



**Generative AI
for Business Leaders: Act Now,
Lead Tomorrow.**

*ChatGPT: Optimizing
Language Models
for Dialogue*

Introducing ChatGPT research

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Introduction

This revolution has begun. The next big disruption is here, ready to shift the economy and change the way we live and work forever — much as personal computers, the internet, and smartphones did. It's known as generative AI.

After the 30 November 2022 release of OpenAI's GPT-3.5, a landmark example of generative AI, this new type of intelligence in machines has taken the world by storm.

Unlike traditional AI known since the 1950s, generative AI doesn't just process existing data. It learns from it and uses what it has learned to generate new creations that didn't exist before, including text, images, videos, and code.

Tools such as OpenAI's ChatGPT, DALL-E, and Stable Diffusion, Google's Bard, and IBM Watson are swiftly democratizing generative AI for business and private applications.

As this technology develops, experts predict tectonic changes.

Skills will evolve. Smaller players will gain creative and technical powers once exclusive to big organizations. Education will become more personalized, and healthcare breakthroughs should be expected too.

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The transformation will take time, but it won't be long. The speed at which this technology is being adopted for innovation is breathtaking. So, a key question business leaders face today is: what's in this for their business right now? What steps can they take to ride this wave of disruption?

We've prepared this ebook to help you find the answer.

“ If we put generative AI together with the basket of automation technologies, we're looking at a potential of \$4.4 trillion of GDP growth globally. That is larger than the size of the United Kingdom. ”

McKinsey

Stunning Generative AI Statistics

- 01 .** Two months after its launch in November 2022, OpenAI's virtual chatbot ChatGPT reached 100 million monthly active users, making it the fastest-growing consumer application in history ¹
- 02 .** The article about ChatGPT was the most viewed page on Wikipedia in 2023, receiving more than 49.4 million page views ²
- 03 .** Industries that are expected to be the first to take advantage of OpenAI's solutions include technology, education, business services, manufacturing, and finance ³
- 04 .** Around 30% of companies are already regularly using generative AI in at least one function, and 40 percent of those reporting AI adoption at their organisation plan to invest more in AI because of generative AI advances ⁴
- 05 .** 67% of senior IT leaders plan to prioritize generative AI for business in the next 18 months, with 33% considering it a top priority ⁵
- 06 .** By 2025, generative AI will account for 10% of all data produced, up from less than 1% currently ⁶
- 07 .** By 2024, 60% of the data used to develop AI and analytics projects will be generated synthetically ⁷

Why ChatGPT Has Made A Difference

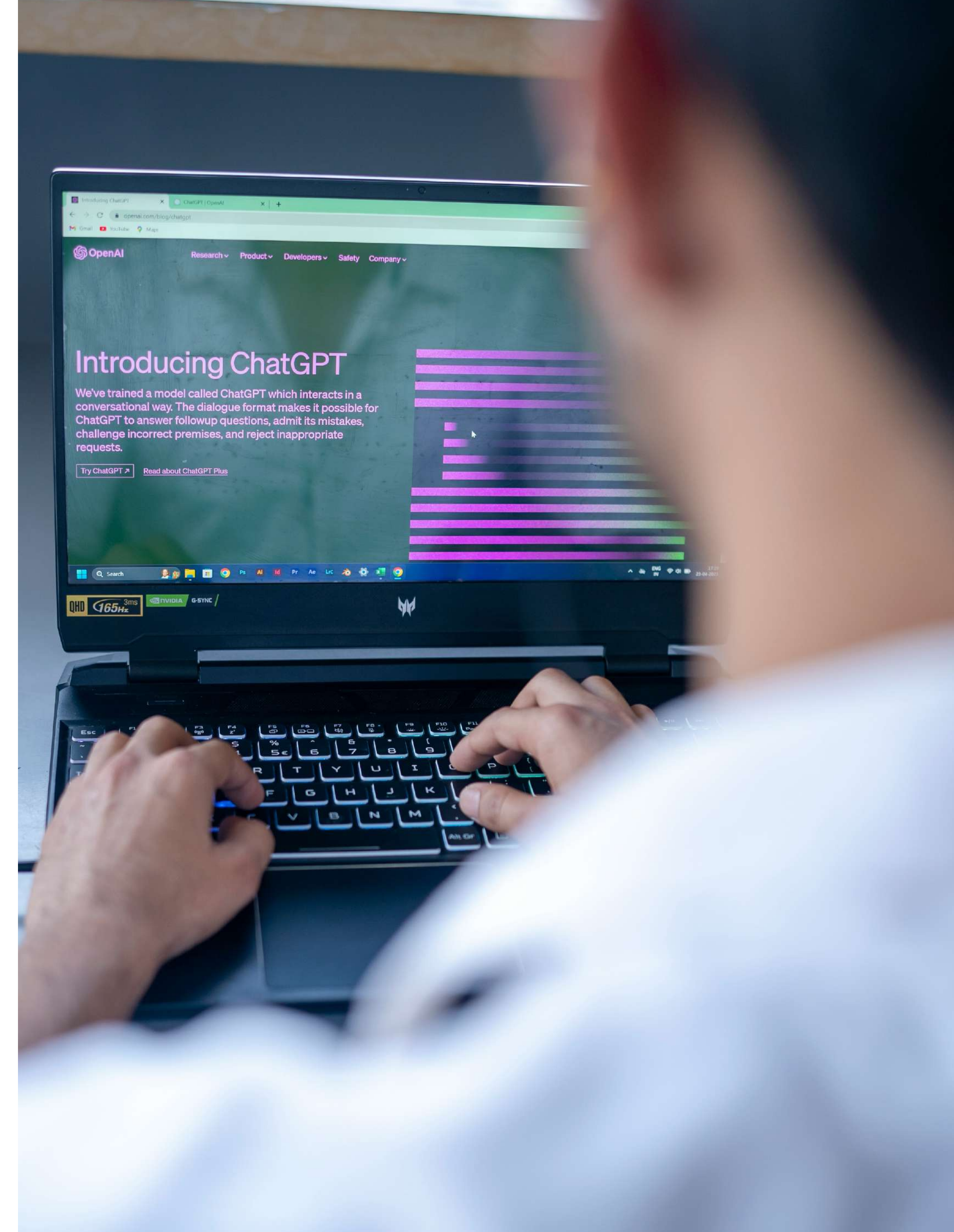
At the heart of ChatGPT's breakthrough is a journey spanning decades of AI research, culminating in an exceptionally user friendly tool that revolutionizes how machines understand and generate language.

Trained on 175 billion parameters, ChatGPT's model understands language nuances and complexities in a profoundly deep way.

But why is language so crucial?

The thing is that language is the key to human intelligence. It plays a central role in cognitive processes, influencing everything from problem-solving and memory to abstract thinking.

The technology behind ChatGPT, known as large language models (LLMs), mimics such cognitive processes. While LLMs can't exactly replicate human thought, they can process and analyze vast amounts of data at a speed surpassing the human brain. This ability also allows them to generate human-like responses just as quickly.



The Impact Will Come in Waves

The first phase of generative AI's adoption will be subtle yet significant. Its primary role will be to bolster human skills, enabling quicker and more efficient task completion, including summarizing and interpreting large datasets, speeding up the discovery process in research, or improving reporting.

According to a recent study⁸ by OpenAI and the University of Pennsylvania, current LLMs can already take over half of the tasks in one-fifth of jobs. And this is just the beginning.

As AI integrates deeper, its role will shift from supportive to transformative. We will see AI performing tasks in ways previously unachievable. This will revolutionize not just our work but also how businesses operate, their models, how value is created, and how entire business ecosystems interact.

Immediate Steps for Business Leaders to Seize the Moment

So generative AI is changing the game. Recognize it's already here, being used by your own team and vendors. Your task is managing what's already happening and getting ready for what comes next. Here's how you can do this:

- 01 . Mitigate Risks:** Though powerful, generative AI doesn't inherently understand the concepts of justice, safety, inclusion, or truth. It's crucial to recognize these limitations and establish a framework for responsible AI use to prevent biases, errors, and ethical issues
- 02 . Invest in AI Education and Training:** Work with HR teams to develop comprehensive training programs to build AI literacy across your organization, ensuring that employees are equipped to work effectively with AI technologies
- 03 . Mobilize the Whole Organization:** Foster a culture of AI adoption, extending beyond just tech teams. Encourage all departments to explore how AI can improve their work. Set up mechanisms, such as an AI steering committee or dedicated labs, to gather and analyze generative AI use cases for your organization
- 04 . Run Pilot Projects:** Start with small, manageable AI projects in collaboration with professionals from different departments to ensure diverse perspectives. These pilots will serve as a practical testbed for understanding the impact of AI on your specific business processes and can guide larger-scale implementations
- 05 . Develop a Strategic AI Roadmap:** Craft a clear, long-term plan, identifying key areas for AI deployment, like enhancing product personalization or optimizing logistics operations. Include specific milestones and allocate resources for each phase, including budget, personnel, and technology

These steps are essential for strategically placing your organization in the era of generative AI. The first key move is a shift in the mindset to embrace the disruption.



Sweet-Spot Use Cases Across Business Functions

But where should your business begin its generative AI journey? Which areas are ideal for your first pilot projects? Our advice is to start with the low-hanging fruit before exploring more unusual areas.

Leading the way in innovation, early generative AI adopters are using this powerful technology in domains where AI's impact is already profound. These areas are:

- Marketing & Sales
- Product & Service Development (R&D)
- Customer Service Operations
- Software Engineering

Recent McKinsey research⁹ suggests that marketing&sales, R&D, customer service operations, and software engineering have the potential to deliver about 75 percent of the total annual value from generative AI use cases.

Let's delve deeper into each of them.





Marketing & Sales

Generative AI is a big hit in marketing.

Forward-thinking brands use generative AI tools for generating and enhancing content, from social media posts and blog articles to sales emails. They also use it for brainstorming creative ideas, accelerating consumer research, creating visuals, personalizing outreach, identifying leads, and A/B testing.

In fact, almost 40% of US professionals working in advertising or marketing used AI in 2023 to help with work tasks.¹⁰

At ITRex, we've been using generative AI for content-related tasks, from HR communications to tech articles, for about a year. It's made our writers 30% more productive, freeing them up for research and collaboration with subject-matter experts.

For your business, a strategic start might be to appoint dedicated 'generative AI champions' in marketing and sales to drive adoption. As the next step, you could train your AI tools with your own data to produce content that really hits the mark, does well in search engines, and turns visitors into leads.



Product & Services Design

Generative AI is shaking things up in design too. Already now, it's giving a big helping hand by:

- Sorting and clustering ideas after brainstorming sessions
- Summarizing key points from research studies
- Inspiring creativity by throwing in fresh thoughts
- Automating repetitive and tedious tasks like drafting initial concepts, creating numerous iterations for chatbot training, or prototyping
- Generating images ranging from simple sketches to super-realistic pictures and 3D models
- Improving existing products by simulating countless iterations for better product ergonomics or sustainability that comes with minimal resource consumption and waste

The generative AI capabilities in design can be applied across industries, from automotive and consumer electronics to furniture and interior design, healthcare, architecture and urban planning, fashion, education, video games and entertainment, marketing, and software development.

Looking ahead, generative AI has much more to offer to design teams, including:

- **Enhancing User Research:** Generative AI will transform user research by synthesizing simulated data for studies while ensuring privacy and compliance with regulations
- **Aiding in Experience Creation:** Generative AI can learn from the plethora of interaction flows and descriptions present in design tools to craft new user experiences, from overarching product concepts to minute details
- **Integrating into Design Tools:** More design platforms will start incorporating generative AI features, enabling easier workflows for design teams



Customer Service Operations

Another area where generative AI is making a big difference fast is customer service. It does this by taking over routine tasks and supercharging customer experiences, including:

- Giving instant answers to customer questions, whether it's through live chat, phone calls, or emails
- Helping human staff by:
 - Finding the information customers ask about
 - Informing them in real time about the status of products or customer preferences
 - Creating call notes at the end of a call or before a transfer
 - Analyzing transcripts to find common problems and areas that need work
- Personalizing conversations with customers by looking at how people talk (their word choice and tone) and adjusting its responses
- Repurposing existing content to match the brand's style, values, and target audiences

The impact is expected to be especially profound in banking and insurance.

In banking, generative AI can integrate a wealth of data like past orders, transactions, customer interactions, demographic information, and other information to really get to know your customer. In insurance, it can empower agents with instant access to detailed policy information and claims history, enabling them to offer customized solutions on the spot.

Experts estimate that companies using generative AI tools could cut their customer service costs by up to 30%.¹¹



Software Engineering

Generative AI has great potential to speed up and improve the whole process of software development.

But not just for programmers, generative AI is a game-changer for project managers, business analysts, coders, and testers too, giving them new tools to do their jobs better.

Software engineering tasks where AI is able to make a great contribution include:

- **Gathering and Documenting Requirements:** Generative AI can streamline this phase by compiling information from various sources, including existing documents and user feedback, and converting interviews and brainstorming sessions into clear requirement documents
- **Planning and Estimation:** Generative AI's skill in learning from existing data enables it to improve resource allocation and estimation accuracy, and it is quick in generating work schedules or keeping tabs on project progress
- **Coding and Optimization:** Generative AI is already helping with code generation, suggestions, and autocomplete. It's also valuable for refining code, finding bugs, and making sure everything runs smoothly

Another McKinsey study¹² has recently found that using AI can cut the time for documenting code for maintainability by half, reduce new code writing time by nearly half, and shorten the time for optimizing or refactoring existing code to about two-thirds.

- **Generating Test Data:** Generative AI can create realistic and diverse test data that helps check for weaknesses and how software behaves
- **Optimizing Testing:** Using requirements, the technology can find the best testing paths for maximum coverage, prioritizing test cases based on their importance and potential impact
- **Thorough Vulnerability Testing:** By generating a wide range of test inputs and analyzing past test results and system logs, generative AI finds weaknesses that manual tests might miss
- **Automating Documentation:** It is a big help in documentation too, automatically creating user guides, change logs, and code comments

More Function-Specific Use Cases

Business Process Automation

Compared to traditional business automation tools, including those powered by basic AI, generative AI applications are broader and more complex.

Generative AI's unique advantage lies in its ability to interpret human-like text and learn from it. This adaptability is particularly crucial given that about 25% of all work involves language-based tasks.

Here's a look at the language-centric business processes where generative AI is likely to make the biggest impact through automation:

- Performing managerial activities, such as prioritizing tasks in project management applications, scheduling meetings, and organizing emails
- Searching for accurate information across your IT systems and summarizing content through a conversational interface
- Creating standard or custom documents and reports automatically
- Entering information into technology systems



Data Analytics

Data analytics is another growing application of generative AI.

Recent research¹³ shows that 32% of organizations are already using generative AI for generating analytics insights. Among these, 34% report significant benefits, such as a 52% boost in competitiveness and a 45% improvement in their products' functionality and performance.

Generative AI holds the potential to transform self-service business intelligence and AI-powered analytics in several key ways:

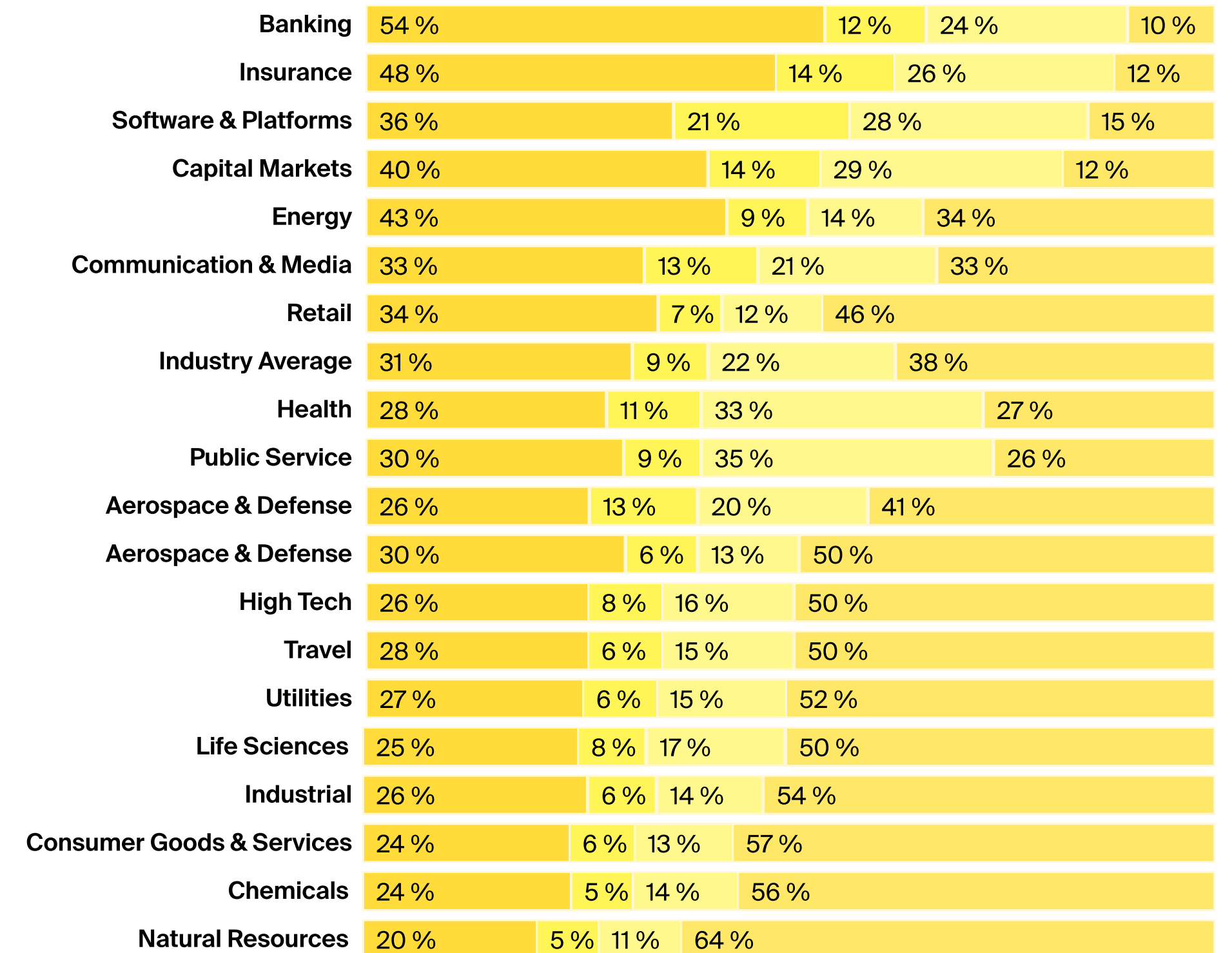
- **Strategic Decision Making:** Beyond just interpreting complex data, generative AI is invaluable in formulating strategies, predicting future trends, and automatically generating and customizing comprehensive reports for informed decision-making
- **Data Democratization:** Generative AI is instrumental in democratizing data, making intricate data analyses accessible to non-technical staff via a simple chat. This not only empowers a wider range of employees with data-driven insights but also fosters a collaborative data culture within the organization
- **Proactive Analytics and Real-Time Data Processing:** Unlike traditional self-service BI that reacts to user queries, generative AI proactively provides solutions and insights. Its capacity for real-time data processing ensures immediate, actionable intelligence, crucial for fast-paced business environments

How Big Is the Opportunity for Your Industry?

Another way to understand where the biggest value from generative AI lies for your organization is to evaluate its potential use cases through the lens of your industry.

Among the numerous studies examining the impact of generative AI across different sectors, Accenture's study is a good one to check out. It provides a comprehensive analysis of the generative AI potential for task automation across 19 key industries.

44% of all working hours across industries have the potential to be impacted by generative AI.



Work time distribution by industry and potential AI impact
Based on their employment levels in the US in 2021



*How Generative AI Will Transform Work Across Industries. Accenture's research.

Exploring Industry-Specific Uses of Generative AI

Banking & Finance

- Personal finance management and personalized finance products
- Customer support automation via advanced chatbots
- Credit scoring with greater accuracy in predicting client creditworthiness
- Account oversight, fraud detection, and risk assessment

Insurance

- Support in underwriting risk evaluation and claim investigation
- Automated processing of routine claims to expedite settlements
- Chatbots to assist with insurance quotes and policy questions
- Personalized policy recommendations using customer data analysis

Hi-Tech

- Advanced R&D innovation with AI-driven simulations
- Enhanced cybersecurity through predictive threat analysis
- AI-assisted software development and testing

Pharmaceuticals

- Predicting new compounds to accelerate drug discovery
- Automated preliminary screening of chemicals at the lead identification phase
- Identification and prioritization of new indications (diseases or symptoms) for a given drug

Healthcare

- Custom treatment plans and procedures based on patient data
- Enhancement and generation of medical imaging
- Predicting health trends and outbreaks using patient data analytics
- Virtual health assistants for medical advice and reminders

Retail/Ecommerce

- Personalized product recommendations based on user analytics
- Product demand anticipation for predictive inventory management
- Dynamic pricing based on market demand, customer preferences, and inventory status
- Chatbots for customer inquiries and complaints
- Identification and prevention of fraudulent transactions



Education

- Educational material creation for personalized learning paths
- Assignment grading and feedback automation
- Development of interactive learning simulations and modules

Manufacturing

- Automated innovation in product design
- Machine repair forecasting for predictive maintenance and quality control automation
- Innovative material generation with desired properties in material science
- Schedule optimization in production planning

Capital Markets

- Algorithmic trading strategy development
- Market trend analysis and prediction
- Risk management and compliance monitoring

Consumer Goods & Services

- Customer behavior analysis for targeted marketing
- Product demand forecasting for inventory management
- Customized product development based on consumer insights
- Enhanced customer service with AI-powered chatbots

Travel

- Personalized travel itinerary generation
- Dynamic pricing for flights and accommodations
- AI-driven customer service for travel inquiries
- Predictive analysis for travel demand and trends

Automotive

- Customized car design and features personalization
- AI-powered infotainment system assistants in vehicles
- Vehicle diagnostic aid for troubleshooting issues
- AI chatbots providing support at car dealerships



Breaking Down Your Generative AI Journey

Regardless of your industry, your generative AI initiatives will fundamentally aim to either enhance, augment or completely transform:

- The way a job is done
- Business processes
- Functions within your company
- Your operating model, or
- The products and services you offer

The impact will be either cost cuts through automation and better efficiency or unlocking a new revenue stream.

Techwise, there are two main strategies your company can follow with generative AI: adopting readily available AI tools as they are for innovation or adapting these tools to your specific business context.

Your final decision will depend on what you want to achieve.

Adopt: With generative AI tools like ChatGPT, DALL-E, and Stable Diffusion becoming more accessible, your business might not need to look further. You can use such tools straight “off the shelf” through APIs with minimal setup. They are like plug-and-play devices, allowing for slight customization to fit specific needs. This can be done through prompt tuning and prefix learning to train the AI to recognize patterns or starters in your prompts

Adapt: The transformative value, however, lies in adapting these models by training them on your organization’s own data, which could be customer interactions, specific industry language, or unique business processes. This approach involves a deeper level of customization, enabling your AI tool to perform complex tasks specific to your business. For instance, in a healthcare setting, AI can be adapted to understand medical terminology and patient data privacy standards, while in a retail context, it could be tailored to predict shopping trends based on the past behavior of your consumers.

Each strategy has its pros and cons. For details, see the table below.

Generative AI Adoption vs. Adaptation

Aspect	Adopt	Adapt
Integration	Many companies initially use generative AI directly through its APIs to address specific, often isolated tasks without integrating them into their broader strategic framework. Deep technical expertise is not required in this approach	Adapting AI involves a strategic integration where the technology becomes a core part of the business process
Skills	Usually requires basic operational training for employees. However, it doesn't demand significant changes in skill sets or organizational structure	Can require substantial investment in upskilling employees and may lead to new roles and team structures within the organization
Data Privacy & Security	Companies need to be aware of potential risks associated with the data privacy and security of off-the-shelf solutions	Complete control over data usage and privacy, but there's an added layer of responsibility to safeguard sensitive information, requiring robust data governance and security measures
Costs	Involves lower upfront costs and quicker implementation but might lead to higher long-term expenses due to licensing fees or dependencies on external providers	Requires a larger initial investment, particularly in data curation and model training, but can offer more cost-effective solutions in the long run due to customization and scalability
Competitive Edge	Limited scope for innovation with standard tools	Enables the creation of unique, tailored AI applications

To sum it up, adopting a generative AI model as is might suffice for an enhancement or augmentation initiative. However, transformative projects will typically require adaptation. Large language models have a simple power: being able to absorb and process extensive data, they can learn ALL your business knows – its full story, its underlying context, its operations, market, and people. And they can use every word – in applications, systems, documents, emails, chats, even in video and audio – to drive your innovation.



How ITRex Can Help with Generative AI Deployment

Whether you aim to cut costs or explore new revenue opportunities through generative AI, we stand as your ideal partner.

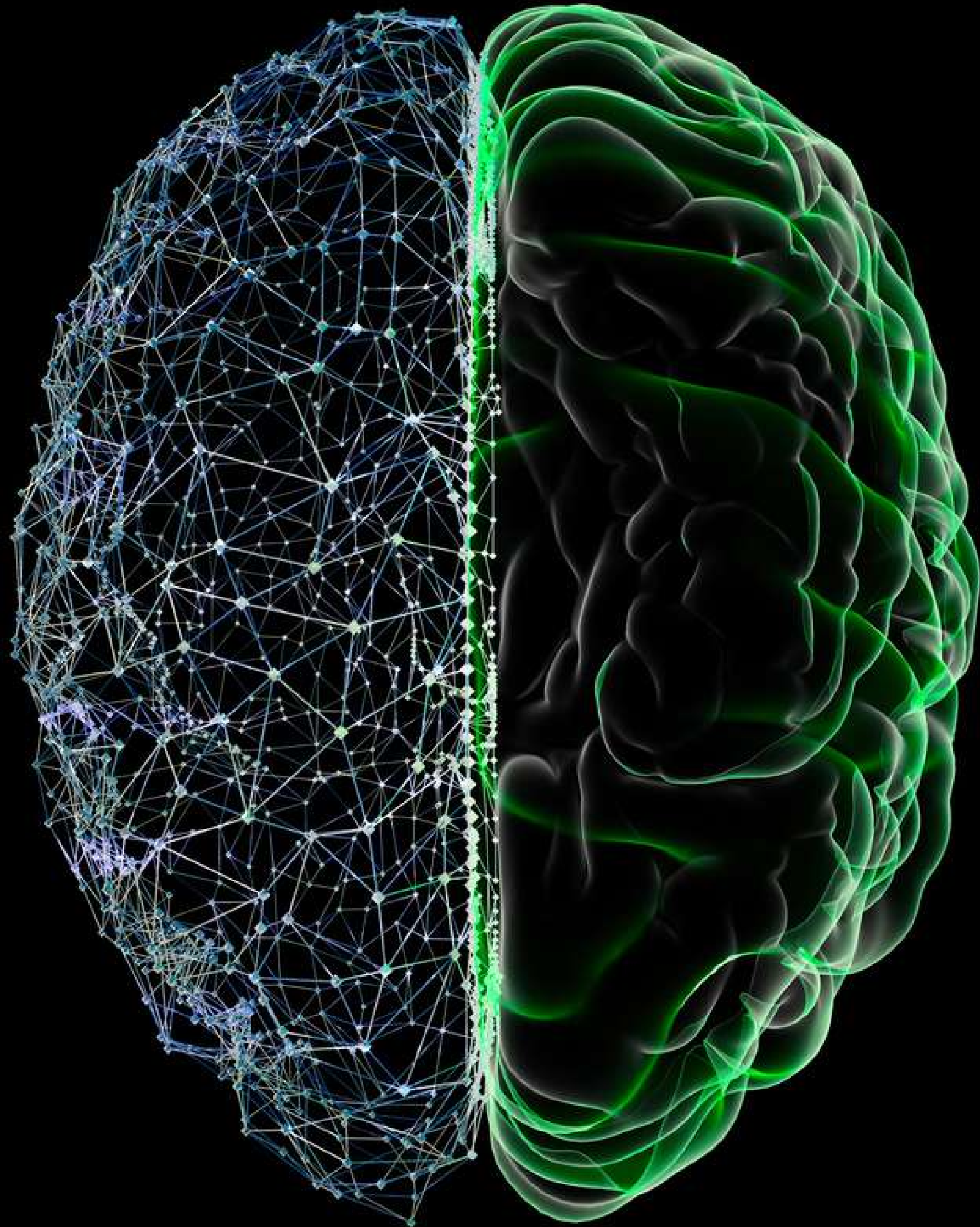
Our decade-long R&D journey, from mastering neural networks to pioneering tools like ChatGPT and text-to-image technologies, positions us uniquely to put generative AI at work for your business for impactful results.

What we can offer to your organization:

Enterprise Audit & Strategizing

- As the first step, we dive into your organization with a business-driven mindset to examine every aspect, from your products and services to operating model, business functions, processes, jobs, and tasks. Our objective is to understand where generative AI can bring reinvention opportunities
- Along the way, we gain insights into the types of data you have, its sources, and how you use and manage this data to identify gaps and bottlenecks
- Through our collaborative executive workshop, we then identify key use cases, uncover assets that could set you apart, and assess cost and revenue impacts
- Based on our audit and workshop findings, we assist your business in formulating a comprehensive AI strategy and roadmap detailing immediate and longer-term generative AI initiatives that would move your business to an ideal future state. We also identify critical areas for investments





Generative AI Integration & Customization

- We assess existing generative AI models such as GPT-4, LLaMA, or PaLM 2 to determine which one is best to implement your priority use case. This involves considering their performance, capabilities, compatibility with your relevant systems, scalability, cost, and support for customization
- Using third-party or custom APIs, if your needs are highly specific, we integrate the AI model into your existing digital infrastructure (a CRM system, custom service, ecommerce, or another). This integration is methodically planned, following a comprehensive analysis of your requirements and a detailed system design
- If your use case requires a more tailored solution, we customize the AI tool to suit your unique needs. This might involve modifying and extending the AI model through APIs or SDKs to better interact with your specific data types or adjusting the output to align with your brand's tone
- For deeper customization, we train the AI on your proprietary data, collected, cleaned, and structured according to best practices, and fine-tune the model so that it can understand your business context, industry specifics, or customer profiles, enhancing the accuracy of its outputs
- We educate your team about how to use and leverage the new AI capabilities, organizing training sessions, creating documentation, and providing ongoing support to address any issues that arise



Ready to harness the power of generative AI for your business? [Contact us](#) today for a free consultation.





About ITRex

Global Footprint

A trusted tech consulting and software development company with offices spanning from Poland to the US

Proven Track Record

Since 2009, delivering 500+ industry-specific solutions to giants like Walmart, Procter & Gamble, and Warner Bros

Distinguished Team

300+ experts in emerging technologies – AI/ML, Big Data, IoT, and AR/VR

R&D Lab

We research and incubate new technological concepts around your business challenges to build prototypes that bring you on top of the competition

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