that AI can be

used, for example, for knowledge management, including information retrieval (Guo *et al.*, 2020), topic modeling (Mustak, Salminen, Plé, & Wirtz, 2021), text mining (Kumar, Kar, & Ilavarasan, 2021), as well as personalization of e-learning environments (Arun Kumar, Mahendran, & Gobhinath, 2022) or automatic document summarization (El-Kassas, Salama, Rafea, & Mohamed, 2021).

ChatGPT and other generative AI tools can affect the most popular theories of knowledge management. Nonaka and Takeuchi's theory of knowledge multiplication points out that the creation of knowledge is a dynamic process where tacit and explicit knowledge is converted as a result of the interplay of socialization, externalization, combination and internalization (Nonaka & Takeuchi, 1995). Generative AI can help facilitate each of these processes. For example, in socialization, ChatGPT can make the transfer of tacit information through in-person interactions easier by becoming a platform for virtual, distributed teams, allowing their members to share and exchange knowledge and information regardless of location. Former studies have already confirmed the positive role of AI in knowledge sharing (Nguyen & Malik, 2022); however, thanks to the conversational mode of ChatGPT, it may bring some new opportunities. Specifically, compared to other chatbots, ChatGPT can generate answers to open-ended questions and provide more personalized responses by adjusting to a user's language over time.

Generative AI may also affect how people assimilate and process new information.

Kolb's learning model establishes a framework that consists of four stages: concrete experience, reflective observation, abstract conceptualization and active experimentation (Kolb, 1984). Previous AI research has shown that conceptualization is one of the AI capabilities (Mikalef & Gupta, 2021). Compared to previous AI systems, ChatGPT has access to more diverse and larger datasets and is trained on advanced deep learning techniques such as transformer models, which have significantly improved the ability of AI systems to generate coherent and contextually appropriate responses.

Generative AI can also bring to light several aspects signaled already in the literature. Some of them include issues such as whether the sharing of best practices is still crucial to cumulating and using knowledge in an organization (O'Dell, O'dell, Grayson, & Essaides, 1998) or whether social capital – considered as the resources contained in social relationships – is a critical factor in facilitating knowledge generation (Wasko & Faraj, 2005). ChatGPT raises new questions and offers new perspectives in the creation of not only new frameworks and best practices, but also novel theories and models.

Selected theories on customer service and generative AI

Generative AI promises innovative opportunities for shaping customer services and provides a new context for customer service theories. AI technology has been already used to interact directly and physically with customers in frontline services, radically changing service delivery and customer-organization relations (Flavián & Casaló, 2021).

The most popular theory in customer service is relationship marketing theory, which concerns attracting, developing and retaining customer relationships (Berry & Parasuraman, 1991). This concept argues that building solid relationships with customers leads to increased customer satisfaction and loyalty. Relationship marketing theory implies that consumers enter into relational exchanges with firms when they believe that the benefits derived from such relational exchanges exceed the costs (Hunt, Arnett, & Madhavaram, 2006). Generative AI can help strengthen relationships with customers by providing quick and personalized responses to their inquiries, thereby improving their overall experience. By using chatbots powered by ChatGPT, organizations can provide 24/7 customer service and respond to a large volume of customer inquiries.

The prevalent theory bringing together customer service theories and information science theory (Borko, 1968) is the technology acceptance model (TAM) introduced by Davis (1989) and its expanded upgrade, i.e. the unified theory of acceptance and use of technology (UTAUT) formulated by Venkatesh et al. (2003). These concepts help to understand how individuals use and accept a specific technology. According to TAM, the factors influencing individual decisions about how and when the technology will be used include perceived usefulness and perceived ease of use, whereas, in line with UTAUT, those factors embrace performance expectancy, effort expectancy, social influence and facilitating conditions. However, one key issue that has not been explored in the literature is whether customers' acceptance of generative AI differs from the extant acceptance models and depends on service contexts. Lately, scholars started to study the acceptance of AI in customer services but only in specific economic sectors, e.g. restaurants (Kao & Huang, 2023) or banking and financial investment (Flavián, Pérez-Rueda, Belanche, & Casaló, 2022). Nevertheless, these studies focused on various AI tools. Furthermore, the advancement of AI, including ChatGPT dramatically accelerates and requires a holistic, multidimensional analysis.

Generative AI can also support the concept of consumer satisfaction which is strictly related to the acceptance of technology concepts. This concept explains how customer satisfaction is created and how technology can enhance this satisfaction and how it influences consumer continuance intention toward technology (Bhattacherjee, 2001). ChatGPT and other generative AI can automate customer service interactions, provide uninterrupted customer service, answer asked questions in real-time, reduce time response and provide information for customers, which are important factors in enhancing customer satisfaction. Scholars started to study the role of some AI tools in improving customer satisfaction, e.g. developing a model for human–chatbot interaction, explaining user satisfaction and loyalty to customer service chatbots or examining the influence of the conversational design of chatbots on social, behavioral and affective outcomes (Ashfaq, Yun, Yu, & Loureiro, 2020; De Cicco, Silva, & Alparone, 2021; Hsu & Lin, 2023).

Generative AI can be employed to support the concept of prosumption formulated by Toffler (1980) and further developed by researchers, e.g. (Tapscott & Williams, 2006), as well as the concept of customer experience management (Gentile, Spiller, & Noci, 2007). Prosumption means an active role of consumers in customer-organization relations and satisfying their consumption needs through self-design, reconfiguration or even the production and distribution of products and services that can be supported by various kinds of technology (Ziemba, Eisenbardt, Mullins, & Dettmer, 2022). The theory of customer experience management suggests that organizations should focus on delivering positive experiences to customers at every touchpoint. Meanwhile, the concept of customer engagement is a form of co-creation between service providers and customers, involves specific interactive experiences between consumers and organizations and their employees and aims to attract customer purchases and loyalty. ChatGPT provides new capabilities for consumer engagement and a new form of interaction with organizations. Some research on this issue was already undertaken, e.g. how customers' service experiences with employees and AI influence customer engagement and loyalty (Prentice & Nguyen, 2020; Sung, Bae, Han, & Kwon, 2021). Nevertheless, the studies are fragmentary, focused on specific economy sections and related to various AI tools. In this regard, a new look into how customers' experience with services provided by generative AI influences their relationship with an organization, how employees' services and generative AI services can be combined to optimize organizational performance, how generative AI influences customer engagement, loyalty and relationships with the organization, and how customers can use generative AI to create new values for them and an organization.

Selected theories on HRM and generative AI

The impact of technology on HRM has been observed for a long time; however, the real change in the nature of work is visible due to the most recent developments (Colbert, Yee, & George, 2016). Thus, various, well-established, HRM-related concepts in management need to be analyzed in a new context of work with generative AI.

Scientific management (Taylor, 1919), one of the earliest labor management approaches, proposed that organizational productivity may be increased by standardization, training and providing incentives. The theory has been criticized for disregarding the workers' needs and is considered outdated. The emergence of AI has provided new opportunities for its revival and further development (Cullinane & Cushen, 2019). Speaking of HRM, many of its routine activities may indeed be standardized and automated and performed by AI much faster and at a greater volume than by human beings. For instance, with the emergence of e-HRM, recruiters are receiving increasing numbers of applications per position and can no longer process the increased amounts of information and make decisions at the needed speed and volume (Black & van Esch, 2020). ChatGPT takes this automation possibility to the next level because of the ability to learn and improve over time. With machine learning, ChatGPT can be trained on HR-related data, such as job descriptions, resumes and HR guidelines, which can help perform routine activities.

Contrary to scientific management, human relations theory builds on the premise that employees play a critical role in the organization (Bruce, 2006). To improve their productivity, management needs to consider their individual needs and interpersonal relationships and provide them with the possibility to make meaningful input into decision-making (Cooley, 2016). This, in turn, requires continuous employee–employer communication, and AI is increasingly used to streamline various HRIS processes (Votto, Valecha, Najafirad, & Rao, 2021; Eubanks, 2022). For instance, ChatGPT can be used to improve communication between employees and HR departments by providing a platform for employees to ask questions and receive answers in a timely manner. This can help to foster positive relationships and improve job satisfaction. This is not to suggest that generative AI is to replace human interaction. However, it may serve as a useful tool to make the process more efficient. The successful application of generative AI for fostering human relations may, however, require developing their trust in AI.

Generative AI may also serve as a new context for human resource development (HRD). With its roots in the human capital theory (Becker, 1993) that emphasizes the critical role of individual and unit-level human capital – abilities, knowledge and skills, in the broad sense, HRD relates to the development and unleashing of employee expertise aimed at improving individual, team and organizational performance (Swanson, 2022). Traditionally, HRD was perceived as a discretional employer decision, followed an instructional format and mainly served organizational goals. The current workplace, however, tends to shift to new methods to provide opportunities and access to HRD anytime and anywhere, where employees are viewed as proactive talent agents and human capital development as a shared employer and employee responsibility (Dachner, Ellingson, Noe, & Saxton, 2021). Under this context, there is a growing demand for individualized HRD possibilities that could be accessed at a time and place suiting individual needs. In this respect, generative AI can be used to provide employees with access to learning and development resources, such as online courses and tutorials. It can also be used to provide personalized recommendations for development opportunities based on an employee's skills and abilities.

Selected theories on business administration and generative AI

The development of solutions based on AI results from the need for time and cost reduction in performing activities. Searching for solutions, resulting from diversity, complexity and

flexibility, and doing things more efficiently and effectively is challenging for any organization. Contemporary applications of generative AI relate to the concept of Max Weber's bureaucratic theory of management because there is still a need for a standardized and procedural (formal) approach in many organizations (Monteiro & Adler, 2022). In this context, individuals that work in organizations that adopted generative AI may experience the environment of automatically operating procedures, standard business document manuals and handbooks containing generally commonly used knowledge (Newman, Mintrom, & O'Neill, 2022).

The degree of application of generative AI in management will depend on the degree to which the organization copes with the paradox theory and chooses between automation and augmentation. While automation implies that machines can take over a human task, augmentation means that humans collaborate closely with machines to perform a task (Raisch & Krakowski, 2021).

In the context of the paradox theory, Raisch and Krakowski (2021) argued that augmentation cannot be neatly separated from automation in the management domain. For such structured tasks as filling out invoices, an organization will most likely choose an approach based on the automation of activities, while AI can be used to generate new ideas. However, many managerial problems are more complex in nature, and the use of rule-based automation is feasible, but managers could use an augmentation approach to explore the problem further. The augmentation of managerial tasks will result in their successive automation, which in turn will cause further augmentation. This will particularly apply to complex, uncommon tasks where the deterministic approach is impossible (Davis & Marcus, 2015). The application of a broader perspective in management comprising automation and augmentation will lead to the wider use of such solutions as generative AI.

Conclusions

Generative AI has just started to revolutionize how people search for information and apply the results in their private and professional lives. An increasing number of solutions that are based on generative AI and strive to improve the functioning of organizations and their managers are available. In this paper, we propose that generative AI may impact managerial work at three levels: managerial work at strategic, functional and administrative and provides a new context for management concepts. As AI technology improves quickly and there is little research on ChatGPT and other generative AI, we need to underline that this analysis is limited to the initial state of knowledge on this technology.

At the strategic level, generative AI can assist with data collection and analysis, offering perceptions and suggestions that might guide evaluations. Entrepreneurs and managers may be able to make better judgments as a result of using more data and educated reasoning. As data analysis and decision-making processes might substantially change through generative AI, especially in the context of the industrial revolution and the era of Industry 4.0 and 5.0 (Rymarczyk, 2020), the need for research in this field is reasonably justified.

Moreover, at this level, generative AI may impact knowledge management. For example, ChatGPT may facilitate the development and spread of information within an organization by enabling the sharing, organization and retrieval of knowledge, as well as offering new ways to generate new ideas. The conclusions also speak in favor of knowledge management scholars' findings according to which effective knowledge management can be achieved through processes that make it easier for organizations to acquire, create and transfer knowledge within their workforce (Argote, McEvily, & Reagans, 2003) – and generative AI can be highly useful in this context (Gordijn & Have, 2023) and it brings new research opportunities to the table.

At the functional level, generative AI can be employed to improve customer service and HRM. Thanks to the conversational way of functioning of ChatGPT, it corresponds perfectly with the needs of organizational units that interact with others at their core. Thus, in the case of customer service, there is a need to study how to better utilize this technology and combine it with human services to enhance customers' experience and their relationships with an organization on the one hand and to improve organizational performance on the other. Similarly, in HRM, generative AI provides a new context for human relations or HRD. Although some studies on the role of AI in HRM automation have already been conducted (Wheeler & Buckley, 2021), generative AI brought new possibilities for HR professionals. In the case of traditional automation tools, it would be necessary to learn how to apply specific software to automate tasks, which could be time-consuming and require technical expertise (Silva, Corbo, Vlacic, & Fernandes, 2020). In contrast, for example, ChatGPT can be integrated with existing communication channels, such as chatbots or messaging apps and can respond to natural language inputs, making it more accessible and easier to use (Pavlik, 2023).

Finally, at the administrative level, generative AI may facilitate organizing work time, scheduling tasks and reminding of important tasks; however, it may also introduce a sort of control mechanism. Scholarly work is needed to determine whether such AI support can lead to better employee performance in the long term. Additionally, the issue of augmentation implies close task collaboration between humans and machines and automation assumes the replacement of humans by machines in specific tasks also needs further scholarly exploration.

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Corresponding author

Grzegorz Mazurek can be contacted at: gmazurek@kozminski.edu.pl