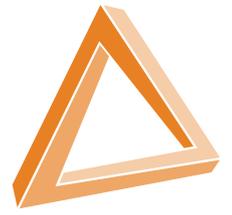


AI Readiness Diagnostic Findings



Step 7: Recommendations



Step 7 Overview

To find out how **you** can benefit from examining your institution through a 'data and AI lens', contact our AI & Data Science team at hello@educateventures.com

- The step in the ETHICAL AI Readiness framework without a letter in the acronym, Step 7 - Iterate - is included to keep you and your colleagues **learning**
- You should repeat steps 1-6 in the framework as many times as you need to, to increase your confidence that the findings from the application of AI are **correct** and **effective**
- We can always **learn more** about the problems and challenges that we face as teachers or educational business owners and developers by exploring the relevant **data**, applying **AI thinking** and **AI tools** and **AI techniques**
- Once you see the problems and challenges that you face in your educational setting through a **data and AI lens**, then you will be able to make better **decisions** about how these problems and challenges can be **addressed**, and you can learn more about **AI** in the process

• Key Takeaway:

- Unless you take your time to probe, prod, deconstruct, and scrutinise the **problem**, it will be **all too easy** for you to be persuaded that, for example, an AI product that automatically does marking for teachers is the **solution** in that particular context. AI is extremely accurate and fast. It uses absolutely the latest and most sophisticated deep learning to produce its marks
- However, in this example, if the real problem is about the **quality** of feedback that pupils require, then an AI marking product is **not** going to help you. Similarly, if the **real problem** concerns the **types** of activities and assessments that pupils are required to complete, then the AI marker is not going to crack that problem either. And if the **cause of the problem** lies in the need for them to be able to **explain** and **justify** their **decisions**, then forget the AI marker, no matter how fast and accurate it is, as it will not be able to help you when it comes to **justifying and explaining** the marks it has **allocated**, let alone why they support a decision to revise a student's **learning goals**

Recommendation: Apply what you have learned

SUMMARY: the AI Readiness Framework's 7th step is to **iterate** on the **practices, processes, knowledge** and **findings** that have come before, with the chance that you **might improve on them all**

- The **AI Readiness Framework** is split into 7 steps, and Step 7 is about **iteration**
 - In the previous steps you have been prompted to think about **synthesising** what you have learned from **previous studies, previous interactions with data, previous findings from what people have learned in your organisation**, and to think about how important it is to be able to **access** and **collect** the **widest possible range of different data sources** it is realistic to access and collect
 - We explored the complex **decisions** around the collection of new data, and how we can approach AI, both in terms of **analysis**, but also in terms of futureproofing, discovering how you might apply AI **elsewhere** in your organisation further down the line, and therefore understand it better
 - With this knowledge, how might we use data to understand more about our **challenges** for teachers and educationalists of all kinds? Our fictional challenge was just one example, and highly **context-specific** to the
- Covid pandemic we have all endured. Hopefully using our example, and looking at the kinds of **processing** of the data and the sorts of **questions** we would be able to **probe** that data for, has helped you think about your own **challenge**, your own **data**, and the sorts of ways AI might help you
- For most people, **actually applying the AI techniques mentioned in the previous steps** is going to be something **not** within their skillset, and it may be that the same is true for the earlier stages of **cleaning** and **preparing** the data. But if you can complete the other steps in the **AI Readiness Framework** for your challenges, for your organisation, then you can bring in experts, such as the [EDUCATE Ventures Research AI & Data Science team](#), to help you with that **cleaning** and **processing** and **learning**
 - You may even be in a position to **upskill** yourself, or one of your colleagues, so learning how to do many of these aforementioned processes may not be impossible under the **guidance** of an organisation like EVR, and your organisation would benefit greatly from your new **knowledge** and **expertise**
 - Step 7 of the framework is to **iterate**. We now ask: **why** do we need to go through this process again and again and again to understand? Can we **afford** the **time** it takes to do that?



Recommendation: What next?

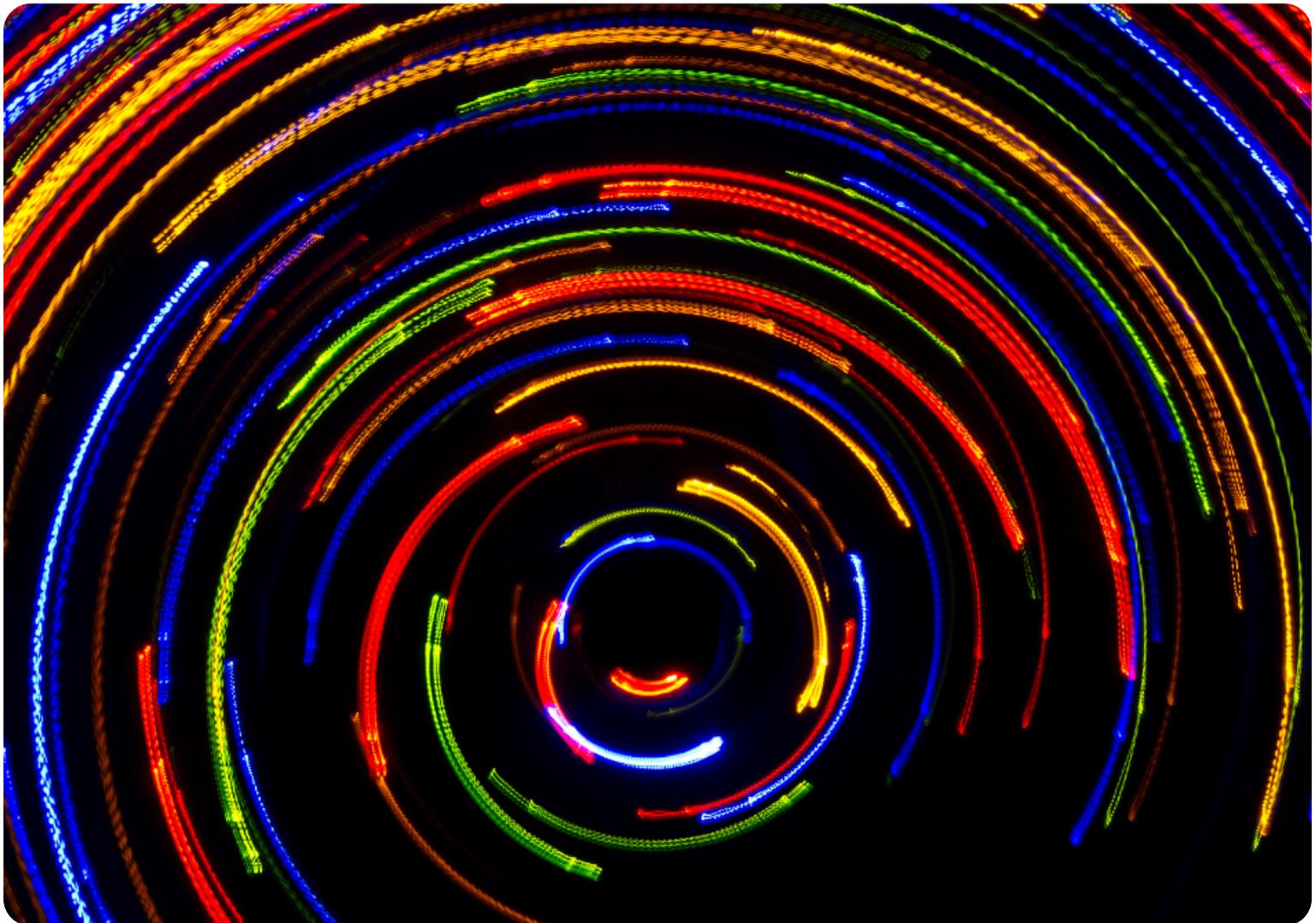
SUMMARY: three recommendations to perfect your understanding and your approach to solving your challenges with AI and data

- The seventh step is both the **end** and the **beginning**. What does it mean to **iterate**?

1. Firstly, it means you should keep **learning**. **Repeat each of the steps from one to six as many times as you need to for you to be confident in your AI Readiness**
2. Secondly, it indicates that AI Readiness is an **ongoing** endeavour. **We can always learn more about the problems and challenges that we face as teachers by exploring the relevant data, applying AI thinking and AI tools and AI techniques**. Once you see the problems and challenges that you face with an **AI mindset**, then you will be able to make better **decisions** about how these problems and challenges can be addressed. You will also know if there is a

possible **role** for AI in the **way** these challenges are tackled

3. Thirdly, **unpack all the assumptions that are part of the challenge or problem you want to solve**. You must understand the **precise nature** of the challenge or problem if you are really going to reach a **solution**. **Data** and **AI** are your 'friends' as you unfold the **layers** and unpack the **nuances** of your challenges
- Professor Rose Luckin, coauthor of these recommendations and the book '[AI for School Teachers](#)', studied AI at university, and at the time it was a subject that was fundamentally about **solving problems intelligently**. She worries that this particular aspect of AI has become somewhat **overshadowed** by the hype around **deep learning AI**³ and how it is going to revolutionise everything. It is the **problem-solving aspect** of AI that is still the most important, however
 - Use the AI Readiness 7-Step approach to get intimate with your data, cosy up to your assumptions, and "make friends with AI". **You will reap the benefits for a long time to come**



Recommendation: Ethics

SUMMARY: *ethical implications must be considered at every turn in the use and development of AI solutions. If they are not, harm can be built into the system that when scaled, creates scaled harm*

- Ethics has been a constant **theme** throughout the AI Readiness recommendations and **ethical AI** is essential when it comes to education; it must always be at the centre of any **development** and **decision-making** concerning AI
- The **Institute for Ethical AI in Education (IEAIED)** produced a set of **9 objectives** that it recommends are adopted when the use of AI is considered in an educational setting:
 1. **Achieving educational goals** - AI should be used to achieve **well-defined educational goals** based on strong societal, educational, or scientific **evidence** that this is for the **benefit** of the learner
 2. **Forms of assessment** - AI should be used to assess and recognise a broader **range** of learners' **talents**
 3. **Administration and workload** - AI should increase the **capacity** of organisations whilst respecting human **relationships**

4. **Equity** - AI systems should be used in ways that promote **equity** between different groups of learners and not in ways that **discriminate** against any group of learners.
 5. **Autonomy** - AI systems should be used to **increase** the **level of control** that learners have over their **learning** and **development**
 6. **Privacy** - A balance should be struck between **privacy** and the **legitimate use of data** for achieving well-defined and desirable **educational goals**
 7. **Transparency and accountability** - **Humans** are ultimately responsible for educational outcomes and should therefore have an appropriate level of **oversight** of how AI systems operate
 8. **Informed participation** - Learners, educators, and other relevant practitioners should have a **reasonable understanding** of AI and its **implications**
 9. **Ethical design** - AI resources should be designed by **people who understand the impacts these resources will have**
- Each of these objectives has a set of **criteria** and a set of **associated questions** for you to ask yourself, your colleagues, and the company wanting to sell you their AI - see below for these



- For example, Objective 1, “**achieving educational goals**”, has the following **eight associated questions**. The text in brackets indicates the point in time at which the question is **appropriate**:
 1. Have you clearly identified the educational goal that is to be achieved through the use of AI? (**Pre-procurement**)
 2. Can you explain why a particular AI resource has the capacity to achieve the educational goal specified above? (**Pre-procurement**)
 3. What impact do you expect to achieve through the use of AI, and how will you measure and assess this impact? (**Pre-procurement**)
 4. What information have you received from the suppliers, and are you satisfied that the AI resource is capable of achieving your desired objectives and impacts? (**Procurement**)
 5. What information have you received from the suppliers, and are you satisfied that measures of student performance are aligned with recognised and accepted test instruments and/ or measures that are based on societal, educational, or scientific evidence? (**Procurement**)
 6. How will you monitor and assess the extent to which the intended impacts and objectives are being achieved? (**Monitoring and evaluation**)
 7. Can the supplier confirm that periodic reviews are conducted and that these reviews verify that the AI resource is effective and performing as intended? (**Monitoring and evaluation**)
 8. If the impacts of using AI as intended were not satisfactory, why was this the case? What steps will you take in order to achieve improved impacts? (**Monitoring and evaluation**)

Who can help me?

We are specialists in **ethical AI solutions** for schools and education and training businesses - **contact our team for help**

The EDUCATE AI and Data Science team was formed to consult on and co-design ethical AI solutions to complex problems in data-driven technology ventures and schools. Our team of computer scientists, educationalists, and world-renowned experts can take you from zero AI to a comprehensive evidence-led strategy and beyond, with effective, scalable AI-powered teaching and learning solutions.

To find out how you can benefit from examining your institution through a '**data and AI lens**', and leveraging the transformational power of AI to tackle your challenges, contact the **AI and Data Science Team** at EDUCATE Ventures Research at hello@educateventures.com.

Thanks for reading!

- The EDUCATE Ventures Research Team
Summer 2022

Further Reading

Below you can find a selection of resources, books, podcasts, webinars, and research papers appropriate to your stage of AI Readiness. Good luck!

- [AI for School Teachers, Byte-Sized Edition](#)
 - An easy-to-read 10-page byte-sized summary of the book of the same name, written by Professors Rose Luckin, Mutlu Cukurova, and Headteacher Karine George, members of the senior team actively developing and using the AI Readiness Framework from which these recommendations derive
- [Tes Pedagogy: AI in Schools](#)
 - Worried about artificially intelligent machines seeping into education? Hear from the experts on what it might mean for teacher's jobs
- [AI is Coming: Use It or Lose to It](#)
 - To ensure their place in the schools of the future, educators need to move on from a knowledge-based curriculum that could soon become automatable through artificial intelligence and focus, instead, on the things machines can't teach, says Professor Rose Luckin
- [Make the Robots Play by Your Rules](#)
 - Artificial intelligence has huge potential in education but we must ensure that is used ethically, argues Professor Rose Luckin
- [How to Recognise AI Snake Oil](#)
 - Princeton University's Centre for Information Technology Policy Associate Professor of Computer Science, Arvand Narayanan talks through a slide deck of AI claims and how to recognise what's actually happening
- [AI Readiness: Step 7 webinar for Educators/Businesses](#)
 - Two separate webinars introducing Step 7 of the AI Readiness Framework, one targeted toward educationalists, and the other targeted to educational businesses
- [Review of Publicly Available AI Ethics Tools, Methods and Research to Translate Principles into Action](#)
 - The debate about the ethical implications of Artificial Intelligence dates from the 1960s. However, in recent years symbolic AI has been complemented and sometimes replaced by (Deep) Neural Networks and Machine Learning (ML) techniques. This has vastly increased its potential utility and impact on society, with the consequence that the ethical debate has gone mainstream
- [AI for School Teachers](#)
 - The complete book on the AI Readiness Framework, specifically for teachers and headteachers in schools. It will help teachers and heads understand enough about AI to build a strategy for how it can be used in their school. Though it is pitched to teachers and contains familiar examples, the approach should still be used by education and training organisations

