Artificial intelligence: Why understanding AI is key to your investment strategy

And how commercial
due diligence
can help

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What is Artificial Intelligence (AI) and How does it work?

There is no one size fits all answer, but in its most simple form, AI refers to the development of computer systems that can perform tasks typically requiring human intelligence. AI can range from simple reactive systems that respond to defined inputs, to more complex systems that learn from data and past experiences and make decisions based on that learning.

AI works by using algorithms to process data, recognise patterns, and make decisions. Algorithms, in the context of AI are the building blocks that enable machines to process and learn from data and make decisions.

Why is it important to understand?

The term 'AI' gets thrown around a lot without a clear definition (often hunting a higher valuation). This can lead to confusion, overpaying for AI-driven companies, or diluting the expression of their value proposition and competitive positioning.

To stay competitive, it's crucial to really understand what AI can do, spot new opportunities, and avoid falling behind firms that are already using it smartly. Having a clear grasp of AI helps make smarter investment and operational decisions.

What are the different types of AI?

AI generally falls into four categories: reactive, limited memory, theory of mind and self-awareness. Most AI today operates with limited memory, which allows systems to learn from past experiences – this is what most people think of when they hear 'AI' and is common in low- to mid-market M&A. While the focus is shifting toward more advanced AI, reactive AI, which doesn't learn from past data, still plays a foundational role in many applications and will continue to be relevant (if not core) for many targets and portfolio companies.

What is AI used for?

AI has a myriad of use cases and applications, but they quite neatly fall into three main outcomes: (1) cost saving, where it boosts efficiency and reduces labour costs; (2) enhancing a value proposition, enabling new or improved services that may differentiate customer experience; and (3) disruption, where AI combines both to reshape markets, such as AI-powered translations reducing demand for human interventions or chatbots, streamlining customer service.

Which sectors are most affected by AI?

Estimating AI's impact is challenging and changing rapidly, but according to the previous Conservative government, 10-30% of UK jobs could face automation in the next two decades. The consensus is currently that professional, white-collar jobs are likely to be most affected. This may not however result in redundancy (at least initially), with AI mostly automating routine tasks.

What regulation is affecting AI and investment in AI?

The UK is currently void of AI regulation, but it is addressed through privacy laws (like UK GDPR). The previous Conservative government supported a pro-business approach whereas the current Labour government plans to introduce stricter regulations.

Executive Summery

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Evaluating AI can be tricky. RPL has established its own definition of AI to ensure us, our clients and management teams are on the same page from day one

"Artificial Intelligence refers to software that, independently of human intervention, has the ability to carry out multiple steps to make decisions or complete tasks ranging from simple processes to simulating human-like intelligence and beyond. More advanced systems must be able to adapt and improve (or colloquially 'learn')." – RPL

Why is it important to understand AI?

Demystifying AI is a crucial step

AI has become a buzzword used across industries, and private equity is no exception. From portfolio company operations to deal sourcing tools, AI is touted as a game changer.

However, the lack of a clear definition surrounding AI can create confusion and potentially lead to overpaying for, or undervaluing of, the technology.

However…

Concerns have emerged over the UK's AI position after the previous Conservative government's £1.3 billion funding was withdrawn, with the Labour government committing only £32 million to AI projects. In July 2024, a wave of scepticism about the long-term profitability of large AI investments by tech giants (like Microsoft and Google) led to a dip in their share prices. Despite the initial impact, there was a rebound in share values.

The market is sizeable and set to grow

The combined market valuation of the UK AI sector in Q1 2024 was around £72.4bn and machine learning startups made up 22% of UK technology investment, up from 12% in 2019. One in two tech companies are using AI to improve their current product offering and the UK is the third largest AI market in the world, after the U.S. and China.

Understanding AI (or partnering with someone who does) is crucial to:

- Make sure you pay the right amount for a target utilising AI.

- Capitalise on revenue opportunities in your portfolio.

- Benefit from operational efficiencies in your portfolio.

- Mitigate economical, security, and social risks.

- Anticipate AI's influence on your market and competitors.

- Not fall behind firms already investing in AI.

The term "AI" often gets thrown around!

Vendors may label anything with a hint of automation as AI, making it difficult to assess the true capabilities of a product or service. Your due diligence provider should have clear knowledge of AI and their own definition, so that they can accurately assess AI-powered solutions.

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Sources: 1,2,3,4,5,6,7,8

1

Reactive AI

These are the earliest forms of AI that do not possess memory and cannot learn from past experiences

- AI that can perform intelligent tasks by processing data and making decisions based on predefined rules. While it doesn't learn from past experiences, it can handle tasks that require decision-making and problem-solving.

- An example of this is IBM's Deep Blue, a chess-playing computer, that made decisions solely based on the current board state without learning from past games, demonstrating reactive AI without any use of limited memory.

2

Limited memory

Limited memory AI represents a more advanced form that uses experience to inform future decisions

- Limited memory AI adapts to new data or experiences – although any learning is usually relatively simple and focused on specific tasks.

- One example of this is speech recognition, used in Siri and Alexa. More than 4 billion devices use limited memory AI to understand and respond to user commands. They improve their accuracy by learning from the user's voice, preferences, and usage patterns.

- Another example is AI used in healthcare diagnostics, improving accuracy by learning from large sets of historical patient data.

3

Theory of mind

At this stage, AI can understand and interpret emotions and beliefs and adapt to different perspectives

- There are developmental challenges around theory of mind AI, such as the complexity of human emotion and ethical considerations. The companies developing theory of mind level AI are generally very large and well capitalised (like Google).

- Fully-fledged theory of mind AI is still in the research and experimental phase. However, there are some pseudo-theory-of-mind developments such as Hanson Robotics' humanoid robot that responds to emotions and can change its social reaction based on those emotions.

4

Self-awareness

Self-awareness refers to AI that has gained a level of consciousness akin to human awareness

- This level of AI is known as Artificial General Intelligence (AGI). The AI would be capable of understanding its own state, emotions, and thoughts, as well as the ability to reason about its own existence and purpose.

- It is fully theoretical, and no examples exist. It remains to be seen if this will be developed and when. However, there are some large and well establish companies that have a stated mission of developing AGI (like Google, and OpenAI).

Reactive AI plays a foundational role, and while the trend is moving towards more advanced AI, reactive AI will remain relevant to many applications.

Limited memory is what most people think of when you mention AI, and is what we most commonly see in low-mid market M&A.

Theory of mind is thought to be the next frontier of AI development. It is currently not used on a day-to-day basis and is in the developmental stages. However, once advanced, it could heavily disrupt multiple markets, such as customer service, social care, and consumer gadgets.

Self-awareness is completely theoretical and therefore has no current uses – except in films!

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Sources: 1,9,10,11

USE CASES

1 Cost saving

AI is used to improve operations (for example by increasing efficiency or reducing errors) to increase profit margins. A common example is automating routine tasks to reduce labour costs. AI use is for internal purposes (not customer-facing), external marketing is limited, and customer pricing is not directly impacted.

2 Value add

When AI adds value to the customer, i.e. the business is able to offer a new or improved service that it couldn't (reasonably) offer without AI, that (often) justifies premium pricing. An example may include data analysis that without AI would have taken too many man-hours to be financially viable. Not all value-add AI commands a price-increase but may instead provide a superior customer experience and competitive advantage leading to more sales.

3 Disruption

AI is a powerful force for market disruption, merging cost saving and value creation. Companies can use AI to enhance both efficiency, service quality, and cost and thereby disrupt traditional markets. For example, AI translations and transcriptions reducing demand for people services, chat bots reducing the headcount of contact centres, or AI-driven cars (challenging our traditional beliefs about travel and road safety).

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Sources: 1,11,12,13

Your CDD AI value checklist

Are you considering investing in AI, or beginning to recognise how it could impact your business?

Use this handy checklist to keep on top of the questions you should be asking.

We can help fill the gaps, get in touch for more information about how we can help at suzy@rpltd.co.uk.

Investment

☑ Use this checklist to help assess an AI investment

Intellectual property

☐ Where is AI being used in the company?

☐ Is the software proprietary or off-the-shelf?

☐ Is the training data proprietary or from a third party?

Return on Investment

☐ What is the AI's aim: value add, cost saving, or disruption?

☐ Does the value added, or cost saved, outweigh the development costs?

☐ Is there customer demand and, if so, how much are they willing to pay?

☐ What have similar investments achieved at exit?

Quality

☐ What is the quality (depth, breadth and integrity) of the learning data?

☐ What is the quality of the learning process?
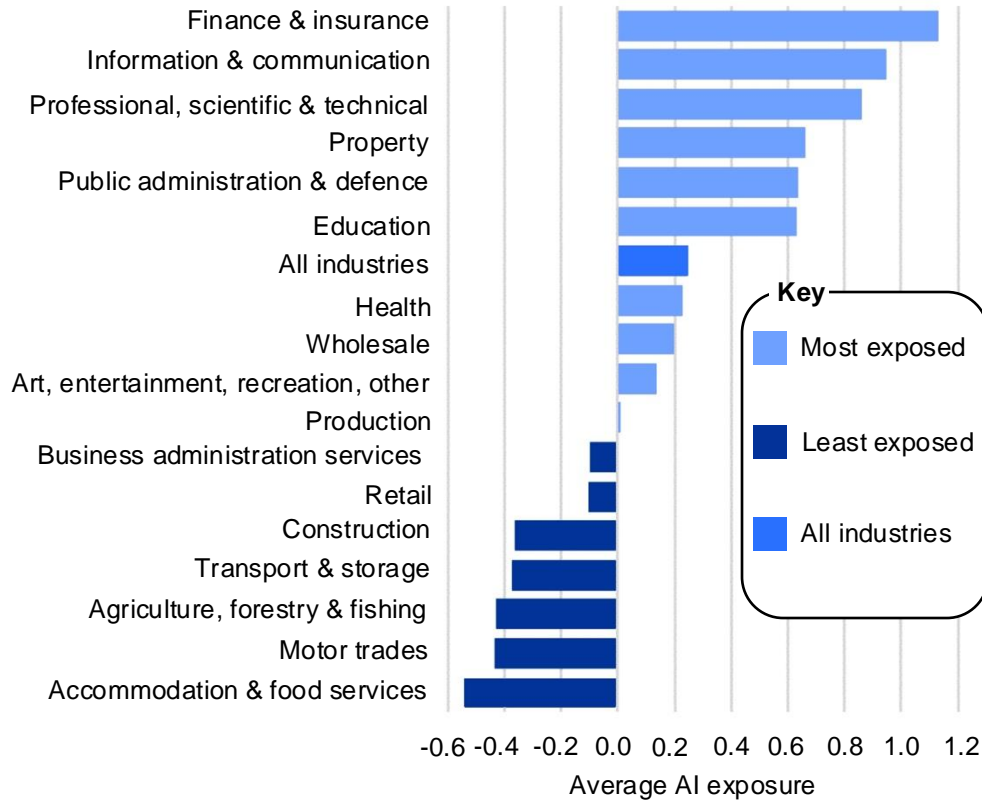
☐ What is the quality of the outcome?

Competitors and defensibility

☐ What are competitors doing?

☐ How technically difficult, expensive, and time consuming would the AI feature be to copy?

Broader considerations

☐ ESG and ethical impacts

☐ Data and security risks

☐ Availability of skilled labour

☐ Long-term impacts

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Exposure to AI by industry, 2023

Industry	Average AI exposure
Finance & insurance	
Information & communication	
Professional, scientific & technical	
Property	
Public administration & defence	
Education	
All industries	
Health	
Wholesale	
Art, entertainment, recreation, other	
Production	
Business administration services	
Retail	
Construction	
Transport & storage	
Agriculture, forestry & fishing	
Motor trades	
Accommodation & food services	

x-axis: -0.6 -0.4 -0.2 0.0 0.2 0.4 0.6 0.8 1.0 1.2
Average AI exposure

Key
- Most exposed
- Least exposed
- All industries

The magic formula

$$\mathrm{AIOE}_k = \frac{\sum_{j=1}^{52} A_{ij} \times L_{jk} \times I_{jk}}{\sum_{j=1}^{52} L_{jk} \times I_{jk}}$$

In 2021, Princeton University and New York University developed a formula that weighs an AI application's ability against its prevalence and importance within industry. This formula is being used by governments and companies (like the chart on the left, produced by the UK government) to measure occupational exposure to AI.

Estimating the impact of a rapidly evolving and not fully understood technology is challenging. There is a growing consensus that 10-30% of jobs in the UK may experience some degree of automation over the next two decades. On the other hand, there is a belief that the long-term impact will be relatively neutral, with job displacement counter-balanced by job creation.

The sectors most exposed to AI include professional roles, especially those involving clerical tasks in finance, law, and business management. This encompasses management consultants, business analysts, accountants, and psychologists. White-collar jobs, while more exposed to AI, may not necessarily face job losses. Instead, AI could enhance these roles by automating routine tasks, allowing professionals to focus on more complex and creative aspects of work.

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White collar jobs more exposed to AI

REGULATION – HEAR ALL ABOUT IT!

NEW UK GOVERNMENT TO CRACKDOW ON AI

There is currently no AI-specific regulation in the UK. AI use falls under broader, existing regulations, such as GDPR and intellectual property laws. The previous Conservative government took a pro-business approach, planning to invest £10m to upskill regulators and nearly £90m to launch new research hubs.

Under the new government, Labour has pledged to introduce stricter regulations to protect consumers, including prohibiting technology developers from working on advanced AI tools unless they have a licence to do so. When these tighter regulations will come into force is unknown. The Labour government has pledged £32 million of funding for UK AI projects (however, this is significantly lower than the planned investment by the previous Conservative government).

EU GETS PERSONAL WITH AI

The AI Act – proposed by the EU in 2021 and passed earlier this year – has established pro-consumer rules for the development and use of AI in instances where it impacts the public, but not personal, use. For instance, AI used for social scoring or facial recognition is banned. For most businesses, including providers and deployers of lower-risk AI systems, the AI Act will not create any major changes. Companies will be subject primarily to transparency obligations, such as informing consumers if/when they're interacting with AI. The law applies to any output used within the EU (including UK businesses selling into the EU).

Stricter regulations under the EU AI Act could drive entrepreneurs to establish AI companies in regions with more lenient oversight, such as the US. This may hinder the flow of valuable data to highly innovative AI firms within the EU, potentially impacting their global competitiveness.

CHINA PAVES THE WAY

China pioneered robust AI regulations, covering IP safety. However, they also introduced unique clauses such as the ability to promote socialist values and barring incitement against the State.

The regulations governing generative AI are called the Interim Measures for the Management of Generative Artificial Intelligence Services. In 2021, China accounted for 20% of private investment into AI, globally.

THE UK SHAKES HANDS WITH US

In the US, there is no overarching federal law governing AI development or use. However, there are 25 regulations referring to the use of AI, including the Jobs for the Future Act and the AI for National Security Act, marking a significant increase from just one in 2016. Since 2019, 17 states, including California, Colorado, and Virginia, have enacted 29 bills regulating the design, development, and use of artificial intelligence. California is also considering significant legislation, such as SB 1047, which includes provisions for independent audits, transparency measures, and safety protocols for large-scale AI models. While not yet approved, this law, if implemented, could serve as a landmark in balancing innovation and AI governance. Additionally, in April 2024, the US and the UK entered into a significant agreement on artificial intelligence, focusing on pooling knowledge and talent to assess risks associated with future AI models. Given the strong US-UK relationship, it is unlikely, in our view, that the new Labour government will move away from this agreement.

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