



# Best Practices in AI

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# Best Practices in AI - Summary

An introduction to what we're doing

An update on progress

# Motivation

Room for 5-10 fold  
increase in graduate  
training

118m skills package

UK is behind in AI skills  
business leaders identify  
skill gap

Lack of AI skills key barrier  
to adoption of AI in  
government

Technical skills gate 35%  
of firms from reaching  
business goals

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Press release

## **Britain to be made AI match-fit with £118 million skills package**

The UK's AI skills base will be future-proofed with a £118 million boost to skills funding, including postgraduate research centres and scholarships.

source: Government press release, (31 October 2023)

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Since the AI Review in 2017, the government has invested significantly in schemes to promote graduate-level learning through Apprenticeships, Masters courses and PhD training. This is a good start, but only that. Current demand to justify a five to tenfold increase in places compared to the numbers in the *AI Review*.

source: AI Council Roadmap, (2023) (emphasis added)

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source: AI Council Roadmap, (2023) (emphasis added)

- 15% of UK companies can be classified as advanced 'AI pros', compared to 23% of Global companies
- 52% of UK employees are using AI to work faster and smarter, compared to 69% of employees Globally
- 35% of UK business leaders foresee an AI skills gap in the next two years. 28% say we already have one
- Only 17% of UK employees are being re-skilled for AI, compared to 38% Globally

source: Mirosoft AI Skills in the UK report (2020)

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### Current skills and skills gaps

Technical skills gaps were a concern for many firms. A third (35%) said that existing employees lacking technical skills had prevented them from meeting their business goals, and 49% said that job applicants lacking technical skills had done the same. Some employers said that it had restricted or slowed their growth, or prevented them from moving forward with projects. Combining these results indicates that 62% of firms had faced problems with technical skills gaps, which was similar to the cyber sector (64%).

source: Ipsos MORI report in UK Artificial Intelligence labour market, on behalf of DCMS, (2021)



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# Scope

Current approach: excellent

Proposal: Can we take this success and apply it to *existing* engineers?

- Help navigate AI and Machine Learning
- Transfer highly relevant skills into this new field

# Format

Get involved with Techworks best practices in AI [here](#)



Techworks Best Practices in AI v0.5.0 documentation



## Using this guide: The 5 questions

This guide will help you answer 5 questions step by step:

- Should I use AI/ML?
- How do I define my AI/ML project
- How do I collect data?
- How do I train my AI/ML application?
- How do I deploy my AI/ML application?

# Format

Requirement	Evidence	Complete
<a href="#">Collecting your Data Set</a>	•	
<a href="#">Version Control, CI/CD for Data</a>	•	
<a href="#">Documentation</a>	•	
<a href="#">Logging</a>	•	
<a href="#">Data Exploration</a>	•	
<a href="#">Data Cleaning</a>	•	
<a href="#">Validation and Testing</a>	•	

# Format

## How do I collect data for my AI/ML project?

### Collecting your Data Set

#### Defining the Plan

The first step in creating our AI application is to create and (with caveats) implement a plan to collect a dataset to drive your AI application. The plan will include:

- What data you are going to collect
- Where/whom you are going to collect it from
- How you are going to do this

The best way to initially approach this is to approach it as you would any novel software problem: do not reinvent the wheel and never build anything yourself that you could fairly appropriate from somebody else. There are many free datasets for a wide range of problems publicly available. Observe what types of data others who are solving problems similar to you have collected, and what you can learn about the datasets they used. It may be appropriate in the first instance, and if a suitable dataset exists, to initially use a public dataset and iterate. If you do use other datasets, do make sure you respect the licenses that may come with them.

In most business cases, you will at some point end up collecting your own data. Even if you don't, it is important to be aware of what kind of data is desirable for AI and machine learning, and what kind of data is not. When looking at potential data, some key criteria to consider are:

- Accuracy
  - Does the data accurately measure a quantity you are interested in?
  - Not all data can be trusted. Data from questioning human participants for example, can be inaccurate and contradictory.

# Current State

- Alpha Version Complete & Available Online
- Basic workflow for each question
- Still lots of valuable content to add overall

# We need you



Source: AI Generated with  
StableDiffusionXL  
Prompt: We need YOU with a robot pointing at the viewer

- Alpha Version is live
- Small group meeting once a month
- We need contributors!

# We need you



Source: AI Generated with  
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Prompt: We need YOU with a robot pointing at the viewer

- Technical contributors
- Reviewers & Feedback welcome!
- <https://techworkshub.github.io/best-practice-guide/>



Website:

[techworkshub.github.io/best-practice-guide/](https://techworkshub.github.io/best-practice-guide/)

Get in touch:

[william.jones@embecoscsm.com](mailto:william.jones@embecoscsm.com)