

The Infinite Intelligence Toolkit: The C-suite's guide to Al adoption

in partnership with

The Studio



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The rise of Al



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For all the recent hype and acclaim, artificial intelligence (AI) is not exactly the new kid on the block.

First coined as a term by mathematician Professor John McCarthy at the Dartmouth Conference in New Hampshire, USA in 1956, Al has evolved over almost seven decades to become a suite of technologies mimicking human-like behaviour, rationale and logic.

"Machines take me by surprise with great frequency," wrote Alan Turing back in 1950, a riposte at the time to critics who argued machines could only perform defined, designated tasks.

It was during this period that Turing, who had pioneered the Enigma machine to intercept Nazi communications during World War Two, introduced the Turing Test as a way of measuring a machine's ability to exhibit 'intelligent' behaviour.

Since then, Al's evolution has been about incremental, iterative strides to technological progress, from the creation of new programming languages and the development of the first neural networks through the first rule-based systems for natural language processing (NLP) and computer vision.

The Al winter of the 1970s

However, an inability for these early systems to learn from input data — as well as the expensive outlay required on hardware (prior to the widespread application of Moore's Law, the theory in which compute processing power doubles every two years) — led to the first 'Al winter' in the 1970s.

Al systems faced criticism from US Congress, and in 1973, the UK government's Lighthill report, commissioned by the UK Science Research Committee, claimed that such systems lacked the cognitive ability and reasoning to do little more than "experienced amateur" levels in chess.

"Al has failed to achieve its grandiose objectives and in no part of the field have the discoveries made so far produced the major impact that was then promised," read the report, authored by leading mathematician Professor James Lighthill.



Big data, more compute

In the 1980s and 1990s, there was a resurgence of Al research and development (R&D) projects and – over time – Al's growth can be attributed to the gradual culmination of several technological advances occurring almost simultaneously.

The availability of more powerful and specialised compute (specifically GPUs), advancements in algorithms like deep learning, and the explosion of data through the unprecedented digitalisation of information has led to the commercialisation of Al across almost every industry.

Such as been the proliferation of these technologies that AI, as MIT Technology Review notes, has today become 'a catch-all term for a set of technologies that make computers do things that are thought to require intelligence when done by people.'

For all of this, Al could still be in its infancy. Of Al's subfields of narrow, general, and super Al, the last two of which have long been characterised in popular culture by films such as 2001: A Space Odyssey and iRobot (the latter based on the famous 1950 book by Isaac Asimov), modern use cases have largely been confined to the narrow subfield of Al.

Virtual assistants, like Apple's Siri and Amazon's Alexa, have used NLP and limited memory Al to analyse and respond to requests, while generative Al's explosion has seen ChatGPT, Google Gemini and Microsoft's CoPilot predict the next word, phrase or visual element within the creation it's generating. Netflix and other prominent video streaming platforms have built prediction engines to offer TV viewers suggestions of what to watch next.

In other industries, these technologies have been used to build personalisation, recommendation engines and inventory management in retail; improve medical diagnostics in healthcare; detect fraud and improve trading in financial services; and facilitate predictive maintenance in manufacturing and agriculture.





The future of AI is not without pitfalls

As these technologies advance, the future of Al could look wildly different. Experts today talk of the possibility of agent-to-agent interactions, the tokenisation of data and the super intelligence of artificial general intelligence (AGI), which would likely revolutionise industries and accelerate conversations about the need for universal basic income (UBI) — social programmes in which every adult citizen receives a set amount of money regularly.

"It is difficult to think of a major industry that AI will not transform," said renowned computer scientist Andrew Ng, of recognition at Stanford University, Coursera and Baidu. "This includes healthcare, education, transportation, retail, communications, and agriculture. There are surprisingly clear paths for AI to make a big difference in all of these industries."



This is not to say that Al is a technological unicorn. As executives look to implement these technologies, they face a myriad of challenges, including complying with a patchwork of global legislation, nuanced conversations around system bias and ethics and the criticality of explainability, safety and security.

Organisations must also tread the delicate tightrope between human job replacement and augmentation, and focus on return on investment (ROI) which, as evidenced in the previous 'Al winter', remains far from straightforward.

Reports have already hinted at GenAl's high spend not necessarily equalling positive outcomes for organisations, while the Large Language Model (LLM) providers themselves expect to see higher costs in the face of the significant energy resources required to train their models.

In this Infinite Intelligence toolkit, developed by HotTopics in partnership with Box, global C-suite technology executives explore today's reality of AI, the complex issue of accountability and responsibility and how leaders can build the governance guardrails while enabling AI innovation. Critically, this toolkit also offers a cheat sheet so your organisation can astutely balance AI value faster with a commitment to fair and responsible usage.



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Al accountability, responsibility and storytelling



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In the face of economic stagnation, Al has become a pressing boardroom priority — and it's easy to see why.

PwC reports that AI will contribute \$15.7trillion to the global economy by 2030, while McKinsey forecasts these technologies could increase corporate profits by up to \$4.4trillion a year. Separate reports have predicted that the global AI market will be worth \$267bn by 2027.

Unsurprisingly, in the wake of ChatGPT's launch and the roll-out of Microsoft's CoPilot, the boardroom has become a hive of AI frenzy and deliberation, with executives desperately trying to sift between hype and reality.

Al strategies in the boardroom

CEOs have quizzed C-suite executives on Al strategies, CFOs have become enthused by the productivity opportunities, while CMOs wrestle with the double-edged sword of enhanced creativity and go-to-market speed with complicated legislation. CHROs and HR directors, meanwhile, have faced their own intricate dilemma between efficiency and workplace concerns of job displacement — none of which has stymied Al's relentless march forwards.

"In conversations I've had with C-level execs and governments, I can't remember, in a 30-year career, the moment where there has been so much excitement that is also met by the rubber hitting the road," said Azeem Azhar, founder of Exponential View, at the Box Al Disrupt event in London.

"Most of the demand for AI right now is in solving new problems that the company wasn't getting around to," added Box CEO Aaron Levie. "It's actually doing the long tail of work that we just literally never had time for, or couldn't afford to spend energy on."

For today's increasingly versatile technology executive, a two-sided quandary is emerging; how do they enable their organisations to take advantage of these technologies while governing and securing their usage? And, central to that, what is their role in implementing a myriad of technologies which have the potential to cut across multiple business functions and business operating models?



Al use cases move business goal posts

Such has been the fanfare around AI — and its increasing appearance in state legislatures, national media, and boardroom debates — that organisations of all sizes are starting to roll-out their first AI projects.

According to HotTopics' inaugural C-Suite Digital Baseline study, 71 percent plan to invest in Al and machine learning this year, with many executives having already made headway with their first pilots.

Amongst the Infinite Intelligence community, C-suite executives have shared how GenAl, in particular, is already being used to improve code review, clean and optimise data for better analysis, automate and analyse legal documents, optimise transport routes in logistics, enhance front-line customer experience through agent chatbots, expedite contract routing or loan processing and improve content management.

Media publishers have looked to LLMs to improve reader experience, journalist research and revenue streams through licensed partnerships. Weather forecasters are improving forecast predictions through better modelling, while pharmaceutical companies are advanced enough to see Al as a way of expediting drug discovery.

In higher education, meanwhile, explorations are underway of a more personalised, innovative, hybrid form of learning that drives brand affinity with students and alumni, against a backdrop of financial deficits, while government departments sense a chance to improve efficiencies and citizen services in equal measure.

The Al gold rush is arguably already underway.

CIOs, CDOs and CTOs vie for Al accountability

Amidst this wave of reported adoption, the issue of accountability has reared its head. Who in the C-Suite truly owns AI, and what are their responsibilities? Is the CIO responsible for the integration of these technologies, the CDO for data governance and the CTO for implementation and go-to market?

The HotTopics C-Suite Digital Baseline study indicates 44 percent believe the CIO to be primarily responsible for Al adoption, with 18 percent saying the CTO, 12 percent the Chief Data Officer, and 8 percent arguing for the Chief Digital Officer. Just 2 percent said that Al responsibility in their organisation lies with the new role of the Chief Artificial Intelligence Officer, while others have pressed the importance of risk teams and general counsel. In a separate report from analyst firm Gartner, 25 percent of executives said they could identify who in their organisation was "primarily accountable" for Al initiatives and delivery.



With no obvious consensus, Al's forebearers will likely depend on the organisation, reporting lines, a company's technological maturity and industry regulation.

"Everybody wants to own it. But, also, nobody wants to be accountable for it when it goes wrong. So who is accountable?" asked Eileen Jennings-Brown, the former CIO at pharma organisation Exscientia, at the launch of the Infinite Intelligence community.

"In the same way as cybersecurity is hopefully embedded as collective accountability, Al is the same," added Diana Kennedy, at the time Bupa's CTO - but now executive director at Natwest, during an advisory board lunch.

"Whilst I have a responsibility for AI strategy and technology strategy, and managing that governance environment, the collective accountability sits across both business-enabling functions and risk and compliance," she said, adding AI could eventually make for more federated organisational structures.





Change management and Al literacy

Given this pace of change, the emphasis is not only on leadership and defined accountability but change management; leaders must educate themselves first before they steer others, with storytelling and buy-in becoming imperative to drive adoption and placate irrational fears.

"You are now engaging with many other people not in tech at all, from law to finance," said Freddie Quek, the former CTO of Times Higher Education, during the advisory board lunch.

"CFOs are just assuming it's the latest productivity game," added Tessiant's Anna Barsby, previously Chief Product and Technology Officer at 888 holdings and CIO at UK retailers Asda and Halford. "It's just about reducing costs, reducing headcount. That's an understandable first position when they don't understand it. So we've got a big job as a community to educate them."

At ITV Studios, Head of Commercial Technology Rob O'Brien is leading the broadcaster's Al R&D workstream. Early GenAl pilots have seen GenAl be infused in show ideation, to drive cost efficiencies on visual effects and assist in commissioning new shows. Despite this, he believes that buy-in is not necessarily straightforward.

"I've not just got to bring these business cases to life in a way that I understand, but in a more fundamental, basic way," he said, "because the real people challenging the use [of Al] is that sphere of middle management and below."

These debates have been central to Al pilots and what a longer-term ROI could look like, but there is also a realisation that the dispersed nature of Al literacy will require different ways of educating the workforce. Some CIOs say they are already rolling out Al based on targeted business personas, while others are leaning on business units championing adoption.

At UK-based publisher Bonnier Books, clear champions have been identified for each area and use case, even if the IT department remains accountable for how the underlying tools work. CIO Nick Wright says that the line-of-business departments are responsible for their usage and the boundaries of acceptable risk — even if it ultimately does roll up into the C-suite.

"It goes up to a board-level accountability; brands, legal, comms, and security all have to be part of those discussions on what is the acceptable risk," says Wright.

"The people who are using it, the end user...the employees....they are also part of this accountability chain," adds Box CTO Ben Kus.



03

Building the guardrails



Building the guardrails

As Al slips into everyday life, establishing robust guardrails for its usage has become imperative for C-suite executives.

Al systems have historically been plagued with issues including conscious and unconscious bias, a lack of transparency and explainability on how such systems make decisions, and poor quality data, often resulting in incorrect or untrustworthy outcomes — the long-heralded data science theory of "garbage in, garbage out."

Hallucinations, whereby an AI system imagines or invents answers it believes to be true, have also become more than a glitch in the system.

The risks posed by these AI systems became so noteworthy that 30,000 individuals — including prominent technologists such as Elon Musk and Apple co-founder Steve Wozniak — signed a letter urging governments and regulators to intervene unless developers agreed to voluntarily halt the development of AI technology for six months.

For technology executives, the focus has been on enabling innovation and testing in safe environments, but also implementing the necessary governance frameworks to protect organisations from system misuse, data or IP loss, or any such issue that could result in customer or shareholder blowback.

For some organisations, this has meant a focus on implementing their own internal or industry standards, creating acceptable use policies and introducing ethical guidelines or revised data governance frameworks — for others, entering into enterprise agreements with LLM providers.

"We've been trying to put some gentle guardrails around it in terms of acceptable use — trying to encourage people, explain it and get them involved," said Amanda Spencer, Director of Technology and Digital Transformation at the Royal Society of Chemistry.

"My team has also been trying to take the leadership team on a journey to say... there's a real opportunity here for us. It's the same with our trustees, helping them to better understand the landscape, but also trying to gently explore what they think the risks and opportunities are."



Implementing robust governance for AI projects

Since the launch of ChatGPT, the emphasis has been on rolling out governance frameworks to combat the possible reemergence of unsanctioned shadow IT. And yet, according to technology professional body ISACA, staff at nearly three-quarters of European organisations use AI at work, but only 17% have a formal, comprehensive policy governing the use of such technologies.

"The first thing that a lot of good organisations have done is very quickly understand that there needs to be a scope to this, and it's not just a free reign," said Box evangelist Omar Davison during The Studio session: Al Risk versus Reward at Abbey Road Studios.

"By setting those guardrails, and starting those principles, you can allow people the creativity and the freedom to develop new innovations, technologies, ideas or concepts"



At Box, Davison added that the Intelligent Content Management company's CEO, Aaron Levie, did a company-wide Zoom meeting three days after the launch of ChatGPT to set expectations.

"He turned to everyone and said, 'before you go crazy with this, these are the ground rules'," said Davison.

It has been a similar story at the UK's *Financial Times*. At a time when media publishers have been caught between partnering with LLM providers or, in the case of *The New York Times*, taking them to court, Chief Data Officer Kate Sargent explains that a short set of principles were developed to explain usage; one being that FT's journalism would "remain curated by humans entirely."



Other organisations have looked to trusted third parties, including government frameworks; principles on ethical Al usage from the United Nations, World Economic Forum or Stanford University; and institutions like OpenData for data governance frameworks. Some firms have looked internally, embedding a continuous stream of governance, such as DPIAs, throughout the entire lifecycle of an Al project

Establishing Al principles in the vendor ecosystem

At private healthcare provider Bupa, technology suppliers must adhere to the organisation's sustainability policy, Net Zero goals — and now the Al principles, which are focused on the reliability and security of their Al models.

"If you're bringing an AI model, through your software, offering your service into Bupa as a service provider, these are the things that you need in order to demonstrate the explainability, reliability and security," said Kennedy.

Suppliers like Box, meanwhile, have pushed ahead with their own Al principles — advising customers on how to use Al and invited them to sign a code of conduct.

In a world where many CIOs are pursuing "buy" rather than "build" on Al in the interests of cost, resources, and efficiency, ethics must become a shared responsibility between end-user organisations and their partners.

"We all have responsibility," added Kennedy. "People are terrified of that, and it's quite a cerebral thing to think through, but you have to think; what are your red lines as an organisation?"

Addressing the data foundation problem

An integral part of Al governance is data governance. The quantity of data has become secondary to the quality, accessibility, integrity and provenance — the documented trail through which organisations can point back to the origin of data.

There's been a striking realisation that as much as 90 percent of an organisation's data estate is unstructured, often found in documents and emails, and that data literacy is on a slow upward trajectory, potentially impacting the quality of the insights an organisation is trying to get to with artificial intelligence.

For RICS CDIO Mike Hill, organisations need to build the necessary data foundations, focused on data protection, privacy and security, with policies and processes in place to minimise external risks.



"How do you stop sensitive data leaving the bounds of your organisation?" he asked at the launch of the Infinite Intelligence community, adding that there are concerns over data misuse in external LLMs, the underlying processes of the AI platforms, and the process of gaining necessary business engagement.

For some Chief Data Officers, meanwhile, improving the data foundations to get ready for Al adoption has been another way to get much-needed budget and resources from the board.

"I'm using [the promise of] AI to finally get the investment in my [foundational] data [resources] that I've been asking for, for years," said one Chief Data Officer recently.

Al regulations: Focus on transparency, oversight and explainability

If technology executives were preoccupied with implementing governance frameworks and investing in the data foundations of their organisations, another challenge has been complying with a growing pathwork of AI legislation.

The EU's Al Act has been adopted by European Parliament, and the UK's new Labour government has made noises of new legislation coming soon, while multiple US states have taken vastly different perspectives on Al legislation. Take California, for example, with new legislation that has been described as 'anti-Al'

Internationally, Al regulation has differed wildly, either allowing free markets to experiment or adopting more draconian rules requiring a degree of government oversight. In some jurisdictions, meanwhile, a comprehensive definition of Al has not yet been given.

For Xuyang Zhu, Partner, Taylor Wessing, it has become essential that commercial and product teams work side by side with legal departments in order to gain their trust and "be seen as an enabler of what Al use cases they are thinking about for the next few years." Only by doing so can legal and compliance teams determine the best framework to comply internationally.

Zhu advised that most organisations will loosely look to follow the EU Al Act, with "small tweaks" for local regulations.

"A lot of regulations stem from the same overarching principles around transparency, human oversight and explainability," she said. "Meeting those is the main thing, because, unless something terrible happens, you're probably not going to be in a regulator's crosshairs."



In summary

As technology executives plan a route forward, their to-do list grows; They must align business and technology outcomes, understand their roles and responsibilities, focus on change management and storytelling, and implement the appropriate levels of governance and regulatory oversight — but also focus on the problem and the outcome they're trying to achieve.

"Whether you're a Chief Data Officer, Chief Digital Officer, CIO or a Chief Al Officer, one of the questions that we need to answer is; Are we using the right solution to solve the problem that's in front of us?" summarised Ian Cohen, recently the Group Technology Strategy Director at Acacium Group.





04

Al implementation cheatsheet



Al implementation cheatsheet

Curated by HotTopics and Box on behalf of the Infinite Intelligence community, this Implementation Cheatsheet is your peer-to-peer, C-suite guide on how to move towards responsible Al adoption.

Start small and scale

- Work alongside business units or departments to identify a clear use case or desired outcome where AI can add measurable value to the organisation.
- Scale up or down as you understand Al's capabilities and limitations, available resources and the expected business impact.
- Understand the realistic TCO of AI. Should these costs include the direct cost of using AI, the cost to develop AI, and/or the environmental impact of utilising such technologies?
- Be aware that while immediate costs are high, long-term costs are rapidly reducing as large language models (LLMs) get cheaper.
- Map out your Al adoption journey, ensuring a tight feedback loop between developers and users through a cycle of iteration, innovation and improvement. Avoid process bottlenecks and control deployment through policy and advocacy groups.
- Learn from peers on their own MVPs and pilots. What could you apply in your organisation or industry?

Build a flexible strategy

- Develop clear short, medium, and long-term strategies for Al adoption.
- Regularly review and update your AI strategies as business needs evolve and as the market changes (through regulation or M&A activity).
- Outline a roadmap for responsible AI integration into business processes.
- Ensure Al initiatives align with your overarching strategic business goals.



Focus on AI education: Top-down and bottom-up

- Educate yourself on AI; become your organisation's internal evangelist and chief storyteller for how these technologies could and should be used.
- Educate the boardroom on AI capabilities, limitations and the required investment.
- Highlight Al's value beyond cost savings and headcount reductions by pointing to real-world examples and peer-to-peer stories. Focus on using Al to improve productivity, experience, revenue growth and the creation of new business models.
- Align with cross-functional stakeholders to clarify Al's potential impact, value, and the required roles and responsibilities of all parties involved.
- Champion AI solutions internally: Identify and support AI use cases within departments but set clear boundaries of where the technology team will intersect.



Tighten controls around data security and privacy

- Implement strict access controls: Ensure only authorised use of sensitive company data.
- Focus on data governance: Establish robust data management policies and data governance frameworks to prevent misuse.
- Develop clear guidelines for data ethics and intellectual property.
- Develop a data architecture which supports quality data by processing both structured and unstructured data sources.
- Consider how other internal departments or specialists, such as DPIAs, can add a layer of governance in AI projects without sacrificing speed to market.



- Implement strong change management and feedback loops to ensure user engagement and quality control.
- Assess your content and data landscape to determine how to best integrate AI (e.g., bringing your content to AI or bringing AI to your content).
- Build your content strategy to drive valuable Al insights, focusing on content quality, currency, validity and relevance.

Start early on governance and risk management

- Engage legal, compliance, security and business stakeholders early, conveying the opportunities and risks in ways they clearly understand.
- Implement first- or third-party frameworks for responsible AI deployment.
- Hold suppliers to high standards on policies, principles, and codes of conduct.
- Build processes and workflows to maintain human oversight over all Al-enabled decisions.
- Allow experimentation within a safe environment, ensuring regular overnight and feedback to avoid the sprawl of shadow IT.
- Stay up to date with key industry regulation (such as the EU Al Act), focusing on transparency, human oversight and explainability as key tenets.

Work with partners for ethical and responsible Al

- Promote responsible Al principles: Advocate for transparency, ethics, explainability, reliability, and security in Al models.
- Industry-specific considerations: Address ethical and risk factors unique to your industry or organisation.
- Demand transparency: Ensure vendors disclose Al model capabilities, limitations and training data sources.
- Favour open ecosystems, which integrate with various LLM models, thereby improving interoperability and choice while reducing the risk of vendor lock-in.
- Consider sustainability and environmental impact when evaluating Al solutions, including energy consumption and greenhouse gas emissions.



- Vendor engagement: Stay informed about how vendors integrate AI into their platforms and the impact of those choices on your technology ecosystem.
- Bias detection: Continuously monitor Al systems for biases, ensuring the 'human is in the loop'.

Consider workforce impact and development

- Understand the different personas involved as AI technologies are rolled out within your organisation, and how these changes will need to be communicated.
- Build or support Al champions who can help safely accelerate the adoption of these technologies, while addressing individual and team fears.
- Invest in training your workforce to adapt to Al-driven changes. Point to similar organisations going through similar transitions and L&D programmes.
- Plan for potential changes in job roles and skills requirements.
- Set expectations between individual productivity improvements, compared to company-wide corporate projects. Use individual excitement and hype to get buy-in.





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