TOP AI DRIVEN COMPANIES
REPORT 2024

Report

AI Pioneers.
The best companies shaping the technological landscape

AI-Driven Leaders in the CEE region

MCI CAPITAL ASI S.A.

BAIN & COMPANY

ART OF NETWORKING

Between promise and reality

Generative artificial intelligence is gaining increasing popularity, and companies plan to spend over a trillion dollars on AI infrastructure in the coming years. However, its impact on the economy raises many controversies. According to a Goldman Sachs report, opinions on the transformative potential of AI are divided between skeptics and optimists.

Experts like Daron Acemoglu from MIT claim that the immediate benefits of AI will be limited. It is estimated that in the next decade, automation will cover only 4.6% of all tasks, translating to a GDP growth of just 0.9% in the USA. Acemoglu also emphasizes that generative AI is incapable of solving complex real-world problems — which is vital to justify its high costs.

On the other hand, optimists like Goldman Sachs economist Joseph Briggs see enormous potential in AI in the longer term. Briggs predicts that AI could automate 25% of tasks and increase the USA's GDP by 6.1% over the next ten years. His optimism is based on decreasing costs, task allocation, and the creation of new jobs, reflecting the historical development of previous technological innovations.

A significant challenge for AI development is infrastructure. Energy and chip shortages, highlighted by analysts, may limit the pace of AI adoption. The power grid, largely unprepared for the increased demand for electricity, requires massive investments to support the data centers on which AI relies.

So while some consider AI to be another overhyped bubble, others see it as the beginning of a revolution. The coming decade will show whether generative AI will meet high expectations.

— Grzegorz Kubera, managing editor

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TOP AI DRIVEN COMPANIES
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There is great potential dormant in the Central and Eastern European region

Bartosz Bednarz
Head of Interia Biznes Editorial

Paweł Borys
Managing Partner of MCI Capital, President of the Management Board of MCI Capital TFI

The Expert Council of the Top AI-Driven Companies Report has dedicated the last few months to working on its second edition. Numerous meetings, extensive correspondence, calls, phone conversations, interviews, and analysis of reports, documents, and numerous studies are just a slice of its achievements.

The global technological race is a fact. For various reasons, European Union countries are practically trying to catch up with the distance separating them from the USA and China. However, there are more and more countries with ambitions in the development of artificial intelligence.

It is already certain that AI will change companies, individual industries, and the entire economy. It will also change the life of each of us. The question is no longer „if?" but „when will it happen?". – The main assumption of our work was to promote knowledge and solutions in the field of artificial intelligence. It is worth for the heads and boards of Polish companies to understand that there is no turning back from technological progress – emphasizes Beata Mońka, CEO of Art of Networking.

And although even the most effective business leaders can conjure reality, even the best knowledge of the industry and market will not be enough in a few years. It will be necessary to have digital competencies at the highest level. Not only to create trends. Mainly to keep up with the market and meet consumer expectations.

Tomasz Czechowicz
Founder, Managing Partner of MCI Capital

Jan Góralczyk
Senior Investment Analyst at MCI Capital

Prof. dr hab. Dariusz Jemielniak
Vice President of the Polish Academy of Sciences, Professor of Management at ALK, Member of the EIT Council

Jarosław Królewski
CEO and Founder of Synerise

Julia Markiewicz
Founder and COO
of Silent Eight

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President of the
Management Board
of Hewlett Packard
Enterprise Poland

Dr Aleksander Poniewierski
Technology and
Business Advisor

And the youngest are already fully „digital".

– There is a group of CEOs in Poland who are up-to-date, want to educate themselves, read, and attend additional courses. This is great – notes Prof. Dariusz Jemielniak, Vice President of the Polish Academy of Sciences, Kozminski University.

During the Expert Council's deliberations, its members discussed what innovation in AI really is and how to measure it. A small dispute in this area was even desirable. Thanks to this, several additional leads and conclusions were created.

As noted by Prof. Dariusz Jemielniak, the Expert Council decided to appreciate things that are sometimes difficult to measure but have a huge impact on innovation. And as a result – as we have already established – on the economy and reality.

We had a very interesting discussion about how to really measure or weigh the innovation of Polish companies dealing with artificial intelligence – echoes Prof. Piotr Sankowski, creator of IDEAS NCBR.

> A huge challenge facing Poland and Polish companies is to ensure that innovations are created locally, and that an entire ecosystem of innovation creation is established along the Vistula and Oder rivers.

Over time, the criteria based on which the final selection of companies to be included in the report was to be made became more interesting. Finally, a decision was made.

– We choose innovators, promoters, and practitioners of AI – listed Tomasz Czechowicz, Managing Partner, CEO, and Fund Manager of MCI. The representatives of the Expert Council agreed on one thing. The report remains a pioneering study on the Polish market. Therefore, every effort was made to ensure that the second edition was at an even higher substantive level than the one from 2023.

During the work, there were also discussions about the development of artificial intelligence in comparison with the ambitions and capabilities of Polish companies.

Kinga Piecuch, President of Hewlett Packard Enterprise Poland, emphasizes that it is worth wisely using the opportunities offered by artificial intelligence, as it can lead to accelerated economic growth and maintaining competition in Europe and the world. It can also raise digital competencies in society. Digitalization of administration will create a better climate for business.

Meanwhile, a huge challenge facing Poland and Polish companies is to ensure that innovations are created locally, and that an entire ecosystem of innovation creation is established along the Vistula and Oder rivers.

– Cooperation between science and business is something we really need to learn in Poland – notes Prof. Piotr Sankowski.

This thread was picked up by many members of the Expert Council.

– In principle, we have great opportunities ahead of us. Poles should focus on artificial intelligence and big data because we have the best engineers here, and this can be our hallmark – said Jarosław Królewski, Founder and CEO of Synerise, in one of the interviews.

The first edition of the report indicated that Polish companies primarily use AI for internal process optimization. It was about increasing customer engagement, automating customer service processes, or improving marketing efficiency. The implemented solutions contributed to strengthening the market position of specific enterprises, but it was already visible that it was necessary to move to the next stage in this area.

Jacek Poświata
Senior Partner and Chairman Central and Eastern Europe at Bain & Company

Dr hab. Piotr Sankowski
Creator of IDEAS NCBR, Professor at the University of Warsaw

Paweł Szreder
Partner at Bain & Company

Mariusz Szynalik
VP of Art of Networking

> The most mature applications of AI can be found in the technology sector. It is also there that the most consistent development is visible.

And this is happening gradually. There are many companies that have been and still are at the forefront of implementing innovative solutions from the very beginning. The financial sector is among the most developed in terms of using AI in various internal processes.

However, the Expert Council agreed that the most mature applications of AI can be found in the technology sector. It is also there that the most consistent development is visible. The technology sector is at the forefront of implementing artificial intelligence.

Members of the Expert Council noted that optimism should be sought in the area of private sector investment in Poland. Investments in AI are often treated as R&D expenses with uncertain effects. Paweł Szreder, Partner at Bain & Company, notes that this perception will change quickly. Companies that have implemented AI solutions are already seeing business results and actual savings.

The pace of development of generative artificial intelligence and implementations that are now happening globally will also grow in Poland. And the Central and Eastern European region – in the opinion of the Expert Council members – has the potential to play a greater role in the technological revolution. However, it is necessary to reduce barriers and increase funds for research and development.

The second edition of the Top AI-Driven Companies Report shows the latest trends and achievements of companies in recent times. •

Beata Mońka
CEO, Art of Networking

Artificial intelligence as the key to the competitiveness of economies and companies

Fortunately creativity, emotional intelligence, and ethical judgment are still the domain of humans. This does not change the fact that there is no turning back from investing in new technologies. Innovation is an indispensable part of transformation. It is progress, an important factor of utility, but also competitiveness. Excellent knowledge of the native industry no longer guarantees success. Digitalization comes to the forefront.

We are witnessing the exponential development of artificial intelligence. What will happen in the next few years in AI will be a greater breakthrough than anything humanity has achieved over the past decades. Are we ready for it?

What will happen in the next few years in AI will be a greater breakthrough than anything humanity has achieved over the past decades. Are we ready for it?

The question arises 35 years after the start of economic transformation and 20 years since Poland's entry into the European Union. Our country's economy is already entirely different. The best personnel are key to the development of technology. But investments in research and development are also needed, and innovation itself must be an indispensable part of business strategy and organizational culture.

And here, education is key – learning strategic thinking, logic, creative problem-solving, and finally the ability and passion for learning. Next comes resilience, determination, consistency, and the ability to use and process this knowledge into real tools, and consequently – implementation.

As Europe, we have reached a turning point. The United States and China have technologically surpassed us. We feel the breath from the Gulf countries and India. Mario Draghi's report became that proverbial bucket of cold water. So what to do? To determine where we really are, it is important to capture a certain point of reference, and the second edition of the largest report in Central and Eastern Europe, in which we take an even closer look at companies that focus on the development and use of AI, can help with this.

Together with Bain & Company and MCI, as well as the Expert Council, we analyze providers and creators of AI-based technologies and users of modern solutions.

The report highlights champions from Poland and other CEE countries. The premiere of the second edition takes place two years after the presentation of ChatGPT, which was a kind of symbol of AI development. A year has also passed since the release of the previous edition of our report, and we have once again looked at best practices and case studies. It is worth encouraging Polish companies at every step to increase the level of investment in new technologies, artificial intelligence, research and development, but also systematic implementations. New technologies and AI are not only key trends but also a pillar of healthy economies. Showcasing innovative solutions and specific benefits provides the opportunity to stimulate this process with new ideas and implementations. •

Tomasz Czechowicz,
managing partner
of MCI Capital

AI is a huge opportunity for Poland

Based on observations and experiences from previous technological revolutions, it can be said with full conviction that AI is becoming a major area of investment in the USA, but also worldwide, including in Poland. In the past year, about one-third of global venture capital investments were directed towards artificial intelligence.

Poland and the entire Central and Eastern Europe region have the potential to play an important role in the global AI revolution. Scientists, programmers, and entrepreneurs from our part of the Old Continent successfully compete with the world's largest technology giants and, as evidenced by the example of Wojciech Zaremba from Open AI, sometimes also co-create them. One of the primary goals of our report is to highlight companies that are already leading in the development of AI-based products and services and that contribute to the technological development of the entire ecosystem.

The high level of human capital combined with the consistently increasing availability of financial resources for development creates favorable conditions for building future Polish "AI-unicorns".

There is still a noticeable advantage of companies being executors and integrators of foreign solutions, but at the same time, the growing number of AI innovator companies that have created advanced proprietary technologies should be positively assessed. Our list indicates that Polish technology companies typically use infrastructure created by Western, particularly American, leaders. However, the high level of human capital combined with the consistently increasing availability of financial resources for development creates favorable conditions for building future Polish „AI-unicorns."

As in the previous year, it is evident that certain AI specializations are more represented than others. Among product companies, the leading areas are customer communication, image and text recognition, and marketing technologies. Over 40% of the companies highlighted in the list operate in these three categories. Service companies, such as software houses and AI integrators, also continue to play an important role. On the other hand, despite a very successful funding round by Eleven Labs, there are still few companies with Polish DNA creating their own and globally recognized solutions in the segment of sound recognition and generation or Machine Learning Operations (MLOps) and infrastructure.

One of the less obvious observations is also the high M&A activity in the sector. In the past year, several outstanding Polish AI providers were acquired by strategic players from abroad and thus could not be included in our study.

The AI revolution is a huge development opportunity for Poland and the entire CEE region, in which we should actively participate. MCI Capital wishes all the laureates further dynamic growth and at the same time believes that as the largest technology fund in the region, we will play a significant role in supporting selected AI companies on their path to success. •

Paweł Szreder,
Partner Bain & Company

The AI revolution is not slowing down, but real results require comprehensive strategies

We are pleased to note the significant development in the maturity of artificial intelligence applications among many of last year's report Laureates, and most of them have made it to the list again this year. In retrospect, however, we see that few experiments from the first wave of excitement over generative artificial intelligence have led to truly strategic changes. We have not observed many business transformations that would require scaling and implementing AI-based solutions in the daily operations of the entire organization. However, this is a picture similar to what we observe globally.

85%

of large international companies place generative AI as one of the top 5 priorities in the coming years.

In the past 12 months, companies undertaking AI transformation have encountered many obstacles with scaling solutions, from technological readiness (including, especially, data availability and quality), through necessary adjustments to the operating model and promoting solution adoption among employees, to managing the multidimensional risk associated with implementation. It turned out that achieving business benefits from implementations is significantly more difficult than conducting a series of experiments.

This does not mean in any way that the AI revolution is slowing down. The results of the implementations carried out are so attractive, and the development of technology so rapid, that leaders are increasing investments in technological transformations of their businesses, recognizing the strategic opportunity they face. According to our recently published Technology Report 2024, as many as 85 percent of large international companies place generative AI as one of the top 5 priorities in the coming years. Meanwhile, the percentage of companies planning to spend over $5 million on gen AI has increased from just under 20 percent in 2023 to 33 percent in 2024.

Also in Poland, we find companies that are at the forefront of implementing innovative solutions, for which artificial intelligence has become one of the main pillars of business development. Nevertheless, most local enterprises adopt a „smart follower" strategy. This has its natural justification in the scale of these businesses and their spending on research and development, whose perception is similar to the investments in implementing artificial intelligence.

We see the opportunity to accelerate the development of AI applications in Polish business in the growing confidence in the business effects of implementations. For example, AI-powered tools allow reducing service time in customer centers by 20-35 percent, shorten software development work by 15 percent, and also reduce the time needed to create marketing and sales content by 30-50 percent.

Many companies have achieved significant savings thanks to them, and in the process have developed the best implementation practices, which followers, including Polish companies, can now use. •

How the report was created

The report presents an overview of the most influential and innovative companies in the field of artificial intelligence that drive the development of this technology in Poland.

We focused on two groups of companies: AI solution providers and practitioners who successfully implement and use AI.

To create a reliable list of companies, we developed a precise evaluation system based on several criteria, including the scale of implementations, revenue dynamics, and technology innovation. For AI providers, we considered both financial indicators, such as sales volume and dynamics, and qualitative assessment of technology and recognition. We also divided providers into two subgroups: Innovators and Promoters.

Apart from AI providers, an equally important aspect of the report is the presentation of enterprises that implement artificial intelligence in a way that brings measurable business benefits. AI practitioners, assessed by the level of implementation advancement, are pioneers of transformation in areas such as customer service, operations, sales and marketing, and strategic planning. Their achievements show the wide possibilities AI opens up for various market sectors.

This report provides a comprehensive overview of companies that set the directions for AI development in Poland, offering inspiration and examples of effective implementations for future innovators and digital transformation leaders.

AI Providers Evaluation Criteria

Main assumptions, criteria, and individual scoring weights

- **Companies originating from Poland**
- **Value created by the solution confirmed by an appropriate scale of commercial implementations (EUR or USD >1m)**
- **Scaling potential supported by rapid development pace**
- **Innovation and recognition of technology supported by, among others, scientific publications, industry awards, customer base, and press materials**

Scoring weights (AI Providers)

AI revenue size in 2023A (million EUR)	40.0
Revenue dynamics '22/'23A (%)	30.0
Qualitative assessment of technology (three-point scale)	20.0
Qualitative assessment of popularity (three-point scale)	10.0
TOTAL:	**100.0**

AI revenue size in 2023A (million EUR)

Range	Weight
1.0-2.5 million EUR	12.5%
2.5-5.0 million EUR	25.0%
5.0-10.0 million EUR	37.5%
10.0-25.0 million EUR	50.0%
25.0-50.0 million EUR	62.5%
50.0-75.0 million EUR	75.0%
75-100.0 million EUR	87.5%
>100 million EUR	100.0%

Revenue dynamics , 22/'23A (%)

Range	Weight
0-10%	0.0%
10-25%	25.0%
25-50%	50.0%
50-100%	75.0%
>100%	100.0%

Qualitative assessment of technology

Rating	Weight
1	33.3%
2	66.7%
3	100.0%

Qualitative assessment of popularity

Rating	Weight
1	33.3%
2	66.7%
3	100.0%

Financial Data — availability of financial results in databases, public press releases, and/or provided to the Team during direct conversations.

Technology — availability of information on developed AI technologies that were provided to the Team directly during conversations and/or could be obtained from company websites, scientific publications, press materials, and other industry sources.

- Full or high data availability
- Limited availability
- Lack of data or unreliable data

Innovators and Promoters

In this edition of the report, we expanded the scope of analyzed data (number of scientific publications, collected funding, number of AI/ML/Data Science specialists employed), which allowed us to distinguish two subgroups in the AI providers category: innovators and promoters. As a result, two appropriate lists were created.

Below we present a list of companies from the Top 50 Providers list, with assigned colors in the final two categories: availability of financial data and availability of information about technology, IP, and team competencies. Green color indicates full or high data availability, orange color limited availability, and gray — lack of data or unreliable data.

AI Innovators (in alphabetical order)

	Brand	Financial Data	Technology
1	DeepL	●	●
2	Eleven Labs	●	●
3	Medicalgorithmics	●	●
4	Neptune.AI	●	●
5	Robotec AI	●	●
6	RTB House	●	●
7	Silent Eight	●	●
8	Sky Engine AI	●	●
9	Swiss AI	●	●
10	Synerise	●	●

AI Promoters (in alphabetical order) →

	Brand	Financial Data	Technology
1	Addepto	●	●
2	AI Clearing	●	●
3	Ardigen	●	●
4	Asseco	●	●
5	Cloud Technologies	●	●
6	Comarch	●	●
7	Cosmose AI	●	●
8	Cyber_Folks (R22)	●	●
9	DataWalk	●	●
10	Dealavo	●	●
11	Deepsense.AI	●	●
12	Edrone	●	●
13	Fideltronik	●	●
14	Finture	●	●
15	Husarion	●	●
16	Identt	●	●
17	Infermedica	●	●
18	IntoDNA	●	●
19	Kontakt.io	●	●
20	KP Labs	●	●
21	Lekta.AI	●	●
22	Lingaro	●	●
23	Neurosoft	●	●
24	Occubee	●	●
25	PhotoAID	●	●

→ AI Promoters (in alphabetical order)

	Brand	Financial Data	Technology
26	Quantee	●	●
27	ReSpo Vision	●	●
28	Sales Manago	●	●
29	Samurai Labs	●	●
30	SentiOne	●	●
31	SmokeD	●	●
32	Spyrosoft	●	●
33	Stepwise	●	●
34	Surfer SEO	●	●
35	Text	●	●
36	Tidio	●	●
37	Tooploox	●	●
38	Vee	●	●
39	Vercom	●	●
40	Zowie	●	●

AI Practitioners Evaluation Criteria

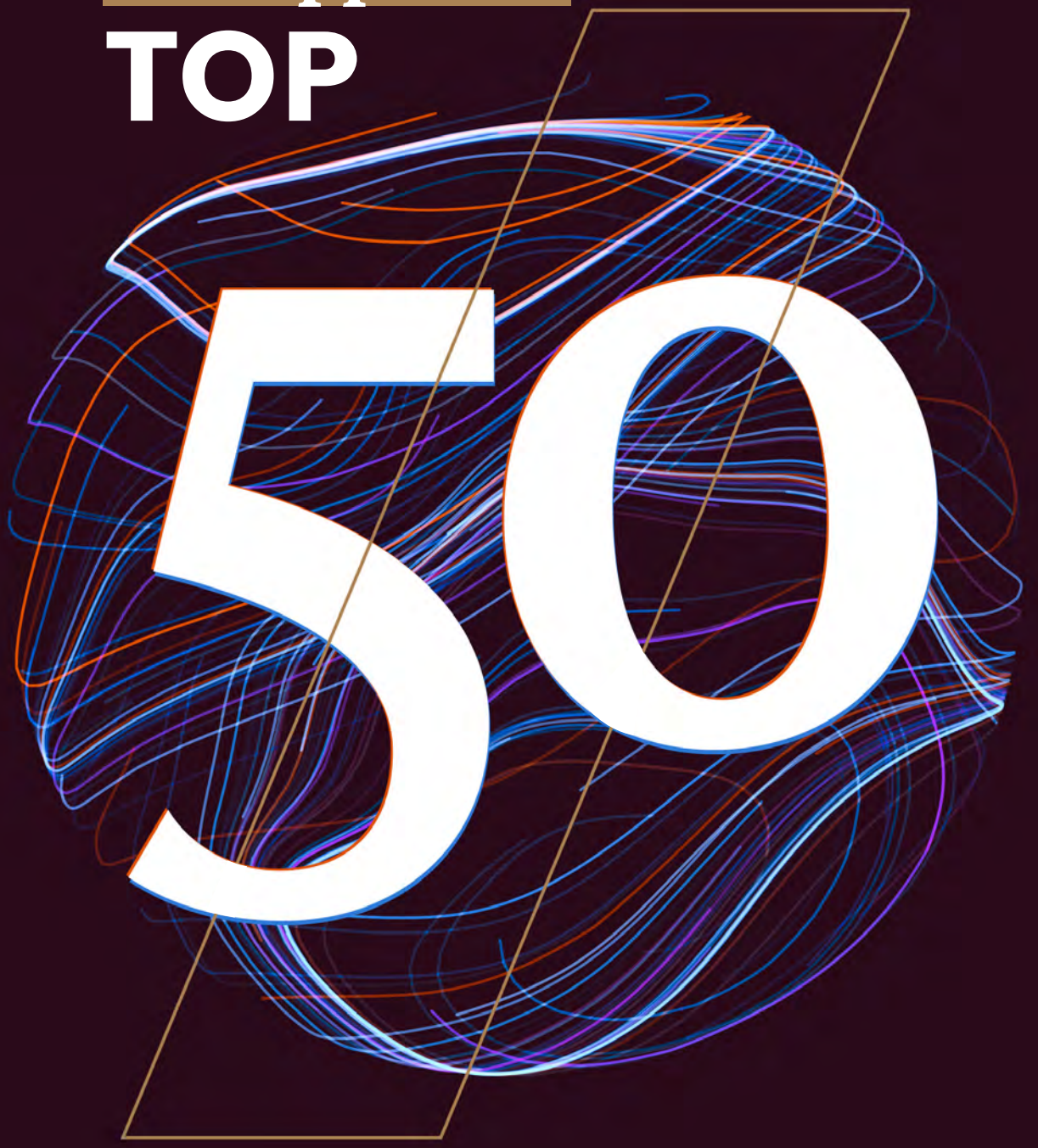
Main assumptions

- **Significant business use of artificial intelligence in at least one area**
- **AI tools actively used in the Polish market or in the Polish branch**
- **Publications on implemented AI applications**

Evaluation criteria (equal weights)

	Beginner NASCENT	Intermediate OPPORTUNISTIC	Advanced TRANSFORMATIONAL
Products and services delivered to customers	MVP, test use case	Multiple AI use cases allow the product/service to stand out from the competition	AI is a unique core feature of the product/has the potential to redefine the category
Communication and customer support	Simple functionalities, e.g., chatbox, low level of integration between channels	Automation of contextual dialogue with the customer. Algorithmic and proactive customer engagement building (e.g., during onboarding or service requests)	Algorithmic detection and resolution of problems (e.g., self-diagnosis and problem-solving during customer contact)
Sales and marketing	Marketing activities use basic (external) AI tools, small scale of integration of various data sources	Significant automation of marketing activities thanks to AI	Marketing is mostly based on automation thanks to AI (measurable results, self-calibration, self-testing) and full integration of external and internal data sources
Operations (production/ maintenance/ supply chain)	Little impact, low level of digitization and automation, lack of AI competencies within the organization	AI has a measurable impact on process efficiency and cost	AI-native operating model, processes designed as fully digital and automated (thanks to various tools, including AI)
Business planning	Traditional strategic planning, BI uses a narrow range of available data	BI uses a wide range of external and internal data sources, AI helps contextually identify strategic insights	Advanced AI/BI tools provide a strategic information advantage over competitors

AI Suppliers
TOP 50



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AI Innovators

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ROBOTEC.AI
RTB HOUSE
silent eight
SKY ENGINE AI
SwissAI
SYNERISE

AI Promoters

.addepto
AI Clearing
Ardigen
asseco
CloudTechnologies
COMARCH
cosmose AI
cyber_Folks
DataWalk
dealavo
deep sense.ai
edrone
Fideltronik
finture
HUSARION
IDENTT
Infermedica
intoDNA
kontakt.io
KP LABS
Lekta
lingaro
neurosoft
Occubee
photoAiD
Quantee
ReSpo·Vision
SALESmanago
samurai LABS
sentione
SmokeD
spyrosoft
STEPWISE
SURFER
text
TIDIO
TOOPLOOX
vee
VERCOM
zowie

A new way to communicate and create content

Artificial intelligence is becoming one of the main factors of transformation in modern communication and content creation. By applying AI, businesses can effectively adapt to global needs, automate processes, and create more personalized experiences for their audiences.

Companies like DeepL, Eleven Labs, and RTB House are at the forefront of the transformation trend, developing advanced tools that revolutionize the translation, voice technology, and personalized marketing industries.

DeepL is one of the leaders in AI-based translation, offering advanced translation tools that break language barriers and facilitate global communication. DeepL's systems are based on advanced neural algorithms that allow for natural and precise translations in many languages. Thanks to this tool, both individual users and companies can quickly and effectively communicate with clients and business partners worldwide, eliminating difficulties related to language diversity.

DeepL, using machine learning, constantly improves its algorithms and adapts to linguistic nuances and cultural context. The result is much more natural-sounding translations, significantly improving the quality of cross-cultural communication. In a business context, DeepL enables companies to respond faster to the needs of international clients and simplify global operations. Thanks to DeepL, many companies can expand their operations into foreign markets without the need to invest in costly translation services.

The future of voice technology

Eleven Labs is a pioneer in the field of speech synthesis and voice cloning technology. It is changing the way we communicate using sound technology. The company has created innovative AI-based solutions that can generate natural-sounding, high-quality voice — applicable in many industries, from entertainment to customer service and support for people with disabilities.

One of Eleven Labs' most advanced achievements is voice cloning technology, which allows for the creation of digital versions of existing people's voices. This can be a groundbreaking solution in the production of audiobooks, characters in computer games, or animated films.

Additionally, Eleven Labs is developing technologies tailored to the needs of blind and visually impaired people, increasing their access to audiovisual content and information.

By introducing user-friendly solutions, Eleven Labs consistently adapts its products to the needs of a wide audience.

Over 3x

DeepL provides extraordinary translation accuracy — independent tests prove that text translations are over three times more accurate compared to translations provided by large tech companies like Google and Microsoft. The company has also been recognized as one of the most innovative in the world, making it to the Forbes AI 50 list for 2024.

50%

The effectiveness of advertising campaigns using personalized retargeting by RTB House is up to 50% higher because ads are tailored to individual users based on their specific shopping preferences and behaviors. This increases engagement and conversion rates.

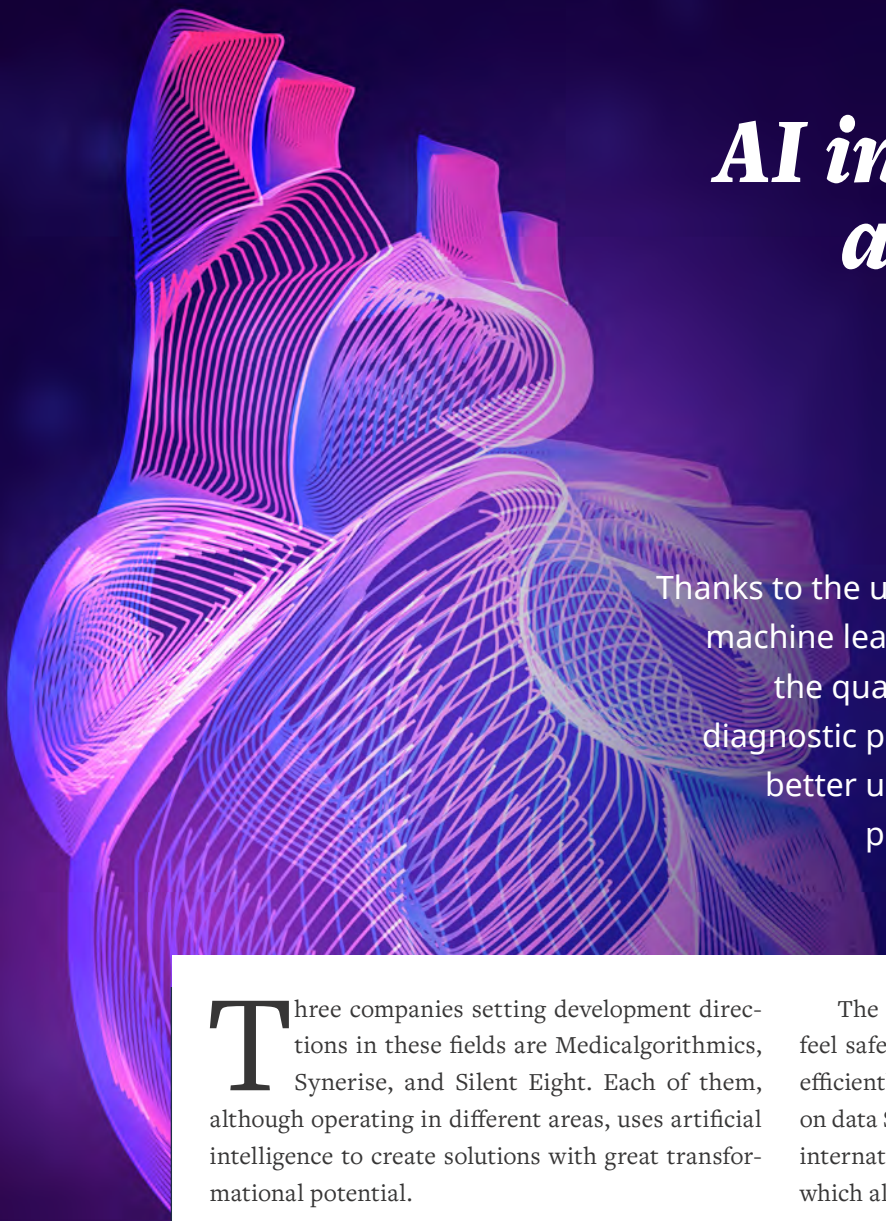
Personalized marketing solutions

RTB House is one of the leading providers of AI-based advertising solutions, specializing in the personalization of marketing campaigns. By using deep learning algorithms, RTB House creates precisely tailored ads that reach specific target groups, increasing campaign effectiveness and user engagement.

One of the solutions offered by RTB House is the dynamic adjustment of ad content in real-time. This allows for the optimization of advertising expenses and increased communication effectiveness. As a result, companies can better understand their customers' needs and attract their attention more effectively. RTB House consistently develops its technologies to create more personalized and engaging experiences for consumers. Ad personalization has become an indispensable element of modern marketing strategies, and RTB House effectively implements tools that enable better business results.

AI as the future of communication

Companies like DeepL, Eleven Labs, and RTB House demonstrate how artificial intelligence can radically change the ways of communication and content creation. Thanks to advanced algorithms and AI, these companies are introducing a new quality to cross-cultural communication, information accessibility, entertainment, and marketing. The future of AI in these sectors seems extremely promising — we can expect even more advanced solutions that will facilitate our daily communication and provide new ways to create personalized experiences for consumers. •



AI in healthcare and business analysis

Thanks to the use of advanced algorithms and machine learning, AI significantly improves the quality of patient care, streamlines diagnostic processes, and helps businesses better understand their customers and protect against financial threats.

Three companies setting development directions in these fields are Medicalgorithmics, Synerise, and Silent Eight. Each of them, although operating in different areas, uses artificial intelligence to create solutions with great transformational potential.

Improving heart monitoring

Medicalgorithmics is a company specializing in remote heart monitoring, made possible by AI technology. Medicalgorithmics systems, such as PocketECG, offer comprehensive heart activity monitoring, allowing doctors to accurately track patients' conditions without the need for constant hospital presence. This approach to monitoring the health of cardiac patients improves the quality of care and shortens the time needed for diagnosis and reduces the number of hospitalizations.

Medicalgorithmics systems analyze vast amounts of data generated by monitoring devices, and AI algorithms help detect even subtle changes in heart rhythm that may indicate potential health problems. These solutions relieve doctors and enable faster response to change patient conditions, directly impacting the effectiveness of care.

The ability to monitor remotely makes patients feel safer, and doctors can manage their time more efficiently. Personalized customer experiences based on data Synerise is a Polish company that has gained international recognition for its AI-based platform, which allows for better understanding and responding to customer needs. The Synerise platform collects and analyzes data from various sources, making it possible to create personalized offers and tailor marketing strategies to individual customer preferences. By using machine learning and predictive analytics, Synerise supports companies in building long-term relationships with customers and increasing their satisfaction.

An example of the effective use of the Synerise platform is in the retail sector, where the company helped one of its clients significantly increase the conversion rate.

Thanks to advanced data analysis and the use of recommendations based on user behavior, Synerise enabled retailers to create dynamic, customer-tailored promotional campaigns that attracted more customers and increased their engagement.

AI in Synerise solutions allows not only for better understanding of customers, but also for maximizing

the use of available data. This is the foundation of an effective business strategy.

AI in detecting financial crimes

Silent Eight is a company specializing in detecting financial fraud using artificial intelligence. Their solutions support banks and financial institutions in identifying and counteracting fraud attempts and money laundering. Silent Eight uses advanced machine learning algorithms that analyze user behavior patterns and transactions, allowing for quick detection of suspicious activities.

Silent Eight systems can analyze vast amounts of data in real-time, making them particularly effective in the financial environment, where response speed is crucial. As global regulations on anti-money laundering (AML) and counter-terrorism financing become increasingly demanding, Silent Eight's solutions are gaining importance. AI algorithms are invaluable here, as they can identify patterns and anomalies difficult for humans to notice and enhance AML processes' efficiency. In this way, Silent Eight contributes to increasing financial security and reducing losses related to fraud.

Kardiobeat.ai

Kardiobeat.ai is a modern Holter monitor (a medical device used for long-term heart monitoring), offering a new quality. Lightweight and compact, it allows continuous ECG recording from 24 hours to 18 days. Thanks to advanced AI technologies, Kardiobeat.ai provides dynamic, comprehensive diagnostic reports, speeding up diagnosis time. This is just one of the interesting, innovative solutions from Medicalgorithmics.

2 trillion dollars.

This is the amount of money laundered worldwide each year, highlighting the scale of the challenge businesses face. Silent Eight's AI solutions process billions of transactions annually, aiming for proactive prevention of financial threats (a proactive stance), not just post-factum detection.

AI transforms entire industries

AI innovations introduced by Medicalgorithmics, Synerise, and Silent Eight bring real changes in healthcare and business analysis. Medicalgorithmics revolutionizes heart monitoring, enabling remote patient care, Synerise allows companies to better understand customer needs and build data-driven relationships, and Silent Eight increases financial security by preventing fraud.

Thanks to these technologies, AI becomes a tool supporting processes and enabling their transformation.

Looking to the future, we can expect further development of AI in these sectors. Technologies will continue to evolve, leading to even more advanced healthcare systems, precise business analyzes, and more effective tools for protection against financial threats. AI, through continuous improvement of algorithms and the use of increasingly larger data resources, has the potential to revolutionize other areas of life and contribute to creating more intelligent and secure work environments and better patient care. •

SYNERISE

Synerise. A company in love with science

Synerise is a Polish deep-tech company specializing in artificial intelligence, big data, and automation. It operates in over 150 markets, serving industry leaders in sectors such as retail, banking, e-commerce, automotive, insurance, and telecommunications.

Synerise processes transactions worth over 150 billion euros annually, handling trillions of operations and supporting over 12 billion automated decisions monthly, 4 billion of which are AI-based.

Technological innovations and scientific development

Synerise's mission is to deeply understand every action based on available data, predict behaviors, make the right decisions, and support organizations in caring for customers. The company provides pragmatic technological tools that enable the realization of this mission.

Synerise builds its competitive advantage through proprietary and innovative products and solutions: TerrariumDB, BaseModel.ai, and Cleora.ai.

1. TerrariumDB

One of the fastest real-time database engines in the world, enabling the analysis of massive data volumes in milliseconds.

2. BaseModel.ai

A pioneering fundamental AI model dedicated to behavioral data analysis, helping organizations predict customer behaviors with unprecedented precision. BaseModel.ai automates data preparation, feature engineering, and model training processes. According to the latest benchmarks, Basemodel.ai surpasses solutions created by Google Deepmind and Meta in the field of recommendation systems.

3. Cleora.ai

A proprietary tool that allows for the analysis of relationships in large datasets in real-time. Cleora is available as open-source software, enabling its wide application in various fields, such as social network analysis, fraud detection, or drug discovery. Cleora can be used, among other things, for research on new chemical compounds with potential therapeutic effects, significantly accelerating research processes. It is several orders of magnitude more efficient than Facebook PyTorch BigGraph - the leader of such solutions worldwide.

Synerise combines advanced technologies with a self-service approach, offering a SaaS platform. Thanks to it, companies can store all heterogeneous data without limitations, process it in real-time, and use ready-made AI-supported solutions to solve everyday business challenges. The platform enables, among other things, customer experience personalization, future event prediction, cost optimization, and real-time generation of new revenue streams.

BaseModel

Terrarium_

Cleora

Through educational initiatives such as the Understand AI podcast, hackathons, and workshops, the company popularizes knowledge about AI and big data in Poland and worldwide.

Successes in international competitions

Synerise has gained recognition in prestigious scientific competitions, such as:

- KDD Cup, considered the informal world championship in artificial intelligence and machine learning, where Synerise was among the winners alongside giants like Baidu and DeepMind.
- RecSys Data Challenge, organized by Twitter. The company took 2nd place for analyzing a billion tweets in dozens of languages.
- Booking.com Data Challenge and Rakuten Data Challenge. Synerise was recognized for its innovative approach to recommendation systems.

These successes place Synerise among the most innovative AI companies in the world and make it one of the leaders in the Central and Eastern European region.

Education and community support

Synerise attaches great importance to education and knowledge sharing. In 2018, the company launched the first AI education program in Poland and one of the first in Europe for kindergartens, primary, and secondary schools – Synerise AI Schools, which covered over 2200 students from 140 institutions. Synerise also supports higher education institutions by co-creating innovative study programs at the bachelor's, master's, and doctoral levels.

Through educational initiatives such as the Understand AI podcast, hackathons, and workshops, the company popularizes knowledge about AI and big data in Poland and worldwide. At the same time, it supports charitable organizations, sports sections, and events promoting logic and analytical thinking, such as the National Chess Championships for Schools and Kindergartens.

Synerise combines advanced technologies with a self-service approach, offering a SaaS platform. Thanks to it, companies can store all heterogeneous data without limitations, process it in real-time, and use ready-made AI-supported solutions.

Awards and recognition

Synerise has been recognized as one of the fastest-growing technology companies in Europe by the Financial Times in 2022 and 2023. The company also ranked in the top three in the artificial intelligence and big data category. Additionally, EY included Synerise on the list of the 30 most promising technology companies in the world in 2018. Awards from Microsoft, Google, and Deloitte confirm the innovation and uniqueness of the solutions offered by Synerise.

Vision and the future

Synerise believes that technology should serve people, making their lives more personalized and efficient. Through advanced AI and big data solutions, the company helps organizations understand customer needs, avoid fraud, and create unique interactions. Synerise continues ambitious development plans, investing in research and development and collaborating with leaders of digital transformation worldwide. Among its investors is the New York Stock Exchange-listed company VTEX, and Marcin Żukowski, co-founder of Snowflake. In 2025, as the first Polish company, it will be the titular organizer of one of the global and most prestigious AI competitions in the world (RecSys challenge). •

Effective protection in finance

Silent Eight redefines the way financial institutions fight financial crime – a global problem that costs the world trillions of dollars annually.

> The company was founded with a clear mission: to solve problems of inefficiency and inconsistency in the area of compliance with financial crime regulations.

From complying with sanctions, monitoring politically exposed persons (PEP), to countering money laundering and terrorism financing – the challenges related to Financial Crime Compliance (FCC) are enormous. Silent Eight offers a groundbreaking solution: autonomous AI agents that provide consistent, precise, and scalable decisions, meeting the highest regulatory standards in the most demanding environments.

The company was founded with a clear mission: to solve problems of inefficiency and inconsistency in the area of compliance with financial crime regulations. Silent Eight helps banks with AI technology that supports processes and transforms them. The trust placed in the company by institutions such as Standard Chartered, HSBC, and Emirates NBD proves the effectiveness of its technology. Silent Eight's solutions operate in over 150 countries, adapting to local regulations and languages while ensuring global operational consistency.

Partner material

silent eight

Silent Eight focuses on a proactive approach to compliance. Instead of merely detecting crimes, its solutions prevent them from occurring, which is a milestone in the compliance industry.

AI in risk management

An example of Silent Eight's success is its collaboration with one of the largest global banks, which improved sanctions compliance and PEP risk assessment through AI. Monitoring sanctions requires continuous tracking of changing lists and eliminating any violations. PEP risk management, in turn, requires conducting advanced analyses to detect potential risks of corruption or money laundering. Thanks to Silent Eight, the bank gained a tool that autonomously manages these tasks, ensuring real-time compliance.

The results were significant: Silent Eight's AI replaced the work equivalent to 477 AML analysts, resulting in savings of $16.6 million annually. The time to resolve cases was reduced from days to seconds, enabling proactive responses to violations. Every decision made by the AI is fully auditable, meeting stringent regulatory requirements. By eliminating manual processes, compliance teams can focus on strategic tasks, increasing operational efficiency.

Implementing such advanced technology requires close collaboration with clients. Silent Eight's AI models are adaptive – they continuously learn from new data, allowing them to continuously improve. This enables them to effectively respond to changing tactics of financial criminals. Transparency is another advantage of the solution – every decision made by the AI is supported by a clear explanation, building trust among compliance teams and regulators.

Benefits not only for banks

Silent Eight's impact goes beyond benefits for individual banks. By improving the efficiency and precision of compliance processes, the company helps build a safer global financial system. Customers are better protected from fraudulent activities, regulators have confidence in effectiveness, and banks avoid costly penalties while strengthening their reputation.

16,6 million

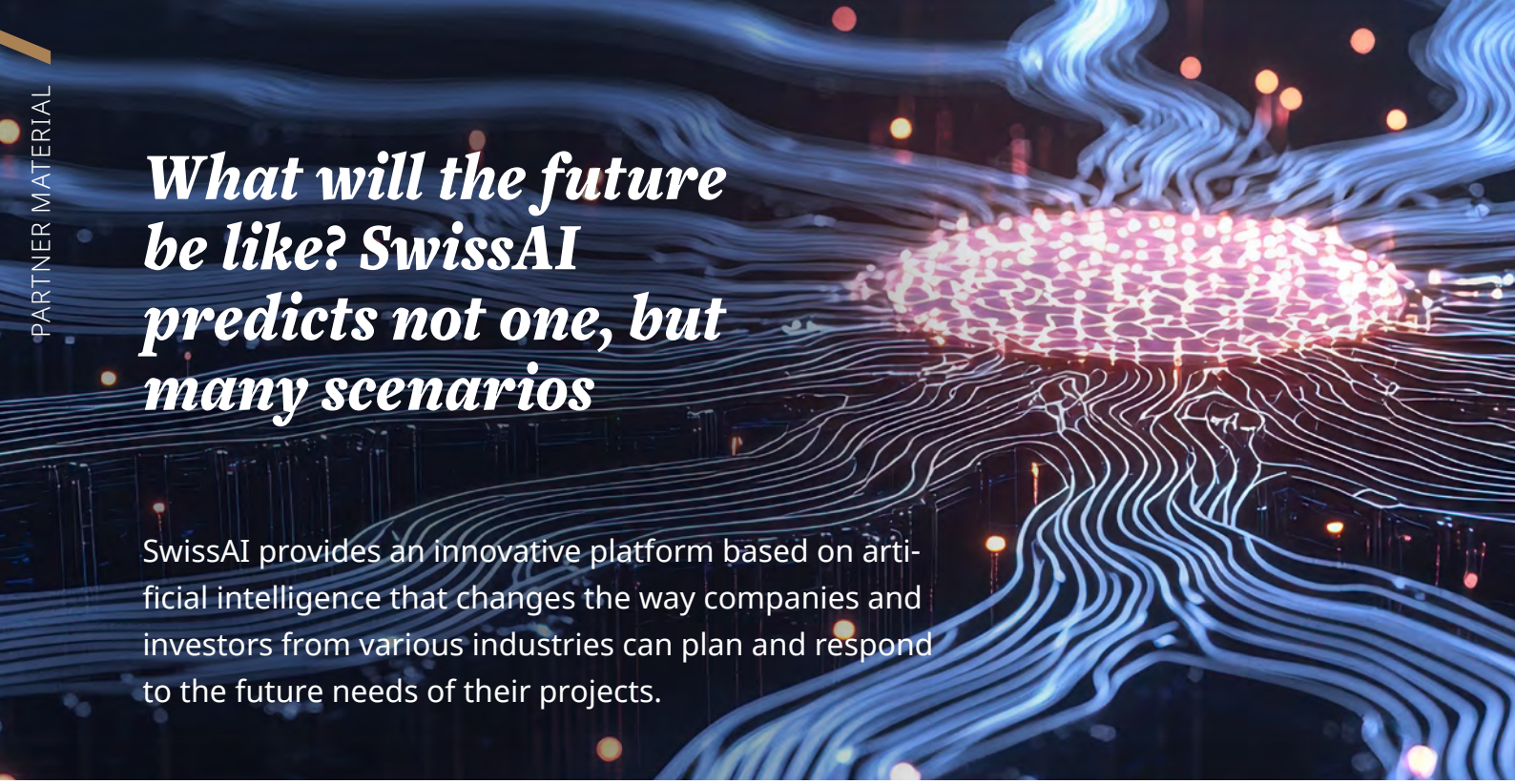
Annual savings achieved by implementing Silent Eight's AI in one of the largest global banks.

Silent Eight stands out from traditional compliance tools in three key areas. First, its AI makes autonomous decisions, reducing the need for manual intervention. Second, scalability allows for consistent operation in over 150 countries, regardless of regulatory complexity. Third, the real impact of the solutions is measurable – from cost savings to faster and more accurate decisions.

As financial crime evolves, Silent Eight focuses on a proactive approach to compliance. Instead of merely detecting crimes, its solutions prevent them from occurring, which is a milestone in the compliance industry. This vision, combined with advanced technology and customer trust, places Silent Eight at the forefront of innovation in the fight against financial crime.

Silent Eight's story shows that the combination of technology, vision, and trust can revolutionize the industry. By helping banks tackle one of the biggest global challenges, the company transforms the way financial crime is fought – decision by decision. •

What will the future be like? SwissAI predicts not one, but many scenarios



SwissAI provides an innovative platform based on artificial intelligence that changes the way companies and investors from various industries can plan and respond to the future needs of their projects.

SwissAI offers a unique approach to project planning, contributing to greater profitability and cost optimization. In a world where traditional planning tools prove insufficient, SwissAI meets these challenges with modern AI for long term planning and „hour-ahead" actions.

The SwissAI platform enables accurate forecasts, whose precision surpasses current market capabilities, helping investors and organizations take better decisions. Thanks to technology based on agent models that consider human behavior on various scales (individual and social), SwissAI can model future needs with exceptional accuracy. An example is modeling with a 3-5% error rate in predictions related to the COVID-19 pandemic, which testifies to the quality of the technology used by SwissAI.

Increase in ROI from real estate investments due to matching functionality to future demand

+33% increase in heating network profitability

+25% return on investment in large BESS installation

+15% improvement in charging network utilization

+11% internal rate of return on investment in charging points

Real benefits after implementation

SwissAI proves the value of its platform with numerous examples. It has been applied in over 100 projects, increasing profitability and efficiency for clients and delivering impressive results.

Example implementation results include a significant increase

Forecasting the future with respect for privacy

Switzerland has long enjoyed a reputation as a „digital safe," largely due to its policy of neutrality and privacy protection, attracting companies that care about protecting customer data. In the context of technology and artificial intelligence, companies in Switzerland place great emphasis on compliance with regulations such as GDPR, as well as on security and transparency in data processing. Although SwissAI stands out with agent-based AI demand evolution modeling and uses advanced artificial intelligence to forecast changing market needs, it is not a technology that threatens user privacy.

The predictive capability allows clients to anticipate changes and make data-driven decisions aligned with future trends, yet the technology used by SwissAI was developed with ethics in mind and is fully GDPR-compliant.

Current system limits vs. New generation of AI

Limitations known to companies

Traditionally, infrastructure and technology models were static, predetermined representations with limited scope:

- Static supply model that does not adapt to real-time changes or unprecedented scenarios
- Top-down approach that does not consider detailed, local data
- Limited input/output modeling, which restricts the range of variables and scenarios that can be considered
- Focus on one business area without cross-sector integration
- Geographical limitations that narrow the scope and resolution of models
- Dependence on the past and data used in a simplified way, often using linear regression to „predict" the future, which limits the ability to analyze demand changes

SwissAI and the approach of new AI generation

The solution in SwissAI surpasses these limitations by using dynamic, integrated bottom-up and top-down approaches based on AI and agent technologies.

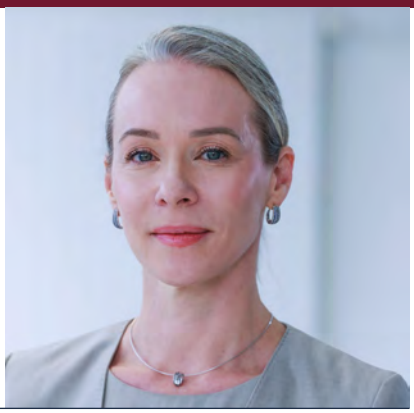
- Dynamic and flexible modeling that adapts to real-time changes
- AI-driven agent systems that simulate individual behaviors and interactions, tailored to different parts of the world
- Integrated models considering both supply and demand factors
- Cross-sector application, including in energy, mobility, real estate, logistics, etc.
- Wide forecasting capabilities, covering periods from a few seconds to many years
- Analysis considering macroeconomic factors for comprehensive scenario planning
- High-resolution modeling, enabling detailed simulations over large geographical areas

Check details: www.swissai.com
Contact: pr@swissai.com

in real estate ROI, +33% increase in heating network profitability, +25% (ROI) in large BESS installation, +15% utilization of charging network, +11% internal rate of return (IRR) from investments in charging points.

SwissAI's mission is to provide predictions and personalized AI solutions that enable companies to navigate changing market conditions. With this vision, SwissAI became a pioneer in forecasting needs and demand management for the construction, mobility, energy, and urban infrastructure sectors.

SwissAI offers a unique, comprehensive approach to predicting future needs. Starting from traditional methods and applying human-centric AI, it allows for the creation of more scalable projects and increases client competitiveness. It also has extensive knowledge of the various market sectors, which is modeled in the system and therefore not easily copied by „general" models. With SwissAI, better, more precise decisions can be made, and dynamic market needs can be effectively addressed. •



Dr. Anna Gawlikowska,
CEO at SwissAI

> The advanced digital twin provided by SwissAI can be a copy of an entire organization's asset base or a selected process, an entire country, or a specific system, e.g., energy. In the face of margin pressures and the need to make complex decisions, advanced digital twins have particular value because they allow experimenting with future scenarios. Resources, investments can be added, business models changed, and future simulations conducted to see what might really work before incurring investment costs.

Innovations in construction

The construction industry has undergone significant changes in recent years, and one of the important factors in this development is artificial intelligence.

ROSbot 2R is one of the robots offered by Husarion.

100 projects

Fideltronik implements about 100 innovative projects annually, focusing on the automation of industrial processes and the development of Internet of Things (IoT) and artificial intelligence technologies.

Contemporary construction projects are more complex and costly than ever before, and also carry a higher risk of errors and delays. AI offers solutions that enable better work organization, monitoring of construction progress, and increased precision in project execution. Companies like AI Clearing, Husarion, and Fideltronik introduce innovative technologies that optimize construction processes, supporting both management and execution.

AI Clearing is a company specializing in the monitoring and analysis of construction projects using advanced technologies such as drones and data analysis with AI. AI Clearing's mission is to provide tools that enable investors and contractors to have current access to precise information about work progress, allowing for better project management and avoiding delays and excessive costs.

AI Clearing uses drones to monitor large construction sites and regularly record work progress. This allows for the collection of detailed data on the project's status and their real-time analysis.

AI algorithms developed by AI Clearing can process project status data, comparing it with project plans and schedules.

AI algorithms developed by AI Clearing can process this data, comparing it with project plans and schedules — allowing for the detection of potential irregularities and taking corrective actions. An example of AI Clearing's application is monitoring the construction of highways or industrial facilities, where precision and ongoing control are crucial for efficiency.

Husarion, on the other hand, is a Polish company specializing in robotics and process automation, successfully developing technologies supporting construction. Thanks to Husarion's robots, it is possible to perform complex construction tasks with minimal human involvement, which speeds up project execution and increases execution precision. Automation of processes such as bricklaying, precise cutting, or painting allows for error reduction and increased safety on the construction site.

Husarion's projects include not only equipment, but also software that enables remote control and monitoring of robots' work on the construction site. In one of the projects, Husarion collaborated on the construction of an industrial complex, providing robots for assembly work, which completed tasks in a shorter time and at lower costs than traditional methods. The company proves that robotics and automation can be an important support for the construction industry — especially in large projects requiring precision and repeatability of actions.

Monitoring progress with drones, real-time data analysis from construction sites, or remote equipment management are just some examples showing how AI affects the construction industry.

Fideltronik, another company highlighted in the report, offers Internet of Things (IoT) solutions that are increasingly used in the construction industry. By integrating monitoring systems, Fideltronik enables remote management and monitoring of key aspects of construction, such as energy consumption, machine technical condition, and environmental conditions. It allows for real-time response to changing conditions and needs on the construction site.

An example of Fideltronik's technology application in construction is the monitoring of construction equipment operation. Thanks to IoT sensors, a construction company can continuously check machine performance, predict failures, and plan maintenance, reducing the risk of downtime. IoT also supports employee safety management, as workers wearing smart devices can be monitored for location and environmental conditions — reducing the risk of accidents.

Impact of AI on the construction industry

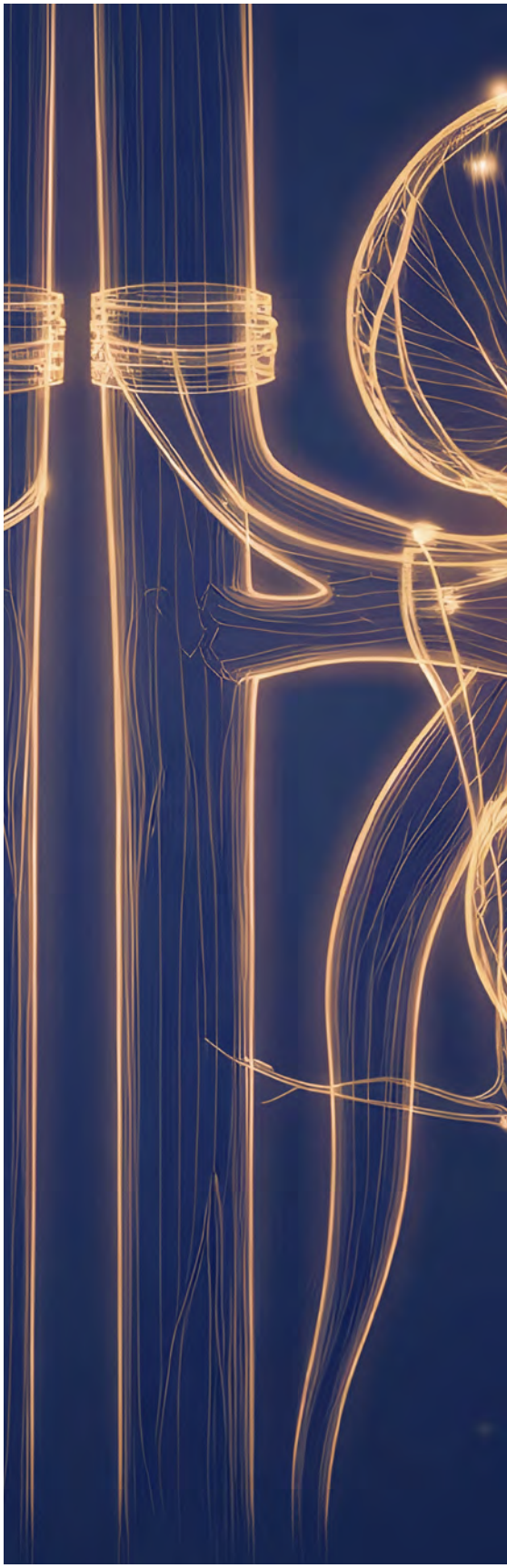
The application of artificial intelligence in construction brings many benefits, both operationally and economically. Thanks to AI, construction companies can optimize processes, which allows for increased efficiency and cost reduction. Monitoring progress with drones, real-time data analysis from construction sites, or remote equipment management are just some examples showing how AI affects the construction industry.

AI in construction also contributes to financial and time savings. Thanks to precise monitoring systems, companies can respond more quickly to potential problems, minimizing the risk of costly delays. Additionally, automation and robotics reduce labor costs and increase worker safety. This is important in the face of rising employment costs and safety requirements.

Examples of companies like AI Clearing, Husarion, and Fideltronik show that AI can significantly improve construction processes, increasing efficiency, precision, and safety on construction sites. Thanks to these modern solutions, we can expect the construction industry to develop towards greater automation and integration of intelligent systems, benefiting both investors and contractors. Observing these changes is critical, as AI in construction is just gaining momentum. Future innovations may further impact how construction projects are executed. •

AI in the healthcare sector

AI is becoming one of the most important tools transforming modern medicine. Thanks to advanced algorithms and the analysis of large data sets, it supports doctors in decision-making, accelerates the diagnostic process, and enables the development of personalized therapies.



The healthcare sector generates enormous amounts of data, the analysis of which using traditional methods is time-consuming and inefficient. AI, with its ability to process and interpret large data sets, has become an indispensable tool in diagnostics, therapy creation, and public health management. AI-based solutions support doctors, relieve them of routine tasks, and allow for a more precise approach to treatment.

Modeling biological processes

Ardigen is a Polish company that combines biotechnology and artificial intelligence to develop innovative solutions for the healthcare sector. It specializes in using AI for the analysis of biological data and modeling biological processes, which is applied, among others, in oncology and immunology. Ardigen's mission is to accelerate the discovery of new therapies, especially in cancer treatment.

The company uses advanced machine learning algorithms and bioinformatics techniques that allow for the analysis of genomes, proteomes, and microbiomes. One of Ardigen's important areas of activity is immune-oncology, a field that studies how the immune system can be used in the fight against cancer.

An example of Ardigen's innovative solution is a platform for microbiome modeling. By using AI, Ardigen helps understand the interactions between microorganisms in the human body, paving the way for personalized therapies. The company also collaborates with global pharmaceutical companies, supporting them in research on new drugs.

One of Ardigen's important areas of activity is immune-oncology, a field that studies how the immune system can be used in the fight against cancer.

Intelligent diagnostic support

Infermedica is another Polish company that uses AI to support the healthcare sector. Its platform, available as a web and mobile application, is a tool supporting diagnostics and the triage process (segregation of patients based on the urgency of their health condition).

Infermedica operates at the intersection of technology and medicine, providing patients with faster access to appropriate care and doctors with precise decision-making support.

The Infermedica platform uses artificial intelligence algorithms to analyze symptoms reported by patients. The user enters their data, and the system suggests possible diagnoses or recommends a visit to the appropriate specialist.

The Infermedica platform uses artificial intelligence algorithms to analyze symptoms reported by patients. The user enters their data, such as age, gender, and detailed information about symptoms, and the system suggests possible diagnoses or recommends a visit to the appropriate specialist. Infermedica supports patients and relieves medical staff by eliminating the need for initial medical interviews.

An example of application is the implementation of Infermedica in a network of medical clinics, where the platform allows for the automatic referral of a patient to the appropriate department or specialist doctor. This solution is also used by insurance companies, which can better manage healthcare costs by detecting potential problems earlier.

The impact of AI on the future of medicine

Solutions developed by Ardigen and Infermedica show how artificial intelligence can change the functioning of healthcare. Thanks to AI, diagnostic processes become faster and more precise, and the development of personalized therapies brings new possibilities for treating diseases that were previously difficult to cure.

However, implementing AI in medicine also poses challenges. Issues of patient data protection, integration with existing systems, and ensuring appropriate interpretation of results by doctors must be considered. Building trust in technology among medical staff and patients is also essential.

Ardigen and Infermedica are two companies that make a significant contribution to the development of AI in the healthcare sector. Ardigen, through advanced biological data analysis, supports the development of modern therapies, while Infermedica facilitates daily diagnostics and improves access to healthcare. Both companies demonstrate that artificial intelligence has enormous potential in medicine, both in research and clinical practice.

The future of AI in the healthcare sector seems promising. It is worth following the further development of this technology, which not only improves the quality of healthcare but also revolutionizes the approach to treatment and diagnosis. •

Industry uses intelligence

In the era of Industry 4.0, data analysis and automation are becoming integral components of companies' development strategies. Two companies — Comarch and DataWalk — are at the forefront of this transformation, offering advanced solutions that support enterprises in optimizing processes and making more informed decisions.

Modern industry relies on data — from analyzing production processes to supply chain management. AI plays an important role in this process, transforming raw data into valuable information that can be used to make better business decisions. Supporting automation, real-time monitoring, and failure prediction, artificial intelligence is becoming an indispensable element of industrial strategies.

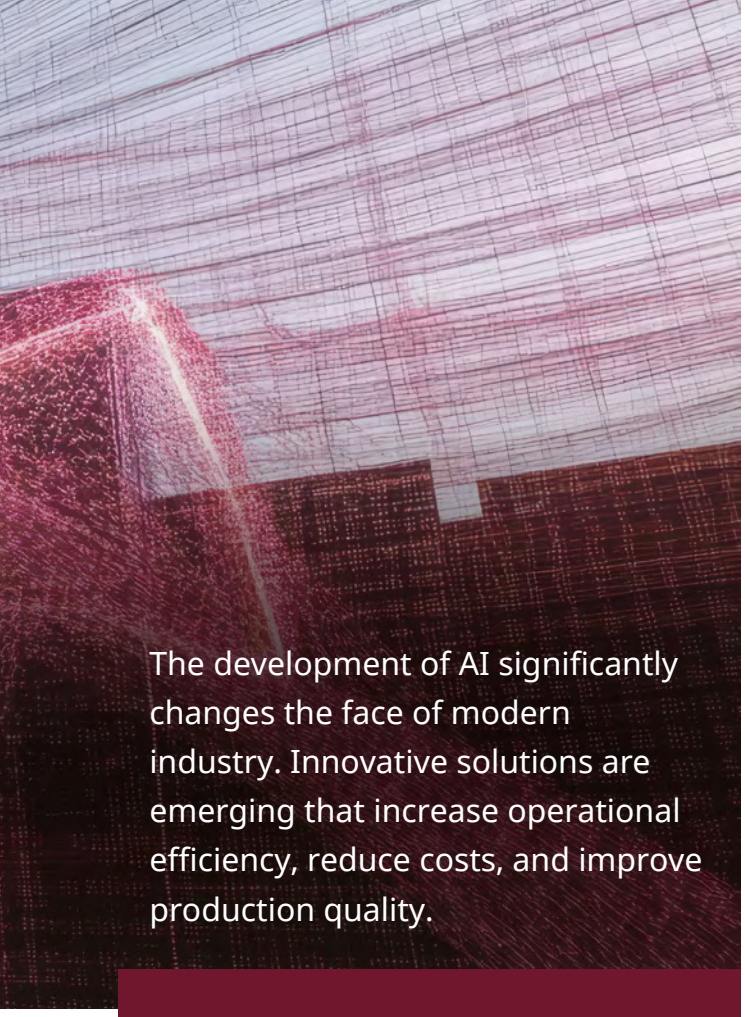
Comarch implements AI in its ERP systems, allowing for intelligent management of production, logistics, and human resources.

Optimization of business processes

Comarch is a company known for providing comprehensive IT solutions for various industrial sectors, including ERP (Enterprise Resource Planning) systems and IoT (Internet of Things) solutions. For years, the company has been using artificial intelligence to optimize business processes, offering tools that enable real-time data analysis, process automation, and better resource management.

Comarch implements AI in its ERP systems, allowing for intelligent management of production, logistics, and human resources. An example is the predictive module, which analyzes historical and current data to forecast production needs, optimize schedules, or avoid downtime. As part of IoT solutions, Comarch offers machine monitoring systems that use sensors to collect data on their technical condition. This allows for early detection of potential failures.

For example, in the automotive sector, Comarch helped an international company increase production efficiency by 20% by using AI to analyze production data and optimize schedules. In logistics, Comarch's solutions support companies in fleet monitoring and delivery management — resulting in time and cost savings.



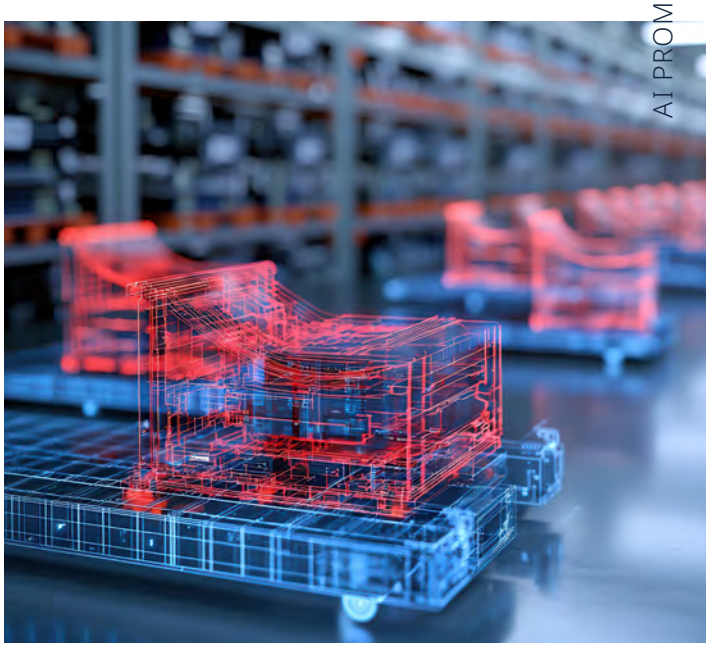
The development of AI significantly changes the face of modern industry. Innovative solutions are emerging that increase operational efficiency, reduce costs, and improve production quality.

Advanced data analysis

DataWalk is a Polish company specializing in the analysis of large data sets. Its platform uses advanced AI algorithms that enable organizations to combine data from various sources, identify patterns, and support decision-making based on detailed analysis. DataWalk is particularly valued for its solutions in risk and security management.

The DataWalk platform allows for the processing of vast amounts of data in real-time, which is critical in areas such as risk analysis, supply chain management, or fraud detection. The tool also supports data visualization. This facilitates the identification of dependencies and quick response to changing conditions.

One area of application for DataWalk is the financial sector, where the platform helps institutions detect anomalies in transactions and minimize the risk of abuse. In the industry, the company supports supply chain management by analyzing data to predict logistical problems, such as delays or lack of raw materials. This allows clients to avoid financial losses and streamline their operations.



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Industry in the digital era

AI is changing the way industry operates, introducing more advanced tools for managing production, logistics, and risk. Thanks to artificial intelligence, companies can save time and costs while increasing their efficiency. Examples of implementations by Comarch and DataWalk show that AI allows for the reduction of losses related to downtime, better resource management, and improved product quality.

The future of AI in the industry seems extremely promising, and investing in these technologies is becoming an important element of building a competitive advantage. It is worth following the development of such companies and implementing innovative solutions that can significantly improve the efficiency and profitability of enterprises in a dynamically changing world. •

The application of AI in marketing and e-commerce

Marketing is undergoing significant changes where data and artificial intelligence play an increasingly important role. Thanks to advanced technologies, marketers can better understand their customers, personalize offers, and automate campaigns.

30%

Sales increased by this much thanks to personalized product recommendations for an eDrone platform client.

AI accelerates processes and increases the efficiency of marketing activities. Two Polish companies, eDrone and Sales Manago, prove that this technology is an essential tool in marketing and e-commerce, providing innovative solutions that support business growth.

Data-driven marketing, supported by AI, enables precise matching of content and offers to individual customer preferences. Algorithms analyze user behavior in real-time, allowing for the creation of dynamic campaigns that capture audience attention and increase conversion. AI-based automation also eliminates the need for manual campaign management, saving time and resources.

Marketing automation for e-commerce

eDrone is a platform designed for small and medium-sized online stores that want to effectively personalize customer experiences. The company offers marketing automation tools such as customer segmentation, product recommendations, and dynamic email campaigns. The eDrone platform collects data on customer behavior, analyzes it using AI algorithms, and then generates personalized offers tailored to individual needs.

The tool enables automatic sending of reminders about abandoned carts, product recommendations

One of Sales Manago's clients is an international fitness chain, which increased the efficiency of its campaigns by 40% thanks to the platform.

based on purchase history, and cross-selling and up-selling campaigns. One example of effective use of eDrone is a campaign for a clothing store, where the platform analyzed customer preferences based on previous purchases and interactions. Thanks to personalized product recommendations, sales in the store increased by 30%, and the conversion rate doubled. Automation of abandoned cart reminders also contributed to recovering 20% of transactions.

AI in CRM and marketing automation

Sales Manago is one of the most recognizable marketing platforms in Europe, offering advanced CRM solutions, marketing automation, and AI-based analytics. The company targets its tools at medium and large enterprises that need comprehensive support in managing customer relationships and optimizing marketing campaigns.

Sales Manago uses AI to analyze customer behavior in real-time, segment audiences, and predict their future actions. The platform allows for the personalization of offers at every stage of the purchase journey—from the first contact with the brand to maintaining long-term customer loyalty. An important feature is the product recommendation system, which dynamically adjusts content to user preferences.

One of Sales Manago's clients is an international fitness chain, which increased the efficiency of its campaigns by 40% thanks to the platform. Automation of processes such as customer segmentation based on their activity in the app and personalized campaigns reminding about membership renewal contributed to a significant increase in customer retention.

AI-driven marketing

The application of AI in marketing significantly changes the way campaigns are conducted, and customer relationships are managed. Marketers gain tools that allow for precise content matching and quick response to market needs.

An example of the benefits is the increase in sales thanks to personalization—research shows that appropriately tailored product recommendations can increase conversion by 20-30%. Process automation also saves time, eliminating the need for manual campaign creation, which is especially important in the dynamic e-commerce environment.

AI is becoming an integral part of modern marketing and e-commerce. Both eDrone and Sales Manago demonstrate how different approaches to marketing automation and customer experience personalization can be. Thanks to advanced algorithms, these platforms help companies increase the efficiency of their activities, improve conversion, and build lasting customer relationships. •

The best in the CEE region

The Central and Eastern Europe (CEE) region is an emerging hub of innovation in the field of artificial intelligence. Technology companies are achieving global success by introducing advanced solutions that revolutionize various industries—from finance to logistics and security. We present 10 of the most promising organizations from the CEE region that stand out for their innovation and effective use of AI in business.

alcatraz ai

Veriff (Estonia)
The Veriff platform uses AI to combat fraud and ensure compliance with regulations. It facilitates customer relationship management. Its innovative approach allows companies to better protect against abuses and streamline identification processes.

Rossum (Czech Republic)
Specializing in the automation of document-related workflows, Rossum transforms the onboarding sector as well as supply chain and production management. Advanced AI solutions streamline business processes, increasing operational efficiency.

UiPath (Romania/US)
A leader in AI-based business transformation. UiPath offers a wide range of products, including chatbots and data processing tools. The company's technology helps automate routine tasks, increasing productivity and innovation.

Pactum (Estonia)
Thanks to AI technology, Pactum enables autonomous negotiations, which play an important role in establishing legal and commercial terms. The innovation of this platform lies in its ability to optimize negotiations. It is revolutionary in the trade sector.

Starship Technologies (Estonia/US)
Using autonomous robots for local deliveries, this company is revolutionizing the food and parcel delivery market. Starship's presence in over 60 locations worldwide testifies to their rapid growth and effective approach to logistics.

Hyperscience (Bulgaria/UK)
The Hyperscience platform facilitates document processing by automating the extraction of information from paper versions. Processing hundreds of millions each year, this company is becoming a strong player in office automation.

Microblink (Croatia/UK)
Specializing in image recognition, Microblink offers solutions that enable scanning of IDs, credit cards, or receipts. The technology of intelligent information extraction from photos is an example of how AI can streamline everyday transactions.

Druid.AI (Romania)
The company offers a comprehensive platform with AI-based conversational business applications. Virtual assistants enable quick, personalized, and automated interactions that support employee productivity and enhance customer service quality.

Alcatraz.AI (Bulgaria/US)
Provides advanced solutions in the field of autonomous access control, which, through the use of 3D facial authentication and AI, serve to improve employee security, detect unauthorized persons, and ensure compliance with privacy regulations.

Flowx.AI (Romania)
Flowx.AI manages a flexible end-to-end platform supporting modernization in the financial sector. By applying advanced artificial intelligence, clients can, among other things, more efficiently oversee processes and compliance, automatically generate up-to-date statements for audits and controls, and streamline workflow.

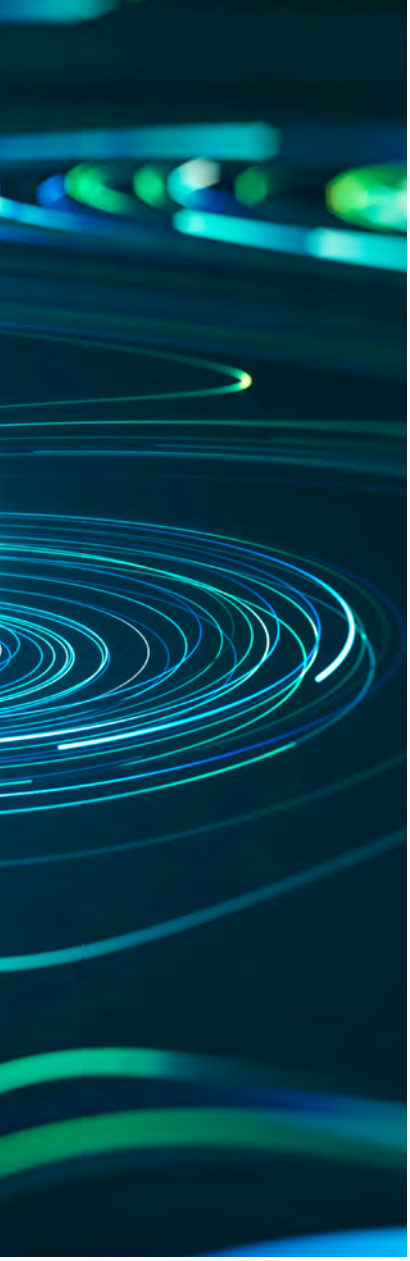
AI Market

Artificial intelligence in the company: what does its effective development depend on?

Author: Kinga Piecuch,
President of the Board,
Hewlett Packard Enterprise Poland

A superior architecture for data and its analysis, which consolidates all data between applications and locations, is a necessity.

The size of the global market for artificial intelligence solutions is expected to reach $827 billion by 2030, according to the latest forecasts (bit.ly/4eBEE5i). Organizations worldwide, including in Poland, have accelerated investments in AI and are increasingly eager to implement technologies in this area. The success of such implementation largely depends on the proper preparation of key elements of the artificial intelligence strategy. These include ensuring a high level of maturity in data utilization, securing sufficient computing and network resources, as well as addressing issues related to ethics and regulatory compliance. According to a study (bit.ly/4eSMkAx) conducted by HPE among IT leaders from large companies in 14 countries (from the USA and Brazil, through Europe and Central Asia, to Japan and Australia), AI strategies in various organizations often lack order and consistency. A coherent vision embedded in plans, processes, and indicators would significantly facilitate the implementation of AI and measure the effectiveness of investments.



Partner material

Hewlett Packard Enterprise

According to a study conducted by HPE among IT leaders from large companies in 14 countries (from the USA and Brazil, through Europe and Central Asia, to Japan and Australia), AI strategies in various organizations often lack order and consistency.

Only 7% of organizations can push or pull data in real-time to create innovations and monetize this data externally. Only 26% of respondents have configured data management models that allow for advanced analytics. Moreover, less than 60% of respondents stated that their organization is able to handle any of the key stages of data preparation for use in artificial intelligence models, such as accessing data, storing it, processing, or recovering it in case of loss.

The fact that only 37% of organizations covered by the aforementioned global study have implemented a mechanism in which shared data models are analyzed in a central business intelligence system is not encouraging. Eliminating data silos, where information is isolated within individual applications or locations, is crucial for the success of AI implementations.

While the overall results of the aforementioned global study indicate growing interest in artificial intelligence (almost all IT leaders plan to increase spending on this technology in the next 12 months), they also highlighted issues that may slow down or block AI work. An example is the failure of individual departments in the company to align with the organization's overall AI strategy, but there are definitely more areas requiring special attention.

Challenge #1: Ensuring a high level of company maturity in data utilization

The effects of AI implementation and their impact on business obviously depend on the quality and quantity of data fed to the algorithm, and global IT leaders are fully aware of this relationship. However, even though most of them listed data management as one of the most important factors influencing the success of AI implementation, the level of development of their companies in this area remains in its early stages.

Kinga Piecuch, President of the Board, Hewlett Packard Enterprise Poland

Without proper emphasis on compliance, organizations risk, among other things, disclosing confidential data or receiving penalties from regulators.

To optimize the performance of artificial intelligence, organizations must also analyze all the technological resources they have, considering many elements, from human resources and skills to software, data management, and more. A superior architecture for data and its analysis, which consolidates all data between applications and locations, is a necessity. The goal should be to ensure unified real-time data access across the organization, regardless of where the data is located.

Challenge #2: Ensuring adequate IT resources

Being ready from a data analytics approach perspective, the organization must understand the specific requirements of artificial intelligence from the IT infrastructure (computing and network) side.

IT leaders seem confident in this area. 93% of them believe that their network infrastructure is prepared to handle AI-related traffic, while 84% claim that their systems have sufficient computing power reserves to meet specific requirements at various stages of the AI creation cycle. At the same time, only half of the respondents admitted that they fully understand the network or computing requirements of different AI workloads at each stage of creating such technology. Therefore, declarations of readiness to build AI solutions from an infrastructure perspective should be approached with some caution.

Challenge #3: Compliance with regulations and addressing ethical issues

Despite increasing pressure from consumers and regulatory bodies, the vast majority of respondents in the aforementioned study do not concern themselves with ethical and compliance issues when planning AI implementation. Only 13% of them considered the legal area as crucial for the success of AI implementation. Similarly, only 11% assigned high importance to ethical issues. 22% of organizations do not involve legal teams in discussions about AI strategy at all.

Without proper emphasis on compliance, organizations risk, among other things, disclosing confidential data or receiving penalties from regulators. And if they implement AI without considering ethical issues, they may create solutions full of biases, narrowing the results of their analyses and distorting reality.

93%

of IT leaders believe that their network infrastructure is prepared to handle AI-related traffic.

7%

Only this percentage of organizations can push or pull data in real-time to create innovations and monetize this data externally.

What to emphasize when planning AI implementation

Such an approach to artificial intelligence can negatively affect the success of the project. However, there are solutions and strategies that can increase the likelihood of success.

First, organizations should think about AI comprehensively, considering its entire lifecycle to ensure its usefulness in all departments of the organization, as well as better identify threats and opportunities. The journey towards AI should begin with creating a list of expected business outcomes and workshops with the entire organization's management, followed by identifying areas where AI can best help achieve goals.

The journey towards AI should begin with creating a list of expected business outcomes and workshops with the entire organization's management, followed by identifying areas where AI can best help achieve goals.

It is worth implementing a superior AI strategy across the company so that everyone strives for the same goals, not bypassing issues such as ethics or sustainability. Key to this is the collaboration of company management with IT teams, combining business knowledge with technical expertise.

Finally, AI success requires precise plans, but also appropriate data resources, computing infrastructure, network, and software layer. Many organizations are already well-prepared today to optimize their operations for AI implementation, but they may need support from external experts if they identify gaps in this area.

The development of artificial intelligence is currently the most demanding task from the perspective of data analysis, computing infrastructure, and computer networks. To deliver the expected results, the solutions used must be built on a modern architecture created specifically for this purpose. Above all, companies must carefully consider whether they are ready to compete in the race to be first in AI – whether they understand the foundations this technology requires and the mode of its development. Otherwise, even the largest investments may not yield the expected return on investment. •

What about ethics and copyrights?

Generated using artificial intelligence

AI allows for generating entire novels, helps in creating illustrations, and games are being developed by small teams because they use many „ready-made" elements. Is artificial intelligence fair?

Hundreds, if not thousands, of people have taken on the role of book authors lately. Especially in India. AI is not infallible and still tends to „hallucinate," but we don't have to worry about factual errors in fictional novels, just as with copyrights, because we are making a so-called mix. When we employ „creative AI" for work, we must not lack determination and knowledge of the appropriate commands for tools like ChatGPT or Ideogram. And the rest? The rest will sort of do itself. The effectiveness of AI in creating new content is very high.

Small entrepreneurs use AI to write books, often illustrated. They then place the finished works on the Amazon.com platform, which allows for self-publishing, i.e., publishing books independently. There are no editors to decide if a book idea is good. And there is no publishing house to decide if there is a chance for satisfactory sales and if it's worth taking the risk of printing a given title. Today, anyone can be a writer, and if they conduct an effective advertising campaign — a bestselling author.

/ AI search engines like Perplexity create user-friendly summaries and other studies based on content from popular media, without redirecting the user to the respective service's website.

Media go to court

While creating a book, even with AI, still requires quite a bit of work on the author's part, AI search engines like Perplexity take an even easier route. They create user-friendly summaries and other studies based on content from popular media, without redirecting the user to the respective service's website — thus without the possibility of generating revenue. Additionally, they train their algorithms on content they should not have access to. The New York Times and Wall Street Journal have already sued Perplexity for using content without consent and copyright licenses. There are many more similar cases.

AI takes away earnings from publishers and journalists, as well as artists. Is generating illustrations and graphic materials for games or animated films using AI tools fair to artists and graphic designers whose works these models were previously trained on? For a fraction of the price, professional graphic works can be created today, often for commercial use.

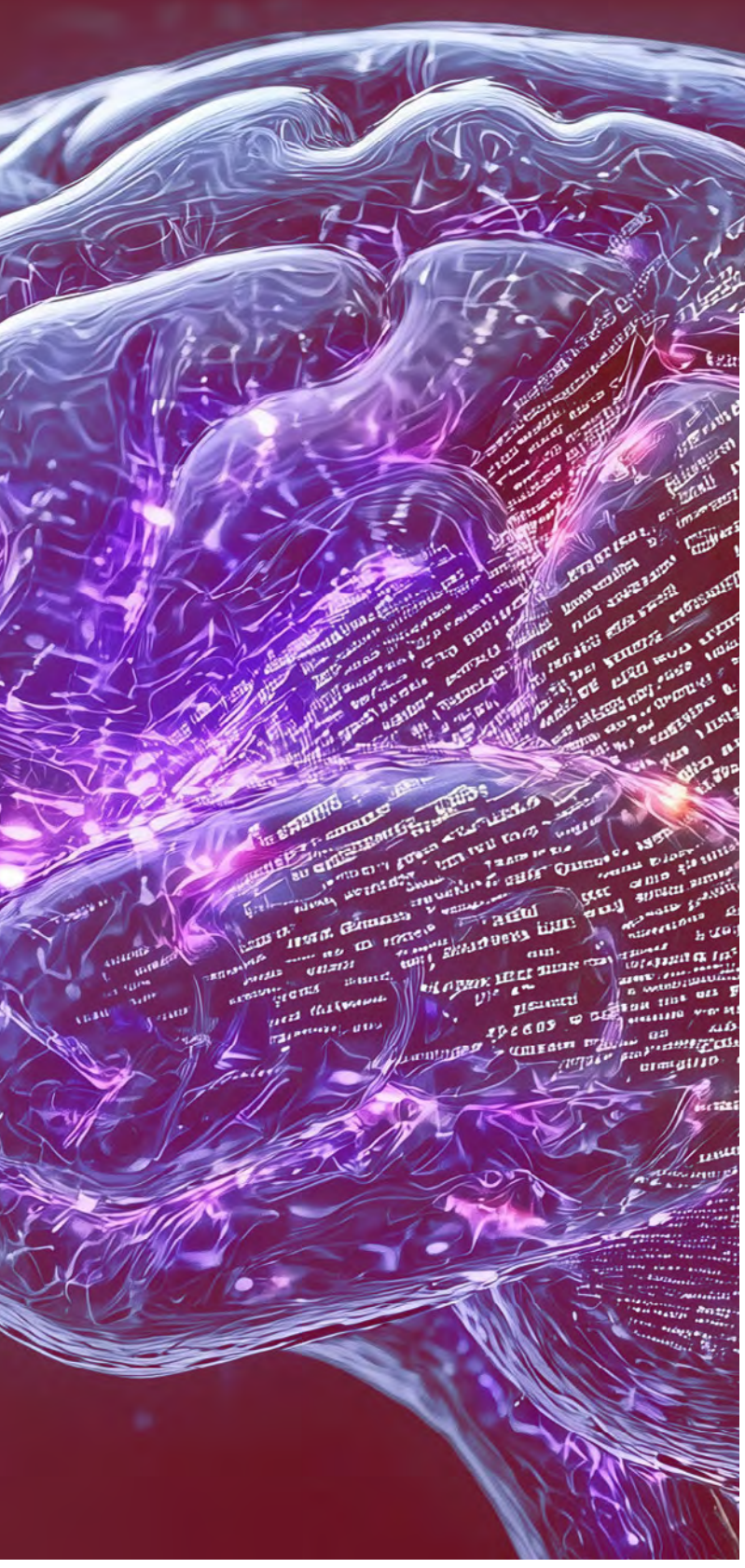
The new reality raises many questions about ethics and copyrights. Artificial intelligence opens up new possibilities but also comes with ethical challenges. AI models generating content should operate within clear rules that protect the creators of original works. For now, this is not the case. By 2025, we should observe how both the law and business models of companies adapt to all this. •

Small entrepreneurs use AI to write books, often illustrated. They then place the finished works on the Amazon.com platform, which allows for self-publishing, i.e., publishing books independently.

Created a game solo using AI

Spanish AI enthusiast Javi Lopez created a game resembling Angry Birds using AI tools. He generated graphics using Dall-E and Midjourney, and developed the code in ChatGPT. Lopez applied an iterative approach, asking GPT-4 for improvements and optimizations until he finally achieved satisfactory results. The game contains 600 lines of code and is available online. Lopez believes that in the future, creating high-quality games will be possible solely using natural language. Technical details and prompts used to create the game can be found on Lopez's profile on platform X (https://x.com/javilopen).

ChatGPT paved the way. Ahead of us is the second phase of artificial intelligence



Both AI leaders like OpenAI and Anthropic, as well as tech corporations like UiPath, Salesforce, and ServiceNow are working on AI agents. This is the second phase for artificial intelligence. Something that can stir things up significantly.

OpenAI introduced two significant solutions in 2024, which lay the foundation for what we call the second phase of artificial intelligence. The first is the updated Realtime API platform, which allows developers to integrate, among other things, ChatGPT's voice functions into their applications. The company presented new voices and a feature that generates suggestions, enabling faster creation of applications and the introduction of helpful voice assistants to the market.

The second solution was the launch of a web search engine operating from within ChatGPT. Application users can search the internet using the chatbot.

Both innovations pave the way for AI agents. What exactly is an agent? It's an AI-powered assistant that can perform complex tasks, from booking flights in a web browser to handling customer complaint submissions.

Everyone will get an agent

Olivier Godement, head of product at OpenAI, argues that every person and every company will have their agents. — An agent will have access to your emails, applications, and calendars, and will act like a close collaborator, using all the tools you use yourself. Initially as an assistant, later as a specialist working on complex tasks and projects — says Godement.

The OpenAI representative adds that the company's strategy is to build agents independently, but also allow external developers to do so. This way, programmers can create their agents for their needs or their clients' needs. Agents can be operated via chat commands as well as voice commands. However, there are still challenges that OpenAI faces to make agents a reality.

The first obstacle is reasoning. Building AI agents requires us to trust that they will be able to perform complex tasks without supervision and not make mistakes. Romain Huet, head of developer experience at OpenAI, argues that the reasoning function will take care of the proper „tuning" of agents. This appeared on the market with the debut of the o1 model and uses so-called reinforcement learning. By giving the model more time to generate responses, it allows it to recognize and correct errors, break down problems into smaller ones, and try different approaches before finally preparing an answer to a question.

Initially, OpenAI focused on ensuring that the o1 model performed very well with mathematical tasks, programming, and learning. Now it is dealing with other fields, such as law, accounting, and economics.

Agentic AI is a big step forward in the field of artificial intelligence, a type of AI that enables software agents to quickly plan, make decisions, and adapt autonomously. Built on GenAI and large language models (LLM) — but equipped with new planning and action capabilities thanks to the use of large action models (LAM) and other advanced AI. Agents can operate autonomously, undertaking a range of complex tasks, making independent decisions, and automating end-to-end processes without the need to define the algorithm of their operation.

These virtual workers do not follow strictly defined rules and processes. They will be able to respond to natural language commands and react to events, analyze complex processes, take a range of actions to achieve a goal, and learn and improve. They will plan and manage the resources and tools needed to undertake these actions, including RPA robots.

The emergence of agents changes the domain of automation and, more broadly, business software. UiPath's strategy is to enable the quick and safe building and deployment of AI agents in corporate environments.

Aleksander Kania,
Poland Country Manager
at UiPath

An agent is an AI-powered assistant that can perform complex tasks, from booking flights in a web browser to handling customer complaint submissions.

Let's prepare for a productivity boost

By 2030, AI could add up to $15.7 trillion to the global economy, with about $6.6 trillion attributed specifically to increased productivity. This forecast highlights the transformative potential of AI in various sectors and emphasizes that while some industries are rapidly developing, many are still in the early stages of AI implementation — according to the report „Global Artificial Intelligence Study: Exploiting the AI Revolution." Another study, „The next productivity frontier," points to a 40% increase in the economic impact of all AI technologies. AI's potential to automate tasks that currently consume 60% to 70% of employees' time suggests a transformative impact on productivity in various sectors — including banking, retail, and life sciences.

The productivity increase due to artificial intelligence is particularly significant in the context of an aging society, which poses new challenges for economies, especially:

Reduction of the workforce — as the population ages, many countries experience a decline in the number of people of working age. According to the World Health Organization, the ratio of older people to the working-age population is increasing every year, leading to a reduction in the available workforce.

Potential employment gaps — there is concern that automation and AI may lead to job losses, further exacerbating issues related to worker shortages in some sectors. Research suggests that automation will not necessarily compensate for employment losses caused by an aging population.

The agent will take over the mouse cursor

The second challenge facing OpenAI is introducing the ability to connect and use various tools precisely by agents. A professional virtual assistant cannot rely solely on training data. It must search the internet and look for alternative solutions. It must also handle a web browser, enter data, and save files.

Anthropic, a competitor of OpenAI, has already demonstrated a glimpse of an AI agent. This solution can use a computer — it interacts with the interface, clicks the mouse, and transfers data. Such functions will become typical for AI tools in 2025 and the following years. Agents will be able to perform many tasks fully autonomously. For example, a user will say: „find and book me a hotel by the sea for the weekend at the end of June." The agent will process the information and then complete the task, limiting the user's role to confirming the reservation and paying for it.

UiPath, ServiceNow, and Salesforce are already introducing agents to perform many tasks related to document processing and CRM system work. Many companies will increase productivity and gain additional ways to save costs. — Every company and every person will be able to do more and better than ever before thanks to AI agents. That's certain — argues Ritu Jyoti, group vice president and general manager for AI and data, market research, and advisory at IDC. •

AI Practitioners

TOP 50

TOP AI DRIVEN COMPANIES
REPORT 2024

AI Practitioners

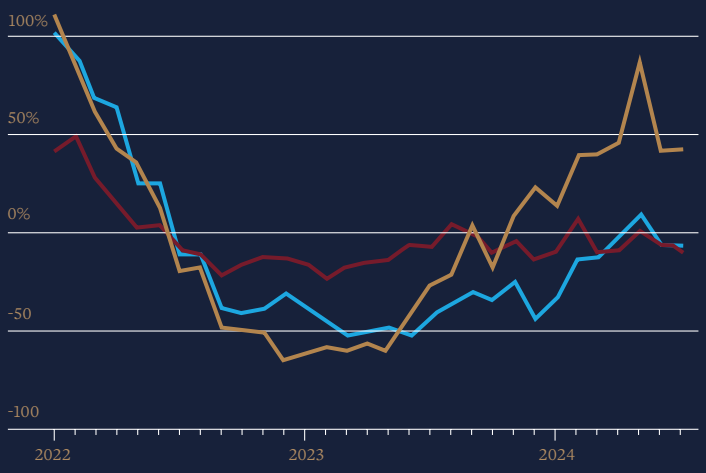
Tech giants and investors are pouring money into artificial intelligence — despite questions about its profitability. We present important market data.

Billions *for AI development*

Generative artificial intelligence has sparked one of the biggest spending booms in recent decades. Companies and investors are betting hundreds of billions of dollars that the technology will revolutionize the global economy and eventually bring huge profits. The question is when exactly this will happen, or even if the investments will be able to pay off.

Applications like ChatGPT from OpenAI have attracted hundreds of millions of users, but relatively few people pay for premium versions. Companies are still experimenting with how generative AI can increase their productivity. Nevertheless, the largest tech companies are investing record amounts in AI, mainly in the hardware needed to develop and run AI models.

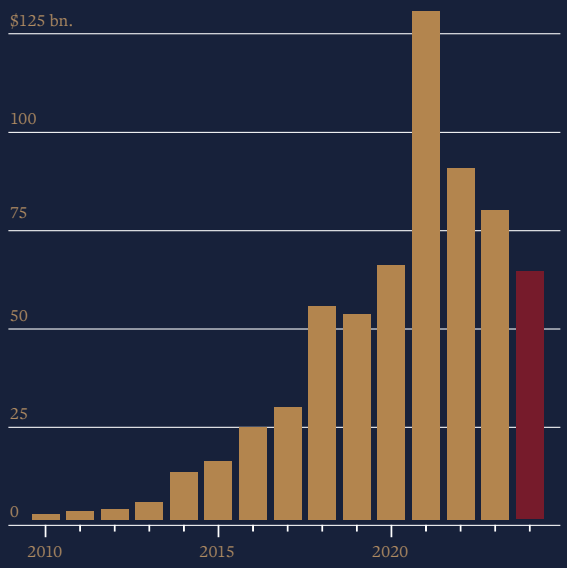
New job offers in the USA and change compared to the previous year



Source: Data up to July 2024, UMD-LinkUp AI Maps

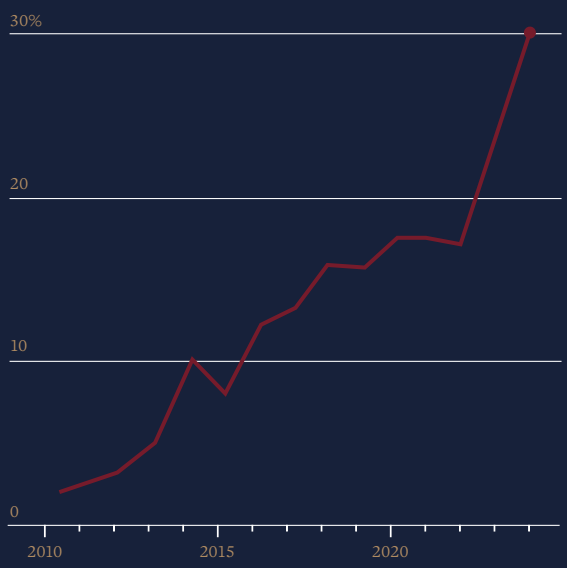
AI-related job offers are growing year by year, while offers in the IT industry are declining.

VC investments in AI startups



Source: Data for 2024 up to August, PitchBook

Share of VC transactions each year in AI



Source: Data for 2024 up to August, PitchBook

„The risk of underinvestment is dramatically greater than the risk of overinvestment," said Sundar Pichai, CEO of Alphabet, Google's parent company, in July 2024.

Venture capital funds similarly assume that at least a few AI startups may one day achieve multi-billion dollar valuations, even though most of them are currently unprofitable. VC investments in AI startups amount to approximately $64.1 billion in the USA this year, putting them on track to reach the peak set during the broader investment boom in 2021. The total share of VC investments allocated to AI this year is the highest in history.

The USA is investing heavily

The fruits of all the spending can be seen across the United States, where new data centers are appearing with increasing frequency. In the past, data centers were mainly used for remote data storage and software operation, but not AI-based ones. Currently, data centers are being optimized for AI and house specialized chips needed to develop and run generative AI applications.

In 2024, almost one-third of VC dollars went to AI companies.

From early 2020 to 2024, Microsoft more than doubled the number of its data centers. Google's total number increased by 80% in the same period. Oracle plans to build 100 new data centers.

AI data centers are more energy-intensive than those built in the past because AI chips require a constant and reliable power source to operate. Even short power outages can damage „training processes" where AI models improve by analyzing vast amounts of data. For large models, each training costs tens or hundreds of millions of dollars.

Since 2015, the amount of energy ordered by data centers in the USA and Canada from energy companies has increased almost ninefold.

Nvidia earns the most

The chips used to train and operate AI models mainly come from one company: Nvidia.

Its graphics processing units, originally designed for video games, cost tens of thousands of dollars each. Tech companies building and hosting AI models compete for the largest possible allocation from Nvidia.

Meta Platforms CEO Mark Zuckerberg said his company plans to have 600,000 Nvidia GPUs by the end of 2024. Tesla chief Elon Musk, who is building his own AI startup xAi, said he hopes to have 300,000 GPUs by next summer.

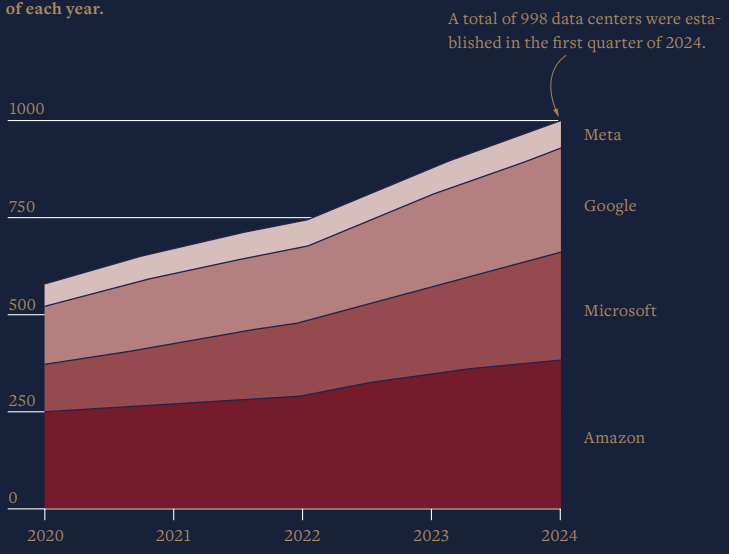
Highly skilled talent is another challenge. Despite widespread layoffs that have affected Silicon Valley in recent years, tech giants are spending millions of dollars to recruit AI researchers and experts who they believe can push AI to new frontiers. Many of these experts would have recently worked in academia. Now they are among the highest-paid specialists in the world.

Today, even those with a more basic understanding of machine learning, which underpins AI, have very lucrative job offers to choose from. New AI-related job offers in July increased by almost 50% compared to last year, while job ads in technology generally slightly decreased.

Investors show patience

Investors' patience with excessive AI spending in Silicon Valley is likely to wane in 2025. They have already „punished" the stocks of companies like Meta and Microsoft for increasing AI spending without sufficiently fast revenue growth. Sequoia Capital reported that to justify this year's investments in data centers and chips, AI companies will ultimately need to generate $600 billion in revenue. Although most companies do not disclose their AI revenues, analysts estimate that the annual total is at most tens of billions.

Estimated number of data centers in the first quarter of each year.

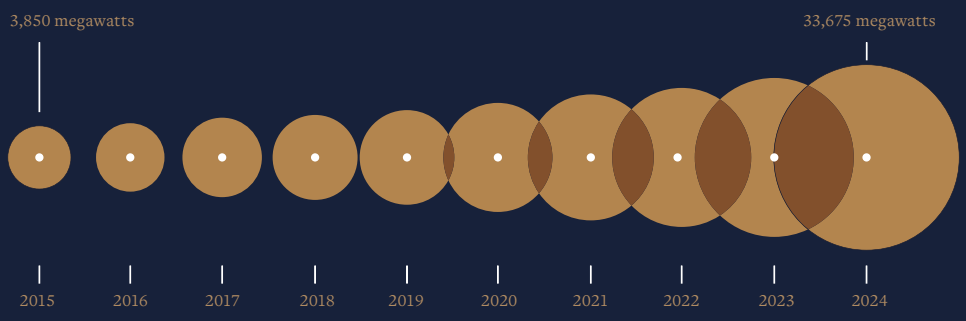


Source: Dell'Oro Group

Concerns about whether AI proponents have gotten ahead of themselves are reminiscent of the dot-com era a quarter-century ago when companies poured money into fiber-optic networks to support optimistic forecasts for internet usage, which developed more slowly than expected.

Executives of the largest tech companies are calling for patience. During recent earnings calls, Zuckerberg said it will take years before AI applications are monetized. Pichai from Google said that „there is a time curve in turning foundational technology into meaningful solutions." For now, big techs do not intend to slow down and hope that investors will remain patient. •

Power ordered for data centers in the USA and Canada annually



Source: 2024 data is a forecast for the entire year. DatacenterHawk

Shopping platforms have embraced AI

Artificial intelligence is transforming and streamlining business models in the consumer sector. Companies from various industries use AI to personalize customer experiences, optimize operational processes, and analyze data. The results? Increased efficiency and competitiveness in the market.

AI enables retailers to analyze customer behavior and tailor offers to their individual needs. Product recommendation systems, based on data analysis of transactions and interactions, help increase customer satisfaction and loyalty. An example is the use of chatbots that offer personalized shopping advice, as is the case with many online platforms.

A significant portion of companies also implement AI to automate repetitive tasks, leading to increased operational efficiency. Examples include inventory management and supply chain optimization. AI also makes it possible to monitor customer traffic in stores, providing valuable insights into shopping patterns.

192 bn.

It is predicted that the e-commerce market in Poland will reach a value of 192 billion PLN by 2028, with the growing importance of m-commerce (mobile shopping).

Improving service

AI supports customer service through the availability of chatbots 24/7, which answer questions and help in product searches. Such solutions contribute to improving shopping experiences and increasing sales conversion.

But that's not all. Computer vision technologies are used to analyze customer behavior in physical stores. Thanks to them, retailers can better understand shopping preferences and optimize product layouts on shelves.

An example of innovative AI application is the concept of autonomous stores, such as Żabka Nano, where customers can shop without physical cashiers. AI-based systems recognize products and automatically process payments.

Growth of the e-commerce market

It is predicted that the e-commerce market in Poland will reach a value of 192 billion PLN by 2028, with the growing importance of m-commerce (mobile shopping). Companies are investing in AI technologies to adapt to changing customer expectations and improve the online shopping experience.

AI also allows for the analysis of data on customer behavior, enabling the creation of targeted marketing campaigns. This allows retailers to better reach their audience and increase sales.

The application of AI in the Polish retail sector brings benefits to both businesses and consumers, and further technological development promises even greater innovations in the future.

> Automatic inventory monitoring systems can make real-time ordering decisions.

Increased efficiency

Artificial intelligence has a significant impact on the efficiency of logistics in the retail sector, bringing numerous benefits that contribute to process optimization and increased competitiveness of companies. It allows for precise demand forecasting through the analysis of historical data and current market trends. This enables companies to better plan inventory levels, minimizing the risk of shortages or excess stock. Automatic inventory monitoring systems can make real-time ordering decisions.

The introduction of AI into logistics also leads to the automation of many repetitive tasks, such as order picking or delivery route management. Robots and automated systems can work in warehouses, increasing operational efficiency and reducing human errors. Automation allows employees to focus on more demanding tasks.

Thanks to the application of AI, it is also possible to better tailor the offer to customer needs and faster order fulfillment. Customers can enjoy more personalized shopping experiences, translating into greater loyalty and satisfaction. •

AI in Żabka Nano

Żabka Nano stores operate without staff. Customers can shop 24/7 without the need for interaction with a cashier. After registering in the app, customers can simply enter the store, select products, and leave, with payment automatically charged. This shopping model significantly increases convenience and saves time.

The shopping process in Żabka Nano is extremely fast, often taking less than a minute. Thanks to advanced image recognition technology, customers do not have to wait in lines. The AI system automatically identifies products selected by customers, accelerating the entire process.

AI also enables the assortment to be tailored to the specifics of the location and customer preferences. By analyzing data on purchases and consumer behavior, Żabka can better select products to meet the needs of a specific customer group.

Morele.net powered by artificial intelligence

In recent years, Morele.net has been intensively investing in modern technologies such as artificial intelligence (AI), language models (LLM), and machine learning to increase operational efficiency, improve customer service quality, and optimize costs.

These technologies support key areas of the company's operations, including customer service, marketing, content creation and translation, as well as broadly understood logistics. As a result, the company consistently raises the quality of its offer and dynamically responds to changing market needs. Every day, Morele.net employees use advanced AI solutions, maximizing the efficiency and effectiveness of their actions. We present a detailed discussion of technological implementations that have significantly impacted the way the company operates.

1. Personalization of the shopping experience

Our goal is to precisely tailor the shopping experience to individual customer preferences. To achieve this, we have implemented advanced AI tools and recommendation systems that analyze purchase history and viewed products, enabling the generation of personalized shopping recommendations.

< 100 K

The number of indices waiting for processing has decreased to this from 1,850,000 thanks to the implementation of full automation of the integration process.

Starting point: initially, we used simple recommendation systems based on graph databases and elasticsearch engines, which connected products with users based on basic dependencies. These were simple connections – products were mainly proposed based on previous purchases, providing a basic level of personalization. However, the organization concluded that advanced solutions could enable a more precise matching of the offer to customer expectations.

Partner material

morele

Search: in the search process, we decided on recommendation models based on neural networks, provided by Google on the GCP platform. After obtaining positive results from the first tested model, which increased CTR by 50%, we conducted further tests of other solutions to choose the best for our ecosystem. Finally, we implemented the „Recommended Products" model, which translated into a 150% increase in CTR compared to the previous system. Already using the extensive recommendation ecosystem in GCP, we also decided to test the Google search engine based on the same data sources. Its implementation allowed for a 40% increase in transitions from the search engine to product cards and a 15% increase in CTR. Thanks to this, we created a system that continuously adapts the offer to the dynamically changing needs of customers.

2. Optimization of the product integration process – revolution in indexing automation

As an organization, we faced the challenge of improving the product integration process and reducing the number of indices waiting for processing. These indices, provided by integrated suppliers, form the basis for creating new products. Unfortunately, the provided data was limited – it only contained the EAN code, name, and occasional manufacturer information, which required time-consuming manual completion by operators, causing bottlenecks and limiting possibilities. This meant that adding a new offer could take up to six months.

Starting point: previously, integration processes were based on manual work and simple scripts. Employees manually added about 40,000 indices per month, while scripts processed another 200,000. Nevertheless, the monthly increase in new indices exceeded 350,000, and the index queue reached 1,850,000. The system operated at the edge of capacity, and backlogs were constantly growing.

Project and implementation: in April, we started a project for full automation of the integration process, using machine learning tools and LLM language models, which enabled automatic assignment of indices to appropriate categories and manufacturers, eliminating the need for manual sorting. This project, focused on maximizing the use of AI, brought automation on a scale previously unseen in the industry.

Results after project completion

In September 430,000 indices were added automatically, and in October another 290,000. As a result, the number of indices waiting for processing decreased from 1,850,000 to below 100,000, and newly added indices are processed on an ongoing basis without delays.

Breakthrough achievements:

JUNE — the system automatically integrated 500,000 indices, representing an efficiency increase of over 100%

JULY — the system processed 2,189,860 indices, while only 30,000 records were handled manually

AUGUST — an additional 1,604,788 indices were automated

Benefits and further steps

The implementation of the automated indexing project brought significant improvement in operational efficiency and enabled full management of the indexing process in real-time. This improvement strengthened the company's competitive advantage and opened new perspectives, including the possibility of automating the generation of product content, which will certainly be the subject of another case study. •

AI has a close relationship with education. Students worldwide are enrolling in AI and data analysis courses to master this field, and large educational platforms are rapidly implementing appropriate solutions to offer personalized education paths. We are also not far from the time when AI will become an integral part of educational institutions.

There are already AI solutions capable of analyzing exam papers and technologies that better tailor lessons to real-world scenarios. Additionally, natural language processing (NLP), a branch of AI, can translate materials and course content into the desired language to benefit students worldwide. In this way, AI for education will play a huge role in shaping the future of education.

AI in software development

Most of us have used one or more applications or some software with built-in AI features to generate content or perform other actions. For example, ChatGPT provides a wealth of information, Ideogram offers creative visualizations, and Textdrip uses AI to generate compelling content that users can send to their clients.

No more delay

Preparing for a world dominated by AI is not just a matter of technological necessity — it's a cultural shift. Organizations should prioritize upskilling their workforce and investing in educational and training programs that cater to both technical and non-technical professionals.

Standing on the brink of a world dominated by AI, it is our responsibility to prepare for the transformative journey ahead. Navigating this AI landscape requires strategic foresight, ethical considerations, and a commitment to inclusivity.

A world dominated by a single technology

AI is already everywhere. From education to software development and cybersecurity, artificial intelligence is transforming the world.

However, in 2024, the software development industry will reach a new level where AI will benefit not only software users but also its creators. Tools like GitHub's Copilot use AI to enable developers to spend less time writing code and more time building customer-focused solutions.

Using AI for software development means a paradigm shift where software solutions are designed, developed, and tested using AI tools. This helps improve team productivity and enables quick response to feedback and iteration.

AI for data security management

With the growing reliance on AI technology tools, the need for robust data security management is also increasing. AI has diversified into various industries and is used for various purposes, including providing services that collect user information.

AI for data security management involves building trust in AI systems that drive our digital world. They can identify unknown threats, detect flaws and vulnerabilities in real-time, respond to security threats and prevent them, and do much more.

Companies are implementing AI security systems not only to protect consumer data, but also to secure their organizational secrets. Numerous organizations are developing AI-powered security solutions to help confront and protect their systems from hundreds of attacks from known and unknown threats. The development and implementation of AI is becoming a strong pillar of data security management in 2024 and will continue to be so in the coming years.

Generative AI for everyone

The use of generative AI (GenAI) is one of the trends that particularly interests experts because it also promotes inclusivity in the technological landscape. In 2024, GenAI has become more accessible to wider audiences and has shattered the belief that artificial intelligence is a domain for specialists.

Researchers from Gartner predict that over 80% of enterprises will use generative AI APIs or deploy applications with generative AI features by 2026. GenAI has become a top priority for management, where its role goes beyond content creation, encompassing data analysis and real-time adaptation to create unique customer experiences.

GenAI for everyone promotes a culture of collaboration, where people with varying levels of technical knowledge can contribute to AI-based solutions and benefit from them. With user-friendly AI development platforms and tools, entry barriers are lowered, enabling innovation across various industries. •

ChatGPT provides a wealth of information, Ideogram offers creative visualizations, and Textdrip uses AI to generate compelling content that users can send to their clients.

Maciej Stolarski,
AI Officer at WeNet Group

Our AI implementation strategy is based on real business benefits and practical support for our teams' work.

Transformation of digital solutions in the WeNet Group through advanced and holistic AI implementation

WeNet Group, a well-established company in the online marketing and digital consulting market, has been undergoing an intensive transformation based on artificial intelligence for several years. The main goal of this change is to optimize processes, improve product quality, and provide clients with solutions that meet their real business needs. Artificial intelligence (AI) in WeNet Group is implemented comprehensively and multi-level – not only in strategic areas but wherever it can bring tangible benefits.

Below are examples of recent significant AI implementations in WeNet Group, confirming that artificial intelligence is a fundamental pillar of the company's development strategy. Each of these projects concerns key products and services, and their successes confirm the advanced level of AI maturity in WeNet Group.

Recent key AI implementations

1. Web3h Project – Automation of the website creation process

Our flagship Web3h project uses advanced AI to automate content creation and graphic selection in our proprietary One Touch platform. Thanks to AI, the production time of websites has been reduced to just a few hours without losing quality.

Thanks to this technology, WeNet Group can also quickly and effectively adapt content to different languages, such as English, Slovak, and Hungarian (countries from the WeNet Group), allowing for easy expansion into other markets, offering clients an authentic local experience.

2. Content Automation: 89% of orders fulfilled with AI

WeNet Group has implemented full automation of content production, resulting in 89% of all content products for clients being generated automatically. Thanks to implemented AI models, content such as Google My Business Posts, Blogs, Premium Articles, or Content Marketing Texts are produced and published according to each client's individual needs.

The process starts with signing a contract, and then dedicated content is generated by AI systems, which is sent to selected channels. Automation covers every stage – from initial analysis to publication.

„This accelerates our production process and improves its quality. The implementation of AI-based automation has allowed us to increase production

89%

of all content products for clients are generated automatically.

efficiency by 650% since the beginning of 2023 (over the last seven quarters), while also enabling the optimization of human resources," explains Artur Peterlik, COO at WeNet Group.

3. Voice AI – Data analysis from customer conversations

Thanks to the implementation of Voice AI, WeNet Group enables the transcription and analysis of conversations conducted by Customer Service and Sales departments. The system uses AI models to transform phone conversations into text, then analyzes these contents, drawing key conclusions, creating summaries, and recommending appropriate actions.

„Voice AI allows us to fully understand our customers' needs and tailor our offerings to their expectations. This solution also allows for identifying trends and drawing key conclusions, which improves the quality of our interactions with customers," says Maciej Stolarski, AI Officer at WeNet Group.

Partnership with OpenAI – A new dimension of AI development

Since October 2024, WeNet, as a participant in the Enterprise Program from OpenAI, has access to the most advanced AI technologies.

„Our AI implementation strategy is based on real business benefits and practical support for our teams' work. Thanks to this, artificial intelligence is not just a technological curiosity for us, but a key element of the strategy that enhances the quality of services and contributes to the success of our clients. This approach, as well as a close partnership with the largest AI solutions provider – OpenAI – makes AI an integral part of WeNet's daily operations," emphasizes Maciej Stolarski, AI Officer at WeNet Group.

Summary

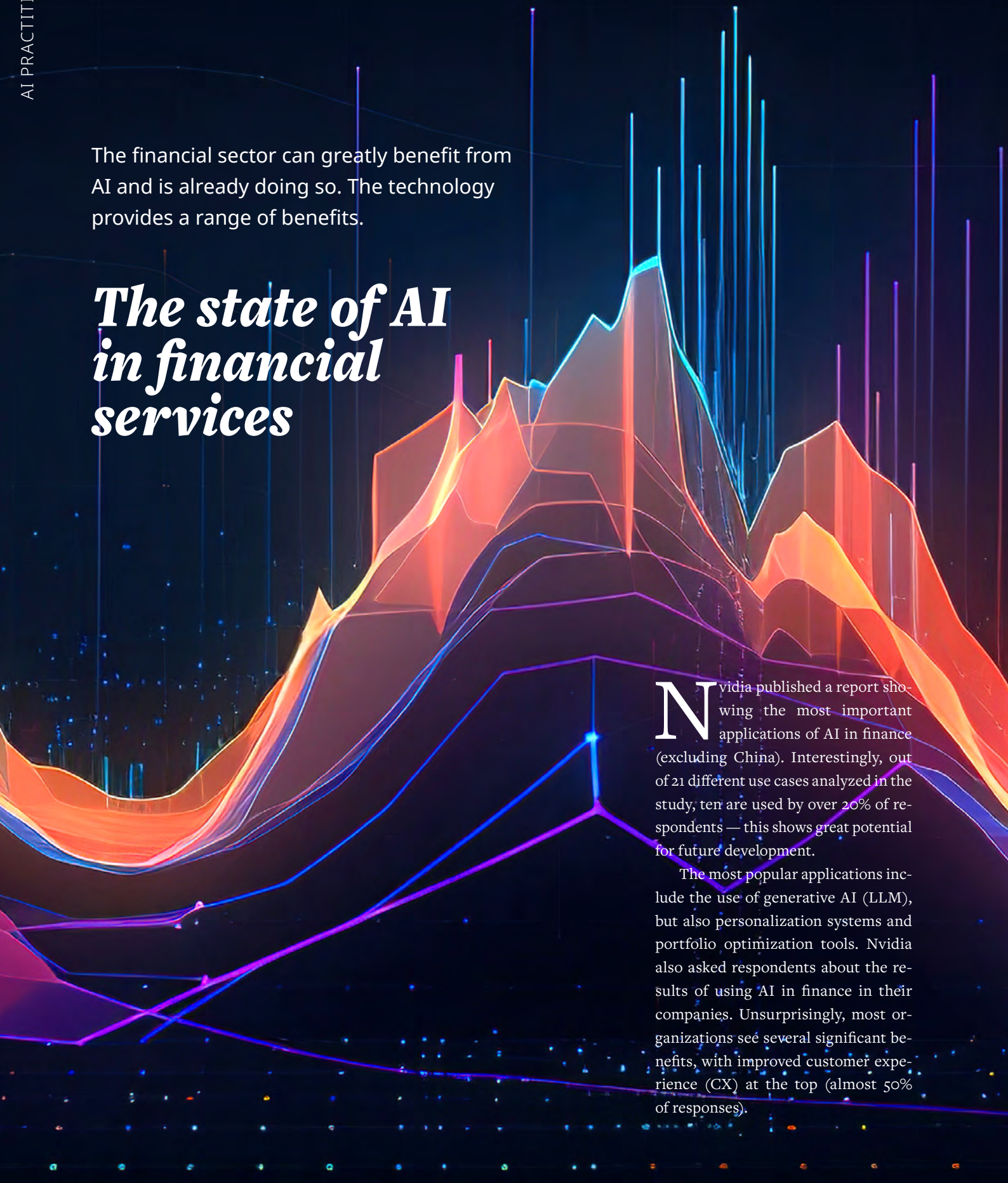
The development of AI in WeNet Group is an example of how broad and effective implementation of artificial intelligence can transform an organization, bringing tangible benefits to both clients and internal teams. Currently, thanks to consistent work on AI integration, WeNet Group is at the 4th level of AI maturity according to the AI Maturity Model by Gartner (according to external, independent auditors). •

Artur Peterlik,
Member of the Board and COO of WeNet Group

However, our ambition reaches even higher. WeNet aims for full AI implementation at level 5, we want to be a company where artificial intelligence is not just an addition but the foundation of every process and solution. We are ready to fully become an AI-Driven Company – a technology company that sets the standards for the future.

The financial sector can greatly benefit from AI and is already doing so. The technology provides a range of benefits.

The state of AI in financial services



Nvidia published a report showing the most important applications of AI in finance (excluding China). Interestingly, out of 21 different use cases analyzed in the study, ten are used by over 20% of respondents — this shows great potential for future development.

The most popular applications include the use of generative AI (LLM), but also personalization systems and portfolio optimization tools. Nvidia also asked respondents about the results of using AI in finance in their companies. Unsurprisingly, most organizations see several significant benefits, with improved customer experience (CX) at the top (almost 50% of responses).

The growing role of legal regulations

When it comes to the financial sector, not only banks but also legal and regulatory institutions are increasingly interested in using AI. Regulatory institutions need to know that AI in finance is primarily safe and can be used with minimal risk to customers' personal and financial data.

This is already happening. For example, at the end of 2022, the United States issued a non-binding policy document „AI Bill of Rights." It is not intended for a specific financial sector but provides guidelines on five fundamental rights that should be considered when developing policy and using AI in all industries, including finance and banking. In the EU, we have the AI Act. According to Citi Group, it is the first comprehensive „AI regulation" that will apply to all industries.

Regulations have several goals to achieve: they ensure that artificial intelligence is used safely, without any significant risk to customers' data and decisions, limit potential fraud risks, introduce necessary security measures, and minimize the risk of bias in interactions with customers representing different nationalities and ethnic groups.

The use of AI and the transition to generative AI

In the financial sector, integrating AI is a strategic imperative, not just a technological update. The role of AI goes beyond automating routine tasks — it's about deepening analysis and increasing operational efficiency. Financial institutions are now using AI to enhance decision-making processes and optimize customer services. This shift is less about replacing human roles and more about enhancing human capabilities. It allows teams to focus on strategic initiatives and customer engagement. We see AI as an important driver of the future of finance and innovation.

The game is certainly worth the candle. Numerous reports indicate that the 14 largest global investment banks will be able to increase front-office productivity by an average of 25% thanks to generative AI. This could translate into additional revenue of $3 million per front-office employee as early as 2026.

Internal GPT

An example of AI application in the financial sector is a chatbot based on OpenAI technology but operating entirely within the internal cloud ecosystem of a given organization and aimed at supporting employees in their daily tasks and communication with clients. Since everything is developed internally, conversations conducted by employees are not used to train any language models, and there is no risk of leaking any confidential or sensitive data.

Such a solution is safe and effective, and the work of customer service agents is significantly streamlined — they do not have to spend much time structuring notes or documents, brainstorming, or writing emails. •

AI to help banks

Intelligent AI-powered tools can help banks with tasks such as:

Faster document analysis
— why read a 50-page mortgage agreement when AI can do it for you in seconds?

Finding necessary documents and files
— with AI, we can create advanced semantic search engines capable of searching for documents (even scans) with specific information.

Generating document summaries
— with AI, we can easily generate reports and summaries for internal use.

Providing clients with all required information
— AI can support employees during conversations with clients, giving them instant access to all key information discussed during the conversation.

KYC procedures
— with AI, banks have access to advanced enhanced due diligence (EDD) and customer due diligence (CDD) procedures, as well as other compliance measures. As a result, they can effectively and automatically verify new clients.

The 14 largest global investment banks will be able to increase front-office productivity by an average of 25% thanks to generative AI.

BIK BIG InfoMonitor DFP Digital Fingerprints

GRUPA BIK

Agnieszka Szopa-Maziukiewicz, President of the Management Board of Digital Fingerprints and Managing Director of the IT Area at the BIK Group

Sectoral behavioral verification – higher security for bank customers in Poland

The behavioral verification solution is based on Digital Fingerprints technology, a Polish start-up that is part of the BIK Group. Based on this technology, the BIK Behavioral Verification Platform was built, which has the potential to protect the entire financial sector and all Poles using electronic or mobile banking.

Behavioral verification is an additional level of protection, securing the client's account from unauthorized takeover. It verifies the behavior of the user using banking both in the mobile application and in the browser, from the beginning of the session with their bank until its end. It is a technology in which no sensitive customer data is collected. The user's behavior is verified in the context of a previously built pattern of characteristics specific to them, i.e., the way of using devices, typing speed on the keyboard, pressure on the touch screen, etc. These are encrypted and anonymized data. This solution is an additional security element for consumers, providing protection for the client and their transactions.

Currently, almost 24 million Poles actively use electronic banking, and over 20 million log into banking via mobile applications. Unfortunately, the increasing number of electronic transactions also translates into greater cybercrime activity.

The BIK Anti-Fraud Report 2024 states that this year there has been a significant increase in attempts to obtain login and password to bank accounts. This form of criminal activity was encountered by 22% of survey respondents, which means an increase of as much as seven percentage points compared to 2023. Although Poles are increasingly better at recognizing suspicious behavior, cybercriminals constantly introduce new, unknown fraudulent schemes, mainly using social engineering, e.g., impersonating companies, fake links in emails or SMS, emails with malicious software, or taking over remote desktops.

This is a clear signal that login and password are no longer sufficient to secure electronic banking. Continuous transaction verification is required - even after logging in, based on additional authentication mechanisms.

Innovative anti-fraud solutions

The BIK Group, which is mostly associated with the area of information exchange and analysis, is also the largest database of financial and credit obligations in Poland. It shares its competencies in managing huge data sets, advanced analytical methods, and statistics with the market, which affects the economy and customer behavior in the credit market. In addition to this branch of its activity, the BIK Group supports the security of the financial system through the development and implementation of innovative anti-fraud solutions.

Among the anti-fraud solutions in the BIK portfolio are preventive systems, including the Anti-Fraud Platform, which has detected and stopped false credit applications, which were attempts to defraud almost a billion zlotys! Another solution is the Cyber Fraud Detection Platform, which is used to investigate online channel abuses and analyze customers' end devices.

Higher security level – behavioral verification

The BIK Group has developed another technological solution, whose idea – similar to the platforms described above – is sectoral and shared. It is the Behavioral Verification Platform - another level of security for customers and banks, which was not previously available on the market.

The BIK Behavioral Verification Platform is a modern anti-fraud solution that helps protect bank customers from losing funds in their accounts. Traditional authentication mechanisms, such as login and password, are no longer sufficient against increasingly advanced identity theft methods. Therefore, the development of a security system based on the behavioral profile of customers revolutionizes the digital security of customers using online and mobile banking.

Digital Fingerprints – a company that joined the BIK Group in 2022, used the latest technology to create a solution that helps protect customers of the entire financial sector. This is how the BIK Behavioral Verification Platform was created.

Trust the technology that knows your „digital handwriting"

The behavioral verification solution protects bank customers from losing funds in their accounts by identifying fraudsters in real-time. It works both in the browser and on mobile devices (iOS and Android). It is user-friendly, operates in the background, and does not require any special actions from the user.

It is a technologically advanced solution because it uses machine learning to continuously train behavioral models. Such an artificial intelligence algorithm allows maintaining always up-to-date models and stopping fraudulent operations even before the money is withdrawn from the customer's account. It works not only during the user's login to online or mobile banking but also throughout the entire session.

The verified user interactions are context-free, the content is not read, which allows full respect for privacy with the consent of users. The method was designed to consider the obligations arising from legal regulations, in particular GDPR. Additionally, behavioral verification can serve as one of the categories of strong customer authentication (SCA) in accordance with PSD2.

Only features such as the user's typing style, the speed of pressing keys on the keyboard, mouse movement characteristics, or the way of using the touch screen are used for analysis. Thanks to this, the system creates a dynamic behavioral profile of the user, allowing the detection of any anomalies in their behavior indicating an attempt at fraud every time they use electronic or mobile banking.

All for one

One of the most important elements distinguishing the BIK Behavioral Verification Platform is its sectoral nature. Banks that use this solution can share the behavioral profile database, which significantly increases the level of security in the entire sector. Every bank customer is protected against potential fraud attempts. The effectiveness of the solution is very high, detecting anomalies in user behavior in real-time and already covering over 5 million users, with 6 banks in Poland using it.

Thanks to its innovation, the BIK Behavioral Verification Platform is not limited to the financial sector alone. It is a mature solution that can be applied in industries such as e-commerce or telecommunications, increasing security on a large scale. •

The most important steps to implement AI in your own company

AI implementations are appearing in an increasing number of companies — from applications for advanced analytics to automated customer query handling. We explain how to safely and effectively implement artificial intelligence in your own organization to start reaping its benefits.

Let's start implementing AI by identifying the problems we want to solve with this technology. Let's consider how AI capabilities can be added to existing products and services. And more importantly — we should keep in mind specific use cases where AI could solve business problems or deliver tangible value.

It is worth reviewing the technological solutions used and the problems that can be solved (e.g., reducing the time to perform a given task). Let's check how natural language processing, image recognition, machine learning, and other tools fit into the existing products. For this purpose, a workshop with managers and specialists is recommended.

Priorities and realistic assessment of the situation

Once we have conducted the appropriate analyses and workshops to identify the problem or problems we want to address, it's time to assess the business and financial value. It's not just about deciding where artificial intelligence could be useful. We also need to assess whether its implementation will be profitable. First: what business value will AI provide? And second: when can we expect a return on investment and how large will it be?

For each of the initiatives we identify, let's prepare an appropriate budget and information about the planned return on investment. This way, we will narrow down the projects to those that should be the highest priority. In this step, the assessment of the situation is also crucial. Let's make sure we actually know how to implement the given solution and how much it will cost. This will help us avoid situations where previously unaccounted costs arise, or it turns out that implementing a specific function will not take two months, but half a year.

> The role of managers is to ensure that ready AI solutions are actually incorporated later as part of daily tasks.

Benefits of implementing AI

Process automation — increasing operational efficiency by automating routine tasks.

Better decision-making — access to more in-depth data analysis allows for more thoughtful, higher-quality decisions.

Innovation — AI supports the development of new products and services.

Improved customer service — automation of customer service increases customer satisfaction through faster responses and service personalization.

When we have mapped all the most important information, it's time to relate it to the available resources. Budget is one thing, and experts are another. Does our organization actually have the appropriate resources and capabilities to implement a specific solution within the set time? Do we have all the necessary competencies? The company should know what it can do on its own and what it will have to outsource.

If it turns out that we need to outsource certain work to an external company, let's ensure a properly constructed contract. It's about minimizing the risk that the contractor will not complete the work, e.g., within the set deadline.

Build the project with experts

It is essential to develop the project with specific experts — this will give us confidence that the process of creation and implementation will be carried out at a sufficiently high level. But beware! The project should not be developed in such a way that the first effects are visible only after a few months. The first project should take no more than 1–2 months of work. It should be something pilot, not a transformation of the entire organization.

In practice, it is usually necessary to combine employees with a few people from outside to create a team of no more than ten people. Such a team will focus on simple, easy-to-achieve goals and should relatively quickly deliver a pilot project. It is this project that will allow us to assess whether further work makes sense. It should provide the opportunity to test the concept itself to confirm (or not) that a specific solution makes sense and fulfills the set tasks.

While work on the pilot project should not take long, this should not lead to the assessment that the AI tool should rely on average quality data.

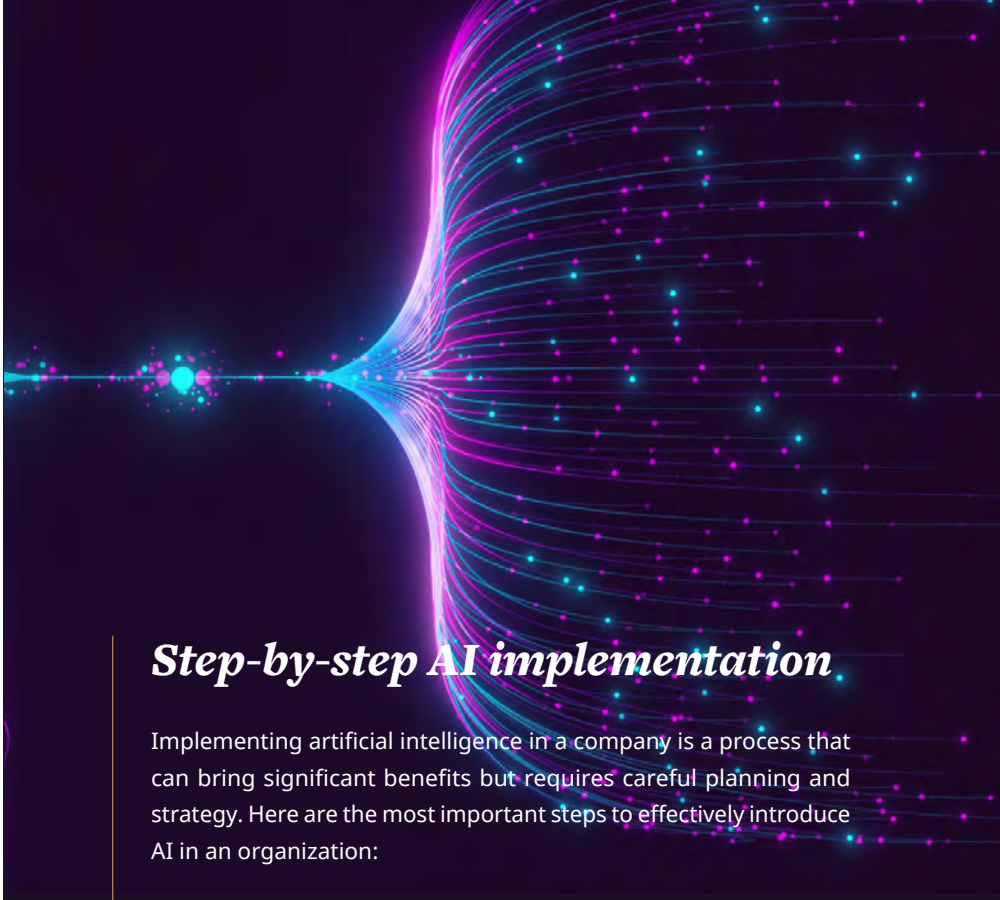
If a project based on artificial intelligence is to, for example, draw data from internal company documents, we must thoroughly clean these files and prepare them in the appropriate form for work — there will be no shortcuts here. If the quality of the data and the AI foundation itself is not high, we will not be able to objectively assess whether the project actually meets the assumptions.

AI as part of work

When we conclude that the project meets its goals, and we implement AI in the company on a larger scale, we must also take care of appropriate training and changing staff habits.

What good is it if AI can, for example, independently create sales presentations from simple commands and spreadsheets with price lists, if employees will still do it manually? Why integrate AI into report analysis if the employee still reads these documents independently and does not save time, forgetting about the new tool? The role of managers is to ensure that ready AI solutions are actually incorporated later as part of daily tasks.

Many employees will be cautious about technology that may affect their work, so introducing AI as a way to complement their daily duties should be taken very seriously. Transparency should also be maintained, and it should be explained how the technology works, how it is supposed to work, and what workflow problems it solves. Before an employee starts relying on a given solution, they should know what „is under the hood." •



Step-by-step AI implementation

Implementing artificial intelligence in a company is a process that can bring significant benefits but requires careful planning and strategy. Here are the most important steps to effectively introduce AI in an organization:

1. **Define business goals and needs.** Identify the problems that AI is to solve and the goals you want to achieve, such as process automation, improving customer service, or optimizing marketing activities.

2. **Data and infrastructure analysis.** Assess data availability and technological infrastructure. Ensure that the data is clean and properly organized, which is essential for effective AI model training.

3. **Selection of AI tools and technologies.** Decide which tools will best suit your needs. You can choose from ready-made solutions and platforms for creating AI models yourself, such as TensorFlow or PyTorch.

4. **Building a team or partnering with partners.** Consider creating an internal team of AI experts or collaborating with external providers. It is necessary to have specialists with experience in data and software development.

5. **Conducting a pilot.** Before implementing AI on a large scale, conduct a pilot project to assess the effectiveness of the solution in a controlled environment.

6. **Scaling and optimization.** After a successful pilot, expand the use of AI to other areas of activity. Continue monitoring system performance and adjusting models to changing conditions.

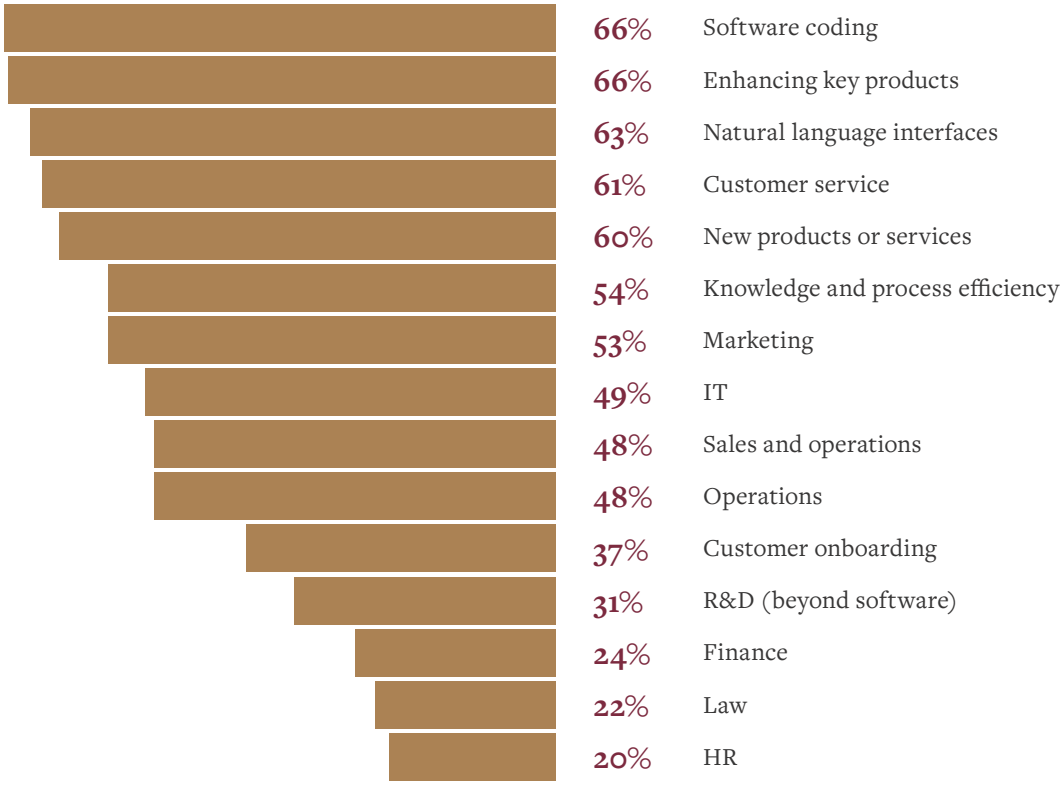
GenAI as a priority. Evolution and new challenges

As many as 88% of global companies view GenAI as one of the top priorities for the next 5 years.

The way AI is used is evolving, bringing new challenges. We are currently witnessing a shift from experimentation to delivering concrete business results, and the number of applications is growing — this makes GenAI implementations even higher priority according to companies.

Our report indicates that the top AI Practitioners have remained largely unchanged. There is little transformation in the market, but there is a democratization of smaller implementations and the development of a local ecosystem of innovators and promoters.

In which areas have companies implemented or are considering implementing Generative AI



Source: Bain GenAI Survey

Business benefits justify the effort required for effective AI implementations

New products / features

~40%

reduction in time to prepare job advertisements

~100%

reduction in time to create personalized visual designs

Customer service / Call center

~20-50%

reduction in employee time on manual tasks

~15-20%

reduction in contact costs per interaction in call centers

Sales and Marketing

~70-90%

reduction in employee time on content creation

~5-15%

increase in revenue due to higher conversion in the sales process

Product development

~15%

reduction in time spent on coding tasks

~25%

reduction in costs for developing product safety reports

Back-office / productivity

~15-20%

increase in productivity among employees handling procurement

~20-50%

automation of tasks related to document comparison

Source: Bain GenAI Survey

Who can profit from AI – and who does it best

The biggest winner of the revolution called „artificial intelligence" is Nvidia. However, this does not mean that other companies are not doing well in this game.

about **80%**

This is Nvidia's market share in the data center sector.

It is impossible to develop artificial intelligence and train algorithms for tools like ChatGPT or Gemini without access to computing power. Enormous computing power, provided by super-efficient AI chips. In this field, Nvidia has dominated the market, supplying the most semiconductors — and doing so ahead of the competition. As a result, the company has managed to significantly grow in the data center sector, providing expensive chips for AI computations. We are talking about a market share of about 80%. And although Nvidia is already feeling the breath of rivals on its back, it will take a long time before AMD (a representative of big players) or Cerebras (a representative of startups) manage to secure significant contracts for chip purchases.

AI gains access to money

Stripe has introduced a tool for developers that allows agents to spend money (e.g., access to virtual cards), and Coinbase has launched the ability to build AI agents with cryptocurrency wallets.

What does this activity signal? AI agents refer to LLM-based systems that can independently perform workflows. Interest in them has increased significantly — it's already over $2 billion in funding in 2024.

All this leads us to agent payments — a key trend for 2025. Here's what to watch for:

- Cryptocurrencies as the first AI payment path — early moves by Skyfire and Coinbase target agent-to-agent transactions to bypass human identity verification needed for credit card transactions.
- Established players want to develop the ecosystem — the actions of Coinbase and Stripe are the most noteworthy.
- Big tech envisions the future of agent commerce — both Google and Amazon have already discussed agent-related shopping applications.

Before widespread autonomous spending, the „agent trust layer" will be crucial. Okta and Ping Identity have already introduced solutions that provide AI agents with identities, allowing organizations to authorize and authenticate them.

As a result, Nvidia has so far turned the AI boom into a lucrative business, and its shares have risen to the point that at the time of the report's creation, it is the most expensive company in the world, with a capitalization of $3.62 trillion. This is more than Apple ($3.43 trillion) or Microsoft ($3.14 trillion). It is also a clear signal of how much artificial intelligence has appealed to stock market investors. Companies that missed their chance paid a huge price, with Intel being the most popular example. The company's valuation fell to just $110 billion, partly because it failed to propose appropriate AI solutions in time.

Ready for disruptions?

The waves of disruptions shaking the tech industry today are significant and will test the durability of current leaders. If we do not adapt to the AI trend in time, it may take just a year or two to lose the position of a strong player who seemed unthreatened.

Current leaders, including Alphabet (Google) and Microsoft, are disrupting their own core businesses to focus on AI opportunities. For example, ten years ago, Microsoft struggled to maintain morale in the face of grim forecasts about the fate of PCs and mediocre results of its big push into mobile phones. New CEO Satya Nadella helped transform Microsoft into a leader in a cloud-oriented world, developing the Azure platform and engaging in selling Office 365 as a service, even though the cloud competed with the traditional server business. Recently, by collaborating with OpenAI and integrating advanced AI into products like Azure and Office, Microsoft continues to promote innovation and challenges for its core business.

Nvidia's CEO, Jensen Huang, summarized the potential of AI during a discussion of the company's financial results for the third quarter of 2024. He said: „Generative AI is the largest expansion of the TAM [total addressable market] for software and hardware that we have seen in decades." Bain estimates that the total addressable market for AI-related hardware and software will grow from 40% to 55% annually for at least the next three years, reaching $780 to $990 billion by 2027. Supply and demand fluctuations will cause volatility along the way, but the long-term, sustainable trajectory seems clear.

As the market becomes more competitive and complex, companies will need to adapt quickly to capture their share of this potential market worth nearly a trillion dollars. •

Bain estimates that the total addressable market for AI-related hardware and software will grow from 40% to 55% annually for at least the next three years, reaching $780 to $990 billion by 2027.

Who is doing well in the AI sector?

Alphabet (Google)

Over the past five years, Alphabet has invested nearly $150 billion in research and development, with a significant portion allocated to AI. Currently, about 80% of advertising clients use AI tools in marketing campaigns on Google and YouTube platforms. The company is also developing advanced AI features, contributing to significant revenue growth.

Amazon

Amazon is one of the largest investors in AI, spending more than other companies in the so-called magnificent seven. In 2024, it launched the Amazon Bedrock service, allowing AWS users to create generative AI applications. It also invested $4 billion in Anthropic, enabling it to use AWS infrastructure for AI model training.

Microsoft

Microsoft implements AI in its products, such as Office 365 and Azure, increasing efficiency and automation of business processes. The company also collaborates with OpenAI, strengthening its position in the AI solutions market.

Nvidia

Nvidia is a key player in providing chips for AI applications. It is estimated that by 2027, the AI sector could bring the company up to $300 billion. Nvidia participates in every significant technological trend related to AI.

Meta (Facebook)

Meta invests in the development of supercomputers for AI research, such as the AI Research SuperCluster (RSC), which supports the creation of more attractive visual content for users. It also uses AI in its advertising platform, ensuring higher revenues.

IBM

IBM provides AI-based solutions for large corporations, helping them increase operational efficiency and reduce costs. The company uses machine learning and deep learning models to support the business development of its clients.

Tencent

Tencent has opened an AI lab in Seattle, focusing on the development of voice assistants and voice-to-text technology. The WeChat app serves over a billion users and integrates various services, also using AI.

Where is AI already making a difference? How is today's business changing?

Artificial intelligence is already being implemented in many companies. We point out examples where appropriate projects are already providing significant effects — whether in terms of productivity growth or cost savings.

Key applications for AI

Here are the top 3 responses from IT decision-makers on what they want to use artificial intelligence for in the next 3–5 years:

- Process automation and increased efficiency — **59%**
- Improving customer experiences — **39%**
- Risk management/fraud detection — **27%**

Source: 2024 CIO Tech Priorities

Indeed, one of the largest job listing services in the world, is already using AI to personalize email messages to job-seeking candidates. Generative artificial intelligence always adds a few personalized sentences to the email to send information about open positions that can be applied for and that match users' qualifications. Hannah Calhoon, Vice President of AI at Indeed, emphasizes that such implementation has allowed for „acceleration, facilitation, and improvement of quality of actions, as well as increased efficiency for existing tasks."

Considering that Indeed sends about 20 million such emails every day, the implementation of AI could provide significant benefits—the potential was indeed high. It turned out that this was indeed the case. Personalization improved candidate response and provided a 20% increase in applications for individual positions. That's a huge difference. Importantly, employees would not be able to personalize messages on such a scale—it's too large. AI, however, handled it without any problem.

64%

This is the percentage of respondents who say that artificial intelligence and machine learning have the greatest potential to significantly change the way their companies operate.

Source: 2024 CIO Tech Priorities

Indeed has been using AI for years, but only recently has it been implementing artificial intelligence in a more significant way. As a result, it is transforming its products and services, making them better suited to the client or candidate. The company believes that in the future, AI will provide even more impressive results. Calhoon believes that AI is changing the set of tasks performed at work, and over time, individual roles in the company will rely on something different. — That's the direction the world is heading — she believes.

Time for a new definition of productivity

In the coming years, companies, after implementing AI solutions, will not see gradual increases in productivity — rather, they will be multiple increases. Perhaps the very definition of productivity in companies will be changed because the differences between what was before and what is after the introduction of AI will be simply colossal.

Tasks such as programming, which are currently not possible for people without specialized training, will be performed by the average employee. Creating graphics, content, analyses — such activities will largely be taken over by digital robots. Moreover, many tasks will be performed at an expert level, for a fraction of the cost and in incomparably faster time than is currently the case. Most routine tasks will be transferred to algorithms, and employees will have to deal with something else. What exactly? It's difficult to answer that question today because it's not yet known how individual roles will evolve.

Artificial intelligence certainly has great transformative potential, and many professions will change significantly when they are „touched" by AI. A study by 2024 CIO Tech Priorities developed by Foundry shows that the adoption of AI by decision-makers in the IT sector is almost universal — 89% of respondents indicate it. These people say they are already exploring, testing, and using AI technology. For comparison, in 2023 it was 72%. Moreover, 64% of IT decision-makers expect that AI and machine learning will

significantly change the way their business operates in the next three to five years, compared to 39% who said the same in 2023.

IT leaders also believe that AI will transform their organizations mainly through process automation and efficiency gains, as well as improved customer experiences (personalization). They also point to the possibilities of artificial intelligence in specific areas, such as risk management, fraud detection, intelligent manufacturing, predictive asset maintenance, quality control, and personalized employee engagement. „The interest in AI that started last year has turned into a frenzy as organizations become even more convinced of its potential to automate everything — from business processes and decision-making to software development and content creation," Foundry states in its study.

Tailor-made AI

In recent years, we have encountered various technologies that have improved productivity and optimized operations in organizations. From personal computers to RPA (robotic process automation) systems, companies have been able to count on various possibilities and benefits. However, artificial intelligence seems to be the most transformative, especially when we discuss the second phase — AI agents that are to come after chatbots like ChatGPT or Claude.

We will be able to teach AI to perform specific tasks and create tailor-made solutions — tailored to our business. Then such AI tools will be able to quickly perform many activities that previously had to be done by humans. Imagine, for example, the operation of AI in a tax advisory office. Specialists, instead of analyzing extensive regulations and changes, will be able to use AI, which will analyse tax regulations in a few moments and provide appropriate recommendations. Companies will be able to significantly improve task completion time, and increased efficiency will, of course, translate into higher revenues. Artificial intelligence automates, processes, and performs tasks on an unprecedented scale.

Equally important, AI will solve problems that were previously too complex and required too many resources, so they remained untouched. AI brings benefits in terms of productivity, but it also allows us to reimagine the execution of many tasks and projects. Artificial intelligence even questions the very concept of a „business process." This is because enterprises can use AI to develop ways to achieve specific, desired outcomes without worrying about maintaining and improving existing workflows. For example, we can assume that we want to improve customer satisfaction, who contact the support department, by 20%. Instead of building a process for this, we delegate actions to AI and focus on appropriate automation and personalization. Systems operate autonomously, improve results, and eventually achieve the goal, and the process itself becomes practically irrelevant. AI doesn't care about the process — it focuses on the outcome. It's a powerful change. •

Will there be a shortage of data for AI??

The development of language models, such as GPT--4o, is associated with a huge demand for textual data. The pace of scaling suggests that reserves of human-generated content may be exhausted between 2026 and 2032. This problem raises questions about the future of artificial intelligence and its further development in the face of data resource constraints.

Language models rely on billions of parameters and trillions of tokens — text units corresponding to fragments of words or entire words. It is estimated that the total resource of publicly available human content is about 300 trillion tokens, of which only a portion meets the quality standards necessary for effective training. At the current pace of development, some LLM models may exhaust these resources by 2025.

The established confidence interval (80%) assumes that the data resource will be fully utilized between 2026 and 2032. The exact moment when the data will be fully utilized depends on how the models are scaled. Further innovations in the LLM area are needed to maintain progress after 2030 — these are the conclusions of researchers from the Epoch AI institute.

AI even more important. Trends for 2025.

1

AI-first approach

Companies will need to adopt an „AI-first" strategy. The use of artificial intelligence will become essential for achieving competitiveness. AI tools, such as chatbots and recommendation systems, will enable hyper-personalization of customer experiences and automation of complex marketing tasks.

2

Increased importance of chatbots and automation in customer service

In 2025, more brands will implement AI-based chatbots that will quickly respond to consumer inquiries. This will allow companies to better manage customer interactions and focus human resources on more complex issues.

3

Rise in popularity of voice search

Optimization for voice search will become a component of SEO strategy. Users increasingly use voice assistants, which requires adapting content to more natural, conversational queries.

4

AI agents

The development of autonomous artificial intelligence, which will be able to make decisions and act on behalf of users, will gain importance. It is predicted that by 2028, at least 15% of daily professional decisions will be made by AI.

In 2025, artificial intelligence will be an even more important element in many sectors, including marketing, customer service, and the labor market.

5

Application of AI in data analysis

AI algorithms will increasingly be used to analyze large datasets in real-time. This will enable quick adaptation of marketing strategies to changing market conditions and consumer preferences.

6

Augmented and virtual reality

VR and AR technologies will be integrated with AI, offering more immersive experiences to users. Companies will create virtual showrooms and events that will allow interaction with products in a more engaging way.

7

Changes in the labor market

AI will also impact the labor market by automating many processes and developing new employment models. In 2025, technology-related skills and work flexibility will become essential for employees.

8

AI security and ethics

With the growing use of AI, challenges related to data security and the ethics of using these technologies will also arise. Companies will start investing in appropriate security measures and risk management related to AI.

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