

● eBook

The Ultimate Guide to **Generative AI** Enhanced Decisions



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Introduction

Generative AI is reshaping the business world. Users have a unique opportunity to create immense value with generative AI. Estimates predict \$2.6 trillion to \$4.4 trillion in economic benefits to the world annually (McKinsey).

From personalized marketing campaigns to next-generation product development and customer service, generative AI is ushering in a new era of

productivity and competitive advantage for organizations ready to embrace its potential.

Although generative AI is breaking ground around the world, it brings unique challenges. As we navigate this fascinating technology, we must also consider the diverse applications of generative AI and its ability to redefine the possibilities of what AI can achieve.





What is Generative AI?

Generative artificial intelligence (Gen AI) refers to algorithms that can create new and original content, including text, images, code, audio, and video.

The latest algorithms can pass the bar test and produce songs in the voice of your favorite artist.

However, that's not why VCs invested almost five times as much into generative AI firms in the first half of 2023 as during the same period last year.

AI Milestones

The release of GPT-3.5 and GPT-4 shook the business world, sending leader to compare its potential to fundamental, world-altering inventions such as electricity and fire.

How we got here

The field of AI has been around for decades. Early attempts at AI took the form of expert systems, where researchers hard coded

rules to mimic human thinking.

Business use cases for machine learning and deep learning took off in the 2010s, spurred by the increasingly low cost of computing. Platforms like YouTube, Netflix, Amazon.com train algorithms on large datasets to classify patterns and predict which content you most want to see next.

Timeline

1950s – Birth of the field of AI

Alan Turing introduces the Turing Test, a popular test for human-like intelligence in computers.

1990s – Expert Systems

IBM's Deep Blue supercomputer beats the world chess champion in 1997, a landmark display of the power of expert systems and computing power.

2010s – Machine Learning, Deep Learning, and Neural Networks

DeepMind's Alghago beats the Go world champion in 2016, proof of game where number of potential legal board positions is greater than the number of atoms in the universe.

2020s – Generative AI

ChatGPT goes live in November of 2022.

” In my lifetime, I've seen two demonstrations of technology [GUI and GPT] that struck me as revolutionary. **–Bill Gates**

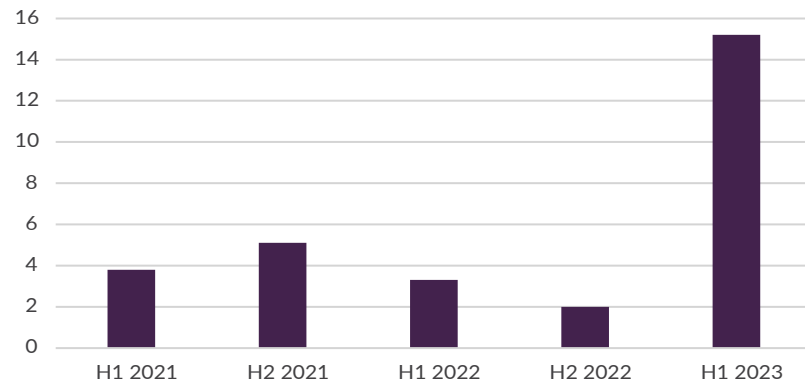
” ChatGPT is a development on par with the printing press, electricity and even the wheel and fire. **–Larry Summers, former US Treasury Secretary**

What makes generative AI different

In many ways, the latest gen AI models known as large language models (LLMs) are similar. They too are prediction engines – but at a more fundamental level with billions or trillions of parameters. Trained on vast amounts of public data, gen AI excels at predicting the next word in a sentence.

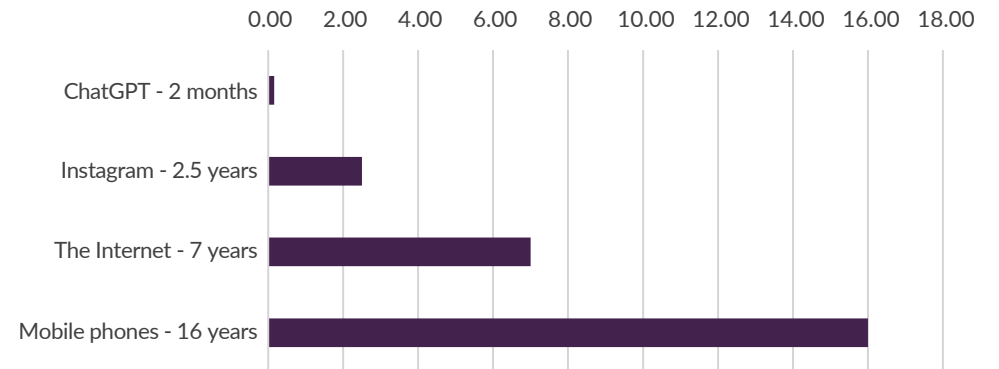
While predicting the next word in itself may not seem all that impressive, the sprawling range of uses for this one capability is truly striking.

Venture capitalists investments in generative AI



ChatGPT reaches 100 M users in 2 months.

It took Instagram 2.5 years, the internet 7, and mobile phones 16.



Generative AI Capabilities

Defining its strengths

Gen AI demonstrates much higher levels of creativity and critical thinking than previous types of AI. Most AI has been deterministic, where a given input always produces the same, consistent and predictable output. With gen AI, on the other hand, identical inputs can lead to diverse and creative outputs. It has an elevated capacity

for contextual awareness, often resulting in text, images, and other media that rivals or even surpasses the work of your average human. That's why business leaders see huge opportunities for using gen AI agents and assistants in everything from synthesizing market intelligence to debugging code.

Capability

Business Use Case Examples

Text

- Summarize articles
- Optimize email tone
- Offer customer service advice
- Synthesize feedback
- Create marketing content

Code

- Generate initial code drafts
- Translate code
- Debug and optimize code
- Analyze root cause
- Generate new system designs

Image

- Create data visualizations
- Prototype designs
- Add movie effects
- Depict protein structures
- Simulate data for self-driving cars

Audio

- Analyze call sentiment
- Compose music for digital content
- Translate meetings live
- Employee training
- Identify anomalies for health diagnostics

Understanding its weaknesses

However, the unpredictable design of gen AI models can also lead to “hallucinations.” LLMs are prone to delivering what it predicts the user wants to see at the expense of retaining facts and numerical accuracy.

For this reason, gen AI is not a replacement for previous types of AI and machine learning. Rather, it expands the use cases for AI, and it remains important to identify the appropriate use cases for each method.





The Business Impact of Gen AI

AI is no longer confined to Silicon Valley and IT functions. Gen AI has quickly reached C-level and board-level discussions across industries. For the first time, business leaders are coming face-to-face with AI, interacting with gen AI through natural language and experiencing its potential first hand.

Just four months after its launch, 46% of professionals reported using ChatGPT at work in a Korn Ferry survey. However, achieving the transformative impact that experts foresee will require more than just the adoption of ChatGPT.

3 Stages of Impact

Gen AI will impact business in three waves: first user productivity, then company growth, and finally market transformation.

User Impact

1



Individual productivity

Individual users of gen AI can benefit from increased productivity and creativity.

Gen AI could automate 60–70% of employee work time, according to McKinsey. This is up from the 50% automation potential estimated for other technologies.

However, productivity does not always translate to revenue impact.

Company Impact

2



Profitability and revenue

To capture real value from productivity gains, companies must reimagine their workflows. For example, they may restructure teams, outsource different work streams, adopt new governance frameworks, and integrate disparate systems.

In many use cases, gen AI models will be a component of a larger solution. This is especially true in financial

services, where processes like financial modeling, underwriting, and regulatory checks require 100% accuracy. Gen AI alone cannot achieve this.

Gen AI, when well executed, can become a sustainable differentiator, transform a company's core value proposition, and open up new revenue streams.

Market Impact

3

New markets and value chains

The gen AI market is projected to skyrocket from \$40 billion in 2022 to \$1.3 trillion by 2032, according to Bloomberg. This expanding market will include a diverse players ranging from hardware and

software suppliers to IT firms and professional services. While everyone is betting on the gen AI, how exactly it will disrupt markets and shift value chains is yet to be seen.

We are in the early stages of an emerging market. Most companies are experimenting with gen AI tools, evaluating use cases, and brainstorming solution ideas.

Finding what works and implementing it well won't come easy. Like with other technologies, gen AI success will require custom solutions for specific workflows. IT services spend was twice that of software

in 2022 according to Gartner, and Bloomberg projects that in the next decade, IT and business services for gen AI will grow at CAGRs of 100% and 97% respectively. With more AI, the ideal tech stack and value chain will grow more complex.

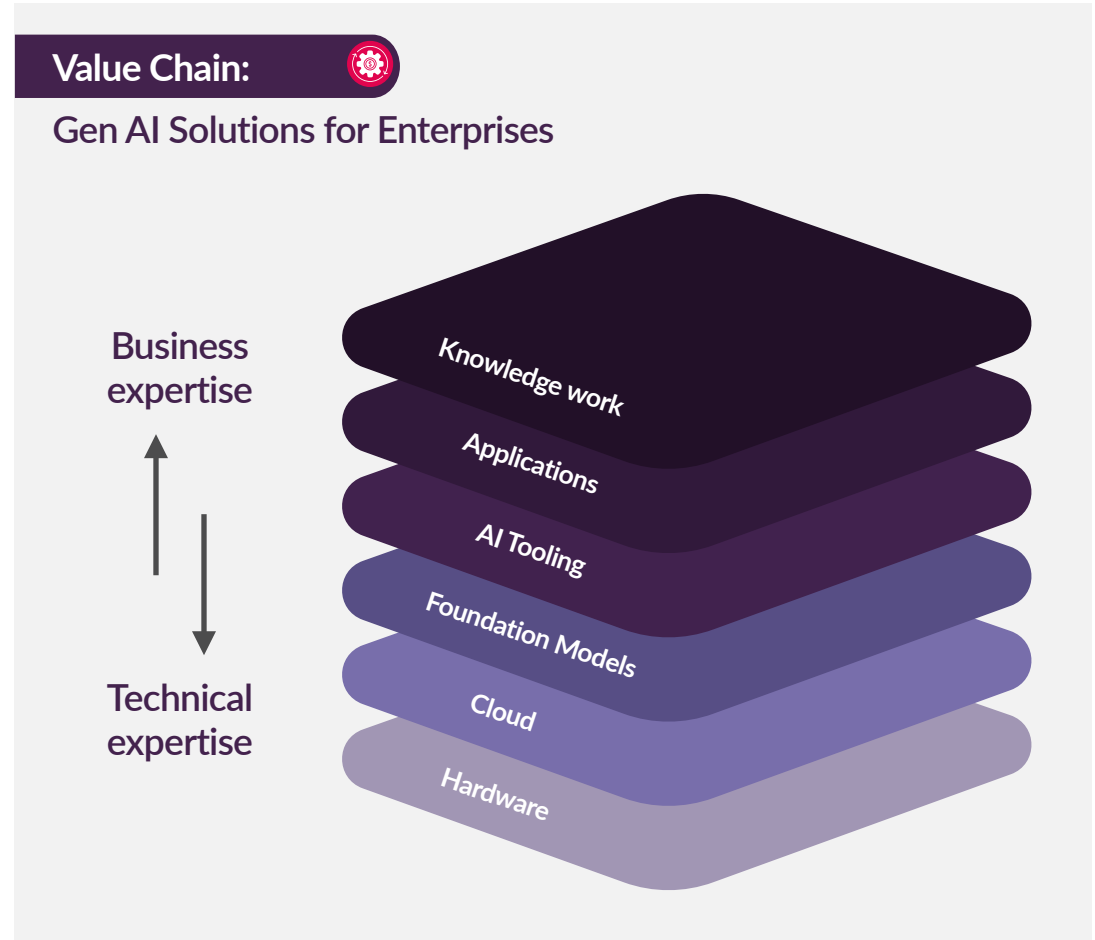
The AI Value Chain

Gen AI requires a well-integrated ecosystem of hardware, software, and human workflows. This opens up opportunities for innovation across the value chain.

Enterprise considerations for your AI ecosystem

Each part of the value chain carries different implications for business users and is essential for creating a complete gen AI solution.

Technology firms will handle hardware devices, cloud infrastructure, and foundation models, with a focus on achieving scalability without sacrificing security. Closer to the end user are model fine-tuning, software applications, and business service, which require more industry and function input.



Hardware



Training GPT-3 required 45 terabytes of data. This compute intensive process requires high-power graphics processing units (GPUs), which are dominated by a few key players: NVIDIA and Google for chip design, and TSMC for chip production. In a rush to

lock down resources, tech companies are securing partnerships for priority access to these critical chips. While business users may not interact directly with hardware, they could experience the impact of any supply chain challenges.

Cloud



Cloud platforms are the major player for AI infrastructure. They essentially allow companies to rent computing power at scale, sidestepping the hassle around sourcing chips and managing physical servers. It is often the most cost-effective option. However,

some companies may still opt for on premise deployment, as running AI models is less resource intensive than training. Typically, IT handles infrastructure decisions, and business leaders weigh in when there are special data confidentiality or security concerns.

Foundation Models



A foundation model is a large, pre-trained deep learning model such as the transformer-based LLM, which powers most of the gen AI apps in the market today. Training costs are high, with OpenAI spending \$4-12 million training GPT-3. Most companies will use ready-made models like GPT, Falcon, or Llama, letting tech giants,

well-funded startups, and the open-source community develop new ones from scratch. The decision to access a proprietary model via an API or run an open-source model in-house will be made on how much customization to the model, cost, and security.

AI Tooling



There are many ways to deploy a foundation model in an enterprise setting. The AI tooling layer is pivotal in determining how data is prepared, processed, and analyzed, as well as how models are executed. The advent of new toolsets allows enterprises to customize and run models on a large scale, catering to specific business needs.

To increase relevancy and consistency, there are several ways to make the model more domain-specific:

- Modify the data corpus to better reflect business context.
- Craft specific prompts for targeted querying.

- Fine-tune the model for more accurate outcomes.

If you're deploying in-house, there's also a whole set of tools and practices to maintaining model health. A robust ModelOps or MLOps framework is essential for both governance and ongoing monitoring. This ensures the model's long-term reliability and compliance with industry standards.

By addressing these focal points, enterprises can make their AI tooling layer not just functional but optimally aligned with business objectives.

Applications



The crux of this layer is designing and building software workflows for specific tasks. Key considerations include:

- Build or Buy: Decide whether to create a solution in-house or opt for third-party platforms.
- Integrations: Ensure seamless compatibility with user workflows

and existing platforms.

- UX Design: An intuitive user interface, complemented by insightful visualizations, will drive adoption.

How well this application layer is designed will heavily impact adoption, a huge factor in achieving business impact and ROI.

Knowledge work



While AI is adept at automating a variety of tasks, it's not yet the complete solution for all knowledge work within an organization. Deterministic algorithms excel at repetitive, rule-based decisions, and increasingly, more sophisticated AI models are capable of nuanced tasks like selecting relevant content and analyzing data for reports. However, these capabilities have their limits, particularly when it comes to higher-level decision-making that still requires human oversight.

In areas demanding absolute accuracy, such as financial reporting, regulatory compliance, and accounting, the margin for error is zero. Here, the objective isn't to achieve 100% automation with AI but rather to utilize AI in tandem with human expertise.

This combination aims to reach the gold standard of 100% accuracy more efficiently and quickly than ever before.



Evolving challenges

Finding the right solution

Navigating the complex realm of emerging AI technologies is a challenging endeavor, as best practices at each point in the value chain are still being defined. There is the risk of misuse as well as a host of other business challenges.

There's significant work ahead for enterprises aiming to make this transition, many of which AI could play a key role in facilitating.

These include data usage and output, identifying the right use case for your organization, and reengineering workflows to optimize human-machine interactions.

Understanding these roadblocks is crucial to utilizing generative AI effectively and safely.

Data Privacy and Security



These models often require access to large datasets, some of which might include sensitive information. Ensuring data privacy and security compliance is a significant concern.

Accuracy and Content Risk:



Some fields require high precision, but generative AI can sometimes produce output that is incorrect, politically sensitive, or even offensive, posing a reputational risk.

Explainability:



Generative AI models can be “black boxes,” making it hard to understand how they arrive at specific conclusions. This lack of transparency can be a barrier in industries that require explainable AI.

Domain-Specific Challenges:



Each business has unique needs, and a one-size-fits-all AI model often won't suffice. Tailoring a model to be domain-specific is resource-intensive.

Model Governance:



Businesses must establish best practices around the usage and ongoing management of these models, including MLOps practices, versioning, and monitoring.

Human-Machine Collaboration:



Identifying the optimal interaction between human decision-making and AI recommendations can be complex but is critical for efficiency.

Regulation:



Generative AI models must adhere to a wide range of regulations, which can differ substantially from one industry or region to another.

Ethical Considerations:



The use of AI opens up ethical questions about bias, job displacement due to automation, and more, which businesses must address.

Intellectual property:



Use of generative AI models can lead to uncertainties around content ownership, potential infringement on proprietary data, and complexities in legal liability across different jurisdictions.

Mitigating risks with partners

Strategy and Advisory



These firms assist in crafting your AI roadmap and selecting impactful use cases, guiding you through the maze of options.

IT Services



Specializing in technology ecosystems and data architectures, these partners can build, train, and fine-tune models, as well as integrate AI into your existing applications. They may also offer niche services like prompt engineering to optimize your AI's performance.

Business Services




As AI ascends, human experts will remain indispensable for producing high-quality deliverables and providing nuanced insights. Partnering with agencies specializing in areas like advertising or competitive intelligence can add layers of expertise that AI alone can't offer, especially considering the ongoing issue of AI-generated inaccuracies.

Workflow Engineering



Much like the Industrial Revolution revolutionized manufacturing with the assembly line, AI is poised to bring transformative changes to knowledge work. Creating efficient workflows requires a deep, inside-out understanding of existing processes to determine where human and machine labor can most effectively intersect.

The background of the slide is a dark, abstract composition of glowing lines and dots. The lines are primarily blue and cyan, with some orange and red accents. They flow and curve across the frame, creating a sense of motion and digital connectivity. Small, bright dots are scattered along these lines, resembling data points or particles. The overall effect is futuristic and high-tech.

Much like the initial wave of digital transformation, specialized service firms are emerging to guide enterprises through this AI-centric transition.

Central to this shift is the aim to leverage generalized AI to augment decision-making capabilities across the organizational hierarchy, instilling a data-driven culture at all echelons.

Emerging use cases to enhance decision-making



“Generative AI could enable labor productivity growth of 0.1 to 0.6 percent annually through 2040”

Two major types of generative AI solutions are leading to these efficiencies.

Chat



Create

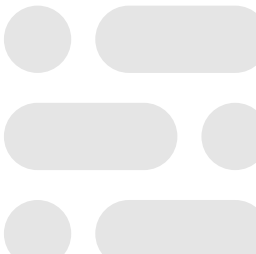




Chat

ChatGPT led the chatbot resurgence. This is one of the most intuitive ways for businesses to use generative AI. In an emerging market where we don't yet know the largest opportunities, chatbots, digital assistants, virtual experts, etc. allow business users to interact with AI directly.

And they can be quite useful for gathering info. Businesses often have way too much data in their dashboards and repositories to digest. Integrate on top of text-based data corpus or business intelligence (BI) ecosystems.



Case Study: Competitive Intelligence Virtual Expert

A professional services firm uses Evalueserve's intelligence platform to monitor market and competitor information. As part of the platform, a team of experts in the consulting landscape curate and add additional analysis to this dataset, so it is highly relevant to the users. With generative AI, they are testing a virtual expert built on top of this rich dataset to pull information more quickly.

Other text-based use cases:

Business development



Patents and innovation intelligence



Case Study: Dashboard assistant

A professional services firm uses Evalueserve's intelligence platform to monitor market and competitor information. As part of the platform, a team of experts in the consulting landscape curate and add additional analysis to this dataset, so it is highly relevant to the users. With generative AI, they are testing a virtual expert built on top of this rich dataset to pull information more quickly.

Other text-based use cases:

Finance



Marketing & sales



The challenge with virtual experts is that they are not always the right fit for the use case. With this open-ended approach, it's difficult to define the data universe to ensure relevancy. Too wide, you risk include a lot of irrelevant information, noise. Too narrow, you may not cover enough answers to be helpful to the user. Plus, the impact on productivity varies widely and is largely dependent

on usage. Different employees interact with the technology in unique ways: some leverage it to scale output production, others use it to for enhanced brainstorming and planning. The latter can drive a lot of creativity, but sometimes heightened efforts in one specific area are misaligned to larger company objectives and an inefficient use of time.



Create

We see growing opportunities to identify highly standardized, templated use cases and build specific tools that automate production, not just the thinking behind a certain set of tasks.

For highly templated use cases, bypass the uncertainties of asking the wrong question or pulling from the wrong data corpus. Clearly define the types of question, the style of answer, the sources to pull from, guardrails that allow you to repeat at scale with high consistency. Business can also make sure these use cases increase productivity align to larger company objectives.

Most reports can be divided into 3 types of content: text, numerical data, and images

Text: Data corpus and prompt library to increase relevancy

Numerical data: Requires solutions that combine deterministic and generative AI to maintain numerical accuracy

Images: Insert brand guidelines



Case Study: Request for proposal

A government contracting firm wanted to enhance the speed and quality of responses to Requests for Proposals (RFPs).

Solution: Developed an internal knowledge management tool to compile and process all previous RFPs. Features include advanced search backed by a customized semantic engine, NLP and machine learning-powered recommendation engine, generative AI.

Outcomes:

Created “zero drafts” for RFPs more efficiently Reduced redundant efforts, freeing up team bandwidth

Elevated the quality of deliverables through better information

The AI-powered tool not only streamlined the RFP process but also enabled teams to focus on more projects, marking a transformative shift in how the firm handles government contracts.

Case Study: Pitchbooks

Investment bankers are driven to further expedite and personalize the pitchbook creation process. This is a key document used across the deal process to win new clients, market to investors, and execute on deals.

Solution: Deployed three generative AI tools.

Textual information – market and sector analysis Numerical information – financials, comps

Company information – company overviews, tombstones, case studies, bios and headshots

Outcomes:

Rapid generation of personalized “zero drafts” of pitchbooks Scalable personalization for various stakeholders

Improved accuracy and comprehensiveness in financial and market analyses

The solution represents a significant step forward in the bank’s client engagement and deal-making capabilities.



Conclusion

Generative AI has marked a new era in technological evolution, building upon key milestones to offer unprecedented capabilities in text, code, image, audio, video, and synthetic data generation. Its transformative impact spans from individual users to enterprises and entire markets.

However, navigating the AI value chain demands careful considerations, from selecting the right partners to overcoming evolving challenges.

With applications ranging from virtual experts to purpose-built tools, the potential for leveraging Generative AI in business is immense. As we delve deeper into this frontier, the question isn't just what AI can do, but how it will reshape the business landscape.

