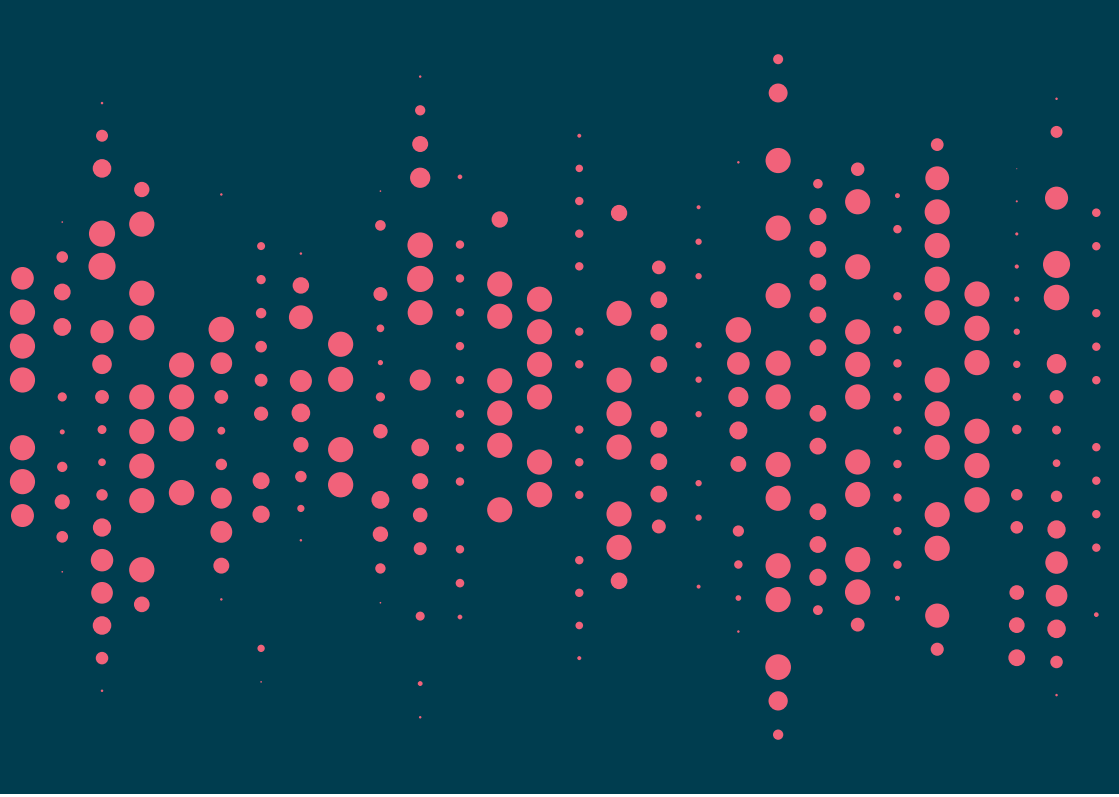


Drive measurable AI success

Make the transition from concept to reality

/thoughtworks

Design. Engineering. AI.

AI's potential is huge. But ultimately, it's what you make of it.

AI has the potential to revolutionize work, bridge the gap between data to insights, and create new business models. However, much of its potential remains unrealized.

AI requires a strong strategy in three key areas:

Technical capabilities

Core technologies and infrastructure, including AI-powered products, platforms and the data that underpin them.

Governing practices and structures

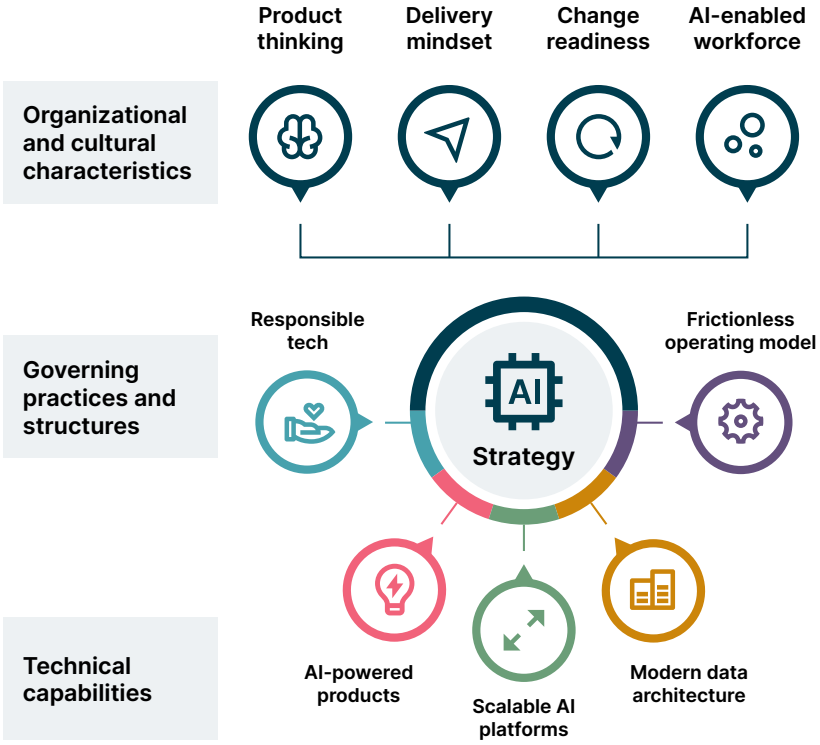
Operational changes that enable teams to focus on high-value initiatives and responsibly harness AI.

Organizational and cultural characteristics

Behaviors that accelerate the value of AI-enabled work.

Each decision must be tailored to your organization's unique context, as there's no one-size-fits-all approach.

Thoughtworks has developed a framework for AI transformation, encompassing technical, procedural, and human-centric changes for AI success at scale. This paper explores that framework and its components to help organizations apply AI to transform products, experiences, processes, operations, and business models.



Thoughtworks' model for AI strategy addresses three dimensions: A foundation of core technical capabilities supported by governance practices and structures and intertwined with organizational and cultural characteristics for success.

Dimension 1: The core technical capabilities needed for AI success

When organizations reach out to us for support with their AI transformation journey, it's usually because they're missing one or more of three core capabilities:

- **AI-powered digital products** that start with clearly defined outcomes in mind. Products are viewed as living systems so teams ensure products are - and remain - technically feasible, financially viable, desirable for customers and have great usability.
- **A scalable AI platform** for developing new AI models, products and use cases and solving emerging challenges throughout the business.
- **A robust data foundation** with the essential capabilities for preparing data for AI use cases, and pipelines for the continuous delivery and ingestion of AI-ready data.

These three inextricably linked capabilities form the foundation of an organization's AI readiness, making them the core of our AI transformation framework.

The importance of a bespoke approach and strategy

While the core elements of successful AI realization are almost always the same, every organization's journey is unique. This includes the technology and data they possess, their AI ambitions and their capabilities. That's why it's very difficult to create "one size fits all" AI solutions.

Be wary of off-the-shelf products that claim to solve challenges for everyone. If a solution is simple enough to be applied anywhere, there's a strong chance it won't help you realize AI's full value or solve the specific challenges your organization is facing.

AI-powered digital products

AI-powered digital products are applications and services that use artificial intelligence to enhance functionality, efficiency or user experience. Organizations can outshine the competition, win customer loyalty, and boost their bottom line with extraordinary AI-powered digital products and experiences.

To create and maintain exceptional AI-powered digital products, your teams must make informed, strategic decisions at every stage of the AI product lifecycle:

- **Use case exploration:** Assess the viability and value of potential AI-powered products before creating them to ensure you focus your efforts and budgets on the highest-value use cases.
- **Proof of concept (POC) and prototyping:** Prove the product's value before scaling it, proactively identify

any challenges and gather invaluable user feedback to maximize its success.

- **AI solution development:** Carefully plan and align all aspects of technical solution engineering and delivery when constructing robust AI tech stacks.
- **Human-AI experience design:** Build AI products in ways that augment human potential and enable both AI and humans to get the most from one another in natural, engaging ways.
- **AI security and compliance reviews:** Assess the risks that a new product may expose your organization to and embed the right security and compliance guardrails within your products.
- **AI product scaling:** Once you've seen value from POCs, iteratively scale them into value-generating products.

Together, these decisions enable a holistic, strategic approach to AI-powered product creation that delivers maximum value and precisely solves the challenges the product was devised to tackle.

GenAI-powered chatbot optimizes customer and employee experience for a leading global bank

20% **time saved** when obtaining customer and product insights

50% **reduction in** online business processing time

20% **improvement** in customer satisfaction levels

When a global commercial bank faced challenges with personalization, integration and data accessibility in its customer service chatbots, Thoughtworks stepped in to help.

After analyzing key pain points in its chatbot journeys, we prototyped and produced a new generative AI (GenAI) powered agent and a dialogue framework that can be used with any fine-tuned language model.

The bank's large language model (LLM) solution has optimized the overall accuracy, flexibility and scalability of its chatbot services — improving experiences for internal and external customers. Now, anyone can access the information and answers they need faster and more conveniently than ever before.

Scalable AI platforms

A platform-based approach to AI capability development helps organizations scale and evolve their capabilities continuously. Thoughtworks builds resilient AI platforms that enable seamless addition of new use cases while incorporating robust and scalable AI evaluation methodologies. This ensures continuous monitoring, optimization and alignment of AI models with business objectives, empowering teams to create value confidently and effectively.

AI service platforms provide the foundation for organizations to scale out diverse AI use cases and solve new business challenges. But those foundations should also be supported by:

- **Model evaluation, performance optimization and monitoring** to ensure the continuous improvement of AI

performance and help organizations make sure their AI models are delivering the right outcomes for all users.

- **Workload optimization** to keep AI costs under control and maximize ROI from all AI workflows.
- **Machine learning operations (MLOps)** to embed practices and processes that simplify machine learning workflows and deployment, and develop capabilities for model serving, hosting, observability and cost management.

Building a foundation for AI-enabled vehicle experiences at BMW

BMW's modern software-defined vehicles (SDVs) generate vast quantities of data. When it's applied in the right ways, that data can be turned into insights that improve driver and owner experiences, and extend the lifetime of a vehicle.

BMW partnered with Thoughtworks and others to build a scalable, cost-efficient and future-ready platform for AI-based connected services and products. This platform is built on top of a microservices platform based on Kubernetes clusters in the AWS cloud on which we also worked for BMW.

With the new platform in place, BMW can apply artificial intelligence and machine learning to draw valuable insights from vehicle data. The first use case the company implemented was proactive maintenance issue detection — with many more planned for the near future.

Modern data architectures

All AI models and use cases demand high-quality data. Whatever an organization's data estate looks like, if they want to build AI readiness, we recommend investing in and developing:

- **Data platforms** that improve how teams manage, structure and govern data — increasing accessibility and making it simple to train AI models using relevant data sets and sources.
- **Synthetic data** to augment first and third-party data sets, helping organizations build up high volumes of relevant data to power complex AI training and generative workloads.
- **Large language model ops (LLMOps)**, which encompasses the practices, techniques and tools required to generate the maximum value from LLMs in production.
- **AI data governance support** to ensure responsible data handling by teams, leading to strong AI outcomes.
- **Data products** that are purpose-built for AI workloads and streamline the process of locating and structuring data for ingestion into AI models.

Applying AI to transform and accelerate pharmaceutical testing

When a prominent US pharmaceutical company wanted to evolve how it scheduled tests, Thoughtworks developed a heuristic algorithm-based schedule to optimize analyst and asset utilization, replacing manual scheduling with a streamlined, touchless process.

The solution automates schedule generation, saving time for laboratory managers and enabling multiple runs with reduced time consumption. Now, the company has dashboards in place that provide visibility of testing bottlenecks — helping to maximize capacity utilization while accelerating testing processes.

Three pillars. One goal.

These three pillars — AI-powered digital products, AI platforms, and a strong data foundation — are inextricably linked. While they carry different demands, these elements work together to achieve a singular goal: an organization's high level of AI readiness.

For that reason, they should never be approached in isolation. Instead, organizations should take a holistic view and ensure the steps taken in each area align with those taken in the others. Only then can organizations start to unlock the full transformational value of AI.

Dimension 2:
Governing practices and structures to support AI transformation

No matter how powerful or innovative they are, AI technical capabilities by themselves aren't enough to drive transformation throughout a modern enterprise. Proactive planning and governance are needed to effectively evolve the organization's operating models, maximizing AI value and ensuring its responsible use.

To unlock the full potential of AI, consider a holistic look at your operating model

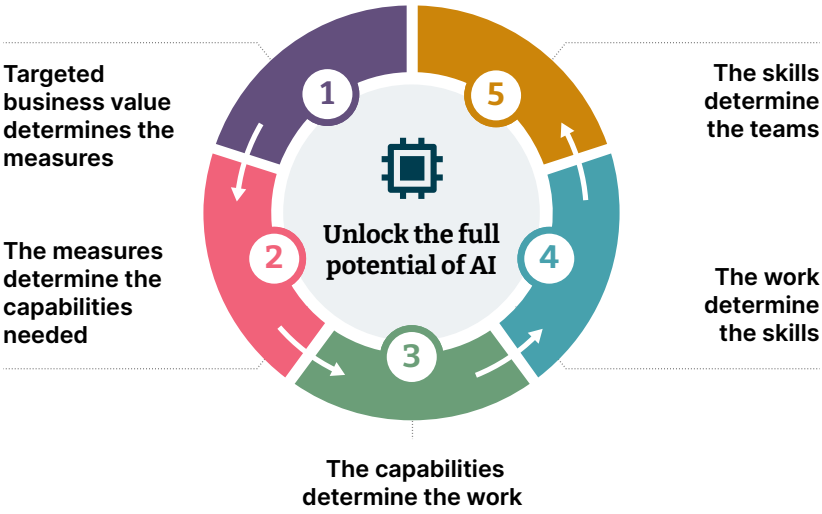
If organizations want to harness the power of AI to evolve in meaningful, lasting ways, we recommend supporting core technology development with operating model change.

A holistic operating model review effectively supports AI development and adoption, ensuring sustained impact. It offers a comprehensive perspective that facilitates seamless AI integration into operations, enhancing efficiency, fostering innovation and embedding AI into the organization's standard practices.

Operating models bridge strategy to execution. So, when we help organizations evolve their operating models to support their AI transformation, we ensure tactical actions align with strategic intent.

The process can be broken down into **five steps**:

1. **Define the business value you want to achieve with AI.** That might be differentiated customer services, greater internal efficiency, deeper insights, or any other strategic goal.
2. That value definition **defines the core technical AI capabilities you develop**. You choose the right models, platforms and capabilities required to deliver the value you seek.
3. Your new capabilities **shape how teams, processes and workflows must be structured** to get the most from AI. This forms the core of your new AI operating model.
4. Your new workflows **determine the skills your people need** to adapt to new ways of working and perform in line with your new operating model.
5. Those skills guide **how your teams are structured** to ensure you have the right combination of people with the right skills everywhere you need them.



Crafting AI strategies requires starting with clearly defined business goals like enhanced customer service, operational efficiency, and strategic insights. These goals shape tailored AI capabilities and operational models, influencing team structures and skill development for effective implementation.

AI-enabled software engineering productivity for major payments organization

As its daily total transactions approached one billion per day, a major payments organization knew it had to implement automation and operating model changes in various processes to support its rapid growth.

After assessing the organization's architecture, we recommended adopting an AI co-pilot experience for developers in its software delivery cycle. Across design, development and

testing, we are implementing a chatbot code assistant, autopilot, and a code assistant playground.

These new AI-powered capabilities we are implementing are enabling the organization to accelerate developer and tech stack onboarding, increase productivity, accelerate delivery and automate code quality across the development lifecycle.

Keeping AI efforts compliant, safe and responsible

The other pillar that must sit alongside operating model evolution is responsible technology. Responsible technology practices are pivotal to the success of any AI project, providing guardrails to minimize risk, maintain regulatory compliance and ensure ethical standards are continuously upheld.

Thoughtworks' Responsible Tech Playbook outlines a wide range of practices to support responsible technology. The playbook covers issues and guardrails that span diverse technologies. But in the case of AI, it's especially important to remain mindful of several issues:

- **Data security**, including prompt-based leaks of personal data that can occur when using public GenAI models and capabilities.
- **Equality and inclusion** issues relating to biases that can accidentally be developed within AI models by training them using biased or unrepresentative data sets.
- **Malicious uses of AI**, even if they aren't uses that you imagined when building your models.

By integrating operating model change with responsible technology practices, organizations can harness AI to maximize its operational impact while ensuring regulatory compliance and effective risk management. This holistic strategy ensures that AI not only drives efficiency and innovation but also aligns with ethical standards, paving the way for sustainable and responsible AI transformation.

Responsibly harnessing the power of AI for life sciences

- Built a holistic governance framework
- Ensured responsible AI-powered decision-making

When a major healthcare and life sciences company began exploring ways it could apply GenAI to support its drug discovery and therapy development work, it engaged Thoughtworks to help ensure it could do so responsibly.

Together, we built a robust decision-making framework and a governance structure to surround it. Guardrails at the platform level ensured compliance and responsible decision-making, and change management helped all relevant stakeholders adopt responsible AI practices.

Now, the organization is empowered to make informed decisions at speed, safe in the knowledge that it has the governance structures to ensure those decisions are made responsibly.

Dimension 3: Organizational and cultural characteristics to enable effective human-AI collaboration

Ultimately, it's humans that determine the success and value of AI. So, organizations must make changes to support people and help them adapt to a new, AI-enabled world.

The final dimension of Thoughtworks' holistic framework for AI transformation embeds a set of desired organizational and cultural characteristics and behaviors to create a fertile environment for positive, lasting change.

These changes span four areas:

1 Embracing value-based ROI thinking

We stressed the value of using AI-powered products as a core technical capability in your AI strategy. Product thinking requires a focus on customer experiences, business outcomes and a return on your AI investments. To ensure you embed value-based ROI thinking into your culture:

- **Ensure customer centricity** to bring the organization as close to your customers as possible.

- **Enable continuous discovery** to integrate findings and keep products aligned to customer and business needs, testing for technical feasibility, business viability, usability and desirability.
- **Extend discovery beyond the desk** to investigate problems through the eyes of the customer and validate them hands-on.
- **Engage across disciplines** from product managers, developers and designers to work together seamlessly.

2 Embedding an engineering culture and lean processes

The culture of your engineering organization can have a major impact on the value you realize from AI. So, it's important to cultivate mindsets that are lean and yet keep everyone aligned to the same goals and empowered to deliver the right capabilities in the right way at the right time.

Aim to build a lean engineering culture that's:

- **Highly agile and adaptive to change**, so you can rapidly iterate on AI capabilities and services, and keep your AI capabilities continuously aligned with domain-level and strategic goals.
- **Value-oriented** and always focused on maximizing AI's value to the business and its internal and external customers.
- **Driven to continuously improve** the quality of your AI capabilities, the results they deliver and how the engineering team works and solves challenges.

3 Augmenting AI-enabled workforces

In most use cases, AI isn't a direct replacement for human intelligence. Instead, organizations should apply it in ways that augment and extend human capabilities.

Thoughtworks helps our clients achieve this through:

- **AI-enabled software engineering**, where AI is intelligently woven into engineering workflows to accelerate delivery and help developers achieve more in less time.
- **Augmented decision-making capabilities** that give people data-driven suggestions and intelligence to help them make informed, value-driving decisions at speed.
- **Continuous learning cultures**, where humans and AI constantly evolve how they interact with and enable each other.

4 Enabling human-centered experiences and change readines

Applying AI throughout your operations can mean big changes for many of your people. Change of that scale must always be carefully managed. To ensure you bring people along with you on your AI journey rather than simply mandating change:

- **Make your vision clear** so everybody understands what you're trying to achieve with AI, how they can help and how AI could benefit them personally.
- **Incentivize innovation** and encourage teams to experiment and find the best ways to apply AI in their own workflows.
- **Empower leaders and teams** to drive change themselves and take a consultative role in your AI plans.

Augmenting human expertise in an industry built on craft, tradition and deep experience

- Amplified deep human expertise with a new recipe-generating AI model
- Created an award-winning new whisky for a leading distillery

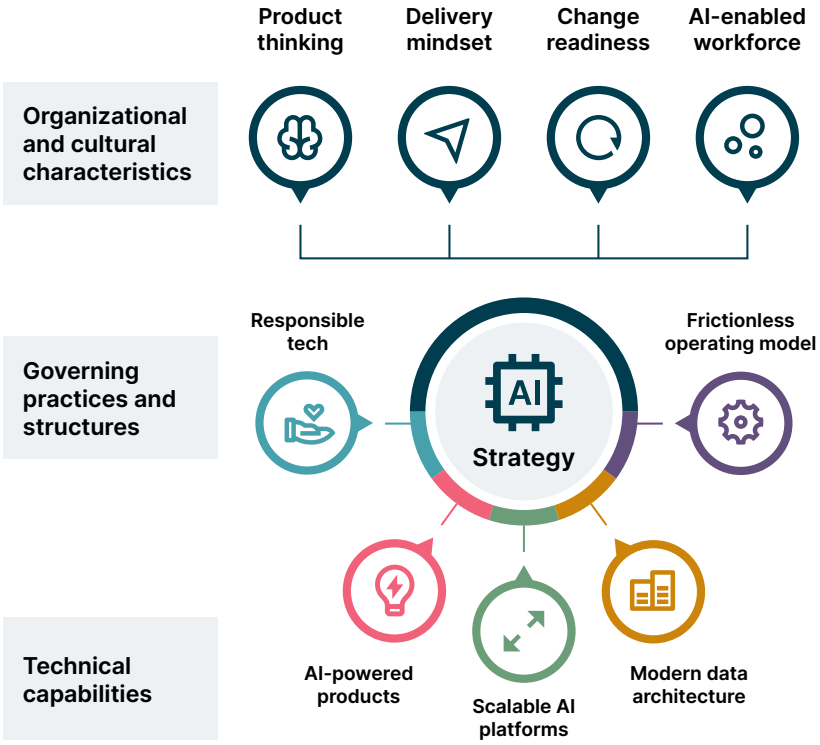
Working in partnership with Thoughtworks, Swedish distillery Mackmyra created the world's first whisky developed completely by machine learning.

We used previous recipe data, tasting notes, ratings of previous recipes, expert reviews, customer reviews and cask information to make our model understand Mackmyra whisky. Then, we created a framework that can innovate this space, creating new whiskies that are unique but taste excellent.

Crucially, this solution wasn't designed to replace the human role of Master Blender — it provides suggestions that a blender can then validate and iterate on where necessary.

The model enables the discovery of innovative whisky combinations — the first of which was named Intelligens. Since the model generated the recipe, Intelligens has received awards, including the American Distilling Institute's Gold Label and Best International Malt Whisky, and the world-renowned ADC Silver Cube in Product Design.

Delivering transformational impact



Thoughtworks' model for AI strategy addresses three dimensions: A foundation of core technical capabilities supported by governance practices and structures and intertwined with organizational and cultural characteristics for success.

Together, the three dimensions of Thoughtworks' strategic framework for AI transformation enable organizations to achieve AI readiness and create an evolutionary foundation for long-term AI value creation.

The framework is designed to maximize AI's impact on an organization and the people it serves. Every organization has different AI goals and ambitions, but we focus on six specific areas of impact that we know can have a transformational effect on any business.

#1 Driving growth

Whether you apply it to help you develop differentiated new products, serve a greater volume of customers, or make rapid, well-informed strategic decisions, AI can be a powerful enabler of business growth.

Work with your teams to understand exactly how they want to grow, then work backward to find the best AI use cases to support that goal. Prioritize scalability at every stage to ensure that as your organization grows, its AI capabilities can grow with it.

Results we've achieved:

- **79.5% growth** in average basket size delivered for a fashion and design house.
- **1 million users** onboarded to a new AI-powered digital service in just 100 days for a leading loyalty program in Singapore.

#2 Delivering exceptional customer, employee and developer experiences

When built and implemented correctly, AI-powered services deliver exceptional, engaging and differentiated experiences for customers, employees and developers alike.

Work closely with various persona groups to analyze how they work and interact with different services. Then, build AI capabilities to augment their experiences and make it easy for them to access the information they need, when they need it.

Results we've achieved:

- **75% agent efficiency growth** and a **20% improvement in customer satisfaction** delivered through the creation of new AI assistants at a leading bank.

#3 Cutting costs

AI transformation can be a significant investment — especially when you're establishing your core capabilities. However, when it's applied in the right ways, it can help cut costs throughout your organization.

By targeting specific areas of inefficiency, you can ensure AI delivers significant cost reductions as quickly as possible so your teams can reallocate their budgets to AI innovation.

Results we've achieved:

- **$15.1m in cost reductions** delivered for a major international airline.
- **$80k per year savings** delivered through process optimization and efficiencies at a global mobility leader.

#4 Accelerating processes and delivery

AI brings incredible opportunities to automate tasks and accelerate virtually any process or workflow.

By taking a deep dive into your organization's processes, you can locate bottlenecks and apply AI in ways that break them down — enabling everyone to achieve more, work more efficiently and deliver faster.

Results we've achieved:

- **20% time savings** for customers and product managers to obtain customer and product insights at a global bank.
- **75% increase in operational efficiency** at a pharmaceutical company.
- **2 to 5 times speed gains** from parallelizing various tasks and optimizing code at a large pharmaceutical company.

#5 Managing and mitigating risk

AI is great at detecting patterns from historical data, enabling organizations to make accurate forecasts about the future and anticipate risks before they threaten their operations.

Apply AI in a measured way, and manage risk in line with your unique risk appetite — balancing opportunities and threats to help make the best decisions for the future of your business.

Results we've achieved:

- Thoughtworks has partnered with the United Nations to lead and promote responsible tech practices around emerging technologies such as AI, and help organizations across the world avoid unplanned negative impacts from their use.

#6 Reimagining business models

Beyond the other five impacts, AI brings opportunities for organizations to fundamentally reimagine how their business operates, enabling them to create entirely new business models. Those models can rapidly drive businesses toward achieving their strategic goals, or even help them pivot and accomplish new ones.

Any industry, any starting point, any goal

No two AI journeys are the same. While proven frameworks and methodologies for change are highly valuable, organizations have unique needs that are often best addressed in a bespoke way.

The true strength of Thoughtworks' holistic framework for AI transformation is that it enables us to support any organization's AI journey, no matter where they're starting from or what they want to achieve.

Most AI evolutions don't start from scratch, but build on existing investments in cloud, data or digital initiatives. Thoughtworks respects an organization’s existing ecosystems and realigns them with the company's AI goals. This approach ensures previous investments aren't wasted and lets us use each organization’s unique assets and resources to deliver differentiated value through AI.

If you already have a few AI POCs in place, we can provide the expertise to scale the right use cases and bring them into production to realize their full potential value. If you haven't started with AI at all, we can begin at the most fundamental levels of AI success and create a future-ready foundation for long-term value creation and growth.

Here's a snapshot of what we've helped diverse organizations — all starting from different points — achieve with AI.

Retail, consumer goods, travel and transportation

- Minden.ai
- Mackmyra
- Adevinta

Banking and financial services

- Top 10 US bank
- Nimble

Healthcare and life sciences

- Bayer
- MCG Health

Tech and business services

- Adevinta
- Bolt.works
- Leading media and publishing company

Public, energy and utilities

- Jugalbandi
- Finavia
- Terrascope

Turn AI aspirations into reality

Thoughtworks' strategic framework for AI transformation provides a proven model for long-term value creation that helps streamline an extremely complex journey. But the real value of the framework emerges when we contextualize it for an individual organization.

Using our framework, you can carefully consider your organization's strategic goals, operational challenges, and existing technology estate, and build a bespoke AI strategy around them that delivers high, differentiated value.

AI should never be applied or adopted for its own sake. It must be carefully adopted in ways that support meaningful goals and help people, systems and organizations achieve more. By following this framework, you can ensure your AI investments deliver the best possible results for your business and all of the stakeholders it serves.

If you're ready to find out where your AI transformation journey should go next and how we can help you harness the power of AI in your organization, talk to us today or learn more about our AI services.

We are a global technology consultancy that delivers extraordinary impact by blending design, engineering and AI expertise.

For over 30 years, our culture of innovation and technological excellence has helped clients strengthen their enterprise systems, scale with agility and create seamless digital experiences.

We're dedicated to solving our clients' most critical challenges, combining AI and human ingenuity to turn their ambitious ideas into reality.

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