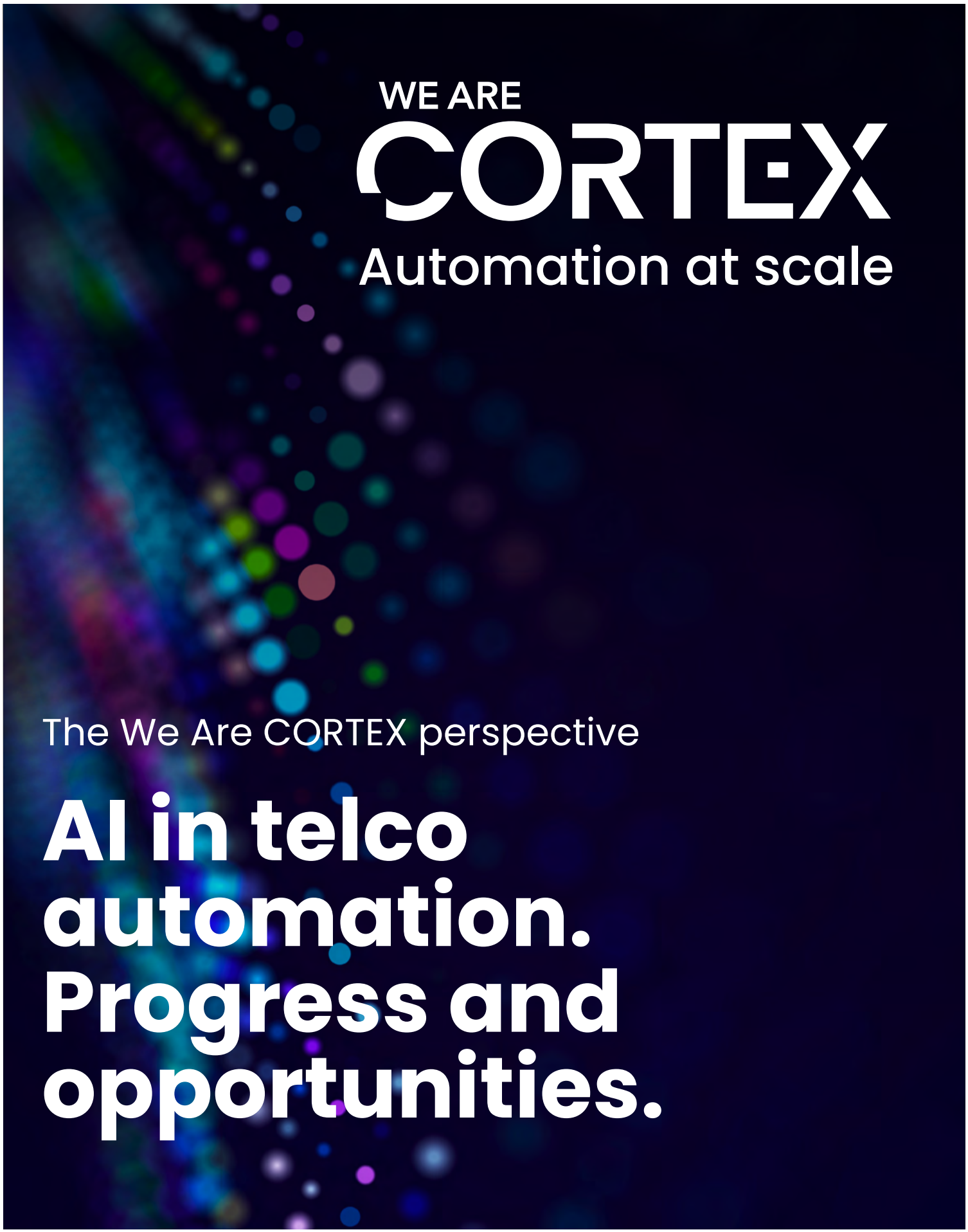

The We Are CORTEX perspective

AI in telco automation. Progress and opportunities.

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Introduction

The state of AI adoption

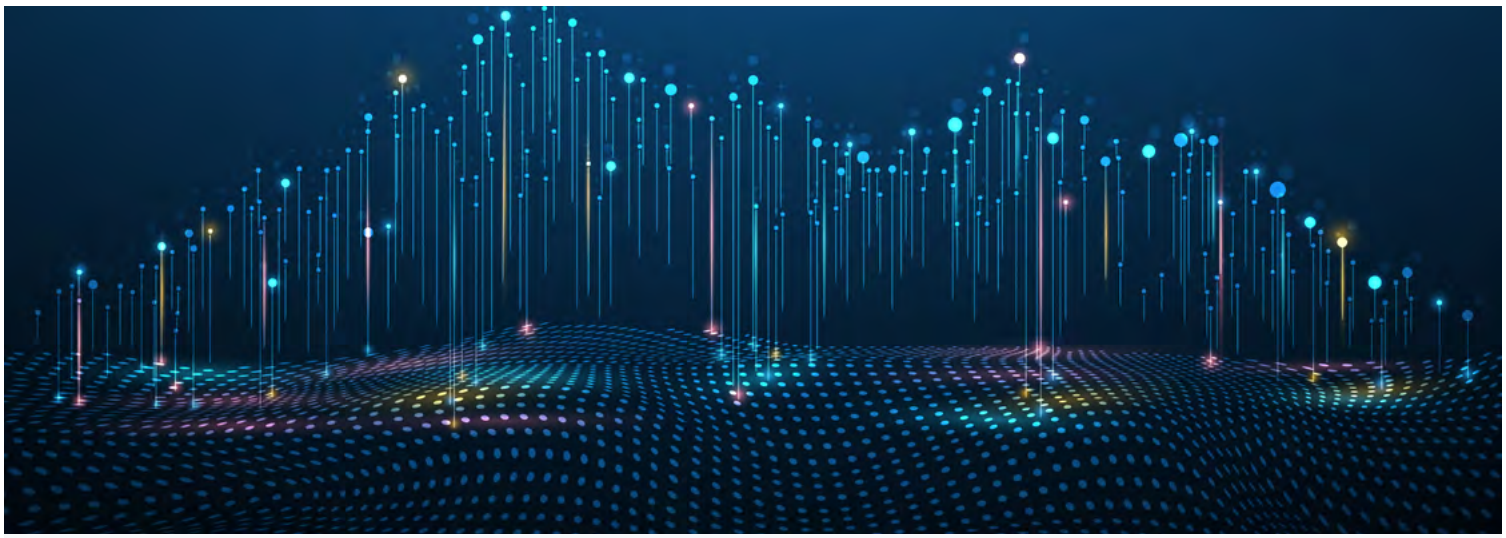
Artificial Intelligence (AI) is set to revolutionize network communications and mobile telecoms. Not only will it enable network optimisation, but it will also reduce costs through predictive fault analysis and maintenance, with significantly reduced need for human intervention. It's already become widely accepted as the answer to the question "how do we do this?". "Use AI".

Of course, AI is already being introduced, has been extended through investments in 5G SA, and will also be foundational for 6G. For the first generation ever, 6G will be AI-native, which will enable self-healing networks and super-fast, optimised edge computing. Resources will be available wherever and whenever they are needed. That vision, however, remains some way off.

While AI offers multiple opportunities for service providers, mass adoption and integration with operational systems will not just happen overnight. Ambitions and expectations are high – but where can we find wins to accelerate adoption, prove models and build confidence for the future?

The truth is that AI is still in its infancy and that service providers are still trying to work out how they can gain early wins from its use. While some global operators are leading the way, and others await further maturity, it remains the case that telcos of all sizes need to be able to capitalise on the benefits of AI.

In this paper, we'll take a practical approach, reviewing the current state of AI adoption – and consider our perspective based on our work with your peers and our own innovations.



Background

AI – telco market readiness goals

AI has generated significant recent attention, particularly in the eyes of consumers – for example, ChatGPT and others have become commonplace tools. But operator-based initiatives have been on the agenda for some time, with AI having already proven its value in a number of fields:

- AI / ML-based RAN management – here, operators and vendors have used AI to auto tune settings to optimise power consumption and learn from past behaviour to predict the optimum coverage based on observed activity and demand.
- AI / ML pattern analysis for fraud / spam prevention – with AI algorithms identifying anomalous traffic patterns and behaviour that could indicate fraudulent activities and initiating the automatic blocking of such traffic at the network boundary.
- AI / ML for predictive analytics to boost service assurance practices – correlating historical datasets to determine whether events, alarms and triggers might be indicative of problems that have yet to emerge, escalate or cascade, so they can be targeted and dealt with before they impact or impair performance and customer experience.

These examples represent successful adoption of AI (and related technology, such as Machine Learning) by the telco sector. They can be considered as bridgeheads towards eventual mass integration of AI techniques into the operational estate.

Of course, there are others – such as chatbots for customer service, personalised product recommendations, and to handle billing enquiries.

until recently, AI has largely been deployed incrementally to deliver point-based innovations that can be applied to specific domains, and challenges or tasks. This is sensible as it represents a step-by-step approach that delivers immediate benefits. Bolstered by the success of this approach AI is gaining traction in silos and will gradually spread deeper into telco operations.

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But maturing technology has changed perceptions. AI is now perceived as a capability that will be embedded in, and across, all domains, services and processes — in essence, it will become pervasive. We are seeing the shoots of AI deployments moving from a piecemeal approach into a part of the overall vision for how the telco stack and operations should evolve.

That vision is already at the core of thinking for future 6G. The new IMT 2030 is eagerly awaited, but the ITU has already stated that:

"IMT-2030 is expected to integrate sensing and AI-related capabilities into communication and serve as a fundamental infrastructure to enable new user and application trends…With the steady progress and fast spread of technologies in AI and particularly machine learning (ML), it is expected that intelligence would be present in every part of the communication system… IMT-2030 could serve as an AI-enabling infrastructure capable of providing services for intelligent applications."[1]

As such, key deployment cases for future 6G AI capabilities include:

- Contextually aware devices
- Autonomous network management – Self-monitoring, self-organising, self-optimising, self-healing
- Air-interface enhancements with distributed Edge computing and intelligence
- End-to-end AI
- And much more

In essence, AI is integral to the future of 6G, and will become a key enabler, just like today's high-speed optical networks are the foundation of enhanced and low-latency performance – or just as edge computing delivers a distributed architecture for optimising data processing. AI will be a necessary tool to meet new performance aspirations and targets, and to deliver the autonomous performance that is mandatory for services like slicing and more.

Where are we **right now?**

So, that's the vision. But where are we now? Tracking activities exposes a flurry of announcements from leading lights in our industry – and a wealth of commentary from analyst firms.

Arthur D Little (ADL), for example, reports the perceived benefits to telcos of AI – which could be used as a proxy for where efforts will be targeted:

Figure 1: The main benefits of AI for Telcos[2]

As can be seen, priority areas include enhancing customer experiences and optimising network operations – issues that are not unrelated, given that network performance is key to how services are delivered with the consistency and performance users expect.

The TM Forum, meanwhile, conducted a survey of 141 individuals from CSPs around the world[3] , which builds on its autonomous networks Benchmark report, published in December 2024[4]. The forum defines six levels of autonomous networks, from 0 (manual operations and maintenance) to 5 (fully closed loop autonomous network with capabilities spanning services, domains (including partners' domains) and the entire lifecycle via cognitive self-adaptation.

Importantly, Levels 4 and 5 are highly AI-based. Perhaps unsurprisingly, very few reckon they have reached L4 (4%), while none report attainment of L5. On the other hand, 85% of respondents believe they will reach L4 by 2030, up significantly from 23% in 2026.

However, what is most striking from the findings is that more than 70% think they will have reached L2 or L4 in 2026 – compared to 48% in 2025, illustrating rapid advancement in just a short space of time.

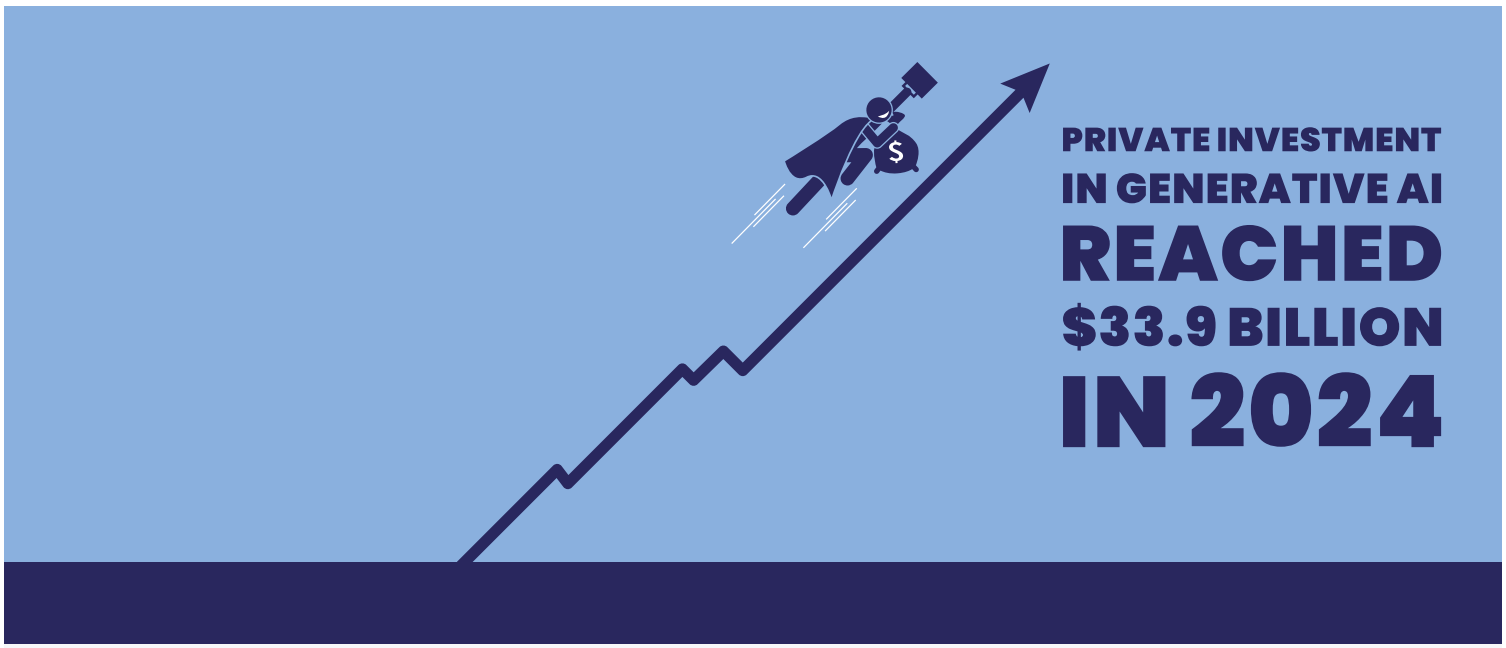
So, while most CSPs have started their AN journey, few have achieved AN Level 4 for any part of their network operations.

The data suggests that telcos are moving at different rates and are choosing tools and solutions to suit both their ambitions and the regulated environment in which they operate, while taking the opportunity to experiment with trials, PoCs and demos. This is also reflected in findings from the GSMA[5], which highlight the different rates at which AI is entering the telco business. Here, more than 50% of those surveyed claim to have implemented Core AI in different business areas, and a similar number is claimed for adoption of Generative AI solutions. However, around 23% of all respondents are still at the stage of identifying appropriate use cases.

So, despite the hype and hullabaloo, it's clear that telco adoption of AI is still in its infancy. And the GSMA also captured something very interesting by splitting its research into AI into questions relating to Core and Generative forms.

The latter – a more recent market entrant – has made rapid progress, gaining ground on the more established Core AI technologies. And, it's overtaken Core AI in the piloting stage, with 50% more operators reporting that they are exploring adoption of Generative AI than Core.

Perhaps this should be expected because of the widespread general availability of the necessary LLMs and the obvious quick wins that can be gained from data interrogation — automated or manual — through natural-seeming interfaces.



As a result, many customers now gain enhanced experiences through Generative AI-driven interaction with their service provider, for both self-care and service discovery. We can conclude that this distinction is increasingly important – and that we may need to go further, focusing on internal AI investments and those that are customer facing across both AI tracks.

Meanwhile, ADL's findings are closely aligned with what we (We are CORTEX) have seen – and match our focus for general investments in automation which have also surged in recent years.

One consequence of this is that AI is currently a highly fragmented market. Of course, there are hyperscalers leading the way, but there are also multiple LLMs, multiple governance regimes, and different policies that shape how telcos are investing. That's not a problem, but it does mean that telcos need to choose the right tools for the job and, of course, ensure compliance with the regulations under which they operate.

Calculating total investments in AI is complex, because related assets are needed to support new capabilities – enhanced data centres, and so on – while some investments are lost in pronouncements regarding data sovereignty.

Investment is still lower than that in overall telecoms CAPEX but is likely to rise through this decade, particularly with planning for 6G networks.

As a result of what is included and not included by different forecasts, there are significant variations. For example, corporate AI investments exceeded $250 billion in 2024[6] according to a report from Stanford University. It notes that a decent chunk of this will be both directed towards telcos offering GPU as a Service capabilities, and by telcos, as they invest in their own networks, assets and capabilities.

Private investment in generative AI reached $33.9 billion in 2024, it says, up 18.7% from 2023 and over 8.5 times higher than 2022 levels. The sector now represents more than 20% of all AI-related private investment.

McKinsey, meanwhile, predicts that the market could be worth $70 billion by 2030[7] – but neither report breaks out what exactly is included in these figures. It's important to know where the money is going and how it's delivering returns to CSPs. But it's currently akin to comparing apples with pears for the above reason. So, it's clear there is significant (and growing activity) but it's equally clear that the specific allocation of those investments is unstated and, crucially, that returns are, as yet, uncertain.

How

We Are CORTEX builds with AI

Either way, it's clear that all forms of AI, and the supporting infrastructure will attract significant investment over the next few years. But let's focus on what We Are CORTEX is doing to support these initiatives. AI augments (rather than replaces) existing capabilities – it's not a straight swap; it also provides new capabilities.

In our view, AI builds on what you already have, enabling new extension opportunities, while protecting existing ROI. Our focus is on automation in general – we believe that AI should be added incrementally where it solves problems, enhances value, or delivers new benefits. We also maintain our focus on maximising return from existing and ongoing investments. We've considered where such value can be found – and we believe it comes down to four key areas.

LLMs in process flows

LLMs offer many advantages that enhance processing. With many vendors now including their own AI (or integrated third-party solutions) to enable data interrogation, the way in which we request and retrieve information from external systems has evolved to capitalise on these investments.

For example, take service assurance and inventory management. If we need to check service status or resource availability, we typically do that through direct integration with the requisite platform – via a specific interface or through APIs.

We do this at the relevant step in the process flow we have already automated. But, if the solution vendor has introduced an LLM to organise the data they manage, then we can also interact with that to obtain the necessary data – it's a new way of obtaining the data but it offers significant potential for streamlining processes and enhancing accuracy.

In the domain of service assurance, meanwhile, some vendors are integrating more sources of data to enhance the insights they provide. In this case, it means we need to interrogate fewer data sources, because they've already combined more information together. In turn, it means our process is refined and delivers greater benefits from the enriched views they can deliver.

Assisted processes

If a process requires human oversight or intervention, it's essential to ensure that it's delivered as efficiently as possible. This means giving supervisors the best tools possible to support their role. And, with AI, that means providing the ability to use natural language queries to ask questions about the data that needs to be processed during the approval phase.

This capability can also be integrated with existing interaction portals, so it's immediately to hand when required. Importantly, this enhances governance, because the supervisor can engage in more detailed discovery of process or event impacts, because they now have access to more information, in a single place. In this case, supervisors benefit from accelerated access to more complete information, drawn from more sources – making decision making faster and more effective.

Design Co-pilot

At the heart of We Are CORTEX is an unshaking belief in the power of citizen developers. Just as AI can help software engineers write better code, so too can the Design Co-Pilot help deliver faster and more accurate automation.

This means that a user can generate new flows using natural language descriptions, ask for help to figure out what should come next — and the AI can then make relevant suggestions. And because this speeds implementation, experimentation and innovation can also spread more rapidly throughout the organisation to create further benefits, as the process is simplified making it more accessible to more users.

Similarly, it can help re-use – another core We Are CORTEX concept – because the agent has knowledge of all assets created by your organisation on our platform, so it can suggest flows or fragments of flows to reuse from the existing base, while also adapting documentation to ensure any changes are fully recorded and available to others. In addition, users with less knowledge can be coached to reach proficiency faster, delivering on the citizen developer approach.

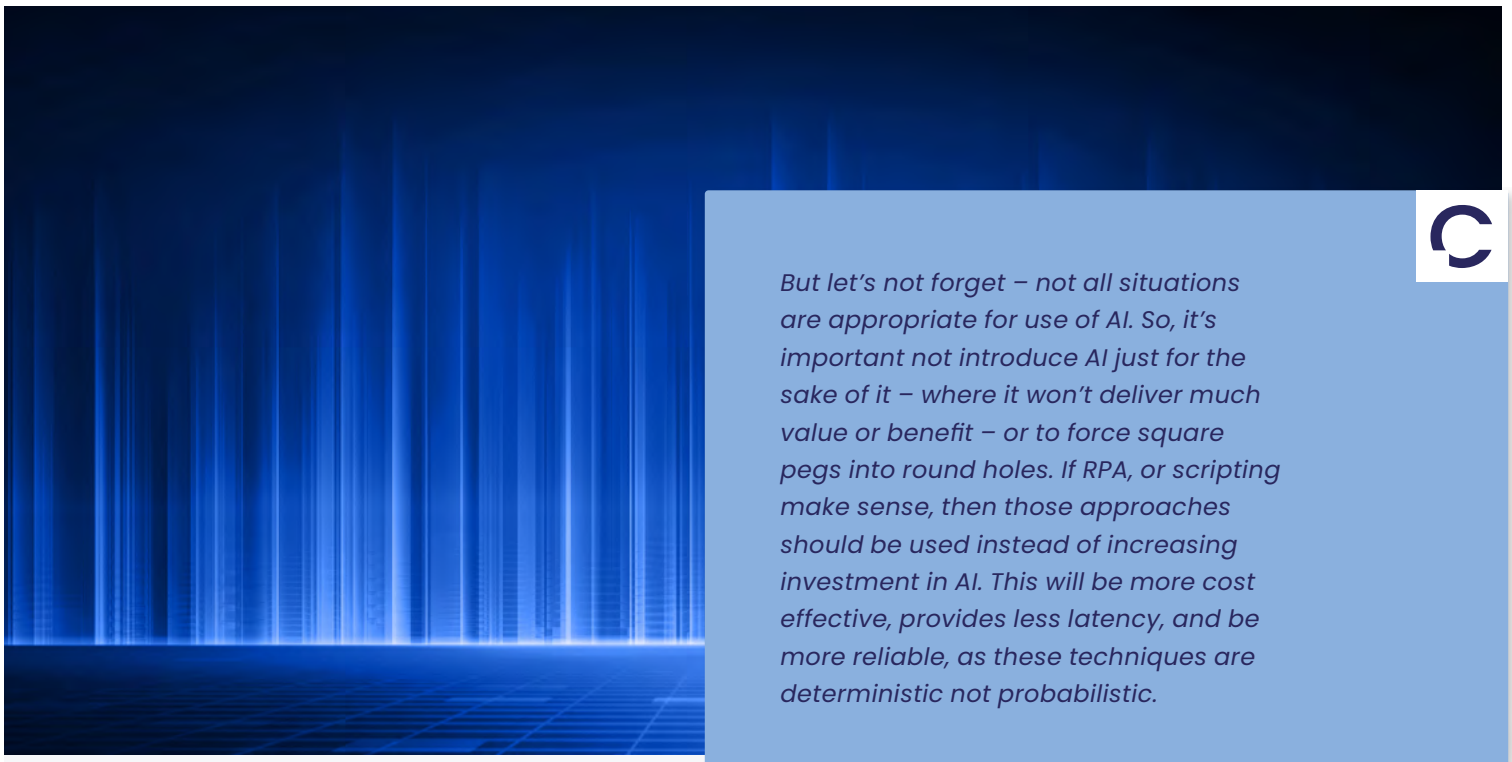
AI Agent Integration

As noted, it's likely that you will have AI agents from other solution providers in your ecosystem – and will be just as likely add more over time. All CSPs need to benefit from these capabilities and ensure that ROI is maximised.

We enable use of such agents within CORTEX flows, so your process can automatically seek information at any appropriate step – or, vice versa, your other solutions can also access the flows you build with CORTEX.

Information is safeguarded through adherence to a clear governance framework, which sets guardrails and covers compliance, so unauthorised agents cannot simply obtain information, or agents deliver it when not permitted to do so.

But let's not forget – not all situations are appropriate for use of AI. So, it's important not introduce AI just for the sake of it – where it won't deliver much value or benefit – or to force square pegs into round holes. If RPA, or scripting make sense, then those approaches should be used instead of increasing investment in AI. This will be more cost effective, provides less latency, and be more reliable, as these techniques are deterministic not probabilistic.



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Advancing automation with AI

innovation and protection

In the next parts of this series of papers, we'll explore these innovations in greater depth, giving consideration to some of the different challenges faced, while exploring the results of trials.

The direction of travel is clear – but we should also realise that we haven't reached AI utopia just yet. It's also important to recognise that AI is still developing, even if strategies are becoming clear. You are also likely to have multiple AI offers in your network and operations.

That's why it's essential to have, not only the AI strategy that allows you to spread your own experimentation and innovation throughout the organisation, but also the ability to support multi-vendor and vendor-neutral approaches. All of this must be backed by an approach that builds on existing innovations and protects your investments – which is what We Are CORTEX offers and is, perhaps the most important lesson from the current state of AI adoption and integration.

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Our

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