aws small and medium business

EBOOK

Artificial Intelligence for small and medium business

Discover solutions to help reduce costs, increase productivity, and drive innovation

Artificial Intelligence (AI) is one of the most exciting developments unfolding in our rapidly evolving digital landscape. Generative AI's ability to create fresh content and concepts – including conversations, stories, images, videos, and music—is creating a new and renewed interest in the capabilities of AI and the opportunities it poses for businesses to innovate, increase productivity, and find new efficiencies.

Whether you are already expanding your AI initiatives with generative tools or just getting started with business automation, developing a strategy for AI is essential to realizing long-term success. This eBook is a guide for business leaders interested in exploring AI solutions or integrating them into their businesses, and demonstrates why organizations of any size can benefit from this exciting technology.

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The power and promise of AI

While businesses have been embracing AI for decades, it's now easier and more cost-effective than ever for small and medium-sized businesses (SMBs) to adopt and leverage its capabilities as they scale. A broad and deep suite of AI tools allows businesses in any industry to analyze and garner insights from unprecedented volumes of data, generate original content, automate tasks, safeguard critical data, streamline the customer experience, and optimize business processes—all benefits that provide SMBs the competitive edge they need to excel.

Like any technology, AI's usefulness is in improving business effectiveness and serving as a human aide by removing undifferentiated heavy lifting from cognitive tasks. Without a clear strategy in place or business need, organizations may waste their limited time and resources employing tools that aren't secure, private, or customizable enough to provide business value.

Before employing AI solutions, business leaders should consider their unique challenges and opportunities, and ensure they have a strong data foundation in place to execute a long-term strategy. By identifying clear business needs, SMB leaders can determine the right solutions to ensure AI achieves their desired results.

Understanding AI and its applications

Artificial Intelligence

AI is the field of computing which makes technology capable of achieving tasks typically associated with human level intelligence. These tasks include but are not limited to: reasoning, knowledge, planning, learning, and language. Within the domain of AI, machine learning (ML) algorithms and models enable computing systems to learn and think intelligently. In order to learn how to make a decision, predict outliers, or generate images or text, ML must be trained on data. ML seeks to find general patterns in training data which may be applied to data outside of the training set. For instance, before being tasked with identifying the presence of safety equipment in an image, a machine learning model may need to be trained first, by viewing several images of hardhats or other safety wear.

Generative AI

Generative AI can create new content and ideas, including conversations, stories, images, videos, and music. Recently popularized by consumer-facing apps including AI chat bots like ChatGPT and image creation tools like Stable Diffusion. It is powered by very large models that are pre-trained on vast amounts of data and are commonly referred to as foundation models (FMs). What sets FMs apart is their ability to perform a wide variety of complex tasks. For example, large language FMs can generate text to assist writers, answer questions on information from its training dataset, or provide a coding companion to generate blocks of software with developers. Additionally, diffusor type FMs assist creatives and designers in generating or editing images, videos, and 2D and 3D models. Beyond simple text and image generation, generative AI models can help scientists and engineers make new discoveries in fields such as medicine, pharmaceuticals, and industrials. These are just a small sample of the possibilities available through generative AI today.

FMs can learn to apply knowledge within a wide range of industry contexts.

For example

Financial institutions can use intelligent document processing and conversational bots powered by FMs to improve customer service, by generating product recommendations and responses to inquiries. Banks can quickly detect fraud, and investment firms can provide personalized financial advice to clients at low cost.

Healthcare and life sciences companies can use FMs to design synthetic gene sequences for applications in biology and metabolic engineering, utilize intelligent document processing, and simulate patient and healthcare data. This can be useful for training AI models, simulating clinical trials, or studying rare diseases without access to large real-world data sets—all at speeds that have never been achieved before. This can reduce the time needed for potentially life-saving research from years to weeks.

Manufacturing companies can use generative AI to create automated robotic laboratories, use hypothesis generation for materials science designs, generate new part designs, process documents, create 3D models, identify defects, automate inspections, and develop voice user interfaces.

Media and entertainment companies can use generative AI to enable artists to explore more possibilities, and rapidly bridge from concept to creation such as converting sketches to vector images or speedy story board creation for concept ideation. Improve audience experiences by offering personalized content and ads.

While consumer-facing generative AI experiences created recent buzz, several companies have been working on FMs for years; including summarization, semantic embedding generation, article writing assistance, chat interfaces, language translation, command following, and code generation—each with unique strengths and characteristics and tailored to solve specific industry use cases and problems. By choosing the best model and application for the job they need done, SMBs can offload cognitive heavy lifting to improve efficiency.

But to take further advantage of the right FM and see immediate results, the first step is to define and understand the possible applications for your business and ensure the implementation of a firm technology foundation that is prepared to embrace the changes to come in generative AI.

Building the foundation for long-term success

The foundation of a strong AI strategy is a strong data strategy. Because the quality of your data informs the relevant outcomes from your ML models, having high quality data available to train these models is vital. For example, providing customers and your users with unique experiences comes down to using customer data to train the ML on their needs.

Because data fuels AI decision-making, businesses should ensure their data is securely stored in the cloud and accessible to AI solutions. This requires proper data storage and a strategy. Many organizations have accumulated mountains of data, but suffer from a lack of data quality, fragmented or siloed data sources, a lack of data literacy, and/or a culture that talks about data but doesn't use it day to day.

Integration requires a clean, two-way flow between systems used to store data, such as a data lake. Well-architected governance controls should also be implemented to make sure data access is appropriate for any persona using the system. Well-architected data enables SMBs to move faster, innovate more effectively, and experiment with AI tools to discover how they can leverage data for the most optimal performance.

When it comes to data, the quality of the output is defined by the quality of the input; data quality is more important than quantity, and in the case of ML, curating high-quality data to be fed into ML models is critical to achieving a high-quality output. It's essential that businesses can collect, clean, and make the underlying data that drive AI models more accessible. More than half of the time spent "doing AI" or even just getting value from data is spent on mundane processes such as data acquisition and wrangling.

Appointing data stewards or improving data quality at its source can help, but foundational elements are equally critical. Having a cost-effective, highly scalable data lake is a good starting point, as is increasing data literacy and data accessibility across an organization.

SMB leaders can create this foundation by adding data engineers and data scientists to their organization. Alternatively, they can leverage the expertise of IT partners that offer consulting services, and specialize in data and AI competencies. These partners can recommend and help implement the right smart data strategies for their needs, and set their IT foundation up for long-term success. They can also help SMBs manage their AI services and offer cost optimization recommendations, to ensure they're getting the most out of their valuable resources. Establishing this foundation will focus primarily on making data available and ensuring individual functions and lines of business can access it.

This process is also an opportunity to upskill entire SMB teams, creating processes for securing and sharing data and developing the critical thinking and problem-solving skills that will become even more vital moving forward.

To reap the benefits, SMBs must have the people, processes, and technology in place to support AI, especially a strong data strategy. Whether a company manages all its own in-house IT resources or relies on IT partners, every organization that wants to use AI capabilities to their fullest potential should establish the proper data foundation.

Learn how to gain greater visibility into your business data as it grows ›

Ways SMBs can apply AI to their business

With the right foundation to build from in place, businesses of any size will experience new growth and innovation. AI tools can be used to:

Enhance customer experiences - SMBs can integrate intelligent chat and voice bots into contact centers, analyzing interactions and transactions to make improvements and service recommendations, and create personalized web experiences tailored to customer preferences and behaviors. Tools like AWS Contact Center Intelligence allow SMBs to do this without any previous AI experience, helping companies devote less of their valuable resources toward engaging customers.

Boost employee productivity and automate business processes - With swift and efficient automated document processing, businesses can easily summarize and analyze information from a vast range of documents, and consolidate them into easily digestible reports. Coding companions can support developers to generate code and voice user interfaces can help employees identify important information and summarize content. In some industries, AI and ML may also help SMBs optimize supply chains, improve logistics, and reduce costs, by proposing different scenarios. **Solutions from AWS** including AWS Intelligent Document Processing—which can read, understand, and analyze documents – provide turnkey solutions that can help lower costs, or boost engagement.

Enhancing security and fraud detections - SMBs can protect their most important assets by automating alerts, identifying anomalies that lead to enhanced protection strategies, generating incident reports that inform best practices, and using tools that detect and prevent fraud before it happens.

Deep analysis and predictive insights - With AI tools, business leaders can increase the accuracy of sales forecasts and better customize pricing plans, improving their revenue and keeping costs lower. Additionally, they can glean insights from their AI tools that help streamline decision-making and present fresh opportunities, helping them stay on top of industry trends and gain a competitive edge.

Enhance creativity and content creation - AI can generate multiple design prototypes based on certain inputs and constraints, and optimize existing designs based on user feedback, to increase speed of production. Marketers can use it to generate written content such as blog posts, social media posts, and emails, while media companies can use it to create graphics, special effects, scripts, dialogues, and stories for multiple formats.

SMBs should consider these use cases when exploring how AI can benefit their business. With a keen understanding of their business needs and how it can add value for their customers, SMBs can take advantage of AI's potential to deliver novel innovations.

CASE STUDIES

SMBs are proving what's possible with AI

SMBs are already building a competitive advantage by integrating AI into their workflows, which helps them improve efficiency and innovate faster. By partnering with AWS, they are able to devote their focus and energy towards innovating and scaling efficiently, while AWS leverages its expertise to build, manage, and maintain the AI solutions that best solve their challenges.

CASE STUDY

neural.love

Take neural.love, an EU-based company whose mission is to bridge the gap between AI and people— making complex AI more accessible. Their platform offers a range of generative AI solutions, such as text-to-image, image, as well as audio and video enhancement. neural.love has helped museums make their content more engaging and exciting, allowed printing companies to enhance their source material for easier workflow and better products, and offered app developers the chance to apply new capabilities to their own apps for more customer-centric experiences.

But as a small team that launched during the pandemic, they had to dedicate too many resources to support their AI strategies. In addition, they were having trouble identifying accurate graphics processing unit (GPU) costs in a fast-paced, digital environment.

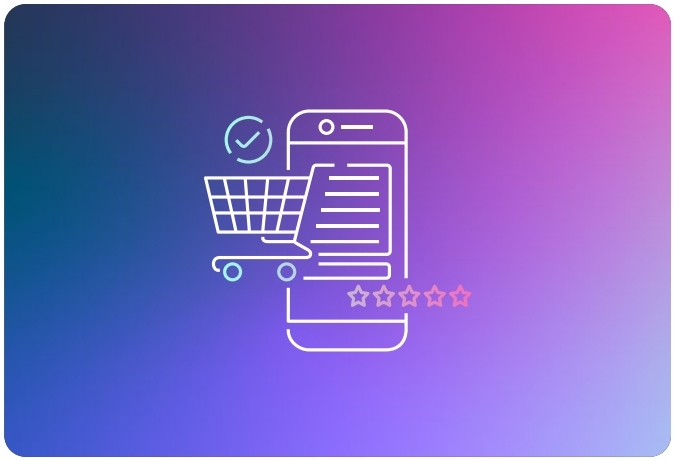
In a market as fast-moving as generative AI, no company can afford to slow down its pace of development—so neural.love decided to partner with AWS. Managing costs meant devoting more energy to innovation, and soon the company will have **2 million registered users**, who together have **created 40 million images** using their generative AI tools. Not only was AWS able to manage an infrastructure that allowed neural.love to affordably scale, but its AI tools gave them the ability to better predict how much their services would cost. Now, they're able to provide customers with accurate, tailored price points, keeping costs low both for them and their customers.

2m

registered users thanks to cost optimisation and innovation

40m

images created by customers using neural.love's generative AI tools



CASE STUDY

Lion Parcel

Global logistics company Lion Parcel also turned to AWS when they needed a partner to implement their AI strategies. The Lion Parcel team wanted to make data-driven decisions to differentiate them from their larger domestic and international competitors, but found it challenging to experiment with data infrastructure and ML solutions on their own.

After teaming up with AWS and AWS Partner Deloitte, Lion Parcel implemented a new end-to-end data foundation in **less than 6 weeks** and increased data processing speeds from 15 minutes to **less than one minute**. For a logistics company, this time difference was critical, considering Lion Parcel was juggling thousands of clients worldwide and had experienced bottlenecks that slowed down information extraction. In addition, these improvements allowed Lion Parcel to shift towards proactive customer service, by enhancing the ML models that help craft personalized customer relationship management initiatives. With stronger real-time insights and a sharper look at customer segmentation, Lion Parcel has been able to better serve the evolving needs of their clients and keep up with the industry's rapid growth.

>6

weeks to implement a new end-to-end data foundation

>1

minute data processing speeds, reduced from 15 mintues

CASE STUDY

MDAudit

MDaudit is a US-based company that provides compliance and revenue integrity services to more than **65,000 healthcare providers** spread across **2,200 facilities** and **60 healthcare networks**. They had the kind of problem every business dreams of: It was bringing on customers faster than it could serve them. MDaudit's leadership realized they would need to use AI to automate auditing workflows, and they enlisted the support of AWS.

With growing demand and the need to stay agile to accommodate their wide variety of customers within the ever-changing healthcare landscape, the AWS team helped MDaudit migrate to an AI-powered system, which came with significant advantages: it reduced the number of person-hours required to deliver top-quality service at an affordable price, even as their customer base continued to grow, it also reduced its reliance on legacy information technology, and streamlined its operations across the board. This meant MDaudit could respond more quickly to customer requests, and improve outcomes with ML-driven recommendations.

MDaudit can now offer customers modern services that help them **recoup millions of dollars** in revenue, improve accuracy, and manage a higher volume of requests. By the end of 2023, MDaudit customers will have **increased their productivity tenfold**, all thanks to AI tools.

10x
increase in productivity

Millions
recouped in revenue

AWS has already helped more than 100,000 customers of all sizes and industries integrate AI into their businesses

The AWS approach to responsible AI

SMBs should consider the responsibilities associated with implementing AI. Here are some of the biggest challenges SMBs face when evaluating solutions:

Legal liability - SMBs leveraging the creative power of generative AI for content development will want to stay on top of what will likely be an evolving set of legal parameters relating to copyright infringement and intellectual property. They need to be sure that they are not using generated content that closely resembles that of another creator, while protecting their own original content or data from being used to train other AI tools. A responsible and experienced provider can help SMBs navigate the associated legal and regulatory issues.

Trustworthiness - Language models can create persuasive, eloquent, and brand-specific content for SMBs, but it isn't always verified by a trustworthy source, and can still contain inaccuracies or misinterpretable information. Like any content that an SMB creates or uses, it's wise to independently assess its accuracy and message before distributing.

Governance - Responsible AI governance involves teams across different functions, including leadership, data science, and legal. AWS offers innovative tools and capabilities that customers can leverage at all stages of the AI/ML life cycle—helping take a comprehensive and cohesive approach to building, training, and operating systems responsibly.

At AWS, we know that AI technology and its uses will continue to evolve, posing new challenges that require additional attention and mitigation. Together with academic, industry, and government partners, we are committed to the continued development of generative AI in a responsible way.

In our more than **20 years of working within AI frameworks**, we've considered the challenges in defining, measuring, and mitigating concerns about fairness, toxicity, and intellectual property, among other things.

AWS has already helped more than **100,000 customers of all sizes and industries** to integrate AI into their businesses. Our investment in scalable, cost-effective ML training and inference gives us a broad and deep portfolio of AI services. No matter where an SMB is in its digital journey, AWS can help them understand how AI can solve their current challenges and implement the right long-term solutions.

Learn more about the AWS approach to responsible AI ›

Why AWS?

Our approach is to democratize access to AI, making the technology available to businesses of all sizes. We help SMBs discover the IT solutions that best fit their unique needs, as well as how to use them to build and scale their business. Many of the popular AI apps out there that SMBs are already using are built on AWS (e.g., Grammarly, Canva, Otter.ai).

There are a few key reasons why SMB customers choose to work with AWS when implementing AI solutions and building a long-term strategy:

Depth and breadth of experience - With more than 20 years of experience building AI architecture, we are committed to responsible, sustainable solutions that reduce risk for our customers. AWS has the most comprehensive portfolio of solutions, ranging from ready-made, purpose-built AI services to build-your-own models with AWS SageMaker.

The highest level of cloud security - We ensure that the data fueling AI solutions belongs to customers and is not used to train models that can be used by anyone else. AWS security infrastructure is built to satisfy the highest requirements of the world's leading financial, educational, and governmental institutions.

Support through best-in-class resources - AWS and its partners have specialized in AI and can implement solutions to address customer use cases and train teams on how to manage, identify, and build the right models for businesses of any size. Thousands of AWS-certified partners and consultants are available to provide premier service at any budget.

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NEXT STEPS

Get started with AI

AI promises to be one of the most disruptive technologies in generations—one that can enhance human creativity, push the limits of innovation, and maximize output. And it's available to SMBs today.

AWS is at the forefront, committed to developing fair and accurate AI and providing SMBs with the tools, partners, and guidance needed to build, implement, and manage AI responsibly. No matter where customers are in their digital journey, AWS and its partner community can help them understand how AI can solve their current challenges, and implement the right solutions to address them for years to come.

Start solving your most critical business challenges with AI ›