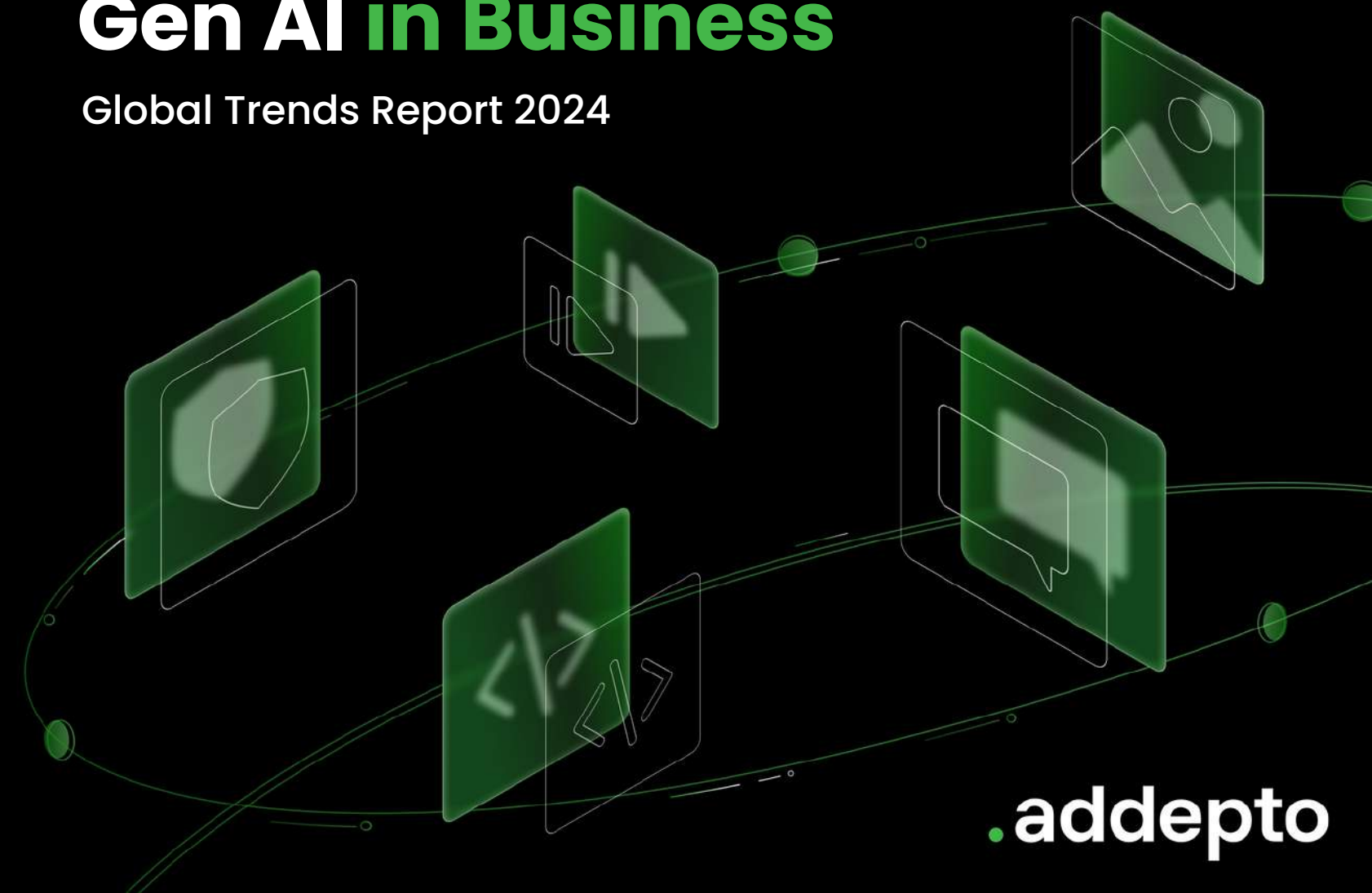
Gen AI in Business

Global Trends Report 2024



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Foreword

The insights from our research underscore the transformative potential of Gen AI in business, but also highlight the complexities and challenges involved in its implementation, ranging from data security to scalability and legal concerns.

Additionally, there is a significant trend towards more tailored, industry-specific, and consequently smaller applications, as well as a strategic approach to integrating AI into business practices. Companies are encountering multiple challenges in this area.

One thing is certain - the landscape of Gen AI is predominantly experimental. Businesses and researchers are actively testing and developing proofs of concept (PoCs), yet there remains a notable absence of fully operational production solutions.

This means there is still much to discover.

Edwin Lisowski
CGO & Co-founder
at Addepto

Will Generative AI reshape business processes?

2023 was the year when Generative AI exploded and captivated the mass imagination, promising a real revolution in creative tasks such as writing, coding, and managing knowledge across industries.

However, it took us less than a year to move from being sincerely astonished at the capabilities of Gen AI to the hard realization of its limitations.

Although individual workers are using Gen AI regularly in at least one business function, enhancing and accelerating their daily tasks, harnessing the power of Gen AI across organizations by integrating specific tools into existing infrastructure has proven to be not as easy as anticipated.

Why? **The main obstacle companies see in embedding Gen AI tools is data security.** Many decision-makers are extremely cautious when it comes to sending their company's data outside organizations, and so they opt for building in-house, on-premise solutions, which take time and demand both financial and human resources.

But that is not all.

Often the problem is a lack of R&D culture that allows risking investment with an unknown ROI.

Because, while it is intuitive to understand that Gen AI accelerates content generation or data augmentation, which translates into cost reduction, exact numbers are still needed and often difficult to estimate upfront.

Of course, companies start with a Proof of Concept (PoC) or a Minimum Viable Product (MVP) to somehow gain the estimation but it is not as straightforward as it seems.

The PoCs for Gen AI solutions are usually built on closed, commercial APIs provided by companies like OpenAI. However, scaling solutions based on closed APIs can be - besides the data security issues we mentioned above - not a good choice.

The cost structure of closed APIs is typically based on predicted usage tiers and can become prohibitively expensive for high-volume applications, making it a less viable option for long-term, scalable solutions.

Moreover, using APIs like those from OpenAI introduces potential risks, primarily in the form of stability and service accessibility. Unpredictable service interruptions can significantly impact applications that rely heavily on these APIs.

Are open-source LLMs a better option for scale-up solutions?

Well, they offer enhanced capabilities for customization, allowing businesses to tailor the model to their specific needs and use cases but this customization is often quite challenging. Also, harnessing the full potential of open-source APIs requires a highly optimized data pipeline, which - once again - necessitates resources.

Key Takeaways

01

Generative AI's rise & challenges

- 2023 marked the explosion of Generative AI in the public consciousness, promising significant changes in creative tasks across various industries.
- The initial awe of Gen AI's capabilities gave way to the realization of its limitations, particularly in integrating it across organizations.

02

Data security concerns

- Companies face major concerns regarding data security when using Gen AI, leading many to develop in-house, on-premise solutions, demanding significant resources.

03

R&D culture and legal issues

- A lack of R&D culture hinders investment in Gen AI with uncertain ROI.
- Legal implications, especially regarding copyright and dataset use, pose challenges.

04

Cost and scalability of API models

- Closed, commercial APIs like those from OpenAI, while initially useful, can be expensive and inflexible for large-scale, long-term use.

Key Takeaways

05

Open-source LLMs and customization

- Open-source LLMs offer more customization but require significant resources for optimization and harnessing their full potential.

06

Experimental landscape of Gen AI

- The current landscape is predominantly experimental, with many businesses still developing PoCs and lacking fully operational production solutions.

07

Application in various industries

- Vector databases and API models in Gen AI find applications across industries, with specific use cases like enhancing operational excellence and product innovation.

08

Sector-specific applications and future trends

- Applications are increasingly tailored to specific industries and business needs.
- Future trends indicate a move towards multimodal models capable of processing diverse inputs.

About Addepto

We empower innovators to shape the future through the adoption of AI and data-driven solutions.

Our Core Values: Ownership | Openness | Proactivity | Balance | Respect

Addepto delivers full-stack, end-to-end AI, Machine Learning, and Data Engineering solutions tailored to optimize supply chain management in Logistics, Retail, and Manufacturing companies.

We developed AI-driven and Data-oriented services that will enable your company to take full advantage of the gathered data. Our expertise includes a variety of areas related to AI:

- AI
- Predictive analytics
- Computer Vision
- Big Data
- NLP
- Data Engineering
- MLOps

LET'S TALK!

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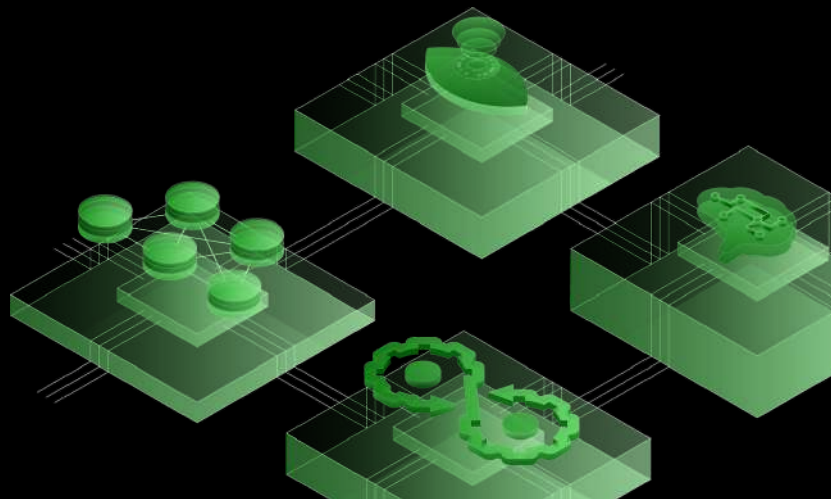


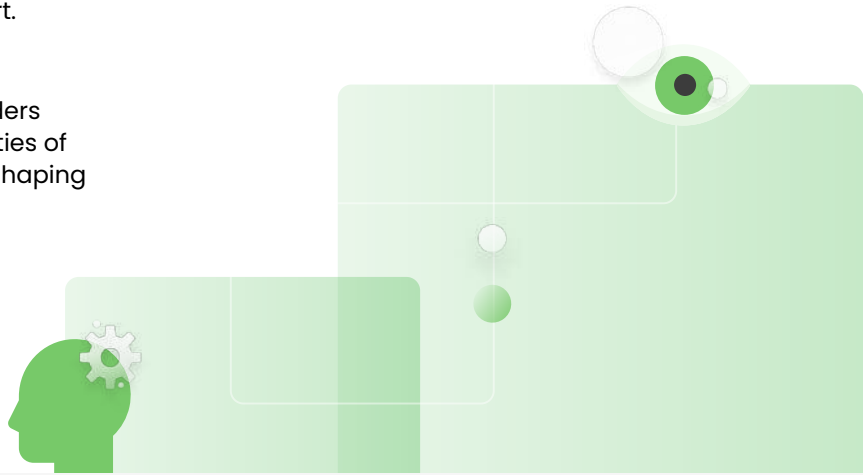
PART 1

Unveiling Industry Insights – A Comprehensive Survey Analysis

This chapter delves into the heart of industry trends, challenges, and opportunities, guided by an extensive survey that canvassed an array of companies across different scales and sectors. **Our objective was not merely to gather data but to discover the factors that reflect the current state of generative AI in business.**

The survey encompassed a group of 30 companies, ranging from startups to enterprises. This diversity allows us to present a holistic view of the industry landscape, highlighting not only the commonalities that unite these companies but also the distinctive challenges and strategies that set them apart.

Through data-driven analysis and expert commentary, this chapter aims to equip readers with the knowledge to navigate the complexities of the AI landscape, identifying trends that are shaping the future of industries worldwide.



Overview

The impact of Generative AI (Gen AI) is felt across various industries, with tech companies leading the charge in integrating AI into their products and services.

At this stage, every sector has been impacted by the hype surrounding Gen AI. However, this surge of interest has particularly affected tech companies, which are under constant pressure to improve their products. Soon, failing to incorporate AI into their offerings will make it impossible for companies to keep up with the standards set by industry leaders.

Google, one of the leading tech companies in AI research and development, has integrated AI into various products and services, including Google Assistant, Google Translate, and Google Photos.

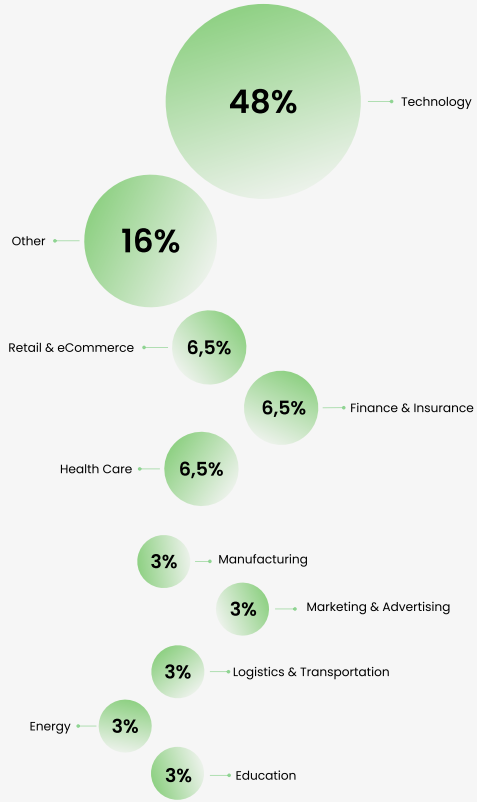
Amazon utilizes AI to enhance customer experience through personalized product recommendations and voice-activated shopping with Alexa. The company has also developed AI-powered logistics and delivery systems.

IBM, a decades-long leader in AI research and development, employs its Watson AI platform across multiple industries such as healthcare, finance, and retail.

Microsoft focuses on natural language processing and computer vision in its AI research and development efforts. The company has integrated AI into several products and services, including Cortana and Microsoft Azure.

Facebook uses AI to refine user experience with features like personalized news feeds and facial recognition technology. The company is also heavily invested in AI research and development, exemplified by its AI Research division.

Gen AI adoption across industries: Tech sector takes the lead



Overview

In the realms of retail and finance, companies are increasingly adopting generative AI to spearhead innovation and address sector-specific challenges.

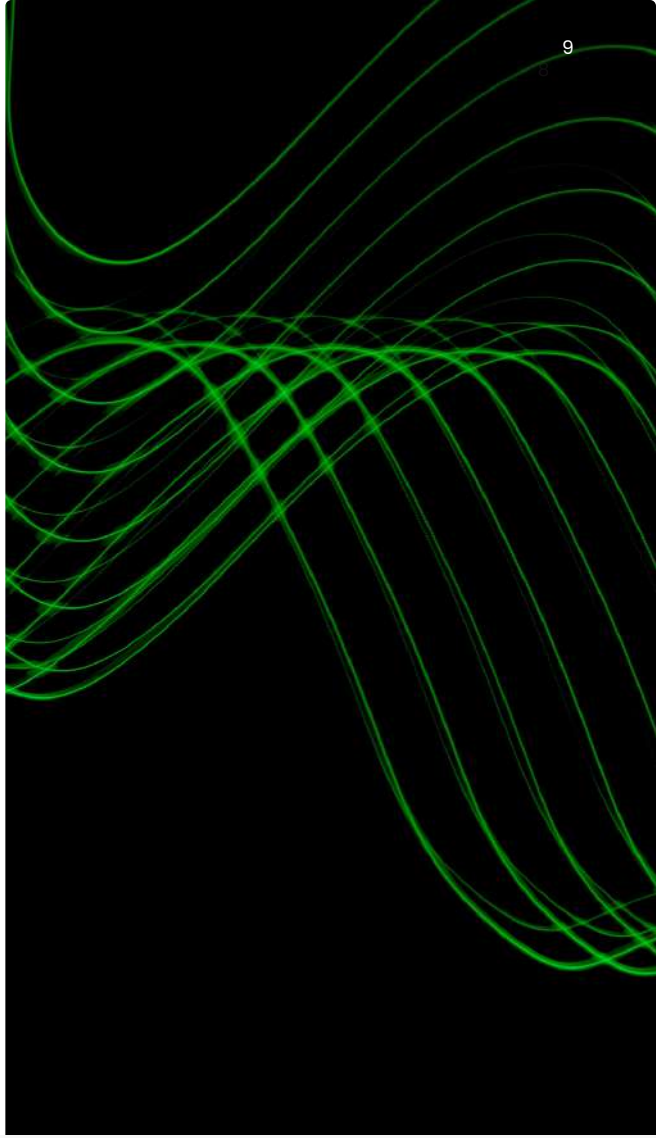
Within the finance sector, **generative AI is revolutionizing the search and synthesis of financial documents, aiding in talent acquisition, enriching online customer interactions, and addressing risk and compliance challenges** by making complex data more intuitive.

It also serves as a research tool for investment analysts in capital markets, analyzing extensive datasets including event transcripts and company filings to streamline research processes.

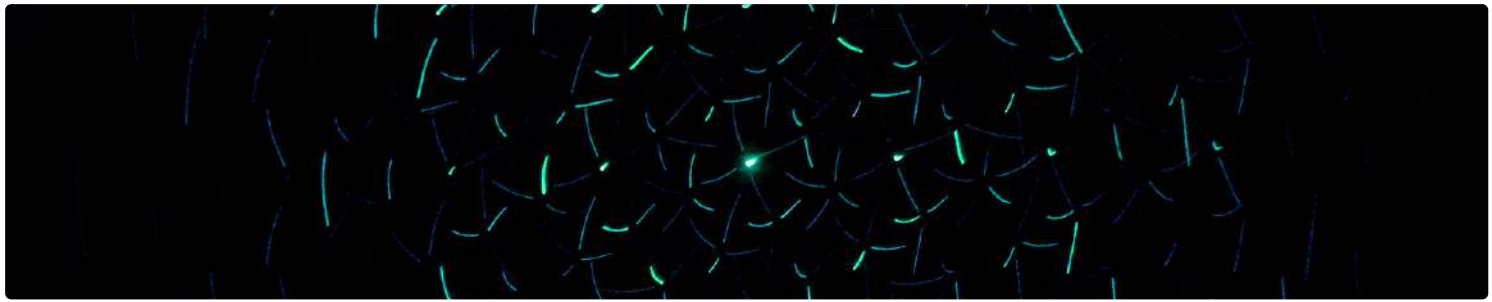
In retail, the impact of generative AI is transformative, particularly in **enhancing customer experiences and operational efficiency.** It revolutionizes online customer interactions by making them more conversational and optimizes internal processes, leading to significant efficiency and cost savings in retail banking.

What is size of your company?

42%	29%	29%
Large enteprises	SME	Scaleup/Startups



Generative AI usage

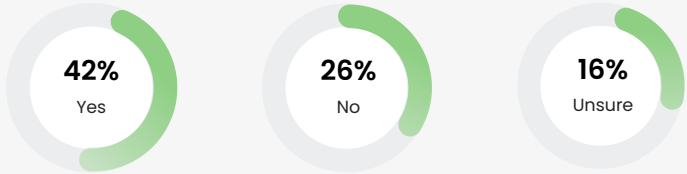


Although the technology itself has only recently entered the mainstream, many companies have already adopted it in some form.

However, many of these implementations are limited to integrating GPT-based tools into a fraction of their internal processes. This process, known for being straightforward, cost-effective, and relatively seamless, represents just the beginning of the generative AI journey.

Many companies have just started to explore the possibilities that Large Language Models offer within their organizations.

Is your organization currently using Generative AI (Gen AI) technologies in its business practices?



Generative AI use cases

Most companies have just started to discover the possibilities of Large Language Models in their organizations, tailoring them to their own unique demands and business logic.

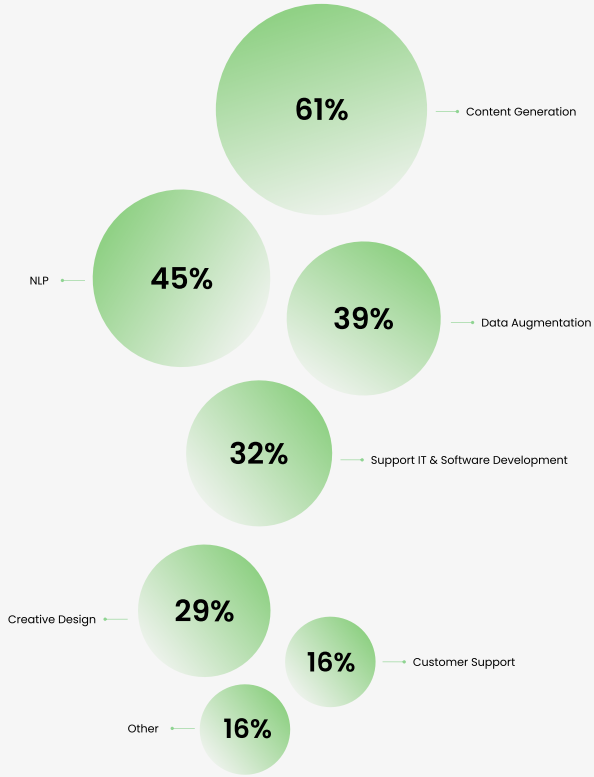
Contract Management in Retail and Pharma

Our company employs Gen AI to efficiently manage multiple contracts within the retail and pharmaceutical sectors. This includes leveraging AI for social media postings, generating ideas, and crafting targeted messaging to enhance communication and marketing strategies.

Boosting Organizational Productivity

We are deploying foundational AI models organization-wide to enhance productivity. This includes developing a custom GPT model for KPI-based data analysis, allowing our executive team to swiftly access insights without the need for data analyst reports, thus improving decision-making speed and accuracy.

Please specify the primary use cases for Gen AI in your organization:



Generative AI use cases

Healthcare Recommender System

Our development focuses on a recommender system for healthcare, offering personalized recommendations for doctors and therapeutic options, aiming to improve patient care through personalized healthcare services.

Lease Analysis Tool

We are creating an AI tool for lease agreement analysis to automate and optimize lease management, which is expected to save time and reduce errors in handling leases.

Marketing and Content Creation

Our marketing team leverages AI tools for insights gathering, content creation, and optimization. We are also developing a conversational AI assistant to provide complex, personalized responses, enhancing customer engagement and market analysis.

Dynamic Simulation for Scenario Planning

We use Gen AI to generate policies and data for agents and environments in dynamic simulations, facilitating strategic planning and risk management in unpredictable market conditions.

Sales Outreach

AI is integral to refining our sales outreach strategies through targeted messaging, lead scoring, and sales process optimization, enhancing the effectiveness of our sales efforts.

ActionGPT Chatbot

We are developing an AI-powered chatbot to automate responses and provide quick access to information, aiming to streamline both internal and external communication.

Benefits

Generative AI serves as an invaluable asset for businesses aiming to streamline content creation, thereby reducing expenses while enhancing efficiency and customization.

By leveraging a range of Generative AI tools—including ChatGPT, Gemini, Bing, and specialized ones like Perplexity, Jasper, or Grammarly—**marketers, developers, and sales professionals can generate articles, promotional content, and even programming code,** thereby conserving time and resources.

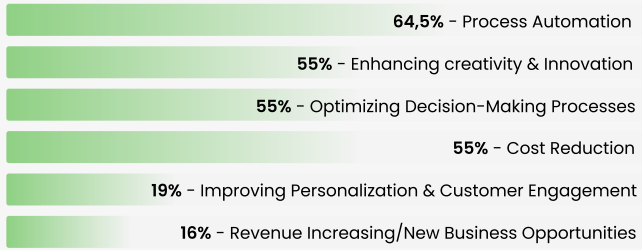
For marketers and sales experts, **the primary applications include generating basic text pieces and copywriting.**

Although many are hesitant to fully delegate the creation of complex materials to these tools, there is a consensus that, when utilized as assistants, **these tools are quite effective in conducting research or rephrasing texts.**

One of the foremost advantages of Generative AI is its capacity to decrease operational expenses and conserve time. By automating monotonous tasks, organizations can redirect resources towards more strategic initiatives, thereby boosting efficiency and securing a competitive advantage in the marketplace.

Generative AI empowers companies to deliver highly tailored experiences to their clients. It supports recommendation systems that align product suggestions with individual preferences, leading to increased sales and customer satisfaction. Additionally, it facilitates the creation of voice assistants, further engaging users.

What are the most appealing benefits of Generative AI in business?



Considerations

1. Data Privacy and Security
2. Hallucinations of Gen AI Models
3. Biases in Generative AI Models
4. Legal and Regulatory Issues
5. Ethical Concerns
6. Internal Competencies
7. Company Strategy

As generative AI reshapes various sectors, from product design to content creation, concerns around privacy and compliance are emerging. These concerns are particularly pronounced given the challenges these models face in "unlearning" specific data.

Businesses exploring AI-driven solutions encounter significant hurdles, particularly the inability of Large Language Models (LLMs) to delete sensitive information.

This limitation poses risks under privacy laws that support the 'right to be forgotten,' as observed in Europe and other regions.

With over 100 countries enforcing privacy regulations, the complexities of data handling and cross-border data transfers are becoming increasingly challenging.

Technical challenges

The effectiveness and dependability of generative AI models significantly depend on the quality of the training data. High-quality data enables the model to identify accurate and meaningful patterns, allowing for the generation of outputs that align with predefined objectives.

Conversely, if the training data is riddled with inaccuracies, noise, or inconsistencies, the model may produce false or misleading outputs, undermining trust in the reliability of AI-generated content.

To address this issue, companies are customizing GPT-based tools by "feeding" them their proprietary knowledge, integrating these tools into their business workflows, and tailoring them to their specific business processes.

However, the hype surrounding generative AI has underscored that not all companies are prepared for it.

Like predictive AI, generative AI is only as effective as the data it processes. This presents a challenge, as many companies have overlooked the crucial steps of preparing their data, such as cleaning, assessing, and labeling.

Without this essential groundwork, they find themselves limited to using general-purpose tools, which, though helpful for individuals, rarely meet specific business challenges.

What are the most critical technical challenges of implementing Generative AI in business?

- Data Quality & Quantity
- Trustworthy AI
- Infrastructure & Computational Resources
- Model Training & Fine-tuning
- Integration with Existing Systems
- Scalability
- Model Selection
- Data Accessibility and Retrieval

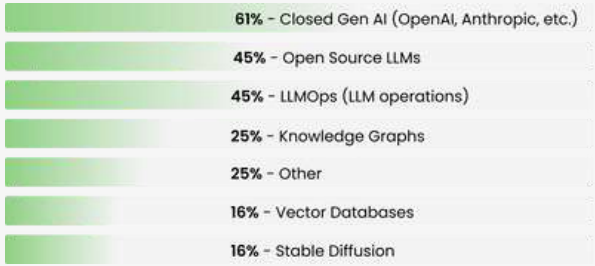
Future outlook

Companies are convinced that generative AI is here to stay, acknowledging that we are at the very beginning of this journey. They believe we are merely scratching the surface in adapting general-purpose technology from tech moguls to our own needs.

Most managers believe that, despite ethical, technical, and business challenges, closed APIs will be the first choice when it comes to adopting generative AI. They are deemed more suitable for quick implementation and testing initial assumptions.

However, open-source APIs may be a better option for scaling, though it is worth noting that they require in-house cloud infrastructure, posing a potential deal-breaker for some smaller organizations.

Which Gen AI or related technologies will you plan to use or explore in the near future?



What factors do you believe will influence the future adoption of Gen AI in businesses?

PART 2

The Promise of Generative AI in Business

Interview with Piotr Bombol, Founder at adaily - a platform offering AI tools for marketers

Piotr Bombol, Founder at adaily

Piotr has been involved in the marketing industry for 10 years. With a background in economics, he is a recipient of the National Bank of Poland President's award for his econometric work. Early in his career, he worked in network agencies (DDB, Deloitte Digital), then founded Gameset, the first gaming marketing agency, where he was responsible for business development, creating strategies for clients, and building external brand image.

How has ChatGPT changed the world?

It was the beginning of a revolution, without a doubt. ChatGPT demonstrated that conversational interfaces don't have to be as limited as the bots we were accustomed to in the past.

Today, we observe that AI can initiate and sustain a regular conversation. However, this is merely the beginning. **Conversational AI is rapidly evolving into a precursor to something far more significant.**

Isn't the adoption of Gen AI-based solutions lower than one might anticipate?

Among consumers, there's significant hype surrounding Gen AI, often perceived as a universal tool. It was only later that businesses began exploring ways to harness Gen AI for their distinct needs. GPT, in its essence, is a fundamental, general-purpose tool beneficial to companies. However, it's not without its risks.

*Over a quarter **(28%)** of workers are currently using generative AI at work, and over half without the formal approval of their employers.*

Source: Salesforce.com

Employees with unrestricted access to GPT might inadvertently disclose sensitive business-related information. This is primarily because they often find it challenging to discern between confidential and non-confidential information. Regrettably, ChatGPT in its free version, as opposed to the enterprise version, utilizes all provided information for its training. Data coming to the API is also not used, which represents a missed business opportunity.

Users, yielding to the innate temptation to reduce their workload, might delegate their entire tasks to AI and subsequently replicate the results. This behavior is colloquially termed as "falling asleep at the wheel."

Second, there are legal issues. The output of language models isn't protected by copyright. Therefore, in the creative industry, for example, you can't transfer its rights to clients. Not to mention the legal implications surrounding the datasets on which Gen AI models have been trained.

An experiment by the Boston Consulting Group revealed that ChatGPT typically accelerates and enhances the quality of consultants' work. However, it can also induce a sense of complacency in them, given that its responses are consistently convincing.

Source: Papers SSRN

So, is ChatGPT not suitable for companies?

ChatGPT is a "jack of all trades, master of none."

Initially, we were dazzled by its conversational capabilities. However, when we attempt more specific tasks, its limitations become evident. In my view, these limitations stem from two main factors:

- GPT is a predefined interface, meaning it has set conversation parameters designed to meet general needs. This, however, does not imply that GPT as a model lacks other capabilities. OpenAI has provided users with a 'Playground' mode where all parameters, including those affecting the randomness of responses, can be modified.

- It experiences 'hallucinations,' which are not bugs but rather features. GPT is engineered to consistently provide a convincing response rather than admitting its lack of knowledge in certain areas.

But even with its predefined behavior and hallucinations, ChatGPT finds widespread use.

It is a constant evolution. Initially, the ability to tweak parameters was capitalized upon by 'wrappers'—products that essentially monetized what was available via API even before ChatGPT, and with the ChatGPT launch became free. A prime example is JasperAI. Its basic plan, priced at $49 a month, costs two and a half times more than ChatGPT Plus.

This trend, which I consider the 'first wave', seems to be waning. Merely adjusting parameters or adding specific instructions to GPT doesn't resolve inherent issues, such as hallucinations.

A notable incident involved a US lawyer who, relying on a ChatGPT-based program, drafted a legal argument. This document contained entirely fake court citations, leading the lawyer into significant trouble due to breaches in professional ethics (read full story: The Guardian).

The 'next wave' is characterized by vertical applications tailored to specialized knowledge areas. Numerous businesses are emerging, aiming to harness the power of Gen AI while mitigating its associated risks. Major corporations are successfully integrating AI components into their software to boost user-friendliness, with Adobe and Notion being notable examples.

Concurrently, standalone applications like Perplexity are being developed to tackle specific Gen AI challenges. Perplexity tries to collect information from the Internet, add an appropriate filter, and build a tailored answer.

Furthermore, there are AI applications that synergize specific industry data with the GPT interface. Take HubSpot, for instance—a standard CRM that, with the aid of ChatGPT, has significantly streamlined data access and utilization. Users can effortlessly ask a question and receive an answer via a so-called ChatSpot.

In my perspective, these trends will shape the future of Gen AI in the business realm, catering to precise, niche requirements and delivering tangible business value.

So, it's not merely about changing parameters but more about fine-tuning?

Not exactly. In the fine-tuning process, we introduce additional knowledge packets to train the model. While this doesn't eradicate hallucinations entirely, it equips the model with supplementary information. However, this method demands extensive, meticulously detailed knowledge bases and substantial computational resources, translating to increased costs.

Another strategy, which we at Adaily employ and has also emerged as an industry norm, revolves around vector databases. Vector databases are intended to provide the ability to search for information contextually, which is not possible with standard databases that rely on keywords.

Specifically, at Adaily, **we maintain a consolidated, exclusive database of advertising campaigns.** When users inquire about particular examples, they receive precise answers. The hallucination risk is nullified; if a query pertains to an absent item in the database, the response is simply, "I don't know."

Pebblely, an application designed for hosting virtual product photography sessions, amassed a million users in just seven months.

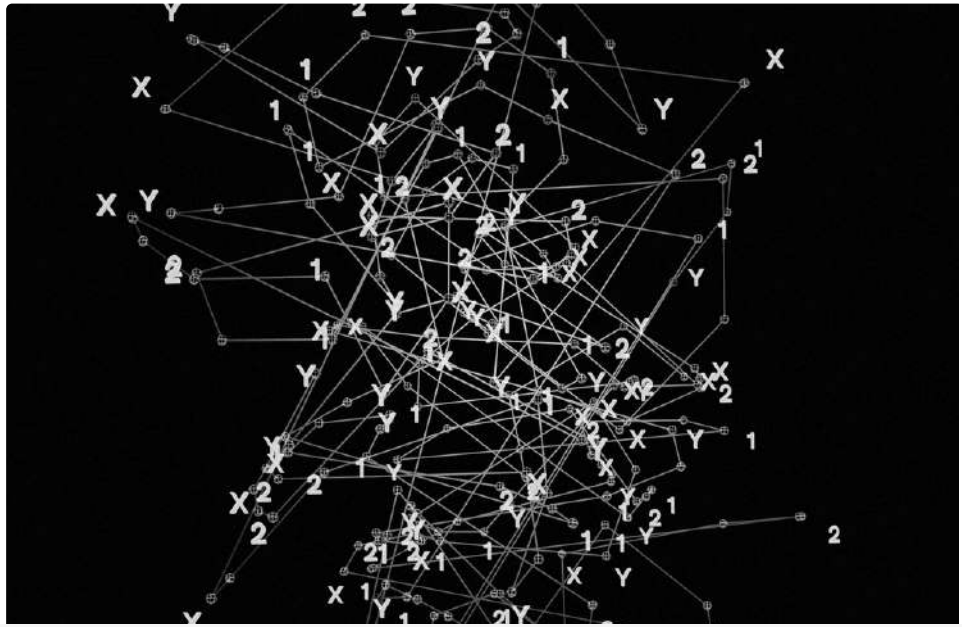
What are vector databases?

A vector, in its simplest form, is a mathematical object that represents direction and magnitude in space. However, it takes a more complex approach when it comes to data science.

In data science, **vectors serve as fundamental building blocks for representing complex information in a machine-understandable form.**

Therefore, a vector database can be described as a type of repository or database that stores and manages unstructured data such as images, text, or audio in high dimensional vectors (vector embeddings) to make it easy to find and retrieve similar items.

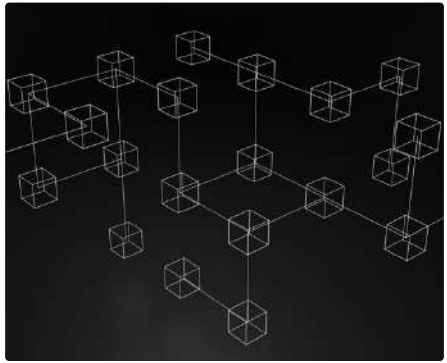
Read more at Addepto Blog!



It seems that in most scenarios, the API plays a pivotal role. Is that accurate?

Absolutely. GPT is an API-centric model. This means that even in the absence of a dedicated application, one can harness certain capabilities of the model to suit individual requirements. For businesses, this might necessitate venturing beyond their comfort zones. However, many corporations are proactively addressing this challenge by offering training sessions on leveraging their APIs.

In essence, **the most effective AI applications are those that operate discreetly in the background, delivering value without demanding substantial input.** I'm of the conviction that the future trajectory of AI won't be anchored in prompts. It's unrealistic to anticipate individuals mastering the art of prompting, much like we didn't expect everyone to become adept programmers in past years.



What examples do you have of companies that successfully utilize Gen AI?

One example is Pebblely, an app designed for virtual product photo sessions. Impressively, it garnered a million users in just seven months.

Another intriguing model is from the company VEED.io, which capitalizes on the so-called "promptless experience." This application enables users to craft a video complete with music, voice-over, and subtitles, all initiated by a single sentence.

Similarly, the integration of DALL-E into ChatGPT has proven effective. With this synergy, ChatGPT autonomously generates prompts that it relays to DALL-E. Users have the flexibility to propose specific modifications using natural language.

Personally, I believe Midjourney might face challenges in achieving mainstream popularity, primarily due to its reliance on prompt engineering. The main difference is that DALL-E handles prompting through ChatGPT, but the results are mediocre. Midjourney, on the other hand, requires you to become an expert at crafting prompts, but delivers much better outcomes.

As for the future trajectory of Gen AI?

We are on the cusp of the multimodal models era - Google recently introduced multimodal Gemini 1.5. These are models adept at processing diverse inputs, with a notable capability being the conversion of visual data into text or alternate graphical forms.

How do multimodal models work?

Multimodal AI models work by combining multiple sources of data from different modalities, including text, video, and audio. The systems' working mechanism starts with training individual neural networks on a specific type of data.

The training process typically employs recurrent neural networks on text-based modalities and convolutional neural networks on image modalities.

Read more at Addepto Blog!

PART 3

Exploring Vector Databases and API Models in Generative AI: Applications of Generative AI in Various Industries

Interview with Kiryl Halozhyn, Solutions Engineer at Databricks

Kiryl Halozhyn, Solution Engineer at Databricks

Kiryl serves as a Solutions Engineer, where he ensures technical excellence for major companies in Europe in their big data and analytics ventures.

What are the main applications of Generative AI in companies?

Initially, Gen AI was mainly used in the creation of various types of chatbots, support bots, and simply Q&A engines. Today, these solutions seem quite basic, but in the beginning, they required courage because the technology was quite new, so the risk was significant.

However, **now we see more and more advanced MVP solutions that are being applied for specific scenarios to improve companies' processes** and are usually based on the use of vector databases utilizing both unstructured and structured data.

Thanks to them, the so-called foundational models are enriched with very specific knowledge, which allows them to address more specific business problems, decreasing the risk of, for example, hallucinations. It can be said that we combine impressive conversational abilities known from ChatGPT with the appropriate company-specific knowledge.

What models are used as the basis for such solutions?

API-based models from OpenAI are usually used initially in PoCs because using a ready-made API in a small test solution is usually not a big cost and the model response quality is very high.

However, many companies decide to reach for an open-source model at a later stage during the productionalization phase looking for lower latencies and better cost performance metrics. In the case of a product that is to be implemented throughout the company, the costs of using a smaller single open source model or multiple models in a chain are lower.

OpenAI Models	Open-Source Models
Simple and intuitive API for interacting with models	Varies depending on the specific open-source model
Cost-effective for low-usage or lower response times	Free to use, but may require more infrastructure and staff specialization
Fast TTM for product development	May have a slower TTM due to the need for infrastructure and staff specialization
May have vendor lock-in and pricing changes directly affect profitability	Users have more flexibility and control over the model's development and customization.

In the initial phase, there was a lot of talk about fine-tuning, but it doesn't seem to be the solution that companies are eager to reach for at the moment.

Fine-tuning is the next stage for Gen AI use cases, even more complicated and costly. The use of vector databases does not require preparing data for fine tuning and a big amount of GPU computing power. RAG can be done using OpenAI and simply paying for the number of tokens retrieved from the API.

This is quite simple.

However, **to do fine-tuning, you need to have your own model training architecture, well-prepared huge datasets of custom data and provisioning of a large number of GPU instances**. There are multiple companies on the market which specialize in model fine tuning for the companies and thus will take part of the complexity away, like MosaicML.

Will the future of domain-specific Gen AI solutions be based on open-source models?

Rather yes. It is difficult to use one large model for every scenario, every company, so in my opinion, the future will favor smaller, faster, cheaper models that will be focused on specific use cases. Combining multiple open source models in a single use case will provide the best cost performance outcome.

What is LLM Fine-Tuning?

Fine-tuning basically refers to the process of adjusting and tweaking a pre-trained model to make it suitable to perform a particular task or cater to a given domain more effectively. This process usually involves training an LLM on a smaller and more targeted dataset relevant to the task you want the model to complete.

Popular pre-trained LLMs are powerful but may not perform in specific tasks or domains. In that case, specialized training or fine-tuning is needed to help improve their performance and accuracy for your desired application.

For example, you can easily fine-tune any pre-trained model of your choice to perform specific tasks such as analyzing sentiment in customer reviews, translating text from English to French and Italian languages, classifying documents based on themes, detecting malware and viruses, predicting stock prices based on business news, or even writing love poems.

When it comes to fine-tuning LLMs, you don't need to use large datasets. Rather, you only need to use task-specific or domain-specific data to enhance your model's performance in the respective area.

Read more at Addepto Blog!

However, most solutions based on LLMs are interfaces that essentially offer the same thing as ChatGPT.

Yes, many such SaaS have been created, but as it seems to me they have a fairly defined lifespan. In the beginning, it might have made sense because there was a lack of knowledge on how to implement these scenarios using LLM and Gen AI in general, how to define their parameters, etc.

Now major tech companies on the market have their own foundational models and overall companies have more knowledge of how to implement their own solutions, whether using SaaS APIs or own hosted models.

Is there, or do you think, that the development of Generative AI will focus on finding and addressing these areas specific to given domains for a given company?

Using publicly available models involves companies having to give the green light to use their data and send it to 3rd party SaaS API. It seems to me that this will play a major role in the development of smaller open-source models hosted on their own infrastructure.

By using the Open AI API, our data theoretically is not used to train the model.

Theoretically, yes, but this is a Microsoft product, so, for example, someone who does not use Azure or is not in the cloud at all has to verify Microsoft in terms of processing personal data.

What other barriers are blocking the introduction of AI?

Company culture and quality of unstructured data**. Many companies do not think about AI because they are still in the process of implementing foundational data platforms, such as data lakehouses and it will take time for them to start prioritizing Gen AI use cases.**

Moreover, as before LLMs companies usually focused on the quality of structured data and creating a single layer of truth for it, now unstructured data starts to play a crucial role in the success of Gen AI solutions.

Therefore, many companies have to first do their homework with getting Sharepoint, Confluence, Jira and other internal data prepared for future usage.

But I believe that with time, LLM use cases will become a crucial part of companies data strategy and now we're just seeing the beginnings of this new trend.

PART 4

Beyond Chatbots: Exploring Generative AI's Diverse Roles in Business Innovation

Interview with Piotr Michałowski, Agile Coach & AI Community Lead at InPost

Piotr Michałowski, Agile Coach & AI Community Lead at InPost

Piotr Michałowski, currently serving as Agile Coach & AI Community Lead at InPost, advises and teaches Gen AI skills.

Along with ChatGPT, LLMs (Large Language Models) have broken into the mainstream and are widely used by individual users. But what does it look like in business?

This is connected. Previously, AI was an area that required extensive knowledge in Data Science, knowledge of Python, working with models, databases, etc. When ChatGPT debuted, it turned out that using AI can be easy and enjoyable. The conversational interface was a game changer here, and the hype around Generative AI among individual users made companies also start to take more interest in it.

However, the implementation of Generative AI tools in business is not proceeding as fast as one might think.

Companies are learning, the business environment is constantly verifying how it can use Generative AI in internal processes, and the more critical these processes are, the more people are involved in decision-making.

What are the biggest obstacles that companies fearing the implementation of Gen AI face?

Talking to a chatbot is easy and everyone can do it, but to use the language model behind it appropriately, we still need specialists - Data Scientists, Prompt Engineers, or other technical people who will be able to fill this language model, whether it's GPT, Llama, or Claude - with knowledge specific to a particular organization. And that's the challenge companies are facing.

63% of decision-makers said their biggest skills shortage was in AI and machine learning (ML)

Source: A recent survey by analytics firm SAS

How can they cope with this?

It's changing rapidly. We can enhance models with our data using RAG technique, but a more promising direction is building multimodal models that can take any file info analysis and prepare results. That, combined with an extended context window, might make it easier. .

Is the future, therefore, the creation of smaller, domain-specific models that focus on solving problems specific to a particular company?

I think that is one of the options that companies are exploring. OpenAI has already provided tools that help utilize the huge conversational potential of GPT and - at the same time - equip it with the knowledge we need, but in practice, powering the model with our own data requires a lot of work, processing of these data, and understanding how these models work.

The data we currently have collected in companies, I'm not talking about tabular data or databases, but about regulations and various types of textual documents, are usually prepared in a form that we understand perfectly because we see a broader context, but unfortunately, the model understands it very differently.

We created a chatbot, which we equipped with knowledge of our terms and conditions. In theory, it should always provide correct answers to questions about what can and cannot be done.

However, when asked whether glass can be sent via InPost, it answered yes, which is not true. So, where did it get this information from? Well, it found a point that said cosmetics in glass packaging can be sent, concluding that glass can be sent, even though another point clearly stated that it is forbidden.

In creating this model, we used vector databases and followed best practices, but it still wasn't perfect. In the end, we managed to circumvent this problem by better-dividing documents into so-called chunks.

We also created something like a GPT Council, built from several models doing the same job with different prompts and one that acted as a supervisor, determining which one handled the task best.

Building a system composed of several models seems to be the next direction in which companies are going.

Yes, that makes sense because there are many models, and each has its advantages and disadvantages; they deal differently with different languages.

There's GPT, undoubtedly the most popular, but again, not open-source, and locking yourself to only one supplier, one company, from a business point of view, is risky because it means vendor lock-in.

One model could not be enough, and besides, it may turn out that we bet on the wrong horse, which in two years will become the weakest link in our system. Companies are still researching this, comparing costs.

Which areas of activity in the company can benefit the most from the implementation of Generative AI tools?

In the long term - all of them. **In the first place, however, it seems to me that all kinds of co-pilots will be implemented**, i.e., virtual assistants who will facilitate the work of individual office workers, helping them prepare materials, conduct brainstorming, etc. Their impact will be huge, but it will quickly become unnoticeable because we will start treating them like Teams, Outlook, Gmail, etc.

As for specific departments, appropriately used, it can certainly massively change our work, and as for specific departments, of course, marketing, sales, or customer service. However, I don't expect AI to take away jobs from employees of these departments but rather to support them.

Next step?

AI Agents, that will be able not only to generate content, but do completed tasks, that include interaction with several different systems.

We already know today, however, that AI is replacing them (source)

Most companies see AI as an opportunity to increase their own competitiveness, not just save costs. Otherwise, we can quickly reach the absolute limit and replace the CEO with AI too 🙂

AI can help everywhere we work with text, images, music, video, content in general, in creative, office work, etc., but ultimately, human verification is usually needed. Of course, there have already been advertising campaigns entirely created by AI, but we can wonder if they weren't created to make a bit of noise around the brand, which is also understandable.

In InPost, you created a Knowledge Management System based on LLMs.

Yes, like every organization, we had a lot of knowledge scattered in many places, which made it difficult to effectively find the relevant information. **We decided to build an application that would help in accessing information, no matter where it is located** - on SharePoint, in PDF, in a CMS, or on someone's disk, in a conversational way.

But if these models still lack so-called explainability, can we trust them?

This is a very difficult question. Probably at the moment, it's worth applying the principle of limited trust, and this business expertise will still be needed. However, I think that trust in models will grow in direct proportion to their development.

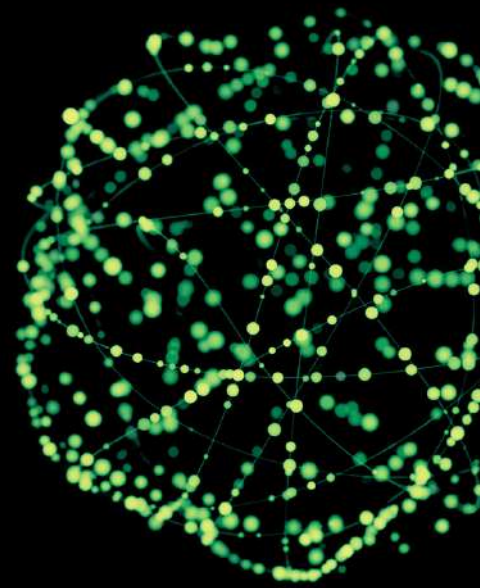
You also mentioned the R&D culture. Has the hype around Generative AI made companies more open to such innovations?

This is definitely a challenge for many companies, also because of the large volume of manual work that is still done in large corporations. There are, of course, organizations that adapt faster, but often, it's just a matter of security because they operate with sensitive data. We also need to look at use cases, i.e., those elements that can actually be improved by AI, answer the question of what benefits it will bring, and whether it's profitable and feasible to implement.

These are questions that are difficult to find answers to right away. Many things turn out in the course of further iterations of the development process when we can preliminarily determine, for example, how much time we save and how this translates into finances.

So, how will Generative AI affect business strategies?

I think the future is, on the one hand, large multimodal models that allow working on text, image, music, video followed by autonomous agents able to perform whole process and interact with different systems, and on the other hand, small(er), custom solutions created within companies for their own specific needs.



PART 5

Implementing Gen AI in Business Practice: Strategy is a key

Interview with Dominika Bucholc, AI & Strategy Expert

Dominika Bucholc, AI & Strategy Expert

Dominika conducts research in artificial intelligence and behavioral economics. Currently, she merges business with technology, managing international projects. Dominika adopts a holistic, strategic approach to implementing AI solutions in companies, believing the best results come from combining human expertise with AI potential.

AI, thanks to Generative AI, is experiencing remarkable growth. But does this media popularity translate into the implementation of AI tools in a business environment?

The problem is that companies think implementing AI means using ChatGPT, but it's not that simple; it's not just about implementing a tool. AI implementation should be preceded by a strategic process where we primarily identify the problem we want to solve, and then choose the tool capable of doing it.

Because ChatGPT is a "general use" AI, meaning that - even if we want to use it, for example, to write posts for a company website - we need to ensure it has knowledge about our industry or company. Meanwhile, many clients believe they can "implement AI" by using a farm version of ChatGPT, which doesn't even have internet access.

*The potential economic value from AI tools could be as high as **$26 trillion**, but a major limiting factor in AI reaching its full business potential is the availability of talent.*

Source: A report by McKinsey

The strategy should go first?

Yes, **initially we map out business needs.** And here, different needs arise depending on the department, some in marketing, others in sales, HR, or finance. It's best to look at all departments simultaneously, as many processes involve several departments at once, like invoices flowing through the company.

In the second stage, we analyze the market and competition. We're simply looking for answers to whether someone has done it better, so we don't reinvent the wheel. Many people skip this stage, insisting they are pioneers, which is rarely true. Many innovative solutions originate in countries like India or China, and European ones are their copies.

At this stage, are you already looking for a specific tool?

Yes, we assess whether it will be an autonomous AI platform or an AI feature for an existing system. It's not necessarily about adding another 20 platforms, because sometimes it's enough to add an intelligent module to our CRM, like implementing Einstein in Salesforce. **It may also turn out that the ideal solution will be combining AI with rule-based automation.** Because sometimes, by combining something like Zapier with OpenAI, we build a set that allows us to create a completely new quality using fairly simple methods.

Thanks to Generative AI, we can move away from creating bots that operate on typical predefined scenarios and create more intelligent solutions that keep us in the conversation loop when a problem doesn't fit the pattern.

Banks are doing this very well, implementing voice bots only in certain areas, but again, to do this, you need to map the entire conversation and streamline it at certain stages that always look the same, such as identity verification.

After such automated verification, the conversation can be redirected to a consultant. When only part of this process is set up, it means significant optimization on a larger scale. This combination of AI and human work usually yields better results than complete process automation.

However, it must be hard for management to resist the temptation of such automation.

Mature organizations understand this and sometimes this speaks to them more than AI, towards which they are still quite dismissively inclined.

Then there are data security concerns, as data transmitted to external systems can always leak. After a short period of tool frenzy, many companies started to approach their capabilities and limitations more rationally.

Is this the main blocker in implementing AI on a large scale?

The main blocker is the lack of strategy, behind which should stand typical consulting work. Often, it turns out that the board had a vision that is far from their real needs, or its implementation is simply unrealistic because some still believe in superhuman AI. Then we need to break it down into specifics, show how it works using other clients' examples, and what benefits it brings.

The next issue is security, infrastructure, and legal matters. Sometimes the regulations of the apps we want to use have clauses that do not align with the company's policy, or the infrastructure does not allow for a new API to be connected, and suddenly we have to go back to the beginning. It all depends on the type of implementation we're talking about, but we can't skip the stage of securing existing tools, as there's a high risk that the entire system will collapse sooner or later.

At the business level, where the responsibility for decisions is huge, there is resistance to giving total control to AI, which still can't connect the dots as well as a human.

Are companies aware that AI implementation requires such a holistic analysis?

Month by month, it's getting better. We had over a year for education, and only now are the first major implementation projects starting to appear, with many companies just planning them. Companies are primarily afraid of data leaks, as we still don't know exactly how these systems function. They want guarantees of security and confidentiality.

And how do employees approach AI implementation?

Training employees is a key issue determining whether AI in a company will be useful. Initially, they understandably fear and then reject it. However, AI can be a real support for an employee, but they must see it for themselves. Then employees can realize that AI is not magic, it won't think for them.

Will humans always be needed?

I think so. They'll be needed for evaluating AI, controlling implemented changes, assessing effects, ensuring data quality... I'm not a fan of fully automated processes. **From my experience, AI works best when it's "injected" into selected process elements and cooperates smoothly with humans.**

PART 6

The real potential of LLMs. We are in the beginning of the journey

Interview with Adam Kozłowski, Head of Automotive R&D, Grape Up

Adam Kozłowski, Head of Automotive R&D at Grape Up

Adam Kozłowski serves as the Head of Automotive R&D at Grape Up, also holding the position of Cloud Solution Architect. With a technical background affirmed by a Certified Kubernetes Administrator designation, his expertise spans a wide array of skills including proficiency in low-level programming with C/C++, as well as development in C#, JavaScript, Vue.js, React, and React Native. Beyond programming languages, they are adept in Cloud Native DevOps tools, encompassing Kubernetes, Cloud Foundry, BOSH, OpenStack, Terraform, AWS, Google Cloud, and Jenkins.

Generative AI finds itself in the spotlight. How are businesses embracing it in business practice?

Most of the applications we implement are related to the use of conversational capabilities of Large Language Models (LLMs) and their ability for contextual understanding of textual documents. These are primarily systems aimed at more effective management of knowledge accumulated in the organization, such as searching through documentation, regulations, instructions, etc.

Such systems are used both in internal processes and in customer facing systems. Where we use such a chatbot depends on what information we allow it to process. There really are no limits here.

Are all chatbots built on a similar principle?

In terms of technology, most of them are based on Azure and use GPT 4.0. Depending on the needs, we also use other services provided by Microsoft, but that is definitely the core. The differences between individual projects are primarily based on so-called context management, ensuring that the responses provided are as precise as possible and not too costly.

Is there a problem with hallucinations?

We've taken care to narrow down the databases our models use and defined system prompts to avoid this problem. RAG systems also greatly help with solving this problem Ultimately, we rarely encounter hallucinations.

Do you only use APIs? Why didn't you use open-source solutions?

For now, most of our projects are PoCs and prototypes, so we decided to go with API-based solutions. Due to cost and development time. These projects usually take weeks, not months.

The next project, related to the use of Knowledge Graphs, is more complex.

Yes, this project uses LLMs in two different areas: one to create graphs from information gathered in articles collected on the web, and another to ask questions about what is in such a graph.

Thanks to this combination, processing and analyzing data collected on the web is faster and more comprehensive.

Employees could read and tag a finite number of contents, while LLMs essentially have no limits. GPT reads and summarizes articles, indicating which company they are about, their origins, the topics they cover, and in what context. It then writes this in a coherent format, e.g., a JSON file, from which a graph can be loaded to find more different connections between elements. Such a graph is the "source" for another LLM, to which we can ask specific questions.

Why was creating a graph crucial for you? Wouldn't a regular database be enough?

A regular, traditional database consists of columns and rows connected by metadata, describing their relationships. However, these data are often dispersed, requiring engineers to maintain them in a way that any conclusions can be drawn.

Knowledge Graphs, on the other hand, create a single model, the structure of which can be compared to a universe composed of many galaxies. This structure allows capturing many more relationships between individual elements and thus drawing much more information about them. The data are structured in many dimensions, allowing them to be arranged in arbitrarily defined information sequences, facilitating their analysis.

In short, from dispersed data, we can more easily extract the necessary information.

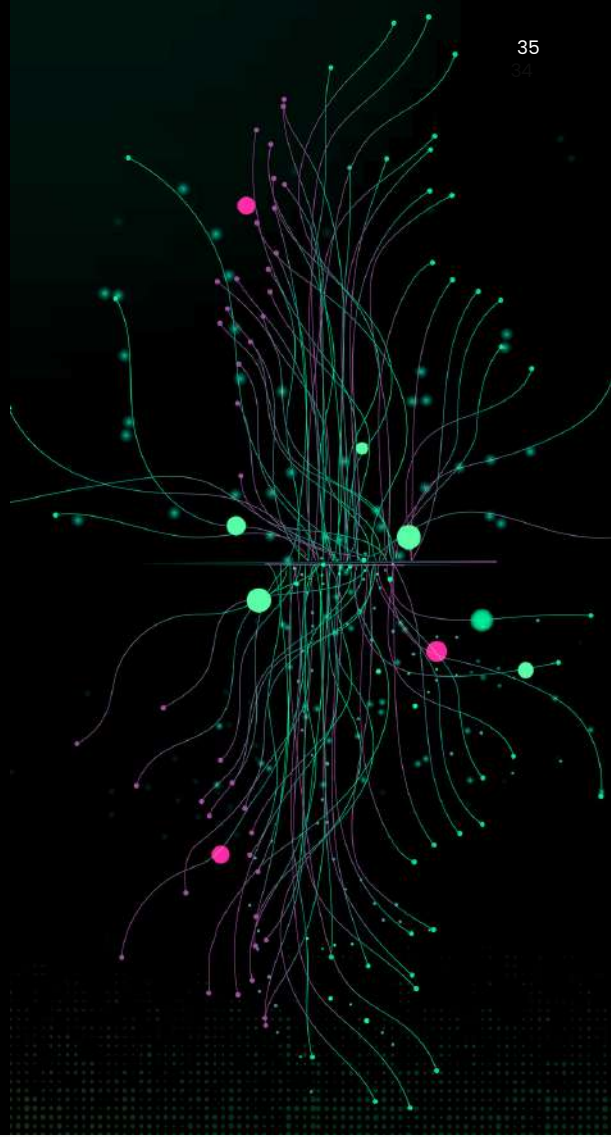
Using LLMs for data management, including creating knowledge graphs, is not yet very common.

So far, everyone is focusing more on chatbots, which are becoming more and more sophisticated. But other applications start to appear. Recently, there was information about a company that used GPT to generate images of various car models, which are later used in simulations assessing their aerodynamics. Another uses a similar mechanism to create images of damaged product elements so that models can learn to detect them effectively.

There's also talk of so-called destination assist, i.e., navigation support. It's about searching for very specific destinations without needing to enter detailed commands, like 4-star restaurants near an EV charger.

What are the main obstacles companies encounter during the implementation of Gen AI-based solutions?

One issue I would highlight is cost optimization, or in other words, context management. There is a lack of experienced specialists who could suggest to companies how to maintain a balance between user experience and costs, remembering that in Open AI, we are billed by tokens.



Could the future belong to open-source models?

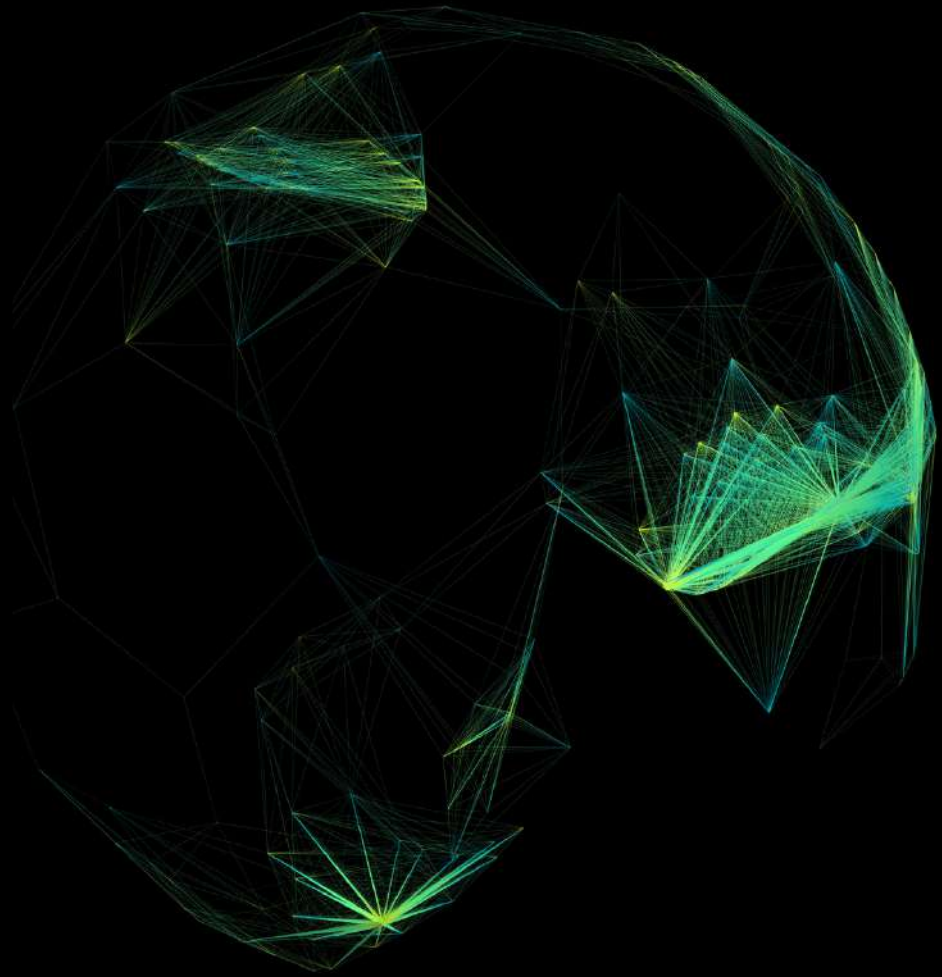
I think not. In some cases, especially in larger companies, open source will probably work great, but API-based models still have many advantages like faster development and relatively easy-to-estimate costs. The choice will depend on the specific case.

What future awaits Generative AI?

I am far from panic, but also from excessive optimism. **AI is just a tool, and we already know that text written by ChatGPT is far from perfect. Such a text requires editing, correction, and verification, and while it may indeed speed up human work, it will not replace it.** The same goes for writing code. Writing it is only a fraction of the work, it needs to be checked to see if it works, how it works, and whether it meets safety requirements.

After the initial boom, have companies realized this?

Most are in the stage of building a strategy. **They want to use Gen AI, but they don't know how to go about it, what technologies to use, how to take care of security and legal aspects.** And it's not just a lack of Gen AI strategy, but a lack of AI strategy in general. The boom in Gen AI highlighted these gaps, which are now being quickly made up for.



PART 7

Beyond the Buzz: LLMs Potential and Pitfalls

Interview with Krzysztof Rajda, Head of AI at Brand24

Krzysztof Rajda, Head of AI at Brand24

Krzysztof is a veteran of internet monitoring and content analysis, boasting over eight years of experience in developing, managing, and implementing AI solutions. He is currently finalizing his PhD at the Department of Artificial Intelligence at Wrocław University of Science and Technology. On a personal note, he is a proud father of two wonderful sons and a space opera enthusiast.

Generative AI is its stardom, and I am sure you've already managed to use it in your product. What possibilities did you decide to harness?

Brand24 has found a unique use case for Generative AI because we process public data, which means we don't face the security issues that other companies might have when dealing with private data. What we use AI solutions for, broadly speaking, aligns with what we believe they should be used for - tasks such as summarizations and aggregations of text. Indeed, these solutions excel in processing text, taking a given body of text, and generating more text under certain conditions. Many of the features we've recently launched are based on this pattern.

For example, our AI Insights base on mentions and statistics aggregated and summarized by AI in a way that's easy to grasp.

Similarly, our Anomalies Detection base on undercovering and rephrasing most distinguish patterns from textual data - when there's a sudden spike in a chart, AI can help us understand what exactly is happening. Large Language Models (LLMs) are also particularly useful for extracting various pieces of information that our international clients want to know.

Take, for example, a Vietnamese monitoring project we have, where a specific Vietnamese word is monitored. Given that we don't have anyone on board who understands Vietnamese, we can rely on LLMs to translate and describe it, thus equipping our Sales and Customer Success Teams with valuable insights.

So you believe Gen AI is a support for your employees, not a replacement?

No, not at all. **Gen AI serves as an important tool, but definitely not a substitute.** For non-technical employees, it helps with polishing texts, brainstorming or gaining insights. For technical ones, writing code with a copilot is much easier. While we do test agent-based solutions for code creation, and they perform well in specific applications, I can't see them replacing developers.

In which specific applications do LLMs excel?

When we create something new—be it a mini product, a website, or something else that didn't exist before—LLMs perform excellently. They can generate code, databases, and images, and arrange them appropriately.

However, the situation is challenging when our product or service relies on a thirteen-year-old codebase with various hacks and patches. I am not aware of any automatic solutions capable of coming in to instantly analyze and successfully expand the entire codebase. Of course, we haven't tested every solution out there, so some of the newer ones might manage, but as of now, I am not aware of any.

Legacy systems still pose a barrier to the adoption of Gen AI. What are the other barriers?

A major obstacle is the legal issues and data security concerns. Companies in the financial sector, or representatives from more traditional institutions, often cannot utilize Generative AI at all due to concerns about data privacy and security.

Moreover, **there is a lack of strategic application.** Product features always should align with customer needs, yet currently, Generative AI often serves as a 'gimmick.' Attached to a product, it is intended to boost sales. It is similar to the past trends like the rush for mobile apps.

Not so long ago, every company and website felt compelled to have its mobile app, regardless of its value; now, the trend is for everything to be labeled as 'AI-powered,' regardless of the actual benefit or necessity.

But AI is not a separate feature; it's something that, as they say, can break the paradigm of interaction with software into a more human, conversational form.

That's true. I believe we can gradually shift in this direction, moving towards writing or speaking to systems instead of navigating through clicks. However, **it's crucial to distinguish between two aspects: integrating AI into a product and incorporating it into the production process.** Indeed, every programmer, product manager, strategist, or marketer can significantly benefit from LLMs, but not every product necessitates such solutions. In cases primarily based on text, it works perfectly.

For instance, TripAdvisor recently introduced an excellent automatic summary of all reviews. Yet, in other scenarios, more traditional solutions, like simple statistics for anomaly detection, are adequate.

LLMs' capabilities are not limited to processing text information.

Yes, but honestly, I'm a bit cautious about giving them more power. We've had big problems at the beginning of the LLM journey, when we tried using LLMs for math tasks. They are now much, much better, but there's still a big question: as we don't get how they do some things, can we trust it? And do we really need to force LLMs to do math?

Scientists are split into two groups: one group says we should only give LLMs the final results to talk about or explain, not the data itself; the other group isn't worried about this. I'm with the first group. We have a lot of statistical methods and math algorithms to do a lot of tasks, without using LLMs. I believe we should process data with simple yet reliable methods when we can, and then push results to LLMs to write it down in a beautiful way.

So LLM-skeptical?

Maybe just a bit. I don't find LLMs magical because I know a little about how they work. They use a lot of information to guess the best possible answers. But these guesses aren't always right because they learn from the entire internet, being anchored in data which is attached in the model's prompt - so results can be mixed and definitely can be fake.

The tech behind LLMs has been introduced previously. So why is ChatGPT so popular now? OpenAI made it better by using a special kind of training, leading to text that is amazing to read. They hired people to pick out good answers from bad ones. With this help, ChatGPT got extremely good at giving answers that people like. Underneath, it remains a prompt-driven engine.

And here, prompting is a bit of magic.

Yes, it seems a little more magic than engineering now. Sometimes, changing one seemingly insignificant word can completely alter the result, literally. We tested various prompts and prooved, for example, that preceding a prompt with an encouragement to 'relax and take a few breaths' significantly improved our results. That's a real case.

A separate issue is data. **What adds value to Large Language Models (LLMs) is the data that fuels them. LLMs can analyze data presented in databases, tables, and different systems, and explain them simply. Data is key.**

Do you see any dangers arising from the hype around Gen AI?

I see that now everyone wants to use them, even when, in a given case, other technologies—often cheaper and more stable—would suffice. It's important to remember that basic Large Language Models (LLMs) are updated, which affects the outcome. We experienced such a case: OpenAI updated the model we were using, and our clients noticed that the reports became 'less specific.' An alternative could be to use freezed versions of open-source models, but again, this requires the right infrastructure, which also generates costs.

PART 8

Gen AI revolutionizes financial services

Interview with Joanna Witek, Product Lead at Finiata

Joanna Witek, Product Lead at Finiata

Joanna Witek is a product management professional with background in Strategic Management, graduating from Kozminski University and expanding her knowledge at the London School of Economics and Political Science. She's been part of Finiata since 2018, where she's currently leading Product Management and Development team. Her focus lies in leveraging the power of AI within credit products, not solely for conventional risk assessment, but also for innovative monitoring solutions and enhancing user experience. Joanna's personal interests revolve around exploring the creative potential of generative AI, particularly in the realms of visual arts and applications of AI in healthcare.

What are the most promising use cases for Gen AI?

In the realm of technological evolution, Gen AI stands out as a groundbreaking advancement. This sophisticated AI, unlike its predecessors, is capable of understanding, learning, and applying knowledge across a wide array of tasks, mimicking human cognitive abilities.

Especially for its users**, it becomes evident that Gen AI is not just a futuristic concept but a present-day tool driving significant advancements in almost every industry.**

01

Data Analysis and Insights

Most technological businesses use big data, in finance and risk assessment we use more than a lot and the ability to efficiently process and analyze vast amounts of information is crucial. Gen AI excels in this domain, offering deep insights that were previously unattainable due to the sheer volume and complexity of data and limited human capabilities.

Businesses can leverage AI-driven analytics for informed decision-making, identifying trends, forecasting market changes, and formulating strategies. This level of analysis enables us to stay ahead of the curve, adapting proactively to the ever-changing market dynamics.

02

Chatbots and Virtual Assistants

In the financial services sector, customer interaction and support are crucial, every delay in responses causes frustration and decreases trust in a company. **Gen AI-powered chatbots and virtual assistants are slowly showing us a way to mitigate this risk. These tools provide customers with instant, round-the-clock support for their queries and transactions. They can handle a wide range of functions, from answering FAQs to assisting in transaction processing, ensuring a seamless customer experience.**

Moreover, their ability to learn and adapt from interactions enhances their efficiency over time, offering more personalized and accurate responses, to which humans are more likely to be open.

03

Tailored Recommendations

Gen AI takes personalization in financial services to a new level. **By analyzing customer data, AI algorithms can offer tailored financial advice, product recommendations, and investment or saving strategies.** Customers receive suggestions that are aligned with their financial goals and risk profiles, making financial planning and decision-making more efficient and user-centric.

This level of personalization, powered by Gen AI, marks a significant leap from the one-size-fits-all model traditionally seen in financial services and allows financial services providers to act more responsibly by adjusting products to their customers' needs and capabilities.

04

Enhanced Credit Scoring, Risk Assessment and Loan Processing

Gen AI is significantly improving the lending products landscape, particularly for small and medium-sized businesses as well as freelancers. Traditional credit scoring methods often overlook the nuanced financial realities of those groups. This technology with its advanced algorithms, provides a more comprehensive and accurate assessment of creditworthiness.

By analyzing a wider range of data points, including transaction histories, market trends, and some of the data that we previously wouldn't associate with risk assessment, Gen AI offers a holistic view of a business's financial health. This enhanced method enables lenders to make more informed decisions, potentially increasing access to credit for SMBs as well as their ability to make repayments.

The loan processing journey is another area where Gen AI is helping financial institutions. For businesses, time is a critical factor, and traditional loan processes can be lengthy and cumbersome. It becomes possible to streamline these processes by automating document verification, fraud detection, and eligibility checks. This not only speeds up the loan approval process but also reduces operational costs for lenders and can make a loan application and usage a surprisingly pleasant experience.

05

Customization and Personalization in Financial Offerings

Customization is key in today's financial landscape, and Gen AI makes it simply easier for companies to provide. Financial institutions can use it to create personalized financial products and services.

For example, **AI can analyze individual customer profiles, including spending habits, investment history, and risk tolerance, to offer customized investment advice or personalized loan products that will be both safe and beneficial.**

This level of personalization not only enhances customer satisfaction and loyalty but also allows financial institutions to differentiate themselves in a competitive market, offering unique solutions that are closely aligned with their customers' specific financial goals and situations.

What are the most underestimated potential uses of Gen AI in business currently?

The potential applications of Gen AI in the finance sector are a subject of extensive discussion, and it is challenging to identify areas where its impact is underappreciated. In the contemporary financial landscape, the integration of technology and user experience is essential.

To deliver innovation to major financial service providers, it is crucial to not only comply with regulatory requirements but also to meet the ease-of-use expectations of end-users.

This necessitates exceptional product development. Gen AI can empower businesses to develop highly customized products on a large scale.

By analyzing customer data and feedback, AI can generate design options that are tailored to specific consumer preferences, trends, and capabilities. This application extends beyond simple recommendations, involving the actual creation of designs or functionalities, leading to products that are more closely aligned with current market demands.

Regarding compliance and legal sectors, the potential uses for Gen AI are vast, yet the sensitive nature of these fields requires cautious adoption. **It has the potential to automate the analysis of legal documents and regulations, ensuring that businesses remain compliant while simultaneously reducing the workload on legal teams.**

When AI can provide support in creating products tailored to specific user groups, ensuring compliance with regulatory requirements, and when such solutions are deemed trustworthy, it becomes a priceless tool for the digitalization of existing products and the development of new ones.

This synergy of technology and compliance underscores the transformative impact of Gen AI, especially in highly regulated sectors such as the financial industry.

What are the most significant blockers stopping companies from using Gen AI for scale?

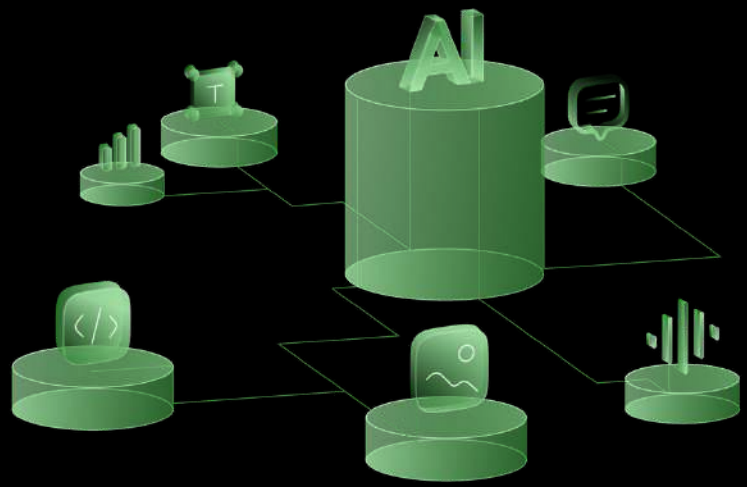
In the financial services sector, particularly in lending, the handling of sensitive financial data presents significant challenges related to **privacy and security**. Many companies exhibit hesitation in fully integrating external AI solutions due to the elevated risk of data breaches and misuse. The necessity to adhere to strict regulations such as GDPR further complicates the widespread implementation of AI in processing sensitive customer information.

Additionally, **infrastructure and resource accessibility** create significant challenges. Implementing AI on a large scale in-house requires substantial computational resources. This can be particularly daunting for smaller businesses, which may lack the necessary IT infrastructure or financial capacity to invest in such technology.

Moreover, **recruiting and retaining personnel with the expertise to develop, deploy, and maintain AI systems** remains a significant barrier, especially in specialized sectors like financial services or healthcare, where a deep understanding of both the technology and the domain is essential.

Beyond these technical and logistical challenges, perhaps **the most pervasive obstacle is cultural resistance and change management.** There is often an inherent resistance within organizations to adopting AI. Concerns about job displacement or scepticism towards AI-driven decisions are common among employees.

Effectively managing this transition, securing employee support, and training staff to collaborate with AI systems are critical yet hard challenges that many companies encounter. This resistance is often fueled by misinformation about AI and simplistic assumptions. **Overcoming these barriers requires a deeper understanding of AI technology and recognition of its pervasive use in various aspects of our daily lives.**



What trends will dominate the AI landscape in the next few months?

We recognize the massive potential of AI, yet are aware of the countless options and implications it presents.

Consequently, **our focus is on clarifying the practical applications of AI and outlining its boundaries.** This may result in the development of cross-disciplinary AI solutions combining insights from various disciplines, like economics, psychology, and sociology, along with technical data science. This holistic approach can lead to more effective solutions in complex fields like public policy, education, and strategic planning.

The development of Gen AI, which can create content like images, videos, and text, is also expected to advance further. The main reason for that is its popularity and how impressive the results are to the public.

These developments will open up new possibilities in creative fields but also raise concerns about authenticity and misuse, such as deepfakes.

This, on the other side, suggests that the emphasis on ethical AI practices will intensify. This includes developing guidelines and frameworks to ensure AI is fair, transparent, and accountable. Governments and regulatory bodies are likely to introduce more regulations around AI usage, focusing on data privacy, security, and ethical implications. **The ability to differentiate content generated by AI and the one created by a human may become a crucial part of that process.**

PART 9

Uncovering AI-Driven Opportunities: Exploring Specific Use Cases

Tutlo's Strategic Approach to Integrating AI for Operational Excellence and Product Innovation

Tutlo - online English school founded in 2015. Its platform is designed for on-demand learning, accommodating users whenever they have the time.

Currently, the company cooperates with nearly 2300 native speakers and Polish lectors, nearly 58000 customers use its services, and the team consists of 500 people.

Tutlo also offers solutions for the B2B segment - it currently cooperates with almost 500 companies. Tutlo has been awarded many times for its innovation, including: during Orange Fab Poland.

In 2022 and 2023, Tutlo was also included in the prestigious Financial Times ranking "FT 1000 - Europe's Fastest Growing Companies".

Yuliia Pysmenna
COO at Tutlo

For quite some time now, I have been observing a great interest of Polish companies in solutions in the field of AI – this can be seen, among other things, in the full auditoriums and the high number of registrations for various pieces of training, lectures, and conferences related to the use of artificial intelligence in business.

*Therefore, **I believe that the number of implementations of tools based on AI will only grow.** Leading in this area will be companies in which personnel costs constitute a major part of expenses, thus having extensive customer service or sales departments.*

I assume that over time, all basic activities in these areas will be performed by AI, and service provided by consultants will be reserved exclusively for more complex processes or so-called 'premium options.

However, this will not happen quickly – there is still a long way to go.

01 First of all, clear legal regulations in this area are needed for AI-based solutions to permanently enter the business world.

02 Secondly, we first need to learn how to use such solutions so that their implementation is actually beneficial.

For example, ChatGPT has access to information from the entire internet. However, if we want it to write a post on a given topic, we need to know how to construct the command.

03 Thirdly, the tools must be more technologically advanced than they are currently – at least to the extent that they are able to perform the task as well as a human.

Tutlo's Strategic Approach to Integrating AI for Operational Excellence and Product Innovation

At Tutlo, we have been experimenting with the use of Gen AI for some time, which is why we have created a dedicated AI department within the company. This department researches and analyzes where AI can potentially bring us the highest benefits from a business perspective.

It deals with mapping internal and external processes, which will allow us to identify those areas that can be automated, as we realize that AI - both Predictive AI and Generative AI - is not a panacea for all challenges and will not replace people but - when properly implemented, it can support them.

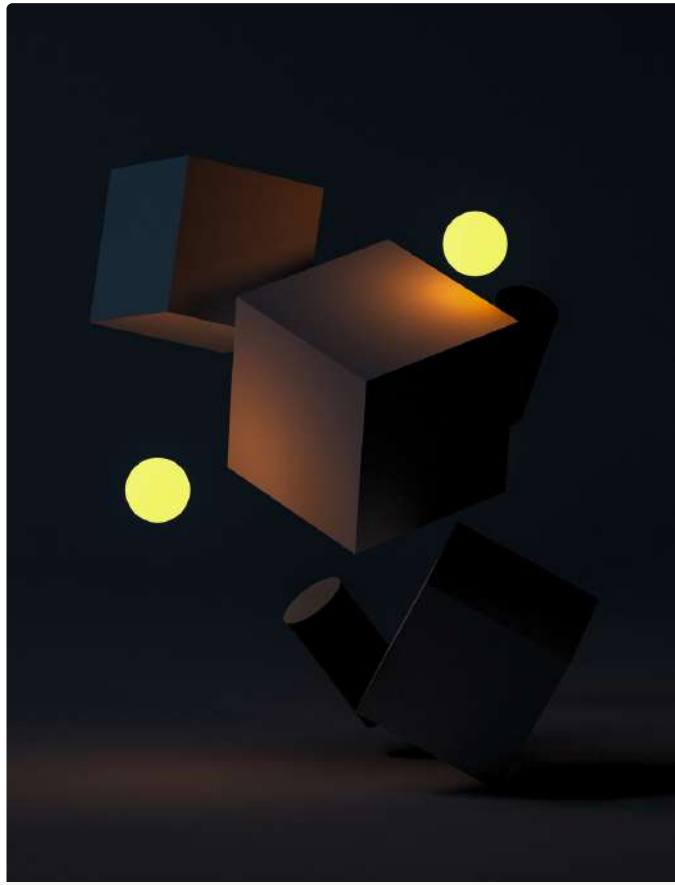
Here's a small aside: initially, we considered the possibility of outsourcing AI-related activities, but after preliminary analysis, we decided that creating an internal department and appointing internal ambassadors who would take on tasks related to employee education would be more effective.

We see the potential of AI in two parallel areas:

improvement of internal processes

product development

We are working on implementing Gen AI in the initial stages of training our students, assessing their initial skills, and checking the correctness of tasks, but we also want to go a step further. We are exploring the possibility of expanding services to include courses with Gen AI , as well as creating an assistant who would accompany our students at all stages, taking care, for example, of adapting their education to individual needs.



Sustainability with GenAI: Clouds on Mars' Approach to ESG Compliance and Environmental Impact Reduction

Generative Artificial Intelligence (GenAI) is the most effective when customized for specific customer needs, especially for solving real-world use cases. At Clouds on Mars, we specialize in ESG (Environmental, Social, and Governance) reporting and related domains.

One common issue we see with our clients is managing many documents and reports that are crucial for planning a strategy toward more sustainable operations. Determining which internal data is relevant to meeting ESG standards is often complicated, and much of the valuable information is not used optimally. The solution is our AI-based tools.

We use GenAI for its outstanding ability to quickly go through and summarize large amounts of data, including complex information, which usually takes a lot of time and effort.

This technology helps us build detailed knowledge bases for our clients or conduct comprehensive evaluations of their sustainability practices, marking the first steps toward meeting ESG requirements. These tools give our clients valuable insights to help them plan their future actions, create ESG reports, and set goals for reducing their environmental impact.

Another way we use GenAI is to dig into our client's data to find patterns and trends. It means our clients can get through their data and understand it faster – even without having a sustainability expert on their team.

On the other hand, sustainability is becoming an increasingly important trend in the tech sector. As GenAI becomes a regular part of business, companies will pay more attention to how their technologies affect the environment.

To make AI more eco-friendly, strategies such as tracking how much energy AI uses, sharing AI learning across different machines without centralizing data, and reusing existing AI models can all contribute to reducing the environmental footprint.

Cloud on Mars specializes in Modern Business Intelligence (BI), focusing on empowering businesses to utilize data effectively through advanced Microsoft technologies like Power BI, Azure Data & AI, and the Power Platform.

The company's expertise spans a diverse range of industries, involving top-tier companies across Europe, North America, and the Middle East. With a strong commitment to environmental sustainability, Cloud on Mars actively works towards reducing their carbon footprint, achieving a Carbon Negative status in their business operations.

Agnieszka Bąk
ESG Consultant and AI Solutions Designer at Clouds on Mars

Beyond chatbots. How to use Gen AI for data operations?

The most common and also the most standard application for Generative AI, specifically Large Language Models (LLMs), are areas related to knowledge management and customer support, which in practice means chatbots.

However, LLM-powered chatbots are much more advanced applications than those we were accustomed to. They are capable not only of providing answers to standard questions but also of triggering specific events.

Currently, we are working on several such applications for the automotive industry.

One of them is a technical support system that searches through documentation accumulated in the organization and - if necessary - triggers the functions which helps the customer with managing his account, invoicing, payment information, and purchase history and the other - quite similar - is intended for a business development unit.

It allows not only to quickly access information but also to compare, for example, records contained in contracts with agreements made during negotiations, such as during a call.

Both systems support operational work because they have access to everything in the internal communication systems and - depending on the access level of a given user - can provide information based on this knowledge. They can be used both to accelerate access to information and to verify agreements.

Another chatbot we are working on is dedicated to programmers, but the principle of its operation is similar:

it streamlines the software development process by accelerating the search for information about technologies approved for use in a given project, i.e., accepted by the cybersecurity department, IT department, and legal department.

This may sound trivial, but in large organizations, assembling the so-called tech stack in a new project can take months.

A less standard project in which we use not only the conversational abilities of LLMs is our knowledge graph.

In this system, we use LLMs in two places: the first deals with analyzing text documents and creating a graph based on them, which can then be a source of knowledge for the "dialogue" LLM, meaning you can simply ask it what is in the graph in a similar manner to vector search.

Grape Up is a technology consulting company helping the world's leading enterprises deliver their most impactful software using AI, Machine Learning, Cloud-Native Technologies, and a unique approach to software delivery.

Adam Kozłowski
Head of Automotive R&D at Grape Up

Brand24 with Generative AI: Revolutionizing Product Development, Internal Operations, and Ideation Processes

Using Generative AI solutions has become an essential component of our daily efforts at Brand24. Actually, we use this technology to support four fields of activity: product, internal information flow, programming, and the process of ideation (including prototyping and evaluating our ideas).

Let's start from the most apparent sphere - our product. When working on upgrading Brand24's capabilities, we utilized the most powerful ingredients: advanced LLMs, the RAG technique, and Brand24's secret sauce - high-quality data.

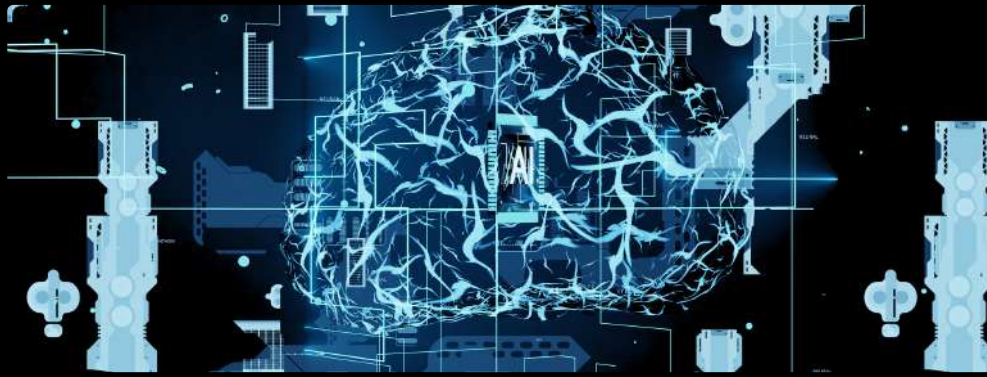
We provide the Large Language Model with the most appropriate data about a product, brand, or whatever our user is monitoring online to add specific context to the model's responses. This allows our AI to access and utilize precise knowledge about people's opinions and beliefs to serve our users better.

Currently, the Brand24 tool offers four features utilizing Generative AI solutions augmented with the RAG method. These are Anomaly Detector, Brand Assistant, AI Insights, and AI Topic Analysis.

Brand24 is a social media monitoring tool that allows you to collect real-time mentions of the brand, evaluate the results of a marketing campaign, and identify trending topics by monitoring trending hashtags.

The platform analyzes social media conversations including sentiment analysis, the volume of mentions, or estimated social media reach.

Krzysztof Rajda
Head of AI at Brand24



Brand24 with Generative AI: Revolutionizing Product Development, Internal Operations, and Ideation Processes

01

The AI Brand Assistant is an advanced chat where you can ask for personalized analyses regarding your brand or product, such as summaries of key statistics, trend identification, strategic recommendations, ideas on how to deal with recent social media crises, and competitive analyses.

02

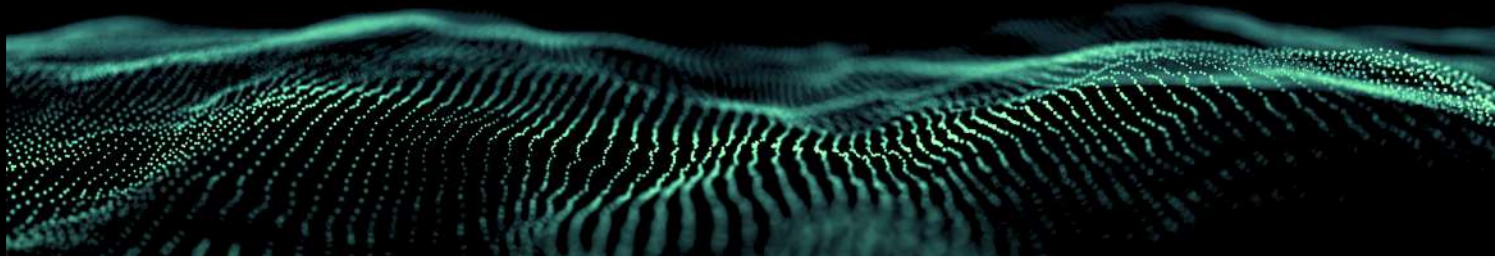
The Anomaly Detector analyzes a project, identifies unusual patterns, and summarizes the conclusions in one or two AI-generated sentences. This aims to quickly identify events that occur in the brand's life that can be immediately served and utilized.

03

The AI Insights feature creates a report that provides insights, analysis, and recommendations based on Internet monitoring data. The AI Insights are available both in Brand24's dashboard and are being sent to users' emails on the 1st of each month and each Monday morning to easily track what happened in the previous week or month and how to deal with it.

04

Also, we have implemented **an AI-generated text solution in the Topics Analysis feature**. Brand24's AI detects what topics of discussion were covered in the particular project's results and automatically generates a summary of each Topic. It concisely explains the topic and allows for a quick absorbance of knowledge of what the discussion is focused on.



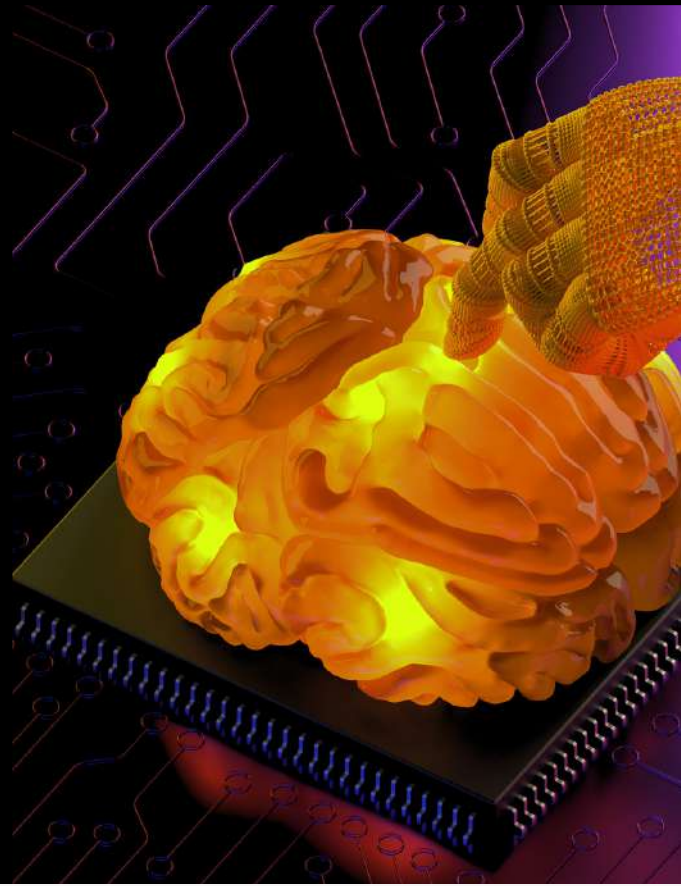
Brand24 with Generative AI: Revolutionizing Product Development, Internal Operations, and Ideation Processes

As for our internal information flow, we use Generative AI powers to enhance the knowledge of our customer service workers. For each project of our clients, we generate a short summary of what it is about to help our Customer Success Department serve clients better by gaining in-depth knowledge of their needs - even if it's in a language we don't speak and touches problems we don't fully aware of.

Moreover, Generative AI significantly aids our programmers in their daily work. Our developers enhance their efficiency by using Copilot to generate code snippets and debug existing code. This AI-human synergy accelerates project completion and ensures high-quality & reliable software for our users.

As for prototyping and adjusting our ideas, Generative AI plays a pivotal role in rapidly iterating and refining concepts. This technology allows our teams to experiment with various approaches, simulate outcomes, and visualize the potential impact of their ideas.

By leveraging Generative AI, we can quickly generate prototypes, test hypotheses, and fine-tune strategies, ensuring that our innovations are both effective and aligned with market needs. This accelerates the decision-making process and fosters a culture of agility and creativity within Brand24.



Gen AI in risk Finiata's assessment processes

At Finiata, we leverage the capabilities of Gen AI to enhance and refine our risk assessment processes and procedures.

This advanced technology plays an important role in developing more sophisticated and accurate credit scoring models for our lending products.

Gen AI plays an important role in developing accurate credit scoring models for lending products

These models are capable of analyzing not only traditional data points, such as credit history and revenue streams but also integrating non-traditional data sources. These include online reviews, social media sentiments, and supply chain disruptions, thus offering a more comprehensive evaluation of an SME's creditworthiness.

Furthermore, Gen AI aids in the detection of potential fraud and financial risks by meticulously analyzing patterns and anomalies within financial transactions. This not only protects our portfolio but also provides a safeguard for our customers.

Gen AI aids in the detection of potential fraud and financial risks

In addition to risk assessment, Gen AI is assisting our users to gain a deeper understanding of their business finances. It enables them to anticipate potential cash flow and liquidity risks.

Gen AI is assisting our users to gain a deeper understanding of their business finances

Consequently, we can offer proactive and tailored advice on financial management. This guidance ranges from estimating investment capabilities and cost-reduction strategies to enhancing revenue generation methods.

We also proactively alert our customers to potential issues arising from their existing financial behaviours. In the future, we hope to help users understand future industry trends, and customer behaviour, and detect potential repayment delays.

On the operational end, we are developing a customer assistance tool that promises round-the-clock support for our users, addressing their immediate concerns. In the realm of financial services, the effectiveness of such an assistant hinges on its ability to be both helpful and reliable, necessitating extensive testing. **The integration of AI into our operations is not merely an enhancement; it has become an indispensable element of our business model.** We firmly believe that this technology is pivotal in augmenting our performance and elevating customer satisfaction.

Finiata is a fintech company specializing in data-driven B2B lending and risk assessment solutions. The company's expertise lies in embedded lending – a streamlined approach to integrating finance into the operations of non-financial companies and SMEs.

Joanna Witek
Product Lead
at Finiata

SapienceS2P's AI-Enhanced Procurement Pipeline

The capabilities of AI - not just Generative AI - theoretically seem limitless. AI can automate a large portion of processes that currently do not add any value to businesses but only generate costs.

One such area, for example, is the management of purchasing and invoices in a company.

We have implemented a bot capable of creating a purchasing strategy and assessing the risks of a given partnership, considering specific parameters, and then ensuring the continuity of the process, including control of processes related to invoice management.

Our solution used various AI techniques, not just Gen AI, but also OCR and ML; however, the key turned out to be the user experience.

We created a unified environment, thanks to which the user no longer had to log into three different systems in search of required information, but could communicate with the bot through Teams and there obtain all the necessary information.

And that's not all, such a bot can also function as a personal assistant, helping to streamline workflow, for example, by reminding you to inform colleagues that they can continue a given process, or reminding you of your tasks at the beginning of the week.

Of course, each implementation is different because it depends on the data that the organization has. Most have data that is completely unprepared for AI, which the boom in Gen AI has highlighted.

The good news is that thanks to Gen AI, it is largely possible to speed up and optimize the data cleaning processes, which once required considerable resources and manual labor.

SapienceS2P is a SAP procurement consultancy offering expert support and advice to organisations of every size.

SapienceS2P is actively seeking to improve user experience within the SAP procurement framework by developing a range of add-ons and extras for SAP Ariba.

Dario Kulic
Senior Partner at
SapienceS2P GmbH

Conclusion

The integration of GenAI into company workflows faces several notable hurdles, including reliability issues, inherent biases, legal complications, and technological complexity.

Firstly, **concerns persist regarding the reliability of generative AI**, as instances of hallucinations and biases continue to impede its widespread acceptance.

Secondly, **legal entanglements, exemplified by ongoing lawsuits against major AI companies** such as OpenAI, Microsoft, and Google, threaten to curtail the collection of public web data crucial for AI training, potentially stalling advancements in generative AI.

Moreover, the intricacies of GenAI, particularly its demanding data requirements and precision standards, present a formidable obstacle to adoption, particularly in fields like code generation where subpar precision rates have led to challenges within developer communities like Stack Overflow.

Finally, **the absence of clear regulatory frameworks in certain regions has fostered the proliferation of AI tools,** yet impending regulations may alter the trajectory of AI development, potentially necessitating strategies for technology firms to meet the heightened expectations surrounding GenAI adoption.

Incorporating GenAI technologies into business operations goes beyond a simple technological upgrade; it's a critical business necessity. While it may seem daunting, integrating GenAI requires a deep understanding of its latest developments and an acute awareness of the accompanying challenges.

However, for those enterprises that navigate these complexities adeptly to leverage GenAI effectively in pursuit of their objectives, the potential rewards are immense and exceedingly promising.

Despite facing hurdles, Gen AI offers transformative potential across industries. It promises to revolutionize creative tasks like writing, coding, and knowledge management, streamlining operations and driving innovation.

By democratizing access to advanced capabilities, Gen AI empowers organizations to optimize resources, foster a culture of innovation, and stay competitive in dynamic markets.

Its scalability and versatility enable businesses to adapt quickly to changing environments, unlocking new opportunities for growth and differentiation.

Thus, it's crucial to recognize that we're merely at the dawn of the AI journey. As we navigate the complexities of integrating Gen AI into organizational workflows, we can anticipate continuous advancements and innovations in the field.

The coming months are poised to unveil new capabilities and solutions, further fueling the transformative potential of AI across industries. Embracing this evolving landscape with adaptability and foresight will be paramount in harnessing the full benefits of Gen AI and driving sustainable growth in the future.

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