What is the Adoption Stages Framework?

Guide

UKRI Innovate UK
BridgeAI

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Artificial Intelligence (AI) solutions are being deployed across a vast range of industries, improving workflows and maximising productivity. The BridgeAI Adoption Stages Framework can help you understand how to effectively adopt these innovations and push your implementation forward.

The Adoption Stages Framework is designed to help the BridgeAI community access a cohesive programme of partner offerings and support to make the adoption of AI solutions smoother and more accessible. This guide consists of four key stages, each with its own challenges and actionable goals.

With AI technology evolving at pace, understanding how it can boost your organisation's efficiency and productivity can be hard. It's even more difficult to know how to integrate this technology into your everyday operations, especially if you already have an established and trusted way of working.

There are many nuances to AI adoption that encompass all sorts of logistical and practical challenges. Whether it's data security, ethical usage, employee trust, or simply building a reliable and consistent AI model, it's vital to know where to start and how to get the ball rolling.

How can the Adoption Stages Framework help?

The Adoption Stages Framework is designed to aid businesses in identifying what support they need. This document will define each stage of the framework, with additional context and links throughout to help you determine which resources will be the most useful.

The Innovate UK BridgeAI programme provides businesses with the knowledge and tools to harness AI effectively. In this guide, you'll learn about:

- The four key adoption stages and their challenges
- How AI solutions are being used across different industries
- Common implementation pain points that occur in most sectors
- How teams can be educated to effectively adopt AI solutions

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What stage of AI implementation is my business in?

The Adoption Stages Framework is split into four key stages: strategy, data, build and implement. Businesses that are in the process of incorporating AI into their operations typically fall into one of these stages.

As every business is different, you'll need to determine how far along this trajectory your company currently sits and evaluate your best course of action. There may be different challenges at each stage that demand unique behaviours or solutions, so it's important to understand the most common pain points that businesses face before diving in. You can find support for all stages of your AI journey here.

Stage 1: Strategy

This stage is for businesses who have yet to determine how AI can be used within their operations. An effective implementation strategy will consider whether an AI solution is necessary, how it will affect the wider company workflow and the potential barriers.

Your organisation will need to be in a position to answer questions such as:

- Can you identify the business challenge you are looking to solve?
- What are you hoping to achieve by adopting AI?
- Will you adopt a third-party initiative or develop your own?
- What skills will be affected or required?
- What are the behavioural/cultural barriers?
- How much might an AI solution cost?

Not sure if AI is suitable for your business? Innovate UK's Bridge AI programme offers useful resources and support. Not sure what skills you need? Check out the AI Skills for Business Framework from The Turing Institute. Additionally, STFC Hartree Centre's Discover Digital Transformation Training Programme provides guidance and use cases.

Once you've determined that there's a viable opportunity to use AI, you'll need to research and select a solution that effectively matches your needs.

There are lots of resources available to inform this process and help you make the right decision for your business. This support can be accessed by visiting the Adoption Stages Framework page.

Learning about how AI solutions are being used across different industries can also provide inspiration. In construction, for example, AI solutions are being used to improve the efficiency of compliance control and quality assurance processes. This includes streamlining how companies retrieve information and assisting with real-time process monitoring.

While the rise in AI solutions often allow for greater decision making, it can be challenging to identify the right model or solution for your specific use case. Make sure to evaluate the feasibility of your AI solution and consider its potential impact for your particular business and sector.

Be realistic about what you can achieve and align any AI initiative with your company's strategy. The BridgeAI programme has worked with Digital Catapult to develop an assessment tool to assess your readiness for management change and digital transformation.

Stage 2: Data

This stage refers to the process of sourcing, collating and storing data in order to build, test and train AI models. This must be done safely and securely, with as wide a range of information as possible.

Adopters will need to address data challenges early within this preliminary stage in order to encourage trustworthiness later on. Remember, an AI solution is only as good as its source data; worthwhile output can only be achieved through rigorous testing and strict quality checks during development.

Gaining access to quality data from reliable sources is one of the biggest concerns for AI deployers. Collecting information can be complex, especially as far as safety and copyright is concerned. Be vigilant and check every source or reference for licensing and privacy regulations.

This is especially true if you're working within the creative sector as a journalist, publisher, content creator, or video production company. In fact, the editorial and content management sectors face numerous challenges concerning the ethical implementation of AI.

So far, there are no universal rules when it comes to content guidelines, data collection or label processing. This means there is a distinct lack of industry-established copyright laws that protect content from infringement or replication.

However, organisations often share common ground in how they approach AI governance, and support is available to help make sense of it.

There are often reservations surrounding data privacy and open communication too.

For example, in the transport sector, gathering information on a regional and international level will be logistically taxing, and is limited to the equipment and sensors being used on a case-by-case basis. You may run into similar data sharing challenges like this in other sectors.

When developing your AI model, be wary of industry-relevant challenges and anticipate them ahead of time. For more information on how to source and collect data correctly, visit the Innovate UK BridgeAI programme page.

Stage 3: Build

This stage refers to the actual creation of an AI system. Once a company has gathered all the necessary data, it can begin training, testing and building out its AI solution. The biggest challenge at this stage is ensuring that any model used or tested is consistently trustworthy, safe and reliable.

AI models are developed with algorithms and methodologies that will influence their behaviours and content output. Your choice of AI and ML technology depends on a number of factors, including the type and amount of data available, computational resources and performance required.

MLOps, DataOps and DevOps can all be used to effectively deploy AI solutions. Each of these refers to machine learning operations, data handling and processes that improve a business' chances of successfully delivering applications and services.

The build stage usually requires evaluation of your AI to check for consistency and quality. While not suitable for all types of AI application, human feedback and assessment can prevent accidental feedback loops and unintentional output biases.

Some businesses choose to openly publish their data sets and solutions, whilst others utilise a closed model. Whether an organisation uses a closed or open model is entirely up to them, and changes on an individual basis.

Visit the BridgeAI website for further support in building your AI model, the adoption process and how to transition to AI solutions.

Stage 4: Implement

The final stage is focused on deploying your AI solutions and beginning a process of ongoing maintenance and improvement.

Once a business has collected datasets and built a model, it can then evaluate and assess the performance of its AI over time. As data characteristics can change, output will constantly be evolving.

Providing consistent evaluation means that a business can ensure its solutions are performing well and adhering to shifting industry standards. End users, such as consumers of an AI's output or other departments within a business, should also be confident that a solution is operating correctly, which requires frequent support and objective assessment.

Here are a few things to consider during the implementation stage:

- Is an audit necessary to thoroughly evaluate your solutions?
- Is your AI adequately integrated into your software or hardware?
- Are your AI models complying with current industry regulations?
- Are you regularly updating your models and keeping data up to date?
- Have you ensured that your AI models remain robust and secure?
- Is there room to refine and scale your AI solutions upward?

Implementing AI into a company's operations requires training, education and resources. Teams within the business will have extensive knowledge on the purpose of their AI solution and how it will impact workflows and output. Feedback is often collected from users and an active effort is made to gauge how effective and useful AI models are over time.

If you're working within the transport sector, for example, you could use AI to improve traffic planning and optimise delivery routes for retailers; begin testing your model on small-scale projects and analyse the results in real time.

Were traffic levels reduced? How much quicker was the planning process compared to traditional methods? Could your team effectively predict traffic demand and adapt accordingly? Consider asking employees for feedback and utilise this information in future revisions.

As a business becomes more accustomed to AI solutions within its team, it may find there are opportunities for expansion or upscaling that could better leverage the technology. Over time, AI models have access to larger datasets and resources which, in turn, create even greater impact within a business.

For more information on AI implementation, visit the official BridgeAI website. We'll provide extra support and guidance to help you realise your ambitions. Digital Catapult's assessment tool can also help provide further information on AI adoption.

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Which challenges occur across all adoption stages?

Each aspect of the adoption process brings its own unique challenges, but some elements of AI development and deployment will be relevant across all stages. You'll need to consider these throughout your AI journey. They may need to be addressed differently depending on your current adoption stage, but all should be acknowledged regardless.

Trustworthiness and AI ethics

AI development is still in its infancy. There are valid concerns surrounding its effectiveness, biases and ethical deployment.

You must consider the ethical consequences of your AI models and evaluate how they will impact both your team's morale and productivity. Are your AI solutions quickening admin processes and bridging gaps in your team's skills? It's important to reassure your staff that AI solutions will support and improve their processes.

Following an established ethical code holds designers and implementers accountable for the moral agency that new, smart AI solutions fundamentally lack. Understanding the FAST track principles and familiarising your team with its four key pillars can help to keep track of your AI adoption process and ensure you're operating responsibly.

The FAST track principles refer to fairness, accountability, sustainability and transparency within AI development and implementation. All pillars are connected but not of equal importance or priority.

Transparency and accountability refer to the methods in which your solution can be justified and examined, while fairness and sustainability are tied to the design, implementation and outcome of the systems used to create your AI product.

Be sure to use any AI models ethically and intentionally, and regularly review data sets, model output and overall company impact to ensure trustworthiness. While AI regulations such as the FAST track principles are still largely rudimentary, they must be followed at all stages of adoption.

You'll need to identify the correct models and technologies to utilise when undergoing AI implementation. Be wary of biases that can crop up from incomplete or narrow datasets.

For more information, you can read a comprehensive report on the core principles of trustworthy AI made in collaboration with BridgeAI and Trilateral Research here.

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Establishing and training a skilled team

Creating or deploying an AI model will be ineffective without the right team at the helm. You'll need to educate and train your staff to use AI intentionally and appropriately in order to maximise its potential impact. This is true at all stages of adoption.

Building a knowledgeable team that can handle AI technology is vital to success, especially as your models are routinely updated once implemented. Dedicate time within your schedule to train employees on the ins and outs of your solutions and ensure they feel adequately equipped to use it on a daily basis.

Introducing standards and best practices

With AI's growing presence, international standards, such as ISO/IEC 42001, help ensure its responsible deployment, addressing fairness, transparency, and safety concerns. While not intended to address any particular regulatory requirements, it forms a foundation for potential conformity assessment and third-party certification and increases consumer trust.

There is a large ecosystem of AI standards published and under development that support the responsible deployment of AI, either by providing in-depth content on a topic or by providing sector-specific guidance.

Adopting standards early on will allow your team to build trust among stakeholders by ensuring accountability in the responsible creation and utilization of AI tools and solutions. BSIs BridgeAI Standards Community, supports UK businesses in adopting AI responsibly and ethically. It provides insights on key standards that support the development/adoption of AI, research, webinars, and case studies.

Promoting collaboration and sharing between teams

Getting to grips with AI development is tricky, even at the best of times. When implementing AI solutions into your business, it's best to encourage open, collaborative work between employees from different divisions.

If you're in need of additional support in understanding the AI skills and competencies your team might need, read the AI Skills for Competency Framework and Resources overview here.

For more guidance and support on upskilling your team and building AI competency, read our guide.

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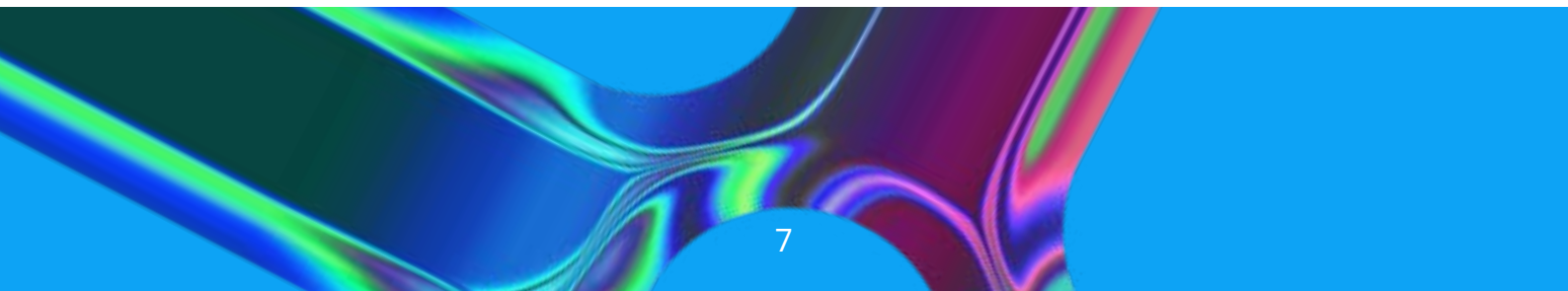

Learn more about the Adoption Stages Framework

If you're in need of support to get your AI solutions up and running, there's plenty of help available through the Innovate UK BridgeAI programme.

BridgeAI aims to alleviate the adoption of AI, enabling businesses to maximise the potential of innovative, automated solutions throughout their operations. Business owners can access expert support, cross-sector knowledge and use assessment tools to determine where they are in the adoption process. Learn more about how BridgeAI can help here.

For more thorough analysis and analytics, use Digital Catapult's AI adoption assessment toolkit. It's designed for startups, scaleups and SMEs to better understand how to successfully implement AI into their business.

This toolkit can be used to evaluate your organisation on a range of factors. These include leadership, AI readiness, digital maturity, data readiness and data ethics. Find out more here.

Once you've determined which stage of adoption you're currently in, you can start to build an effective implementation strategy. This useful infographic outlines all the four key stages, including common challenges and opportunities – download it now.

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