To use AI or not to use AI, that is the question?

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Content

To use AI or not to use AI, that is the question?

Is it nobler for the computer system

To endure the slings and arrows of outrageous errors,

Or face a sea of problems

And counter them through constant learning?

INTRODUCTION

As part of a series of popular science articles, I aim to introduce readers to the concepts and complexities of artificial intelligence (AI). This article will specifically examine the current maturity of AI Assistants and their suitability for professional applications.

Figure 1 - The concept of working with AI.

So, are there “AI Assistants”?

The term "AI Assistant" lacks a universally accepted definition due to the relative newness of this technology field. Systems like Google's Gemini and Microsoft's Copilot position themselves as AI Assistants, aiming to differentiate themselves from more basic virtual assistants (VA). However, readily available online materials often present a limited, even simplistic view of AI systems, reducing them to mere text generators or chatbots. Seeking more in-depth understanding, I embarked on an independent exploration guided by my own definitions and conceptual models.

Many of you have likely already encountered artificial intelligence in products such as GPT Chat or image generators. For those readers, the Hamlet-styled quote in the introduction, created by artificial intelligence, will not be new. However, it is worth appreciating the level of advancement with which artificial intelligence operates language. In my work environment, I sometimes encounter similar human creativity on the walls of IT administrators' or programmers' rooms.

DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

The concept of artificial intelligence dates to ancient times when philosophers wondered about the possibility of constructing machines capable of thinking and acting like humans. However, it was only in the 20th century, with the development of computers, that this idea became real.

The first AI programs were developed in the 1940s and 1950s. These focused on areas such as playing chess, solving logical problems and natural language processing.

AI AREAS

Artificial intelligence (AI) is a vast field encompassing many different areas. Among the most important are:

- Robotics: Focuses on the design, construction, and control of robots capable of autonomous existence and interaction with the environment.
- Machine Learning: Develops algorithms that enable computers to learn from data and improve their performance without explicit programming.
- Computer Vision: Enables computers to analyze and interpret images and videos, including tasks like object recognition, motion tracking, and scene reconstruction.
- Natural Language Processing (NLP): Investigates the interaction between computers and human language, encompassing tasks such as natural language understanding, speech recognition, and speech synthesis.

ASSISTANT

As I mentioned, there is no single agreed-upon definition of an AI Assistant system. Statements like "these are text generators" are overly simplistic and do not fully explain the concept. Why create a new software category called "AI Assistant" when simply calling it a "text generator" might suffice? Nothing happens without reason, and IT reflects our real world. To better understand, we should be asking, "Who is the Assistant?" Everyone might answer this differently, with various relevant examples. For this article, I will create a profile: its definition, features (the skills and predispositions necessary for effective task performance), and functions (how tasks are executed). While I will employ some simplification, my focus will remain on presenting the core aspects.

WHO IS THE ASSISTANT?

Word origin:

- The word "assistant" comes from the Latin word "assistere", meaning "to stand by", "to help".

Extended definition:

- **An assistant** is a person who **proactively supports another person** in achieving tasks and goals, operating within established **norm.**
- I have enriched the basic definition resulting from the meaning of the word itself with contemporary needs:
    - Proactivity: Independent and effective operation.
    - Norm: Sets the limits of proactivity (e.g., applicable laws, procedures, policies, etc.).
    - Another Person: Referred to in this aspect as **a superior**.

Areas of Activity:

- The term "assistant" is widely used in various fields (e.g., sports, medicine, social work, business) – anywhere support is required.
- A specific category within the broader group of assistants is the personal assistant, who works directly for a single supervisor.

Operating Range:

The Assistant's specific work can be very diverse, influenced by factors such as industry, the supervisor's position, and individual needs. Tasks assigned to an assistant may range in scale and complexity.

Task examples:

Very simple:

- Manager: calls his Assistant "I just landed in Tokyo, what time is it now in Warsaw?"
- Assistant: "It's 8:15 here."

Complex:

- Manager: sends an e-mail to his assistant "Please prepare new advertising leaflets for our product."
- Assistant: writes back “Fine, I will take care of it. May I suggest a meeting to discuss the details?”

So, let us consider what features an employee should have role assistant.

Assistant Features

- Ability to learn: Continuously improves skills and adapts to new situations based on experience.
- Problem-solving ability: Analyses information and identifies optimal solutions, weighing different factors.
- Organizational skills: Manages time and tasks effectively.
- Communication skills: Transfers information clearly and actively listens to understand needs.

The assistant applies these features interchangeably and continuously, adapting their use based on the task at hand and their growing experience.

Assistant functions:

Now, let us consider how an assistant might approach task implementation. I will use phases analogous to those in project or activity management. (Note: For simplification, this model assumes the assistant performs tasks directly, rather than outsourcing them.)

Function	Goal	Example: Very simple	Example: Complex
Preparation	Collecting and assessing the assignment	"I didn't take my watch with me. Please tell me what time it is."	"Please prepare new advertising leaflets for our product."
Collecting information	Collecting information necessary to complete the task	Check available information	Collecting additional information (product features, target group, budget, deadline)
Organization	Developing a plan of action	N/A	Developing a strategy to solve the problem; setting goals, dividing work into tasks, selecting tools (resources) to complete the task, assigning tasks to selected tools, preparing an implementation schedule
Execution	Task realization	"It's 8:15."	Ordering work according to the developed strategy
Evaluation	Monitoring work progress and making corrections	N/A	Monitoring the implementation of the strategy and adjusting the strategy
Presentation of results	Project presentation to your supervisor	N/A	Project presentation to your supervisor
Performance evaluation	Project evaluation	N/A	Project evaluation (compliance with campaign goals and expectations)
Perfecting	Gathering experience and improving skills	N/A	Analyzing the campaign results and drawing conclusions

Function	Goal	Example: Very simple	Example: Complex
General	*Proactively supports the supervisor in achieving their goals*	-	-

Table 1 - Summary of Assistant Features

With a general understanding of the Assistant's work, we can move on to the next chapter describing the AI Assistant.

ASSISTANT AI

Definition:

An artificial intelligence-based computer program (capable of self-learning), intended for personal use, that assists with a variety of tasks, facilitating automation and streamlining work processes. This includes:

AI Assistant Features:

1. Calendar and meeting management:
    a. Scheduling and sending meeting invitations, booking resources.
    b. Setting reminders for important deadlines.
2. Travel organization:
    a. Booking flights and train tickets (finding optimal connections).
    b. Making hotel reservations (considering individual preferences).
    c. Creating travel plans (attractions, routes, necessary documents).
3. Task management:
    a. Delegating tasks to people or other systems.
    b. Monitoring task progress and timelines.
    c. Alerting for deadlines and potential delays.
4. Providing information:
    a. Proactively offering relevant information and answering questions.
    b. Translating documents, writing product descriptions, articles, and creating graphic designs.
    c. Generating reports, summaries, and analyses.
    d. Monitoring and analyzing content.
5. Improving work efficiency:
    a. Identifying and solving problems through data analysis.
    b. Automating routine tasks (such as email communication).
    c. Providing real-time language translation and generating meeting summaries.

With these features outlined, we have a clearer understanding of the requirements and expectations for this class of software applications.

DEVELOPMENT OF AI ASSISTANTS

Below we present the key stages on the way to popularizing AI Assistants.

Year	Technology	Name	Description
1960	Rule-Based Systems	ELIZA	The first rule-based systems, representing a milestone in the development of artificial intelligence.
1990	Virtual Assistant	Siri	Development of statistics-based systems, emphasizing user interface improvement and personalization.
2022	Generative Pre-trained Transformer Chat	Chat GPT	OpenAI chatbot model built on GPT-3, known for smooth and realistic conversations.
2022	Image Generators	DALE 2	Artificial intelligence models that generate images from text or other images, opening up new possibilities in graphics and design.
2023-2024	AI Assistant	Gemini	The Google chatbot model from the LaMDA family offers a wide range of skills (fluent conversations, translations, writing various types of content, comprehensive answers to questions).
2023-2024	AI Assistant	Copilot	GitHub development tool that uses artificial intelligence to generate code, automate tasks and talk to the developer to improve their work.

Table 2 - Milestones in the Development of AI Assistants

In 2022, the public GPT Chat debuted. As a technology enthusiast, I initially assessed it as a "cool gadget" with potential, but lacking immediate practical use. I decided to revisit the topic later, once AI Assistant technology had a chance to mature. Earlier this year, the opportunity arose. As part of my professional development, I completed several LinkedIn courses on the "Building Generative AI Skills for Business Professionals" development path. This prompted me to investigate why the trainers were so enthusiastic about the potential of AI Assistants.

OVERVIEW OF SELECTED AI ASSISTANTS

At the turn of 2023/2024, major players like Google, with Bard (now Gemini), and Microsoft, with Copilot, entered the AI Assistant arena. Having previously used their services, I decided to explore their current offerings.

Below is a list of selected AI Assistants, with a brief overview of their capabilities. Please note that, as their developers state, these solutions are still under development. Functionalities, prices, and regional availability may change over time.

Feature/tool	Copilot	Copilot Pro	Gemini	Gemini Advanced	Chat GPT	Chat GPT Plus
Price	Free	$20/month	Free	$19.99/month	Free	$20/month
Access to information	Not /Yes	Yes	Yes	Yes	No	Yes
Code generation	Yes	Yes	Basic	Advanced	Yes	Yes
Creative writing	Yes	Yes	Yes	Yes	Yes	Yes
Summary text	Yes	Yes	Yes	Yes	Yes	Yes
Questions & Answers	Yes	Yes	Yes	Yes	Yes	Yes
Language translation	Yes	Yes	Yes	Yes	Yes	Yes
Creating a presentation	Yes	Yes	No	Yes	No	No
Uploading your own data	No	Yes	Yes	Yes	No	Yes
Daily query limit	100	1000	100	1000	100	1000
Maximum response length	1000 words	2000 words	1000 words	2000 words	1000 words	2000 words
API access	No	Yes	No	Yes	No	Yes
Own knowledge base	No	Yes	No	Yes	No	Yes
Language versions	multiple	multiple	multiple	multiple	multiple	multiple

Key:

- Price: Monthly subscription cost.
- Access to online information: Ability to search and download information from the Internet.
- Code generation capability: Ability to generate code in various programming languages.
- Creative Writing Ability: Ability to produce various types of creative content such as stories, poems, scripts, etc.
- Summary text: Ability to generate short summaries of longer texts.
- Questions and Answers: Ability to answer questions in an informative manner.
- Language Translation: Ability to translate text from one language to another.
- Creating presentations: Ability to create multimedia presentations.
- Upload your own data: Upload your own data to the AI system.
- Daily query limit: The maximum number of queries a user can send to the AI system in a single day.
- Maximum Response Length: The maximum length of the response generated by the AI system.
- API access: Possibility to integrate the artificial intelligence system with other applications and services.
- Custom Knowledge Base: Ability to create and use your own knowledge base.
- Language version: Available languages for the interface and generated content.

Table 3 - Overview of AI Assistants Available on the Market

List Summary:

AI tools will gain popularity, partly due to their free versions. While these may have some limitations, they offer a good introduction to the technology.

As manufacturers indicate, paid plans provide additional features, such as the ability to train models on your own data for more personalized results. They also often remove query and response length limits.

Some tools can access and process real-time online data, which is crucial since the models may not be trained on the most up-to-date information. Paid versions offer reasonable pricing models.

WHAT POWERS THE AI ASSISTANT ENGINE?

In the following chapters, we will explore the workings of a conceptual AI Assistant, examining its key components and analyzing their functions. For clarity, we will disregard technical aspects such as APIs.

AI Assistant Components:

1. **User Interface**: The point of interaction between the user and the AI Assistant. This can include a microphone, camera, touchscreen, or text interface.
2. **AI Perception**: The AI Assistant's ability to perceive the environment, including speech recognition, object recognition, facial recognition, and gesture recognition.
3. **Language Models**: The foundation for understanding and generating natural language. Modern language models leverage machine learning techniques.
4. **Knowledge Base**: A repository of information the AI Assistant utilizes to answer questions and complete tasks. This can include encyclopedias, dictionaries, ontologies, and databases.
5. **Inference Engine:** The AI Assistant's ability to comprehend and reason with information. This incorporates logical reasoning, probabilistic reasoning, and machine learning.
6. **Planning and Execution**: The AI Assistant's capacity to devise plans and execute tasks. This involves decomposing tasks into subtasks, selecting optimal strategies, and monitoring progress.
7. **Machine Learning**: The AI Assistant's capacity to learn from data and experiences. This encompasses supervised, unsupervised, and reinforcement learning.
8. **AI Ethics**: The principles and values guiding the development and use of AI Assistants. This includes privacy, security, transparency, and accountability, as well as potentially sensitive topics (taboo)...

HUMAN SYSTEM COMMUNICATION

One of the core aspects of AI Assistant systems is their interaction with users. People communicate using a variety of methods, including speech, intonation, body language, images, and written words. These natural ways of communicating with the environment also shape how we interact with modern computer systems.

Over the years, several technologies have been developed to facilitate this interaction:

- **Speech Recognition**: Smartphones can readily convert human speech into text.
- **Image Processing**: Systems can extract text from images (including handwriting), recognize people by facial features, and even assess emotions.
- **Language Models**: Represent a significant shift from older dictionary- and rule-based approaches. Current models use machine learning, resulting in vastly improved language fluency.

While the ability to read information is essential, full communication requires providing feedback. This means interpreting received information to formulate a response.

Early chatbots attempted to mimic human language, relying on rigid question-and-answer templates or rules and dictionaries. This approach had several challenges:

- Incorrectly identifying user intent.
- Unnatural conversational flow.
- Grammatical and other errors.

These issues could lead to user frustration and the conversation ending without the user receiving necessary information.

COMMUNICATION ON THE EXAMPLE OF VARIOUS SYSTEMS

To illustrate diverse approaches to user-system communication, let us examine two systems:

DOS (Disk Operating System): Developed in the 1980s, it was among the first widely used operating systems. DOS employed a text-based command line interface, using often-abbreviated commands. System navigation required understanding directories and correct syntax.

AI Assistant System: Software leveraging artificial intelligence (AI) to execute various tasks upon user request. AI Assistants can be accessed through various interfaces such as voice, text, and graphical.

The table highlights key differences between these systems:

Characteristic	System (CMD DOS/Windows)	AI Assistant System
Complexity	Typically focused on single tasks (e.g., file manipulation). Straightforward syntax. Limited feature set.	May involve multiple steps. Syntax may be more intricate. Offers a vast range of functions, limited only by user creativity.
Examples	Basic: dir, cd, copy, del, mkdir, shutdown More advanced: for /r %%f in (*.txt) do echo %%f, 'netstat -an	"Find all the cat photos in my album and make a collage of them with music in the background." "Write an e-mail to the client summarizing yesterday's meeting and proposing the date of the next one, taking into account its availability in the calendar."

Characteristic	System (CMD DOS/Windows)	AI Assistant System
Possibilities	Focus on system and file management. Limited range of functions, e.g., copying, deleting, running programs.	Wide range of capabilities: data analysis, content generation, process automation, translation, device control.
Language	Windows command language (familiar to Windows users)	Natural language (e.g., English, Polish)

Table 4 - Comparison of DOS and AI Assistant in Terms of Communication Language

Summary:

The distinction between DOS-like and AI-based systems extends beyond language and features. It signifies a transformation in the human-machine interaction paradigm.

DOS systems embodied a machine-oriented model. Users needed to learn rigid commands and syntax to control the system, a demanding and restrictive approach for those unfamiliar with the system.

AI Assistant systems introduce a user-centric model. Interaction occurs in natural language, akin to human conversation. Commands are declarative, simplifying usage and widening accessibility. The system becomes more adaptable to the user.

However, it is important to remember that in many cases, the straightforward imperative commands of DOS-like systems offer speed and security benefits.

MODERN LANGUAGE MODELS USED IN ARTIFICIAL INTELLIGENCE

Past systems relying on rigid question-and-answer templates, rules, and dictionaries were often cumbersome and restrictive. Technological advancements have revolutionized the communication paradigm:

- In the past, humans programmed how the system should communicate.
- Now, the system learns human language to communicate with humans.

Modern language models like LaMDA, GPT-3, and Bard employ advanced machine learning algorithms to analyze language at multiple levels:

1. **Lexical**: Recognizing and categorizing words, identifying their parts of speech.
2. **Syntactic**: Analyzing sentence structure and relationships between elements.
3. **Semantic**: Understanding the meaning of a statement, considering context and grammar.
4. **Pragmatic**: Recognizing the speaker's intent and situational context.

This enables the generation of natural and fluid responses, delivering information tailored to the user's needs.

AI ASSISTANT WORKFLOW

So how does the AI Assistant class system work? Below is a conceptual workflow that covers the basic assumptions:

Step	Step name	Actor	Component AI	Description	Application example
1	Data input	User	User Interface	The user writes a text prompt.	"Write a poem about Warsaw"
1.1	Entering parameters (optional)	User	User Interface	Optional: the user can specify the context, mode, expected response format and other parameters.	"Write a rhyming poem about Warsaw in a romantic style"
2	Data preprocessing (preprocessor)				
2.1	Data normalization	AI	AI perception	The AI system converts the text to a common format.	"Write a poem about Warsaw in a romantic style" -> "write a poem about Warsaw in a romantic style"
2.2	Tokenization	AI	AI perception	The AI system divides the text into tokens (e.g., words).	"write a poem about Warsaw in a romantic style" -> ["write", "poem", "about", "Warsaw", "w", "style", "romantic"]
2.3	Error correction (optional)	AI	AI perception	The AI system checks and corrects spelling and grammatical errors.	"write a poem about Warsaw in a romantic style" -> "write a poem about Warsaw in a romantic style"
2.4	Isolating features and intentions	AI	AI perception	The AI system identifies key characteristics and intentions from the input data.	["write", "poem", "about", "Warszawa", "w", "style", "romantic"] -> {"task": "generate text", "type": "poem", " subject": "Warszawa", "style": "romantic"}
3	Input data analysis				

Step	Step name	Actor	Component AI	Description	Application example
3.1	Classification	AI	Inference engine	The AI system analyzes characteristics and intentions to determine the type of task.	Task type: Text generation
3.2	Algorithm selection	AI	Inference engine	The AI system selects an algorithm appropriate to the type of task and mode.	Algorithm: Transformation
3.3	Using the knowledge base (optional)	AI	Knowledge base	The AI system retrieves information relevant to the task from the knowledge base.	-
3.4	Generating responses	AI	Language models	The AI system uses a language model to generate the response.	Answer: "The capital of Poland, on the Vistula..."
3.5	Evaluate the response	AI	Inference engine	The AI system evaluates the quality of the response in terms of its adequacy, consistency, and grammatical correctness.	Rating: High
4	Post-processing of data (post-processor)				
4.1	Response formatting (optional)	AI	(function)	Adapting the response format to user preferences	Formatted response
4.2	Presentation of output data	AI	User Interface	The AI assistant presents the final answer to the user.	Answer: "The capital of Poland, on the Vistula..."
5	Interaction (optional)	User	User Interface	The user can interact with the AI Assistant to clarify a task, obtain additional information, or rephrase a prompt.	"Can you add more descriptions of the architecture?"
6	Refine the AI model (optional)	AI	Machine learning	The AI system collects feedback from users and uses it to update algorithms and knowledge bases.	Opinions: "I would add more descriptions of monuments"

Table 5 - Workflow of the AI Assistant

Descriptive Explanation:

Think of your AI Assistant as an eager new employee meticulously following your instructions. Here is what it does:

1. Organizes and categorizes your information.
2. Tries to understand your intention (the goal you want to achieve).
3. Selects a suitable tool to complete the task.
4. The tool creates a draft, which the Assistant transforms to match your expectations.
5. Evaluates the result for accuracy and correctness, then presents it for your approval.
6. Like a student with a mentor, the AI Assistant constantly learns and improves from experience.

Working with AI Assistants - practical examples

After all that theory, it is time to get hands-on! Let us explore what an AI Assistant can really do.

Artificial intelligence writes the article for me

The first natural idea was to use AI to write an article about AI itself... or even write it for me :P!

After several attempts, the AI generated a text. Although the material seemed correct, it did not fully capture my vision for this piece. Perhaps if I were a junior editor paid by the volume of text produced, this method would suffice. However, I decided to change my approach, especially since quality matters more than quantity in my profession. I decided to test AI in terms of quality.

Creating tables and summaries

Interestingly, when I started writing this article, AI assistants were not able to directly generate Excel-type tables. This feature is a new addition and greatly improves workflow.

After a closer look at the tools, I realized that the key to using them effectively is to be precise about my purpose. To fully utilize the Assistant's potential, I created a detailed content outline for the article. This outline defined the text structure, main points, arguments, and data presentation method.

The tools proved helpful in automating this process. They were able to collect data and generate tables with appropriate formatting and style. This allowed me to focus on the substantive content of the article for a while, but...

While working with the AI Assistant, I encountered a problem with data quality, specifically its timeliness, reliability, and accuracy. I will discuss this issue in more detail later in the article, dedicated to the negative aspects of using artificial intelligence.

Other applications

Since starting work on this article, I believe I have learned a lot and discovered many new applications for AI assistants, such as:

- Building consistent definitions
- Creating complex conceptual objects
- Formulating "theses" based on arguments and counterarguments.
- Conducting thought experiments

I will present more about my recent experiences with AI in future articles.

Aspects of using the AI assistant

As I mentioned, during my work I encountered several problems, but also benefits. Here is what I observed:

Negative aspects

Let us start with the bad news :P I read online opinions about using AI, and AI assistants themselves were also happy to tell me about their imperfections. The following list is based on this information.

The "Frequency" column shows how often I encountered the problem. I conducted 100 trials, during which I performed various types of editorial work on the article. If I encountered a problem, I classified it and added it to the appropriate row. Then I calculated the results according to the rating scale below the table in the Legend. For simplicity, I used a scale of links. Below is the summary:

Negative aspect	Freq	Description	Example
Fabricating results	1	AI systems can generate results that have no basis in reality. This is more likely with poorly trained models or when prompts ask for creative output without emphasizing factual accuracy.	An AI model asked to predict stock prices claims that a company's stock will increase by 200% in a week, which is unlikely in most markets.
Errors in information processing	2	AI models can make mistakes, such as misinterpreting data or misclassifying information.	An AI assistant incorrectly categorizes an important email as spam.
Too optimistic attitude	1	AI predictions and analyzes can be overly optimistic if models are over-fit to training data. This optimism can mislead decision-making.	An AI model predicts millions of sales of a new product on its first day, which exceeds the company's historical performance.
Inappropriate use of language	1	AI can generate phrases unrelated to the context, potentially due to a lack of situational awareness or translation errors.	Asked about the weather, the AI responds with technical programming jargon.

Negative aspect	Freq	Description	Example
Outdated information	2	AI can provide inaccurate information if models are not updated frequently or trained on old data.	An AI predicting market trends in the current year relies solely on data from the previous year, ignoring recent changes.
Lack of transparency (black box problem)	1	Complex AI systems may not fully explain the rationale for their results, especially in deep learning models. This can make it difficult to trust and understand them.	An AI classifies an email as spam but cannot articulate the specific reasons for its decision.
Loss of context	2	AI can have difficulty maintaining understanding during long conversations or sessions. Previous knowledge may not be available in later interactions.	An AI recommends a laptop, but in a later session forgets the user's preferences when asked follow-up questions.
Potential invasion of privacy	0	AI, especially that which handles large datasets, can pose a privacy risk due to improper data handling, inadequate security, or excessive data collection practices.	Without explicit consent, an AI-based advertising system tracks a user's physical location to target ads.

Legend: 5-point linear scale of the frequency of negative aspects of AI:

- 0 - Did not occur: The problem has not occurred once during 100 sessions of working with AI.
- 1 - Rare (0-20%): The problem occurred 1 to 20 times in 100 sessions.
- 2 - Intermittent (21-40%): The problem occurred 21-40 times in 100 sessions.
- 3 - Moderate (41-60%): The problem occurred 41-60 times over 100 sessions.
- 4 - Frequent (61-80%): The problem occurred 61-80 times in 100 sessions.
- 5 - Very common (81-100%): The problem occurred every time (81-100 times) during 100 sessions.

Table 6 - Negative Aspects of Using an AI Assistant

List Summary:

Errors and inaccuracies:

AI models can provide incorrect or unrealistic results, especially if they are poorly trained or lack sufficient data. This includes fabricating results and exhibiting an overly optimistic bias, which can lead to the user making poor decisions.

Communication and trust:

Communicating with AI can be difficult due to the use of inadequate language or phrasing, hindering fluid interactions. Additionally, a lack of transparency regarding how AI models work can reduce trust in their results.

Context and continuity:

AI can have difficulty maintaining context between sessions and within sessions. This loss of context can be problematic for tasks that are multi-step, require personalization, or where continuity is essential for understanding.

POSITIVE ASPECTS

I have prepared a similar table for the positive aspects, with an analogous scale described below in the Legend for the "Freq" column, which indicates how often the support effect occurred.

Positive aspect	Freq	Description	Example
Automation and efficiency	4	AI excels at automating repetitive tasks, freeing up human time and resources for more complex or creative work.	An AI model automatically categorizes incoming emails into appropriate folders, saving the user a significant amount of time.
Improved data analysis and pattern recognition	5	AI systems can process huge datasets with speed and accuracy beyond human capabilities, revealing patterns and trends that might otherwise remain hidden.	An AI tool analyzes massive amounts of financial data to identify investment opportunities or predict market changes.
Better language understanding and translation	3	AI facilitates language analysis, text generation, suggesting edits, and providing more accurate translations. This streamlines communication and breaks down language barriers.	An AI-powered writing assistant suggests stylistic improvements and offers seamless translations across multiple languages.
Creative support	3	AI can act as a brainstorming partner, generating ideas or producing summaries. This helps users explore new possibilities and solve problems from a fresh perspective.	An AI model helps a writer brainstorm potential plot lines for a fictional story.
Access to open knowledge	4	AI can tap into vast repositories of knowledge, providing quick and informative answers to a wide range of questions. This promotes rapid learning and access to information.	An AI assistant draws from Wikipedia and credible databases to answer a user's complex historical question.
Development of user skills	3	Interactions with AI can promote analytical thinking, logical reasoning, and problem-solving skills. This happens as users refine their queries and interpret AI outputs.	An AI model helps a business analyst practice data interpretation and visualization, building their market research competencies.

Legend: 5-point linear frequency scale of positive aspects of AI:

- 0 - Did not occur: The aspect did not occur once in 100 AI work sessions.
- 1 - Rarely (0-20%): The aspect occurred 1-20 times in 100 sessions.
- 2 - Intermittent (21-40%): The aspect occurred 21-40 times in 100 sessions.
- 3 - Moderate (41-60%): The aspect occurred 41-60 times in 100 sessions.
- 4 - Frequent (61-80%): The aspect occurred 61-80 times in 100 sessions.
- 5 - Very often (81-100%): The aspect occurred every time (81-100 times) during 100 sessions.

Table 7-Positive Aspects of Using an AI Assistant

List Summary:

Big data analytics and pattern recognition:

AI excels at quickly processing massive amounts of data, uncovering patterns, anomalies, and valuable insights. This can help identify key trends. However, processing large datasets is likely not the domain of Assistant AI class systems.

Creative mode:

AI can stimulate the content creation process by offering outlines, organizing ideas into outlines or mind maps, and even generating fresh article concepts.

Leveraging open knowledge resources:

AI can access and verify information from public knowledge bases, scientific articles, and other sources. This helps ensure the accuracy and reliability of the content in the article.

AI ASSISTANT MATURITY ASSESSMENT

Presented below is a list of our requirements for an Assistant AI class system and data filled in:

- Yes - feature available.
- In progress - I hope that it will be developed in the future

No	Requirement	Meets Gemini	Meets Copilot
1	**Calendar and meeting management**		
1.1	Scheduling meetings, sending invitations, and reserving resources	In progress	In progress
1.2	Setting reminders	In progress	In progress
2	**Travel arrangements**		
2.1	Booking airline and train tickets (optimal connections)	In progress	In progress
2.2	Booking a hotel (considering preferences)	In progress	In progress
2.3	Determining the optimal travel plan (attractions, route, documents)	In progress	In progress
3	**Task management**		
3.1	Assigning tasks to other people or systems	In progress	In progress
3.2	Monitoring the progress of work on tasks	In progress	In progress
3.3	Monitoring and informing about deadlines and potential delays	In progress	In progress
4	**Providing information**		
4.1	Providing information in an initiative-taking and on-demand mode	Yes	Yes
4.2	Preparing translations, product descriptions, articles, graphic designs	Yes	Yes
4.3	Preparing reports, summaries, analyses	Yes	Yes
4.4	Analysis of monitored content	Yes	Yes

5	**Improving work efficiency**		
5.1	Identification and solving problems (based on data analysis)	In progress	Yes
5.2	Automation of routine tasks (e.g., sending emails)	In progress	Yes
5.3	Real-time language translation (during conversations) - generating meeting summaries	In progress	Yes

Table 8 - Comparison of AI Assistants' Maturity Levels

As you can see in the table above, many of the functions I expected from an AI Assistant class system have not been implemented. This could be due to various reasons, such as inadequate autonomy, integration issues, or unimplemented features.

The available functions are concentrated in the area of providing information, and possibly partly in the area of improving work efficiency. The table shows that half of the functions are covered. It is worth noting that the most difficult area related to natural communication between the system and the user using natural language is already well advanced. In the meantime, performance has been increased by introducing the GPT-4 model and other faster models. More about the plans for 2024 are described in the next chapter "AI Assistants in 2024".

Summary of AI assistants

AI Assistants definitely support the user by:

- Analyzing and evaluating provided materials.
- Having a knowledge base that provides substantive background.
- Suggesting new aspects to consider.
- Inspiring.

However, artificial intelligence does not yet have the mature ability to analyze and evaluate data:

- It relies on algorithms that process all available information without critical evaluation.
- This can lead to incorrect conclusions if the data is incomplete, outdated, biased, or inaccurate.

Artificial intelligence can be a useful tool, but it currently does not replace human judgment and data evaluation skills:

- It is desirable to create mechanisms for assessing the quality and evaluation of information.
- In case of data uncertainty, the system should inform about potential implications in an understandable way.

At the present stage, AI Assistants can be treated as experimental software.

How to work effectively with AI Assistant?

Based on my experience with AI Assistants, I have prepared a few tips that may be helpful during your work:

1. **First, select or configure the AI Assistant:**
   - Working mode:
     - Creative: The AI Assistant will propose various new solutions, even if they are not entirely practical or true.
     - Precise: The AI Assistant will focus on completing tasks according to your instructions.
   - Determine whether the Assistant has access to current data from the Internet and what type of data it has.
2. **Clearly define your expectations:**
   - The more details you provide, the better the results you will get. Remember, the AI Assistant cannot read minds!
   - Specify the goal, format, and expected results. The more information you provide, the easier it will be for the AI Assistant to complete the task according to your expectations.
3. **Remember the context of the conversation:**
   - You and the Assistant are building the context of the conversation on a given topic:
   - Give the AI Assistant time to learn. Understanding the full context will improve the work.
   - Remember that the conversation context is lost after the session ends. Save the results of your work.
   - Sometimes the Assistant may get stuck on a detail. In such a situation, it is worth starting a new session to "reset the system."
4. **Verify and correct the results:**
   - Errors happen, both in simple processing of tabular data, but also a minor stylistic correction of the text can completely change the context you wanted to convey. Therefore, always check the results of the AI Assistant's work.
   - Provide precise instructions to correct errors and obtain the desired results.
5. **Be patient and helpful (addition to point 3):**
   - Remember, the solution is innovative and may have technical or other errors on the part of the AI Assistant, but errors may also be on your side, from a small typo to a lack of a precisely defined goal.
   - Perform mutual evaluation:
     - Try to evaluate the results of working with the AI Assistant. This allows it to learn and function properly in the future.
     - You can always expect the AI Assistant to evaluate your work.
6. **Be assertive and creative:**
   - Do not be afraid to express your expectations or opinions.
   - Maintain distance; you may disagree with the AI Assistant's statements:
     - You can simply ignore them or

    - If you find the topic interesting and important, you can have a debate with the AI Assistant.
- Use the creativity of the AI Assistant and access to its knowledge base,
- Remember the limitations of the AI Assistant and look for alternative solutions.

7. **Be the project manager:**
    - As the name suggests, the Assistant supports and helps, but you, as the Manager, must have a vision of the whole thing:
    - Do not lose control over the project scope. You probably won't consider all the important aspects of work at the beginning, which will become clear during the process, but don't let the side threads multiply indefinitely.
    - Set an acceptable quality of work.

AI ASSISTANTS IN 2024

What will 2024 bring for AI Assistants? Let us start with development plans and then outline the outlook for the near future.

PUBLICATION SCHEDULE

Based on data collected from AI assistants themselves, Copilot and Gemini, below is a list of software versions in 2024.

For Microsoft Copilot:

Version	release date
Copilot for Windows 1.0	September, 2024
Microsoft 365 Copilot 1.0	November, 2024
Copilot for Outlook 1.0	Planned for 2024
The use of generative activities 2.0	April, 2024

Table 9 - Copilot Implementation Plan

For Google Gemini:

Edition	Description	release date
Gemini 1.11	It introduces new features such as: - Polish language support - Improved user interface	February, 2024
Gemini 1.12	Includes bug fixes found in version 1.11 and minor stability improvements.	May, 2024
Gemini 1.5	Introduces new features such as: - Google Search Integration - Improved Code Generation - Improved Language Translation	August, 2024
Gemini 2.0	It introduces significant changes to the Gemini architecture, as well as new features and user interface improvements.	Planned for 2024

Table 10 - Gemini Implementation Plan

OUTLOOK FOR 2024

2024 looks promising for AI Assistants, which will also indirectly affect the development of the entire Artificial Intelligence technology. Below I present a few trends that I hope will be realized in the coming year, but also shape the future:

AI Assistants:

- Entry into the market of technology giants with their products will have a positive impact on the price-quality ratio.
- I expect better integration with office suites, including email and communicators, as well as the ability to work on the user's own files.
- Development of integration of AI Assistants with search engines. This will allow context-aware serving of the right information by AI Assistants.

Increased synergy between AI and IoT (Internet of Things):

- More devices can be controlled remotely using dedicated applications. The introduction of standardization will allow connecting devices to our central management system on a PnP (plug and play) basis, in which the AI Assistant will be one of the resource control interfaces.
- This will develop the concept of smart homes and bring us closer to the vision of smart cities:
- In areas of sustainable development (optimal energy consumption, waste management, traffic control and public transport).
- In the field of detection and management of threats (fires, burglaries, failures).
- The AI Assistant will play a key role in this ecosystem in ensuring the safety, comfort of life and health of the inhabitants of smart cities.

Legal regulations:

- Along with the growing importance of AI technology in our lives, the introduction of appropriate regulations is expected. This will ensure the sustainable development of this field, taking into account many aspects, including social, ethical, legal and economic.
- Meeting the above conditions may lead to AI Assistants becoming the main communication interface between the user and our devices. This will make them a good alternative to specialized applications that only support selected aspects of our lives.

In the longer term, AI Assistants will become useful companions at various stages of our lives:

- From the school period, through the intelligent adaptation of the educational program to our natural predispositions and abilities, to the support in choosing the further educational and professional path.
- To the proper support and shaping of our professional career in adulthood.
- And to supporting us in the senior period, taking into account the needs, including health care.

Overall, AI Assistants have the potential to transform the way we live, work, and interact with the world around us. The next few years will be crucial for the development of this technology, and I am excited to see what the future holds.

SUMMARY

Initially, the article contained various examples of interactions with artificial intelligence, some of which were humorous. However, they were eventually omitted for the following reasons:

- Developmental phase: In my opinion, current AI solutions, even those commercially available, are still in the development or beta testing phase.
- Continuous improvement: Thanks to the use of self-learning algorithms and better goal definition, subsequent attempts ("re-tests") were successful.
- Maintaining neutrality: At this stage, I do not want to promote any specific company's product.
- Value of discovery: Providing ready-made examples with specific solutions would deprive readers of the valuable experience of discovering how to effectively communicate using artificial intelligence. This journey of discovery deepens the understanding of the potential of artificial intelligence and best practices.

Despite limitations such as errors, limited functionality, and a small number of integrations, I was impressed with the language model. Standout features include error correction, excellent context understanding, advanced language analysis, and access to internet data. These capabilities position it as a powerful tool, offering comprehensive and sometimes even exhaustive information.

However, it should be acknowledged that artificial intelligence technology is not flawless and can produce incorrect results. On the other hand, artificial intelligence has a unique ability to "self-repair," constantly improving its accuracy over time.

Based on the ambitious goals set by smart assistant providers and the growing interest in the topic, it is clear that 2024 will be a big step forward for artificial intelligence in both home and business settings.

CONCLUSION

To use AI or not to use AI? - like a Shakespearean dilemma, I leave this question to you for further consideration. I hope that reading this article will make your deliberations fruitful.

Acknowledgments:

> *I would like to thank William Shakespeare, who, like a muse, motivated me to finish this article, and I think Renaissance people would have been fascinated by AI technology.*
>
> *I would also like to appreciate the contribution of all the people working on artificial intelligence. It is thanks to them that it is being developed step by step, and we are on the verge of a revolution. From now on, it is not people who learn systems, but systems that learn people.*