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**FROM INTERACTION TO INTEGRATION: LEVERAGING AI IN ENHANCING  
TEAM COMMUNICATION AND TASK EFFICIENCY****Jana Pechová<sup>1\*</sup>, Hana Volfová<sup>2</sup>, Anežka Jírová<sup>3</sup>**<sup>1,2,3</sup> SKODA AUTO University, Na Karmeli 1457, 293 01 Mlada Boleslav, Czech RepublicE-mails: <sup>1\*</sup> [jana.pechova@savs.cz](mailto:jana.pechova@savs.cz) (Corresponding author); <sup>2</sup> [hana.volfova@savs.cz](mailto:hana.volfova@savs.cz); <sup>3</sup> [edu.anezka.jirova@savs.cz](mailto:edu.anezka.jirova@savs.cz)

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**Abstract.** At a time when digital transformation is reshaping work processes and how companies approach and perform tasks, artificial intelligence (AI) is emerging as a vital element of this evolution. AI-powered tools are changing how companies interact with customers and fundamentally impacting internal processes and how they assign tasks to teams. This trend raises questions about the efficiency with which humans and AI perform assigned tasks and the potential implications for future workplace dynamics. The main objective of this study is to provide a deeper understanding of the differences in task performance efficiency between humans and AI and to identify optimal ways in which these two resources can be used together to maximize their potential in the modern workspace. Through a comprehensive methodology and range of research methods, the paper offers both theoretical and practical benefits for academics, management practitioners and AI developers. Through this approach, the article expands the academic discourse on task performance effectiveness in the AI era. It provides strategic insights for organizations seeking to effectively leverage AI alongside human resources.

**Keywords:** Artificial Intelligence (AI); task efficiency; human - AI collaboration; digital transformation; teamwork and productivity; ai in workplace; task assignment strategies; management; communication; content

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**JEL Classifications:** M54

## 1. Introduction

Today's economy is undergoing dynamic development, with industry digitalisation being one of the most significant trends. This shift requires businesses and organisations to adopt new technologies and develop strategies for effective interaction between workers and digital tools. Artificial Intelligence (AI) plays a crucial role in this transformation as it becomes the centre of new methods of management, communication, and decision-making (Angelova, Stoyanova and Stoyanov, 2023). The integration of AI into everyday work processes not only changes the configuration of social and economic relations but also opens new opportunities for increased efficiency and innovation in all sectors (Palos-Sánchez et al., 2022; Tugui et al., 2022; Giraud et al., 2023; Androniceanu, 2023).

The arrival of artificial intelligence (AI) has revolutionized many industries, and the field of human resource management is no exception. Artificial intelligence is changing how businesses, companies and organizations conduct HR activities and develop their work teams. AI is now a common part of an individual's daily life and work environment (Kim, Jang and Kim, 2022). One of the primary roles of artificial intelligence, which also hides its colossal potential, is the collection and analysis of data. Nowadays, this is mainly used in marketing to

collect and interpret customer preferences and data or analyze resumes in recruitment (Angelova Stoyanova and Stoyanov, 2023).

Empirical studies show that integrating AI into business processes positively impacts business performance, increases levels of creativity, and contributes to a more efficient and inclusive workforce (Su, Togay and Côté 2021; Burnett and Lisk, 2019). However, at the same time, there are concerns about data privacy and AI's potential replacement of human labour (White and Lidskog, 2022). These challenges highlight the need for a balanced approach to AI implementation that considers its potential and its use's ethical aspects.

In the context of these changes and challenges, this paper focuses on analysing the effectiveness of human task performance compared to artificial intelligence. This paper brings new perspectives on the possibilities of collaboration between humans and AI in work processes. Through this approach, we aim to enrich the academic discourse on the use of AI, to provide managers and executives with practical guidelines for improving work efficiency, and to contribute to the ethical and sustainable development of technology in business. The study relies on a comparative analysis of the performance of "HOW" type tasks between human teams and AI systems, emphasizing qualitative assessment of their performance, adaptability, and innovation potential. Through this paper, we offer a new perspective on the future direction of the use of AI in the world of work and the place that humans will occupy in it.

## 2. Task assignment

Task assignment is a sub-element of management. The literature agrees that the essential criteria that should be clearly defined when assigning a task include the desired outcome, time horizon, responsibility for performance, available resources, and specification of what is considered successful completion of the task (Pechová, Volfová and Jírová, 2023). According to Plamínek (2009), expressing support and creating space for questions and discussion is also an important point, as understanding the assigned task is considered the basis for future success and acceptance. In some ways, a well-managed process of defining the work task and the associated responsibilities can optimize the worker's approach to the assigned work from the beginning (Kriek, 2019).

Without setting a goal, the task could not exist. The question remains, however, to what extent it is also necessary to determine how it is to be achieved. In this case, the preferences of each taskmaster/leader/manager are radically different (and usually closely related to the management style chosen), as are the preferences of each executor/subordinate/employee (Kamei and Markussen, 2022). Some need rigid structures and roles to achieve results, the presence of which reduces uncertainty, ambiguity, and misunderstanding. On the other hand, others may be demotivated by such an approach (Delfgaauw, Dur and Souverijn, 2020).

The "HOW" or process type of assignment mainly specifies how the performer's work will be done. It includes an enumeration or direct description of working methods. Yet, it is burdened with frequent control and consultation, as a result of which the assignor can manage only a small number of performers, and his work becomes less effective (Plamínek, 2009; Parkes, 2016).

In "WHAT" type assignments, we encounter a more autonomous approach; only the outcome to be achieved and the evaluation criteria are specified.

The paper's current title focuses on the "HOW" type of task assignment performed by members of the working team from Škoda Auto Vysoká škola o.p.s. and Škoda Auto a.s. and AI systems such as Chat GDP, Copilot Edge, Midjourney nao Bing AI or Alphabets Bard. The "WHAT" type of task assignment, associated with autonomous access and creativity, would not yet be handled correctly by AI systems. AI systems still need and will likely need specific types of information to process the task (Galanos, 2019). This paper compares the results of the implemented task to those acceptable to humans and AI systems.

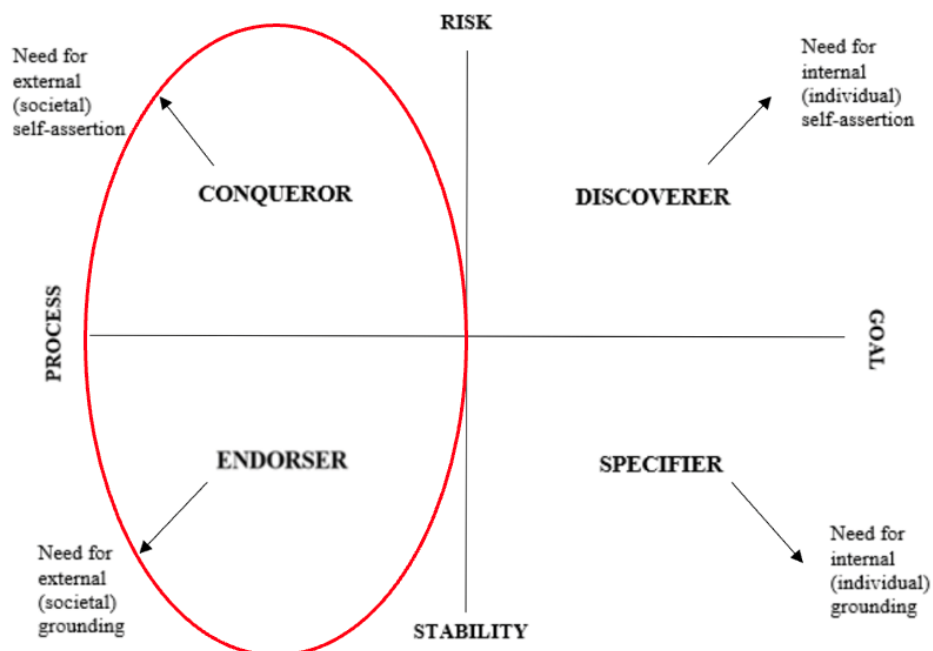
This paper also works with data from a survey conducted by the authors in 2023 with 388 respondents and draws on the following data:

In the 2023 survey, when given a "WHAT" type task, 20.6% of respondents felt they had enough information to complete the task. 79.4% of respondents, on the other hand, lacked additional information in the task assignment. The following types of information were the most frequently identified by respondents (in order of response frequency):

- Information on the exact date, agenda, focus and objective,
- specific location of the venue,
- what is the deadline for completing the task,
- the priority of the task,
- the reason or purpose for performing the task,
- information on whether the task is confidential or public
- and a thank you or appreciation of the task.

58.8% of the respondents would find a specific procedure guide easier to complete the task, 41.2% did not require a guide to complete the task. At the same time, 58.8% of the respondents perceived the task as creative and 23.7% of the respondents ranked the task type as medium level of creativity. The remaining respondents rated the task as routine. 69.3% of the respondents believed they had all the skills and abilities to complete the task, 30.9% had only some skills, and 5.2% believed they did not have the skills and abilities to complete the task. Respondents felt that the following skills (in order of frequency) were necessary for completing the task:

- Good interpretation of information,
- good knowledge of grammar and stylistics,
- graphic skills,
- the art of motivation in written text
- and imagination (Pechová, Volfová, Jírová, 2023).



**Figure 1.** People preferring task type "HOW"  
 Source: the authors

### **3. The importance of AI**

The way AI is perceived is closely related to whether the author considers it an existential threat to workers or even human existence or whether it is seen as a tool that can help people improve our society and living conditions (Galanos, 2019; Schwesig et al., 2023). There are beliefs that AI will evolve in ways that are harmful to jobs and society as a whole (White and Lidskog, 2021). On the contrary, analysts who see AI as a useful but not at the same time omnipotent technology stress that it will remain a tool that requires human intervention to be truly useful (Griva et al., 2023).

There are several perspectives on AI and the resulting definitions, e.g., machine-oriented view or human-oriented view, etc.; for this paper, the general perspective is drawn, i.e., that AI is the ability of artificial machines to emulate and simulate human methods for deductive and inductive knowledge acquisition and application and inference (Griva et al., 2023).

Chapter 3.1 characterizes selected AI systems, and Chapter 5. 2 presents the results and evaluation of the "HOW" task performed by AI systems.

#### **3. 1 AI Systems**

A key element of all AI systems introduced subsequently is natural language processing (NLP), which deals with the interaction between computers and human language. In practice, this means the ability to understand input queries, commands or context and respond with appropriate answers (Vithayathil and Nauroth, 2023). To achieve this goal, techniques and algorithms are used to analyse and understand text, recognise patterns and generate responses. These techniques include machine learning, deep learning, statistical methods and others.

Artificial intelligence based on NLP, be it chatbots, automatic translators, speech recognition software or sentiment analysis, is trained on datasets and huge amounts of textual data from various sources, be it books, newspapers, internet articles or even discussion forums and more. Thus, different language patterns and structures are learned. This training also occurs during the actual use of the application, which therefore adapts to the changing needs and trends in language and communication (Vithayathil and Nauroth, 2023; Vrontis et al, 2022).

#### **ChatGPT**

ChatGPT is a language model that is capable of generating text, answering questions, and leading controversies based on input data. ChatGPT uses deep neural networks to process natural language and was trained with reinforcement learning using human feedback (Farazouli et al., 2023).

Luke et al. (2024) report that in its first five days of existence, ChatGPT surpassed the one million registered users mark, making it the fastest-growing service on the Internet. Costa-Dookhan et al. (2024) state that NLP is one of the most important AI technologies, as most of the data we have around us is in the form of text. NLP is also widely used today to automate communication with customers using dialogue boxes on websites - the so-called chatbot. Landim et al. (2022) state that these virtual employees can recognize what the customer is asking, advise or suggest solutions to the problem 24 hours a day, and once programmed, the company does not have to incur any additional costs.

ChatGPT can write essays in hundreds of languages, compose celebrity-style speeches, summarize documents, write code, learn from previous exchanges, answer entertainment questions, or pass legal and medical exams (Kikalishvili, 2023).

However, the most significant threats associated with using this tool include the inability to identify real and reliable sources, errors in basic facts and reasoning, or the generation of misinformation. At the same time, it is also still possible to bypass ethical measures and guidelines when working with ChatGPT (Adeshola and Adepoju, 2023).

### **Bing AI**

Bing AI is also known as Bing Chat or Copilot Edge. Bing Chat is a possible revolutionary tool that answers some of the problems of its biggest competitor, which is ChatGPT. The most significant difference is that the Bing chatbot has access to the Internet, so it can answer questions about current events. It also provides footnoted links to sources and can even format them as academic citations when asked (Bhardwaz and Kumar, 2023).

The Bing chatbot was originally in a limited pre-testing mode while Microsoft tested it with the public, and there was a waiting list that those interested in early access could join. Today, it is freely available and integrated into the Microsoft Edge web browser as part of the Bing search engine.

### **Alphabet's Bard**

In the case of Alphabet, a chatbot called Bard is a search engine companion that uses Google's extensive LaMDA language model, making it similar to ChatGPT. Alphabet describes Bard as an 'experiment' and although it threatens to fall behind Microsoft in the race for chatbots, Alphabet claims it is implementing Bard in a 'responsible' way. The Bard question entry window even warns users that it is an experiment and may provide inaccurate or offensive answers (Waisberg et al., 2024).

Bard is not yet massively promoted. It has a separate website, and under each of its replies, there is a button that allows the user to leave the chatbot and use the Google search engine (Waisberg et al., 2024).

### **MidJourney**

MidJourney is an independent research lab that explores new media of thought and expands the imaginative capacities of the human species (MidJourney, MidJourney, undated). MidJourney, like DALL-E or Stable Diffusion, generates images based on natural language descriptions, called "prompts," in English (Bhardwaz and Kumar, 2023).

The images generated at MidJourney are now of such high quality that they have raised controversy and questions about both the future of art and fairness. For example, one user entered and won an art competition with a generated image, which sparked substantial controversy. There are also comics based on images generated from MidJourney, which have raised copyright discussions. Again, therefore, ethical issues arise (Aiumtrakul, 2023)

### **DALL-E**

DALL-E and DALL-E 2 are machine learning models developed by OpenAI to generate digital images based on descriptions. DALL-E consists of two neural networks; one is GPT, and the other is VQ-GAN. DALL-E 2 uses another development of OpenAI - CLIP - Contrastive Language-Image Pre-training artificial vision system (Comparative Text-Graphic Training). The system learns from hundreds of millions of images and their descriptions, learning to distinguish "how much" of text fragment X correlates with image X. That is, instead of predicting which image this description is more appropriate for, the artificial vision model studies exactly how this text and this image are related. Comparison instead of prediction allows CLIP to make connections between textual and visual representations of the same meaning. CLIP defines and creates semantic links between text and images (Aiumtrakul et al., 2023).

Due to ethical and security concerns, DALL-E access was restricted to pre-selected users for research insight. As of 2022, DALL-E 2 is available to anyone and the waiting list requirement has been removed; users can generate a certain number of images for free and can purchase more.

## **4. Methodology of research surveys**

This paper focuses on investigating the effectiveness of task assignment and performance in work teams, with a particular emphasis on comparisons between humans and artificial intelligence systems. We build on previous research examining task assignments' impact on teamwork effectiveness and extend this theory by adding a new dimension - AI integration. The earlier paper, IMPACT OF TASK ASSIGNMENT ON EFFECTIVENESS IN



WORK TEAMS, develops a theory of task assignment of the "HOW" type, evaluates its effectiveness in work teams, and compares it with the effectiveness of tasks performed by AI. According to Svozilova (2016), a task is part of a complex activity; we can specify a desired outcome for it, and it has a relatively short duration. A manager can choose from two options when assigning tasks and assigning them to specific performers (Pechová, Volfová, and Jírová, 2023).

The main goal of our study is to compare the efficiency of "HOW" tasks, which are characterized by their specific instructions and procedures, between human teams and AI. To this end, we set two sub-objectives: first, to identify the key factors that influence the efficiency of task performance by human teams, and second, to assess how AI systems perform these tasks compared to humans.

A combination of quantitative and qualitative methods was used to answer these questions. First, a focus group survey was conducted in January 2024, involving students of ŠKODA AUTO University o.p.s. and employees of ŠKODA AUTO a.s., preferring the "HOW" method of assigning the task. At the same time, identical tasks were given to AI systems, including ChatGPT, Copilot Edge, Midjourney and Bing AI, to compare their effectiveness with human teams.

In the final stage, task performance was evaluated using the criteria of effective work performance. This evaluation was carried out with a target group of Škoda Auto a.s. managers who provided an assessment of task performance by both human teams and AI systems. The results of this evaluation and the facilitated workshop discussions with the executives offer deeper insights into the dynamics of task performance in the modern work environment and open further discussion on the role of AI in task assignment and performance.

This approach allowed us to comprehensively explore how task performance differs between human and AI teams and identify the factors that influence these differences. The methods and techniques used, including focus groups and executive evaluation, provided us with a robust dataset from which we could thoroughly analyse and interpret the differences in effectiveness we found.

The study's methodology was designed to ensure the validity of the findings. The selection of participants for the focus group was made based on their experience and preferences in the assignment of "HOW" type tasks, ensuring the data's relevance and representativeness. At the same time, the set of AI systems that were tested was carefully selected to reflect the wide range of tools available and their ability to perform the specific tasks assigned.

The analysis of focus group data and the evaluation by managers was conducted using both qualitative and quantitative analytical methods. This combination allowed us to quantify differences in effectiveness and explore in more depth the motivations, practices, and challenges that participants experienced during task completion. This methodology provides a comprehensive framework for exploring and understanding the dynamics of task performance effectiveness in an environment where the boundaries between human and artificial intelligence are blurring.

#### **4.1 Target group**

The target group for the focus group was carefully selected to reflect the wide range of positions and specialisations within the organisation of ŠKODA AUTO a.s. and ŠKODA AUTO University o.p.s., allowing for a comprehensive view of the interaction between humans and AI in task performance. The focus group consisted of both Škoda Auto College students and Škoda Auto employees. This group was further differentiated by gender, age and field of study or work specialisation to ensure that the results were representative of a wide range of work styles and preferences, all according to the results of previous research (Pechová, Volfová and Jírová, 2023). Respondents were divided into two main age categories: 22-25 years and 36-39 years, which allows us to compare attitudes and approaches to AI between the younger generation, who enter the labour market with up-to-date knowledge of digital technologies, and the middle generation, who have extensive work experience. In terms of study and work specializations, respondents were represented in three main areas: HR (Human Resources Management), SM (Sales Management) and LQ (Logistics and Quality Management), as

these are the specializations and work focuses that prefer to handle "How to" type tasks. This selection reflects the diversity of job roles and tasks within the organization. It allows us to understand better how different types of tasks and job requirements affect the effectiveness and adoption of AI. The target group can be seen in Fig. 2.

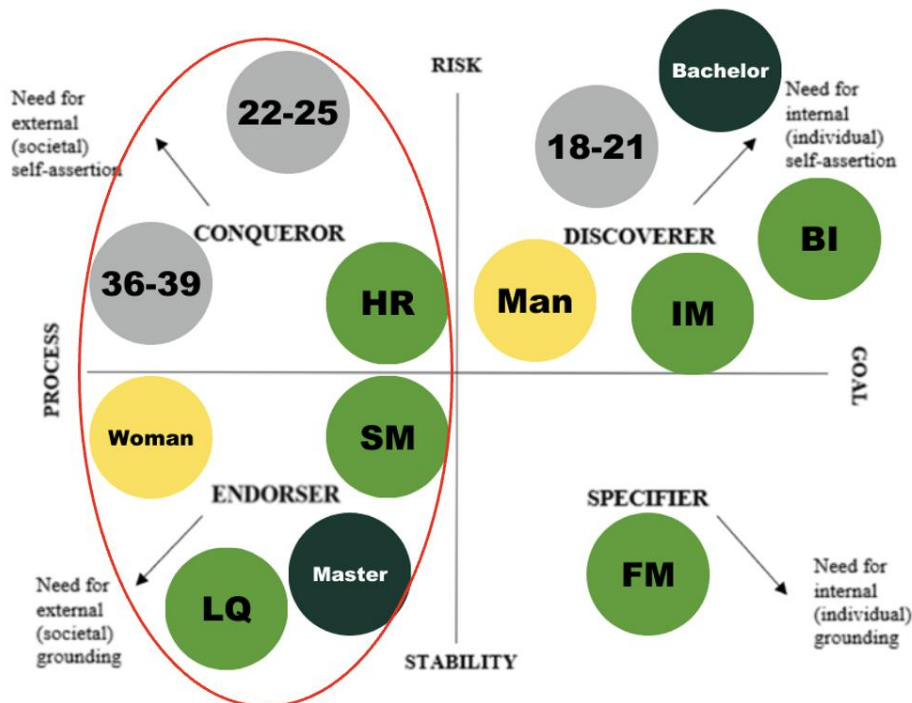


Figure 2. People preferring task type "HOW" by various criteria  
Source: the authors

#### 4. 2 Evaluation process

The managers of Škoda Auto a.s. and Škoda Auto University o.p.s. subsequently evaluated the completed tasks. Facilitated discussion brings many benefits for academic research and practical applications, mainly due to its ability to generate more profound understanding and consensus among stakeholders. It allows participants to share their experiences, perspectives, and suggestions in a structured but open dialogue, leading to the discovery of new perspectives and solutions. In the context of our research, facilitated discussions with senior leaders enabled the identification of practical barriers and opportunities for more effective use of AI in work teams through an interactive process highlighting the importance of collaboration and shared understanding. This approach encourages innovation and adaptation to change, strengthens organisational culture, and increases employee engagement in decision-making and implementation of new technologies.

#### 4. 3 The experiment

Finally, based on the findings from the comparison of human work and AI-generated outputs, an experiment was conducted to explore the synergy between human creativity and the analytical capabilities of the AI system; after a detailed analysis of the results from the previous phases, the most successful focus group participant was selected and tasked to use the AI system that was deemed most effective based on prior evaluations - namely ChatGPT - to complete the same task. This approach aimed to combine unique human skills with AI's computational efficiency and objectivity to achieve the optimal solution to the task.

#### 4. 4 Characteristics of the task

Building on the findings from the previous research investigation (Pechová, Volfová, Jírová, 2024), a process-based task was designed, the structure and parameters of which were carefully designed to reflect all the key aspects identified in the study. The task was formulated with an emphasis on explicit definition and the provision of complete and specific information to enable its precise and efficient execution. The task specification included the creation of an invitation to a three-day team meeting to be held at the Clarion Hotel Špindlerův Mlýn on 23-25 March 2024. The brief emphasised that the task was highly prioritised and not considered confidential. The main objective of the assignment was to ensure that all employees were informed in a timely and adequate way about the planned meeting, the attendance of which was defined as mandatory for all team members.

*"Dear "completed name of respondent", please create an invitation to a three-day team meeting of the working team in the first half of 2024. The team meeting will be held at the Clarion Hotel Spindleruv Mlyn. The date is 23-25 March 2024. The task is not confidential and has urgent priority. The purpose of your assignment is to inform your colleagues in time about the planned meeting, which is mandatory for all employees. Thank you for your handling, and I am counting on you. Jana*

In addition to a detailed description of the task, a task guide was also provided, containing instructions and recommendations on how to complete the task effectively. This guide was developed to facilitate completing the task while supporting the participants' development and application of key skills. Within this guidance, mechanisms were also put in place to provide support to participants who requested it, ensuring that the approach was flexible and adaptable to the individual needs and preferences of participants.

#### 5. Results of research investigations

##### 5. 1 Evaluating human tasks

The "winning" invitation was selected using multi-criteria decision-making and pairwise comparisons at a WS with managers of Škoda Auto College Inc. and Škoda Auto Inc. on 23 February 2024. The managers identified in chap. 4, were shown all fifty completed tasks and a decision was made on the task that scored best according to the defined criteria. If there was a score match, the pairwise comparison method was chosen to make the final decision.

Suppose multiple evaluation criteria and problem-solving options are specified, and the weights of each criterion can be determined according to their importance. In that case, the multi-criteria decision-making method can be used to decide. The multi-criteria decision-making method allows the options to be ranked from best to worst in order of preference. It must be taken into account that there is rarely one solution option that is the most advantageous according to all the chosen criteria and that the criteria may be contradictory. This method is suitable for decision-making situations arising under conditions of risk and uncertainty and for decision-making situations that are exclusively rational. Decision matrices and decision trees are also suitable for rational decision situations determined by risk or uncertainty. A decision matrix is essentially a table where the different options for solving a situation form its rows, and the chosen criteria for evaluating the options form its columns. The aim is to determine the most favourable decision option by calculating the criteria and their importance determined through weights. Although the use of decision matrices is based on rational reasoning, the determination of variants and weights can only be subjective, and this then applies to the nature of the optimal variant (Štrach et al., 2023).

Fig. 3 shows the completed winning task of the "HOW" type, which was implemented by the people in the focus group. It was then compared with other tasks performed by AI systems presented in Sect. 4.2.





**Figure 3.** Task carried out by people within the focus group  
*Source:* the authors

The quality of the information was at the same level in the evaluated tasks. Given the information processing guidelines developed and the respondents' responsibilities, there were almost no differences between the evaluated outputs.

The speed of the completed task ranged from 12-36 minutes. Figure 3 presents the task completed the fastest; however, it should be taken into account that the focus group participants worked in conditions that eliminated communication noise, e.g. physical noise, psychological noise, etc.

Within the criterion of comprehensiveness of information, the highest differences in the scores of individual tasks were recorded. The top positions were occupied by the realized tasks, where email links were automatically inserted in the invitation to confirm participation, the exact address of the venue or even information processed with a QR code. At the same time, the evaluators preferred the processed tasks in the Czech language. They justified their decision because the development event will be held in Czech, so there is no need for English or any other language on the invitation.

The graphical form of the task emerged as the criterion with the lowest weight of importance. Although there were high score differences in this criterion, and indeed, some invitations had very creative and pleasing graphic design, this was the least important to the evaluators. For example, the winning invitation did not meet this criterion at all.

In the last criterion above, managers were reluctant to provide additional support to accomplish the task. They assume that if the task is given as a "HOW" type, there is a guide for completing it, and the task is relatively routine; no additional support is needed. The invitation visualized above was created without any extra support from the assignor.

## 5. 2 Evaluating tasks processed by AI

Section 5.2 presents the results of another qualitative investigation. AI systems such as Chat GPT, Bing AI, Alphabet's Bard (now Gemini), Midjourney or DALL-E were given an identical task to those in the focus group. The exact wording of the task is given in chap. 4.4. The task was given in Czech. At the same time, the task was

again selected as the winning task by the managers at the WS on 23.2.2024, according to the criteria listed below. Fig. 4 shows the completed winning task of type "HOW", which was implemented by the GPT system.

Dear colleagues,  
I would like to invite you all to our upcoming three-day team meeting scheduled for March 23-25, 2024. This meeting will be held in the beautiful surroundings of the Clarion Hotel Špindlerův Mlýn, which will provide us with an ideal environment for our joint work, teambuilding, and relaxation.

**Meeting agenda:** over the course of three days, we will focus on several key topics and projects that are essential to our society. We will discuss achievements, set new goals, and look for the best ways to face the challenges ahead of us together. We will also have workshops, team building activities and plenty of opportunities for informal networking.

**Attendance:** I sincerely urge you all to book this date in your calendars as attendance at this meeting is mandatory for all employees. Your attendance and active participation are crucial to the success of our meeting.

**Logistics:** all necessary information regarding accommodation, agenda and transport will be provided to you in advance of the meeting. For any questions or specific requirements, please do not hesitate to contact the organizing team.

**Registration:** please confirm your attendance by 15 February 2024 via email to [organizing team email]. This will allow us to better plan and arrange everything necessary for a comfortable meeting.

I look forward to meeting you all in person and spending productive time together in the beautiful surroundings of Špindlerův Mlýn. Thank you for your cooperation and commitment to the success of our team.

Sincerely,  
[Your name and position]

**Figure 4.** Task implemented by the GPT system (translated)

*Source:* the authors

The task implemented by the GPT system was best evaluated within these defined criteria:

- Quality of information (e.g. accuracy)
- Speed of task completion
- Comprehensiveness of information
- Graphic design
- Level of support from the contracting authority

The quality of the information varied at different levels in the individual systems, and the least successful were the DALL-E and Midjourney systems, which did not understand the task given in Czech. Bing AI inaccurately stated the location of the development action. The highest scoring was Chat GPT, which accurately stated the date and location of the development action. However, none of the outputs examined were rated with the maximum number of points.

The speed of the completed task ranged between 15 and 40 seconds, and there were almost no differences between the outputs.

Within the criterion of comprehensiveness of information, the highest differences in the scores of individual tasks were recorded. According to the evaluators, Chat GPT structured the information best, formulated it in a motivating way and was even the only system examined that required confirmation of participation by a specific date. It also listed several particular activities that could be implemented during the team meeting and highly praised the environment in which the event would occur. The Bing AI system was rated the lowest in relation to the defined criterion.

None of the above-mentioned AI systems met the criterion of graphical form of outputs. The Anaphabet Bart system stated that it cannot create images. Chat GPT graphically produced fascinating thematic images, but the information embedded in them regarding the date and location of the development event needed to be more meaningful. Bing AI, DALL-E and Midjourney submitted images the evaluators felt were inappropriate for a teambuilding event. Figure 5 presents the output of the completed tasks using the Bing AI system.



**Figure 5.** Completed task using Bing AI  
*Source:* the authors

In the last criterion mentioned above, the evaluators' reluctance to specify the task further and better was evident, and none of the examined outputs met the defined criterion. Each of the systems mentioned above needs additional AI user competencies and has its specifics for task assignment.

### 5.3 Comparison of results

To synthesize the findings, a comparison was made between tasks processed by human participants and AI systems such as ChatGPT, Bing AI, Alphabet's Bard (now Gemini), Midjourney and DALL-E, to evaluate their performance according to the following criteria: quality of information, speed of task completion, comprehensiveness of information, graphical form and level of support from the tasker. This structured analysis offers more profound insight into the capabilities and limitations of both human labour and AI technologies in processing and completing specific tasks.

*Information quality (especially accuracy):* both human teams and AI systems, especially ChatGPT, have achieved high levels of information quality and accuracy. However, the human teams tended to add more contextual knowledge and nuance to the tasks, reflecting a deeper understanding of the topic. Conversely, ChatGPT and other AI systems excelled in quickly processing and providing accurate information, but sometimes without deeper contextual understanding.

*Speed of task completion:* In this category, AI systems significantly outperformed human teams, completing tasks in seconds because of their ability to process information instantaneously. Human teams took longer to complete the same task, reflecting the time required for analysis, creative processing, and quality control.

*The comprehensiveness of information:* human teams typically provided more complete and detailed information that reflected a comprehensive understanding of the task and its objectives. While AI, particularly ChatGPT, could provide extensive information, it sometimes lacked depth and alignment with the specific needs of the task. Human teams were also more responsive to the need for adaptation and providing complex answers.

*Graphic design:* in the area of graphic presentation, people's work was considered to be of higher quality because it could better reflect specific design and aesthetic requirements. AI systems, such as DALL-E and Midjourney, had limitations in producing graphically appealing outputs that also met the assignment's specific requirements.

*Level of Assignor Support:* Human teams require and value feedback and support from the assignment assignor, allowing for iterative refinement of outcomes. AI systems are limited to the instructions given and thus can only easily adapt their outputs based on additional feedback if it is directly coded into their program.

This comparison shows that while AI systems can offer significant advantages in speed and efficiency for certain types of tasks, human teams still prevail in areas requiring deep understanding, creative processing, and aesthetic evaluation. Human interaction with the task also brings value in the form of adaptability and flexibility in response to unexpected demands or the need for change, something AI currently cannot fully emulate. Additionally, when dealing with complex tasks that require a multi-disciplinary approach and deeper contextual understanding, human teams can better integrate different information sources and perspectives, creating richer and more customized solutions. While AI can provide powerful support for data processing and automation of repetitive tasks, human skills of critical thinking, empathy, and creativity are key to solving more complex and less structured problems.

It is also important to emphasise in the context of assignor support that the success of any assignment depends not only on the performer's skills but also on the quality of communication and clarity of the assignment. While AI can work effectively with well-defined instructions, human teams can better navigate situations where the assignment is ambiguous or requires additional clarification.

Thus, the comparison suggests that the most effective approach to task performance in the modern work environment will likely lie in the synergy between human and AI capabilities. Integrating AI can maximise efficiency and accuracy while the human element remains essential for tasks requiring deeper understanding and creative processing, making achieving higher productivity and higher quality outputs possible.

Following identifying key insights into the synergy between human capabilities and the potential of AI, we proceeded to an experiment to practically test this synergy in action. The experiment consisted of assigning a task initially designed for focus group participants whose outcome was evaluated as the most successful but with the additional requirement of using artificial intelligence, specifically the ChatGPT system, to implement it. This approach aimed to combine the deep understanding and creative approach of humans with AI's computational efficiency and speed. As part of the experiment, the participant was provided with the top-rated AI system, ChatGPT, with instructions on using this tool to maximise the task brief, including generating the relevant image. Armed with a deep understanding of the task and the specific needs of the project, the participant was encouraged to provide the AI system with the most accurate and detailed instructions to ensure that the resulting work met all criteria.

#### **5. 4 Task assignment process in human-AI collaboration**

Communication between the human participant and ChatGPT 4.0 was an interactive dialogue, where the participant provided specific instructions and feedback on iteratively generated suggestions from ChatGPT. This process involved several steps, from initial input to final edits, leading to the creation of an optimal invitation.

##### ***Step 1: Task definition***

Participant: "I need to create an invitation for a three-day team meeting to be held on 23-25 March 2024 at the Clarion Hotel in Spindleruv Mlyn. The invitation should be brief, informative and visually appealing. It should include the date of the meeting, the location, the main programme points and a contact to confirm attendance.

The brief is as follows:

*Dear "completed name of respondent", please create an invitation to a three-day team meeting of the working team in the first half of 2024. The team meeting will be held at the Clarion Hotel Spindleruv Mlyn. The date is 23-25 March 2024. The task is not confidential and has urgent priority. The purpose of your assignment is to inform your colleagues about the planned meeting, which is mandatory for all employees, on time. Thank you for your handling, and I am counting on you. Jana*

### *Step 2: First proposal from ChatGPT 4.0*

ChatGPT: "I created a draft invitation. It contains all the required information and is accompanied by a basic graphic design. I would like to get your comments on the content and design."

### *Step 3: Feedback and adjustments*

Participant: "The content looks good, but could you add more details about the meeting agenda and especially select the most important information so that even a less attentive reader can pick up the key information? Also, highlight the contact section to confirm attendance. I would also like the graphic design to correspond more with the theme of teamwork. Also, don't include any text in the visual; this will be added afterwards."

### *Step 4: Further suggestions and adjustments*

ChatGPT: "Based on your feedback, I have modified the content and design of the invitation. I have added a more detailed program description and improved the graphic design. How do you like the new design?"

The human participant and the AI interacted with the content through further modifications, where minor modifications were always specified, especially according to the knowledge specified in the event program. Significant interaction was also noted in the creation of the visuals, where ten different versions were generated before the visual was appropriate to the task, e.g. in the form of a prompt: I need the mountains, teamwork and joy to be accentuated. The overall communication is less relevant to this article than the introduction of the process.

### *Step 5: Final approval*

Participant: "The new design looks good already! The program is clearly described, and the graphic design fits our theme. This invitation now meets all our requirements."

The result of this experiment was exciting. Using instructions from a person who had already completed the task, ChatGPT could efficiently process the information and generate text that matched the required criteria and create a visually appealing visual to complement the task. The limitations of creating graphics with ChatGPT are well known, so an approach based on generating a visual of the event was chosen, with essential information added after the fact. The human participant provided context and direction to the AI system, while the AI brought speed, accuracy, and content generation capability, which together resulted in a solution that maximally met the requirements. This output demonstrates how human guidance of AI - by providing clear, structured, and context-rich instructions - can significantly enhance the quality and relevance of AI-generated outputs. Human-AI collaboration can enrich work processes and outputs, opening new possibilities for future applications of AI in practice. The experiment thus provides valuable insights for further research in this area and offers a new perspective on optimizing work processes using AI technologies.

### **Output generated in collaboration between a human worker and AI**

Fig. 6 shows output generated in collaboration between a human worker and AI. This situation clearly shows that the key to the successful integration of AI into work processes is not only the technological development of the AI systems themselves but also the ability of people to interact with and manage these systems effectively. The symbiosis of human creativity, intuition, and adaptability, along with AI's speed, accuracy, and data capacity, is a powerful combination that can bring new levels of efficiency and innovation in many areas.



**Invitation to the team meeting**

Dear colleagues,

It is my pleasure to invite you to an important team meeting, which will take place in the beautiful surroundings of the Giant Mountains. This meeting is a key milestone for our team and represents an ideal opportunity to strengthen our collaboration.

**Meeting Details:**



- **Date:** 23-25 March 2024
- **Place:** Hotel Clarion, Spindleruv Mlyn
- **Participation:** mandatory for all team members

**Program**

- **Day One:** Opening with a welcome speech by our CEO, followed by workshops on innovation and strategy.
- **Day 2:** Team-building activities in nature and evening discussion circles around the fireplace.
- **Day 3:** Presentation of team projects, evaluation of the meeting and planning of next steps.

**Important information:** please confirm your participation by 15 February 2024 by replying to this email: [email of the organiser]. In case of questions or specific requirements, please do not hesitate to contact the organizing team.

Detailed information regarding accommodation and transport will be sent to registered participants.

We look forward to spending productive and memorable times together that will not only strengthen our team spirit, but also find new ways to face challenges and achieve our goals.

We look forward to your participation and contribution to the success of our meeting.

Sincerely,

[Surname]  
[Position]

**Figure 6.** Output generated in collaboration between a human worker and AI  
*Source:* the authors

This approach also highlights the importance of developing digital skills and understanding AI among the workforce, which are key competencies for the 21st-century workforce.

**Conclusions**

This paper investigates the effectiveness of task performance between humans and AI systems, focusing on "HOW" tasks. Through a comprehensive research investigation, we examined how human teams and AI systems cope with the challenges of performing specifically defined tasks and what factors contribute to their effectiveness.

The main objective of our study was to compare the effectiveness of "HOW" tasks between human teams and AI, with sub-objectives aimed at identifying key factors influencing this effectiveness. The results of our investigation clearly show that AI systems, especially ChatGPT 4.0, can outperform human teams in certain aspects, such as speed and accuracy of information. However, when it comes to depth of understanding, creativity, and adaptability, human teams still hold their position firmly as an indispensable element of an effective work process. The sub-objectives of this study have been successfully met through a comprehensive analysis and comparison of the performance of human teams and artificial intelligence systems in performing "HOW" tasks. The first sub-objective was to identify the key factors influencing human teams' task

performance effectiveness. Using qualitative and quantitative research methods, we discovered and documented how the scope of the task, clarity of instructions, and the ability of teams to adapt to changing demands affect task performance. The second sub-objective was to assess how AI systems perform on tasks compared to humans, which we did by comparatively analyzing the performance of the two groups based on predetermined criteria. The results showed specific strengths and limitations of AI in the context of task performance, particularly in processing speed, information accuracy and content consistency, but also highlighted the need for human intervention for creative solutions and contextual adaptability. Thus, this study provides valuable insights into the synergy between human capabilities and AI, suggesting the optimal use of their combination to enhance the efficiency of work processes.

One of the key findings of our study is that synergy between human capabilities and AI can lead to optimized efficiency and quality of task performance. An experiment in which a human participant used an AI system to accomplish a task demonstrates the potential of this synergistic collaboration. With the combination of human understanding, creativity, and intuitive guidance from the AI system, a solution exceeded expectations in all evaluated criteria.

This paper thus makes an essential contribution to understanding the dynamics of task efficiency in the AI era. It confirms that while AI systems are a powerful tool for streamlining and automating processes, the human element remains essential to ensure outputs' depth, quality, and adaptability. For organisations, the integration of AI should be done with a view to its complementary role to human capabilities to create a working environment where the potential of both is maximised.

Our findings thus open the way for further research and discussion on combining human skills and AI to achieve the highest possible efficiency and innovation in different areas of working life. They also highlight the importance of developing digital literacy and AI skills amongst the workforce to enable them to interact effectively with these systems and maximise their potential.

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