



Artificial intelligence technologies in Cochrane

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This web clinic will cover...



How Cochrane currently uses machine learning: implementing innovative technology



What generative artificial intelligence is, the opportunities it brings and the challenges regarding its safe use



Cochrane's approach to establishing guidelines for the responsible use of artificial intelligence in evidence synthesis





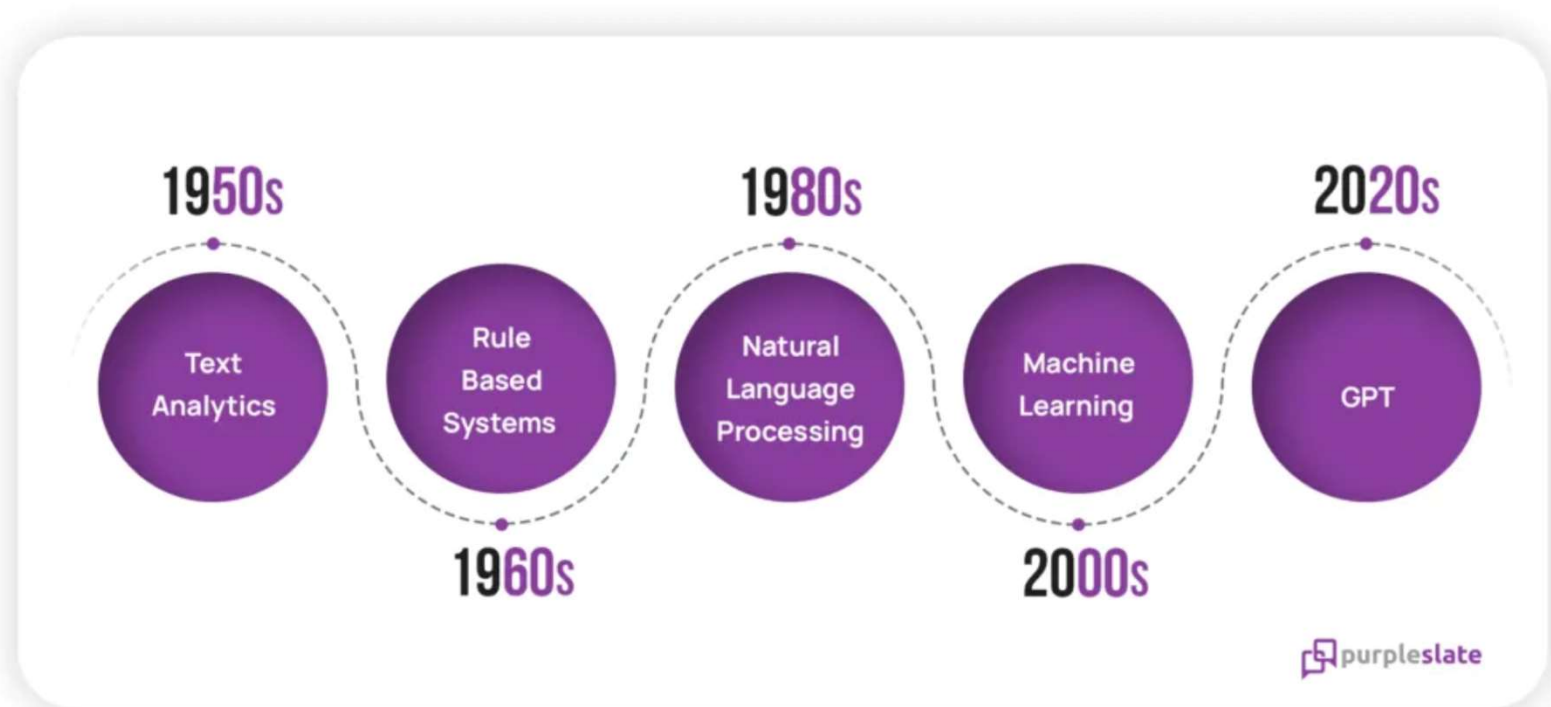
Definition

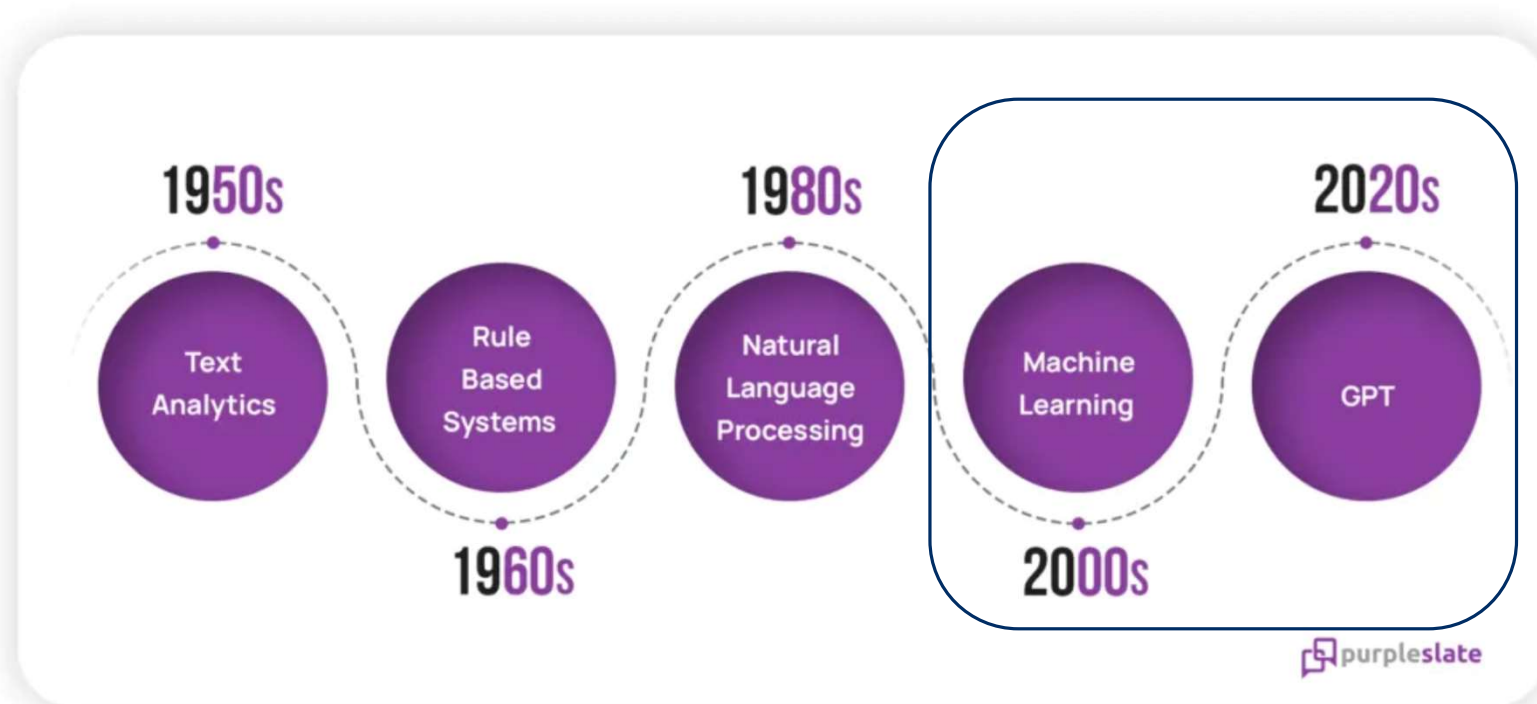
Artificial intelligence means different things to different people.

Automation is possibly a more helpful term as it can be broken down into different types of automation for helping to solve a range of problems or improve a range of activities.

Ways to automate tasks and activities currently performed by humans.

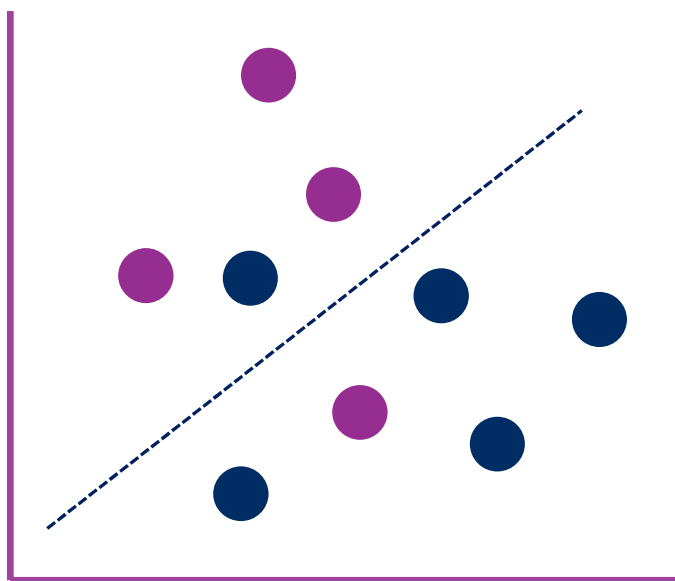






We've been actively engaged with machine learning for a decade now

Machine learning



Building machine learning classifiers from high quality training data that can distinguish between different classes of things (e.g., RCTs for Non-RCTs).

Good for certain types of problems or questions (those that have a clear answer).



Machine learning in Cochrane



Machine learning in Cochrane



Comprehensive repositories and Screen4Me



CENTRAL and C-19 Register

Comprehensive repositories of studies



Screen4Me

Used in over 200 Cochrane reviews;
50-70% reduction in screening





Implementation of new tech

The *development* of innovative technology and the successful *implementation* of it are two different things.

We can see the potential of generative AI.

What we need to know is how to make the most of it.





Implementation of new tech

New potential automation capability recognized



Implementation of new tech

New potential automation capability recognized

Will it potentially make a significant enough difference to current practice?

>Evaluations of performance critical in helping to understand the role the technology could play

For the machine learning classifiers we considered:

- Accuracy
 - Recall (prioritized)
 - Precision
- Workload reduction
- Generalisability
- In-depth analysis of weak points (aka ‘missed’ studies)



Implementation of new tech

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Where could it be implemented?

> *Full/partial replacement of existing activity or creation of new part of the process*



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How could it be implemented?

> *From full integration (e.g. available from within RevMan etc) to separate but interoperable*

- *Who should have access to them and how?*
- *What expertise level is needed to use the technology?*
- *How and what guidance/support on use could/should be provided?*
- *What flexibility should be enabled for tailoring use (e.g. ability to change cut-points)*
- *How do manage versioning of the tool?*



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How has it been endorsed or approved for use?

> *Appropriate endorsement by Cochrane groups (e.g. Methods Groups, Review Groups) and approval by Cochrane*



Hype cycle

The cycle repeats with each new version/each new model

