

OPERATIONALISING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING



Common Misconceptions of Artificial Intelligence (AI)

Many organisations think AI is a ‘plug and play’ technology that will deliver immediate returns right from deployment. It is not as easy as this, and in reality, it all depends on which type of AI an organisation is using and the type of challenge it is looking to overcome by implementing it.

Take Machine Learning (ML) as an example. While organisations may initially decide to adopt the technology to help identify patterns in their data and solve pressing problems, this doesn’t happen overnight. IT teams will have their work cut out before the business ever begins to see value.

For any kind of usable insight or data pattern to be generated from an AI machine, it must first be properly trained how to spot them.

Organisations will need to feed their AI with reliable, labelled training data, most of which should be sourced internally but could also be purchased from a data marketplace or acquired via publicly available sources.

The most important thing is ensuring any data fed into the AI is accurate and of high quality, and so the first step for organisations embarking on an AI strategy is operationalising the data within their own organisation.

Making Data Usable

For data to deliver value, it needs to be usable. Quality matters. It is not enough for organisations to just collect information, they need to properly categorise, cleanse, and manage it appropriately, ensuring data uniformity on an ongoing basis.

The first step is to gain an understanding of exactly what data is currently held. Look to answer questions like: what system is the data on? How is it formatted? Which departments have access? Are there any errors or duplications?

From there, creating a common ‘key’ that helps to link data

across different systems or within the same systems is beneficial, before cleansing and enriching it to ensure it is accurate, complete, and usable.

Implementing AI into an Organisation

Before an organisation can successfully implement AI, it must first ensure it is able to understand the data and how well it can be applied to solve the problem at hand.

Successful AI implementation also requires agility. Organisation leaders should empower their teams to experiment with the technology, giving them a safe space in which they can get things wrong and try again.

Providing the freedom to try different technologies and tools is also key. For instance, organisations could investigate whether adopting cloud services can accelerate experimentation and outcomes of new AI investments.

When businesses or organisations are thinking about measuring the returns they’re getting from AI, they need to ensure they’re looking at the bigger picture. It’s not just about how accurate the model is, but whether it meets a number of other objectives such as improved end user experience, performance, security, and compliance to regulation.

Feeding AI the Right Information

It is critical to feed AI with the right information, as, for example, ML models learn solely based on data that is presented to them. Organisations that improperly train their data models run the risk of receiving inaccurate predictions or confusing conclusions. It is best to use ‘representative’ data that reflects the characteristics of the real world and real people, as this gives the model the context it needs to recognise human patterns and make informed predictions.

Organisations must also remember that any changes in behavioural patterns must also be addressed, and ML models must be retrained with new data.

For example, over the past 18 months we have seen a huge shift to remote working in the UK. ¹Figures from the ONS published in July 2020 show that almost half (46.6%) of the entire population did some work from home because of the pandemic.

Naturally, this has had an impact on how much gas and electricity customers are using. Without retraining ML models to recognise that a change in customer behaviour has taken place, they will not be aware of the shift and will continue to make inaccurate predictions on future usage and bills.

Since there's no such thing as a future-ready model, it is the organisation's responsibility to give it the information it needs to remain effective in the future and to continually evaluate and assess the model's effectiveness.

This could come as part of an MLOps-style approach; borrowing from the spirit of the DevOps and Agile Development principles. MLOps is a continuous improvement process which sees cross-functional teams collaborating, continually improving and ultimately, driving better quality outcomes from the application of ML.

However, training ML models is just one piece of the puzzle. Success or failure also depends on how they are embedded and operationalised by organisations.

This could mean adopting cloud platform-as-a-service (PaaS) and software-as-a-service (SaaS) models to ease the burden of building and maintaining the infrastructure, or partnering with other companies who may have data and models that can be integrated into the solution to accelerate and enhance it.

Expected Returns from Successfully Adopting AI

The returns from using AI and ML to make sense of any organisation's data are limitless. This doesn't just mean using it to help build showy front-end services to satisfy today's constant customer demand for new products and services though. It means using AI technologies to deliver operational benefits that shine a light on inefficiencies within an organisation, highlighting problems that may have previously not been known about, let alone attempted to be solved.

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¹Homeworking - Office for National Statistics