

AI and ML in financial services

How to prepare your financial services
organization for a new era of innovation.

In collaboration with

Google Cloud





Contents



Why financial services firms need to act on AI

The hype around artificial intelligence has hit fever-pitch, with generative AI becoming the hot topic on podcasts and thought leadership pieces far and wide.

Businesses across sectors are waking up to the opportunities that AI can bring, as well as the massive task of taking advantage of them.

Few stand to benefit more than financial services institutions, which have the potential to support – if not entirely replace – archaic, inflexible legacy systems with adaptable, AI-enabled products and platforms.

This shift could help future-proof financial services organizations, promoting innovation, reducing costs and, ultimately, creating a smoother experience for colleagues and customers alike.

But adopting AI isn't just about finding the right tools. The success of any AI strategy depends on whether or not an organization has invested in the right talent with the skills to support implementation. Google Cloud has been investing in AI for the last 10 years.

When polled by Google Cloud, 62% of business leaders said they think their organizations lack the most critical skills to execute their AI strategy. Just 4% said they have the skills they need to achieve their AI goals.¹

Understanding the boots-on-the-ground potential of AI is complex enough for uninitiated businesses, let alone the requirements for adoption.

And while there are off-the-shelf solutions available, it'll be the institutions with bespoke, start-from-scratch technology that will truly leave their rivals behind.

So, let's take a closer look at how AI and ML could become a part of your business, and how to capitalize on the bold but achievable prospect of harnessing the most powerful AI available.



72%

of UK financial services firms are using or developing an ML application²

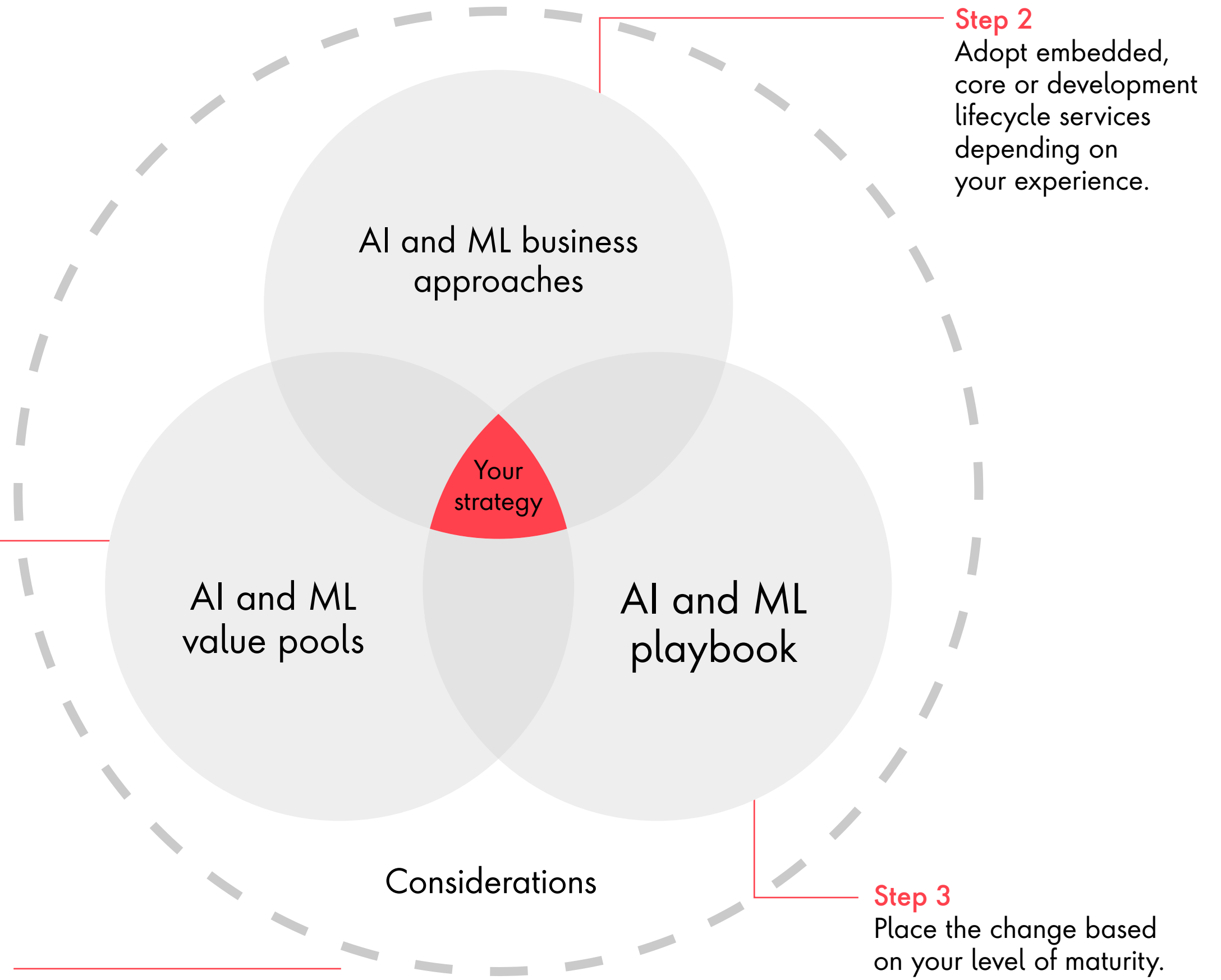
¹ The Prompt: Generative AI survey | Google Cloud Blog

² Machine learning in UK financial services | Bank of England

A circular graphic with a background image of a person walking on a tightrope. The person is seen from behind, balancing on a thin wire. The background is a light blue sky with a grid of thin white lines. The text "Steps to success" is overlaid in the center of the circle in a white, sans-serif font.

Steps to success

Four key steps to leverage AI and ML for your business



AI and ML in action


The services with the biggest impact

The business potential for using AI and ML can seem overwhelming, given the sheer scope of potential use cases. Once you have identified the right solution, the next step is to decide where to deploy it first.

Here, we have provided a framework that outlines just a few of the services with the biggest impact on controlling costs, minimizing risk, and increasing revenue.

Consumer type	AI and ML services	Benefits	Desired outcomes
Customer	<ul style="list-style-type: none">• Chatbots and virtual assistants• Personalized pricing and recommendations• Dynamic product creation• Personal finance management	<ul style="list-style-type: none">• Bespoke customer experiences• Improved customer targeting and acquisition• Improved customer retention• Optimized pricing and profit potential	<ul style="list-style-type: none">• Better cost control• Productivity is enhanced• Revenues increase• Higher conversion rates• Better cross sell• Reduced front book acquisition costs

Consumer type	AI and ML services	Benefits	Desired outcomes
Colleague	<ul style="list-style-type: none"> • Auto code generation, testing and documentation • Conversational AI • MLOps • SRE/AI • Content creation and personalization • Remote process automation 	<ul style="list-style-type: none"> • Reduced manual intervention • Streamlined project delivery • Reduced risk of inefficiencies • Optimized, personalized content • Streamlined production • Reduced system errors 	<ul style="list-style-type: none"> • Risk is minimized • Skillsets can be reprioritized • Better cost control • Revenues increase • Customer engagement is enhanced • Speed and scale increases
Function	<ul style="list-style-type: none"> • Analysis of regulatory documents • Compliance monitoring (AML and KYC) • Fraud detection analytics • Market surveillance • Compliance monitoring • Predictive analytics • Intelligent credit scoring with predictive risk management 	<ul style="list-style-type: none"> • Reduced manual intervention and inefficiencies • Reduced risk of human error • Reduced risk of regulatory fines • Improved fraud detection • Manage reputational risk 	<ul style="list-style-type: none"> • Risk is minimized • Better cost control • A high standard in compliance is maintained • Consistently achieving SLAs

An aerial photograph of a large crowd of people walking on a city street. The crowd is dense and spread across the frame. A large, semi-transparent white circle is overlaid in the center of the image, containing the text. The background image has a blue and white checkered pattern on the left and right sides, which fades into the central crowd image.













AI and ML business approaches

Identify the AI and ML solution you need

From customization to costs and latency requirements, there can be no one-size-fits-all approach in AI.

To help organizations narrow down their needs and expectations, here are three levels of products and services to consider.

The suitability and success of your organization's choice will depend on your team's experience, skill and confidence in this space. The first step is to choose the right solution for you.

	1. Embedded AI	2. Core AI Services	3. AI and ML Development Lifecycle Services
Solution	High accessibility, no flexibility, limited AI understanding ML at the device level, with the end user unaware that they're benefitting from AI at all. It enhances the capabilities of a given product or service via third-party products – think players in the fraud detection or client lifecycle management spaces.	Limited accessibility, some flexibility, some AI knowledge Directly provides all the power of AI via a UI or set of APIs, as well as standard models on limited data sets with potentially higher accuracy. The highest-profile examples are the likes of Google Bard, ChatGPT and Midjourney – generative AI that enable users to tap into expansive knowledge bases.	Very limited accessibility, high flexibility, extensive AI knowledge Developed, tested and validated from scratch, built by combining “raw” AI services – like Google Cloud products, including BigQuery, Vertex AI Workbench, AutoML and Codelabs for engineering – to create new, bespoke AI models.
Pros	<ul style="list-style-type: none">+ Requires very little knowledge of AI model development, with most parameters exposed in a simple form.+ Can handle an array of downstream tasks without additional training.+ Suitable for out-of-the-box scenarios.	<ul style="list-style-type: none">+ Fast access to proven technology, without the need of in-depth experience, and option to create somewhat differentiated services through best use of standard models.	<ul style="list-style-type: none">+ Significantly more powerful and adaptable with the potential to flex and move with your business needs and support the creation of proprietary approaches that can help build a competitive advantage.
Cons	<ul style="list-style-type: none">– What you gain in simplicity you sacrifice in flexibility. These solutions will keep you at par with the market, but not allow you to differentiate and consider the specific needs of your business and customers.	<ul style="list-style-type: none">– Some knowledge of the underlying AI is useful, particularly the parameters and variables that can change models.	<ul style="list-style-type: none">– Requires a deep understanding of the theory and practical application of developing, validating, and serving AI and ML models, and resources in kind.
Impacts			
Differentiation	 Low	 Medium	 High
Investment	 Low	 Medium	 High
Speed	 High	 Medium	 Low
Risk	 Very High	 High	 Low



AI and ML playbook

Organizations in financial services need to adopt a playbook tailored by their level of maturity

So fast is the pace of AI and ML that many already feel left behind. The race to adopt these game-changing technologies may lead to over-ambitious programs emerging prematurely, with ineffective or undesirable outcomes and impacts. It is especially important for large organizations in the financial services arena to pace the program correctly to avoid failures. Ensure that your business and people are ready for your AI strategy, so your organization can get ready for a fast start.

New Starters

1

Begin with a small scope, aim for soft outcomes, low targets, and lessons for the future.

2

Choose transparent AI solutions which provide insight into how the AI model comes to specific decisions. This is especially important in regulated areas. Explaining all the aspects of an advanced analytical model is necessary but will be a big challenge for a budding AI model risk management team.

3

Choose the right AI and ML platform. Cloud infrastructure is an essential component to train the more demanding models. Choosing a cloud vendor AI and ML platform removes many integration challenges and narrows the choice of ever-growing tools and accelerators. So business teams can focus on showing business value, rather than building the best AI and ML platform.

Advanced Users



New Starters

Advanced Users

Open standards are critical for leveraging AI progress. As models and providers battle it out for AI supremacy, adhering to open standards will ensure that your organization has the best option to enable business outcomes.

1

Scaling AI and ML usage in the organization has a very high dependency on data. Enabling AI and ML needs to be at the top of the to-do list for an organization's data strategy. Break down internal data silos: Most organizations suffer from having a fragmented data estate, archaic data governance and inadequate sharing processes.

Leveraging Google Cloud capabilities like BigLake and Dataplex unifies disparate data sets onto a common control plane.

With Gen App Builder, developers can leverage foundation models to build generative chat and search apps in as little as a few minutes without needing significant data science or coding experience.

2

Employ external data sets: The demand for external data sets in AI and ML is huge, ranging from open data to train and test models using client, sales and marketing statistics.

Getting timely access to external data is crucial and data marketplaces like Google Analytics Hub allow for easy discovery and purchasing, as well as access to the most up-to-date authentic data.

3

Data virtualization: This plays a key role in providing the data to your AI and ML environment. International financial institutions must deal with data residency constraints which leads to some data only being available on-premises. Data virtualization helps to bring the required data in permissible form to your AI and ML platform.

For more in-depth model customization and data center work, Vertex AI not only offers developer-friendly APIs, but also an interface that abstracts many of the complexities of model tuning, prompt engineering and other tasks that have traditionally required significant data science expertise.

Advanced Users



New Starters



Considerations

The road ahead

The AI landscape is evolving at breakneck speed with new technologies, techniques and models emerging daily – both commercially and from the open-source community.

Financial services firms are grappling with ever-increasing regulations, and we can expect the application of AI to be carefully initiated, implemented, and monitored. But there are other areas that require careful attention.

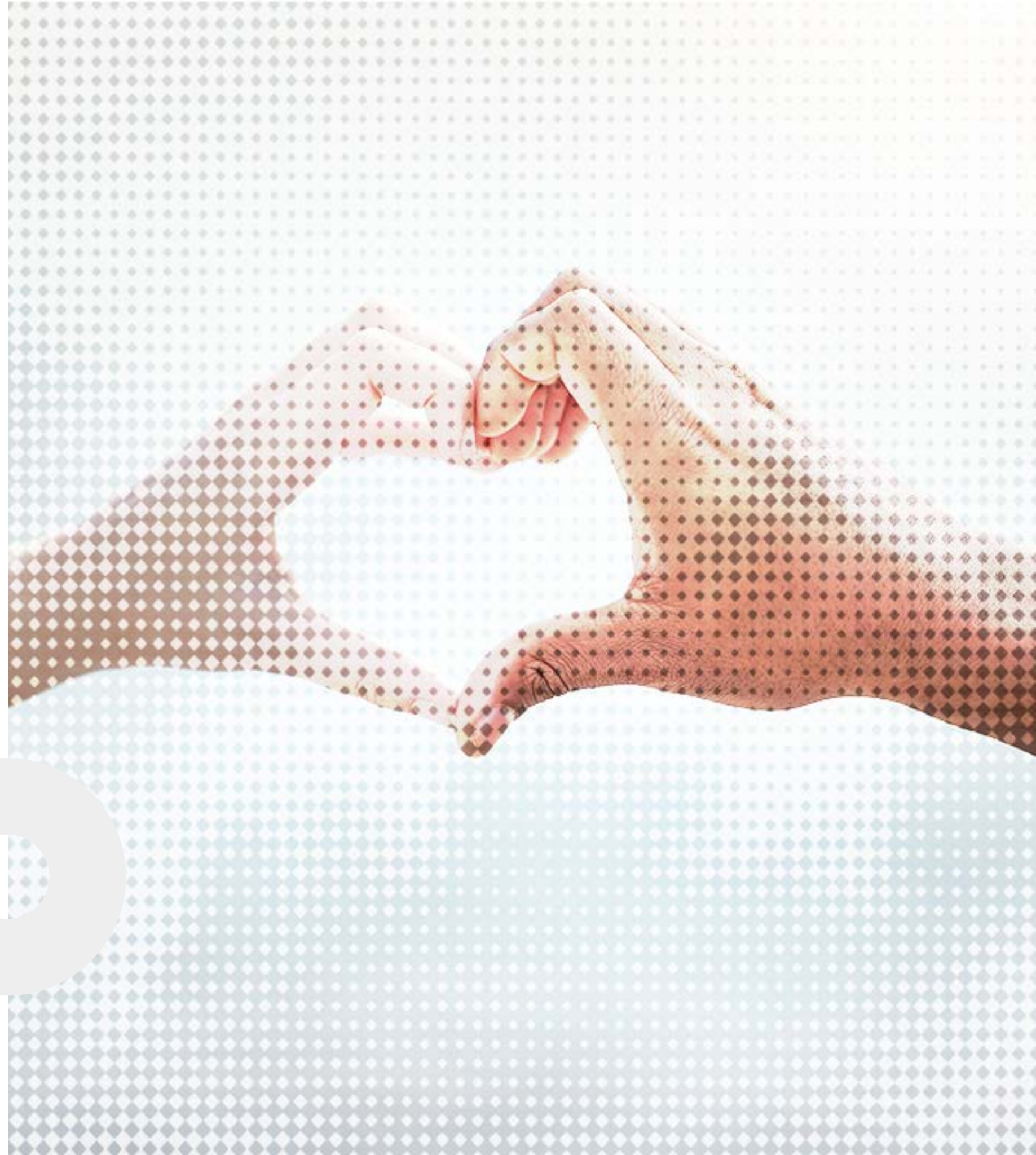
Area	Considerations
Business impact	Cost: Managing costs around training, validating, and running AI models, including creating cost insights at a granular level. Commercials: Establishing how to drive and monetize the application of proprietary technology. Operating model and processes: Making sure they align with new AI capabilities.
Trust	Bias: Ensuring that AI services are providing the same opportunities across the board. Transparency: Showing why a decision has been made and replaying events in a model. Accuracy versus accurate: Ensuring that generative AI balances the need for accuracy (e.g. digital marketing) or accurate (e.g. policy document). Safety: Prioritizing built-in governance, auditing, compliance, security and privacy capabilities required for enterprise use – the Google Cloud standard.
Tech and data	Data residency: Analyzing data in specific regions to ensure compliance with local rules. Intellectual property: Managing ownership of models and the underlying data. Vendor landscape: Ensuring that you're backing the correct technology, model or approach and that you are taking a long-term view. Data availability/accessibility: Hard-to-reach data will slow down development of AI models and increase investments and running costs.
People and talent	Engaging the business: Educating the business on the value of AI and ML and ensuring that there's no resistance to adoption. Talent limitations: Finding and holding onto talent in a market where demand is outstripping supply. New skills: What new skills might your organization need to introduce? (AI engineers to the right of MLOps, AI-FinOps?) API and token consumption could rampantly get out of control without being monitored and managed.

A note on ethics

We recognize that advanced technologies can raise important challenges that must be addressed clearly, thoughtfully, and affirmatively. **Google's AI Principles** describe our commitment to developing technology responsibly.

AI applications should:

- Be socially beneficial
- Avoid creating or reinforcing unfair bias
- Be built and tested for safety
- Be accountable to people
- Incorporate privacy design principles
- Uphold high standards of scientific excellence
- Be made available for uses that accord with these principles
- Ensure that AI ethics are documented and made available internally and externally
- Consider what limits you should put on tracking colleague usage. Are you going to analyze everything a colleague types into an AI tool?

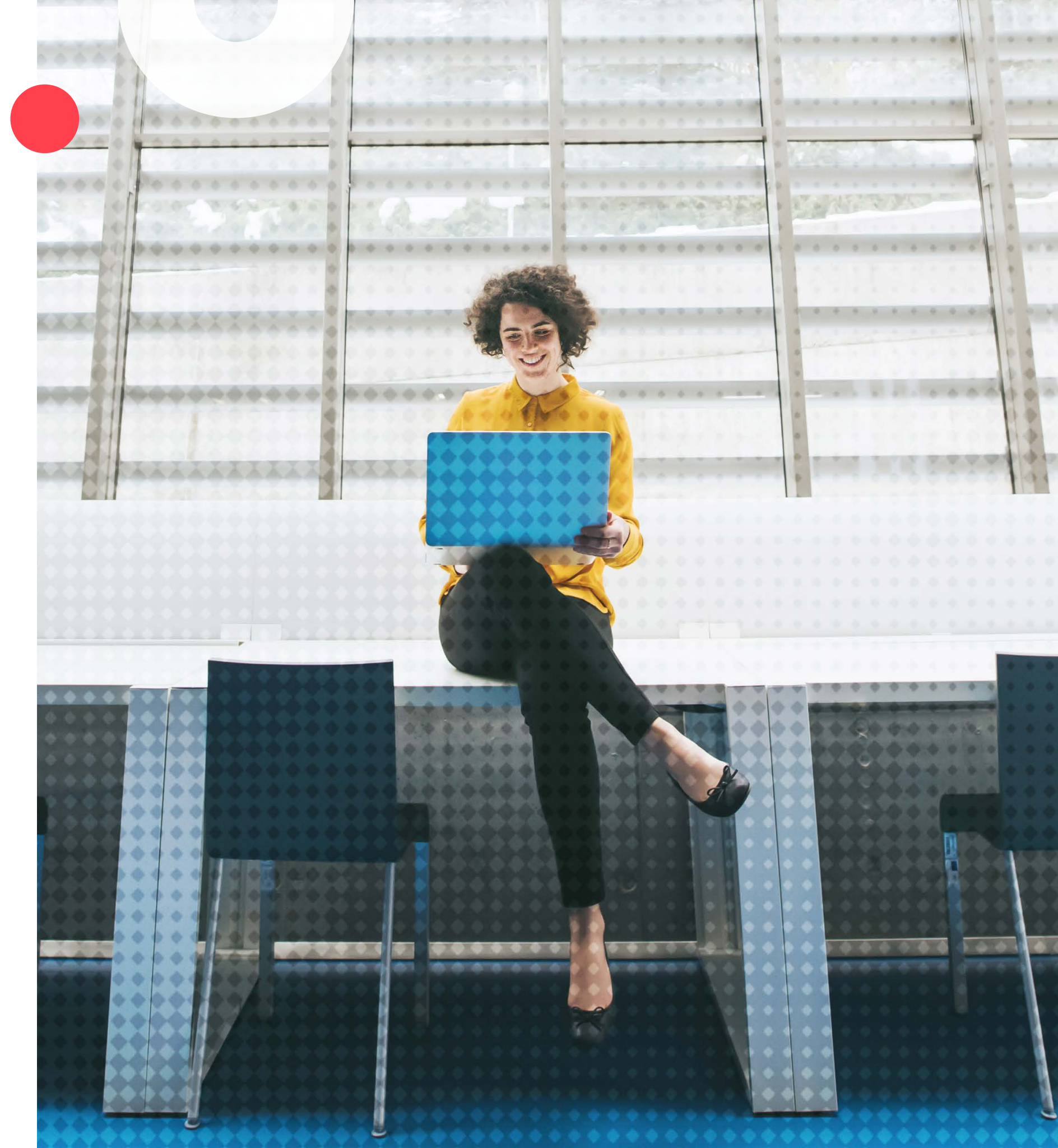


An aerial photograph of a public square, likely Times Square in New York City, showing a large crowd of people walking. Overlaid on the image are several glowing white arcs that connect different points in the square, suggesting a network or flow of movement. The image is framed by a large circular cutout in the center, with the word "Conclusions" written in white text across it. The background of the image is a light gray grid pattern.

Conclusions

Say yes to AI

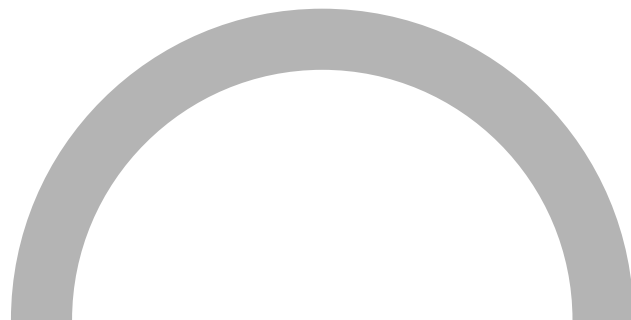
- The conversation on AI has already evolved, with generative AI becoming the hot topic
- Across customers, colleagues and functions, services need to be applied to control costs, minimize risk, and increase revenue
- We see three levels of AI and ML services you might adopt, depending on your organization's level of experience and needs: embedded, core, and development lifecycle services
- Large organizations in the financial services arena need to pace the program correctly to avoid failures, tailored by their level of maturity
- Given the speed of change, there are some key considerations across business impact, trust, tech, data and talent to ensure an organization's success



We'll set you on the right path

AI is only going to become more prevalent. You have a unique opportunity to become an industry leader in this space.

If you decide to build AI capabilities from the ground up, Publicis Sapient and Google Cloud can help you plot the correct course. Our teams of collaborators are experts in developing, training, and refining various AI and ML applications, and will help your business eliminate mounting costs, drive revenue growth, and promote grassroots innovation among your team members.





About Publicis Sapient

Publicis Sapient is a digital transformation partner helping established organizations get digitally enabled, both in the way they work and the way they serve their customers. We help unlock value through a start-up mindset and modern methods, fusing strategy, consulting and customer experience with agile engineering and problem-solving creativity.

As digital pioneers with 20,000 people and 53 offices around the globe, our experience spanning technology, data sciences, consulting and customer obsession – combined with our culture of curiosity and relentlessness – enables us to accelerate our clients' businesses through designing the products and services their customers truly value.

Publicis Sapient is the digital business transformation hub of Publicis Groupe.

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Google Cloud

About Google Cloud

Google Cloud accelerates every organization's ability to digitally transform its business.

We deliver enterprise-grade solutions that leverage Google's cutting-edge technology – all on the cleanest cloud in the industry.

Customers in more than 200 countries and territories turn to Google Cloud as their trusted partner to enable growth and solve their most critical business problems.



“At Publicis Sapient we constantly push for innovation that propels businesses and industries forward. The advances we have and will continue to make in AI and ML have significant value, especially to FS organizations, where financial wellbeing for their customers is essential. What may seem ‘invisible’ can modify business processes, culture, and customer experiences to meet changing business and market dynamics in an age where digital transformation is a non-negotiable.”

Sean O'Donnell
CTO FS International



“How to maximize the value of your generative AI investment

A single generative AI model will not be able to solve all problems. Bigger is not always better. There is no need for a trillion-parameter model to answer simple questions; indeed, tools such as distillation and reinforcement learning mean that smaller models may outperform larger models on specific tasks. Google Cloud provides you with access to the right model at the right time at the right cost for your use cases.

- Choose the right model for your needs. Not all models are created equal. Some models are better suited for certain tasks than others. Do your research and choose a model that is well-suited for your specific use case.
- Use the right tools. There are a variety of tools available to help you get the most out of your generative AI investment. Make sure you are using the right tools for the job.
- Train and tune your model on the right data. The quality and integrity of your data will have a big impact on the performance of your model. Make sure you are tuning and training your model on high-quality, clean data.
- Monitor your model's performance. Once your model is trained, it is important to monitor its performance. This will help you identify any areas where your model can be improved.
- Use generative AI in conjunction with other technologies. Generative AI is a powerful tool, but it is not a silver bullet. Use it in conjunction with other technologies to create even more powerful solutions.
- Design with cost-aware architecture in mind. During the design phase, architect your generative AI solutions with cost-awareness in mind. For example, leveraging services such as Google Cloud Function can help reduce overall costs.”

Karen Huish
Director of Financial Services, Google Cloud UKI



Discover the difference a
world-class AI and ML strategy
can make to your business.

Contact us to get started.

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