

A woman's profile is shown in a three-quarter view, looking towards the right. Her head is partially obscured by a complex, low-poly digital overlay. This overlay features various icons and data visualizations, including a globe, a bar chart, a line graph, a calendar, a speech bubble, a mail icon, and a person icon. The background of the top half of the image is a gradient of blue and white, with a diagonal split. The bottom half of the image has a light blue background with a pattern of white hexagons.

Intelligent Evolution

Exploring AI's impact on IT and network operations in Irish organisations

2023

In association with

TechCentral.ie

Sponsored by

JUNIPER
NETWORKS

FOREWARD

BY KENN LARKIN, CEO, AGILE NETWORKS



A Year in Overview

CROSSING THE CHASM

A lot has happened since June 2022 when we last conducted our report into AI usage patterns in IT operations. Use of AI appeared to be gathering pace but was very much in early adopter stage.

In that report, we looked at the use of AI-powered technology and automation at a high level. This year we focused on AI alone. In both years, a significant proportion of our respondents reported a lack of adoption. This year our research and the picture it portrays is more nuanced.

It appears that AI technology has yet to cross the chasm into mainstream use, at least in the context of network operations.

But its inevitable increased use raises more questions, which we explore for the first time in this year's survey. Ethics, transparency, reliability, accuracy and integrity are all issues that are provoking lively comment from every business quarter.

Such is the concern around the technology that the Irish government have recently decided to convene an Artificial Intelligence Advisory Council to help set national policy on AI.

As the experts in networking technology, our report takes a lens to the use of AI in network operations. Hardware manufacturers such as Juniper Networks have been engineering machine learning (ML) and AI into their management platforms for some time now and this quiet revolution in network management continues apace. The tangible results we have seen in the field are not based on hype. One client, for example slashed support ticket volumes by almost 98% thanks to natural language processing and in-built AI.

But what else is AI being used for and how is this usage pattern likely to change into the future? Let's take a look.

Kenn Larkin

HOW AI HAS TRANSFORMED NETWORKS FOREVER

BY RAMI RAHIM, CEO, JUNIPER NETWORKS



Five years ago, when the founders of Mist Systems (then, a technology partner of ours) stepped into our offices, they introduced us to a groundbreaking idea – an AI-driven network platform capable of autonomously troubleshooting and resolving network issues before they even became apparent to users.

It all sounded great. But since AI had been a buzzword for decades, I remained skeptical about its potential – that is, until I witnessed Mist's real AI in action. The platform could literally self-diagnose and remediate issues in real time thanks to its unparalleled accuracy and speed. In that moment I realized just how big of a deal AI was about to be for both Juniper, and the world.

Our AIOps platform has since become a cornerstone of Juniper's strategy. While the rest of the industry continues to talk, we are now in our 7th generation of industry-leading AI that has revolutionized the network and paved the way for exceptional user experiences. A 90% reduction in worldwide trouble tickets at a global software company. 85% fewer store visits at a multinational retailer. The fastest branch network rollout in the history of a national mobile operator.

Having witnessed Juniper Mist's success, we knew it would only be a matter of time before AI applications would explode more broadly – and so too would the scale of AI models and data centers.

AI networking represents a once-in-a-generation inflection point that will present us with complex technical challenges for years to come. And I believe we have the pieces at Juniper to enable this future.

For us, it means sticking to what I'm calling the three commandments of AI data center networks:

1. High Performance

Maximizing GPU utilization, the overarching economic factor in AI model training, requires a network that optimizes for JCT and minimizes tail latency. Faster model training means faster time to results, but it also means a less expensive data center with better optimized compute resources.

2. Open Infrastructure

Performance matters, which is why everyone invests in it. But then... economics takes over. An open platform maximizes innovation. Juniper firmly supports the Ethernet standard and its powerful vendor ecosystem, including the new Ultra Ethernet Consortium.

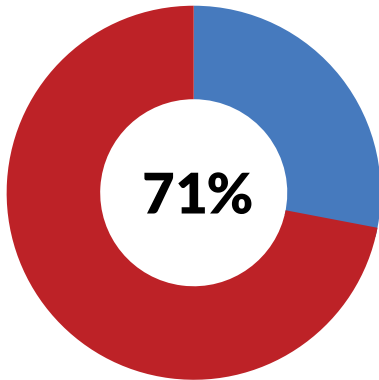
3. Experience-first Operations

Juniper approaches the data center with a multivendor and operations-first mentality. We are adding extensions for AI clusters to Junos and our Apstra data center fabric management and automation solution. And by the way, Apstra is the industry's only multivendor platform of its kind. Because what good is open if you're locked in operationally after the first purchase? AI is here and there's no going back.

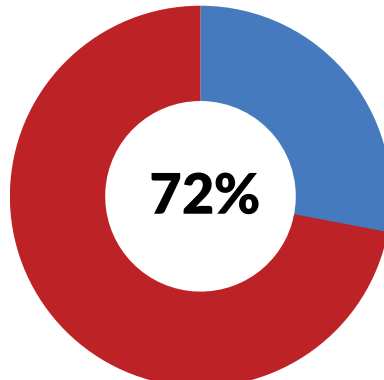
Juniper has already proven the impact that AI has in simplifying the management of wired, wireless and wide area networks to dramatically improve end-user experiences as well as the lives of network operators. But the pressure that machine learning and large-language models have put on networks will require us to keep innovating and solving new challenges. I'm confident Juniper's approach to data center networking will allow a new era of AI to flourish.

Rami Rahim

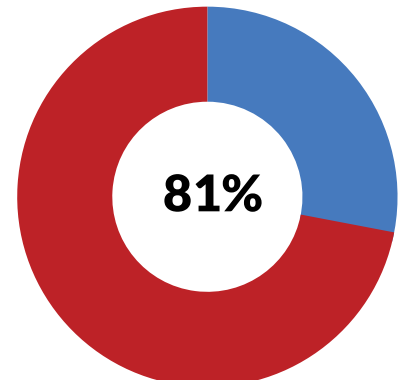
KEY FINDINGS



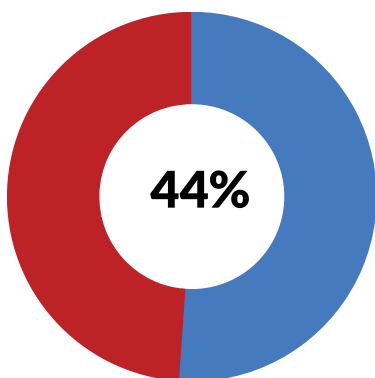
71% of organisations are not currently using any form of AI in IT operations



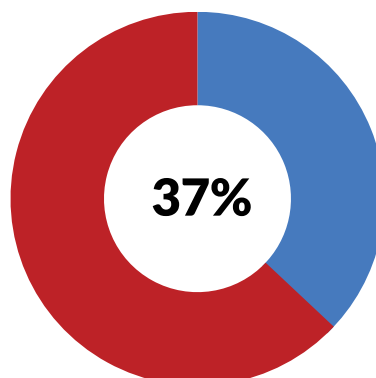
This figure rises slightly to 72% for those not using it in network operations



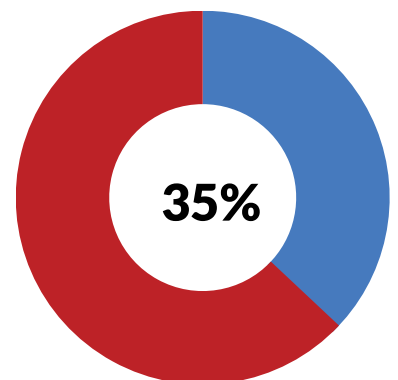
81% of those not using AI have no roadmap for its future implementation



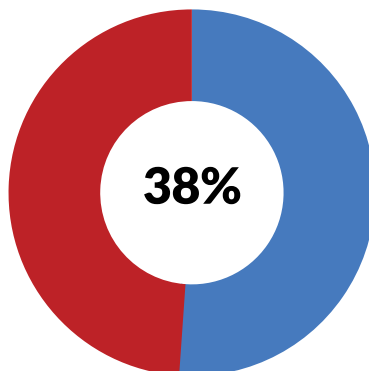
44% have a negative/very negative perception of AI as it applies ITOps



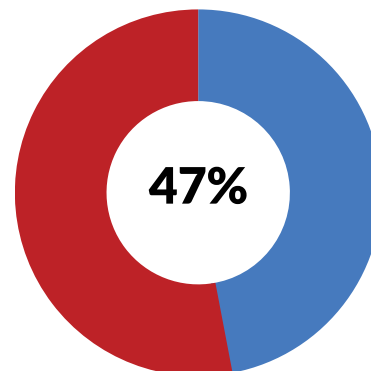
37% of respondents are confident/very confident in the correctness of AI outputs



35% of respondents are confident/very confident in their ability to evaluate AI technology



38% cite in-house expertise as the main barrier to AI adoption



47% are using AI tools such as ChatGPT on an occasional or frequent basis

Intelligent Evolution

METHODOLOGY

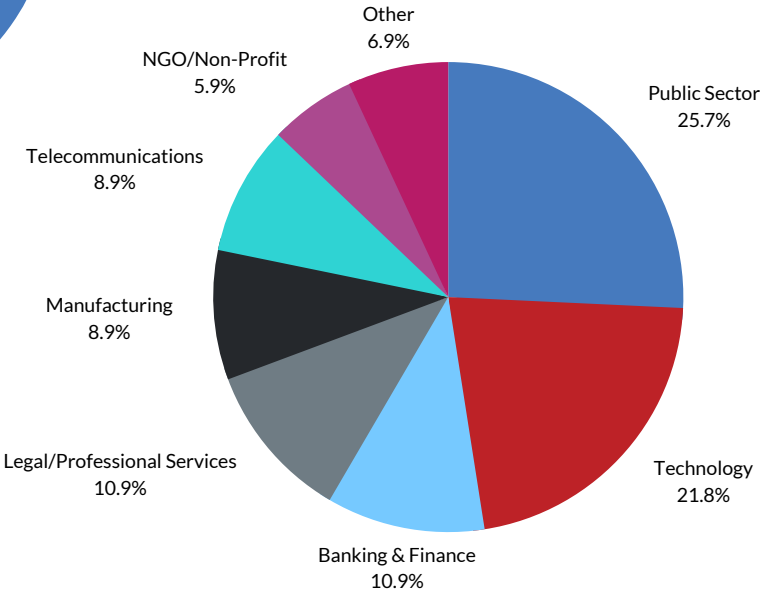
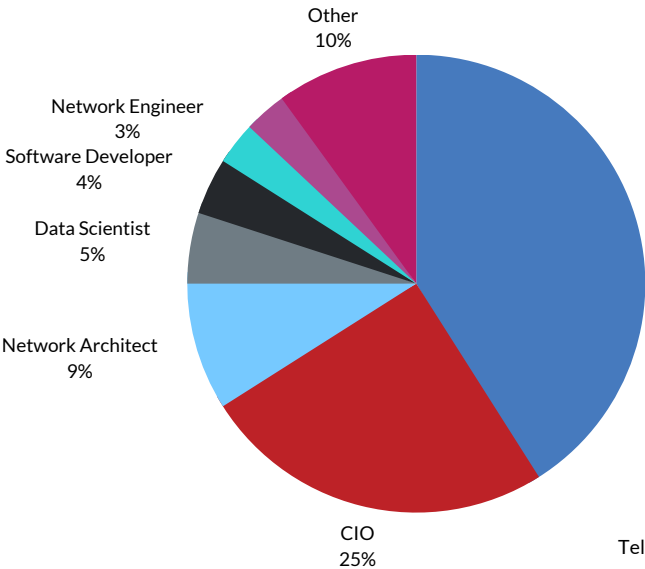
This year, once again we have teamed up with TechCentral to gather the views of the Irish IT community on AI technology.

As one of the country's most trusted tech media sources, TechCentral distributed our survey via email, news content and via banner advertising on their website, techcentral.ie during the month of July, 2023.

A total of 101 respondents completed the survey and the breakdown of industry sectors and job titles is outlined below.

As one might expect, the proportion of senior IT decision-maker completions is significant and at 66% stands at over half of all those who responded.

Well represented industry sectors whose members responded include the public sector, technology and banking and finance.



Intelligent Evolution

INTRODUCTION

Artificial Intelligence has the potential to transform our lives in so many ways. For students who use the technology to assist with projects to stroke victims who are using AI-powered limbs to walk again. The possibilities across every facet of our daily lives are endless.

AI also has the power to fundamentally transform the way we deliver IT services and specifically manage our networks. And this evolution has been happening for some time.

However, deep levels of scepticism and uncertainty in AI remain, which is perhaps unsurprising given its lack of maturity. Our research shows that just 37% of IT professionals are confident or very confident in the correctness of AI outputs, hardly a ringing endorsement of faith in the technology.

And to echo that sentiment, industry analysts such as Gartner and IDC have called out issues around trust and transparency in relation to mainstream adoption of AI.

Gartner goes as far to predict that by 2027, at least one global company will see its AI deployment banned by a regulator for non-compliance with data protection or AI governance legislation.

Clearly, we have a lot of work to do as an industry to engender trust and confidence in AI use. In that vein, Gartner predict that by 2026, organisations that operationalise AI transparency, trust and security will see their AI models achieve a 50% improvement in terms of adoption, business goals and user acceptance.



Use of AI in ITOps and NetOps

Usage Patterns

AI in ITOps

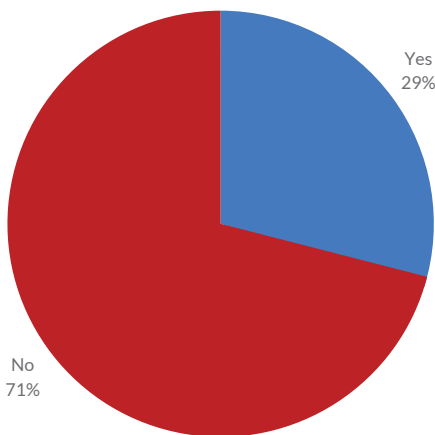
In this section we asked respondents about their use of AI across the IT operations stack. We wanted to understand at a high level how the technology is being used across hardware and software infrastructure.

As can be seen from the graphs below, a little less than one third are currently using it. This figure is perhaps not unexpected given the lack of maturity of AI technology and it seems that this picture is unlikely to change in the short term.

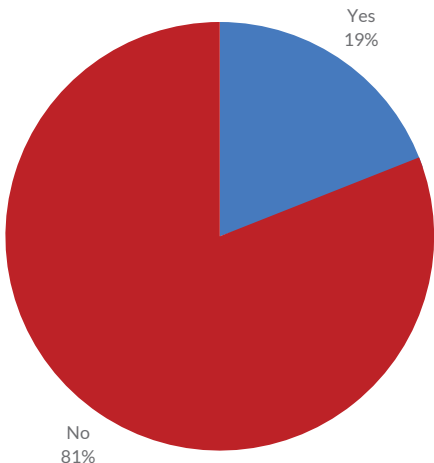
When asked about future adoption plans, just under one fifth revealed a roadmap for AI adoption into the future. And of those, more than half said that those plans lie beyond a 12-month planning horizon.

It seems the vast majority of respondents are taking a 'wait and see' approach with the technology, before integrating it into their IT operations.

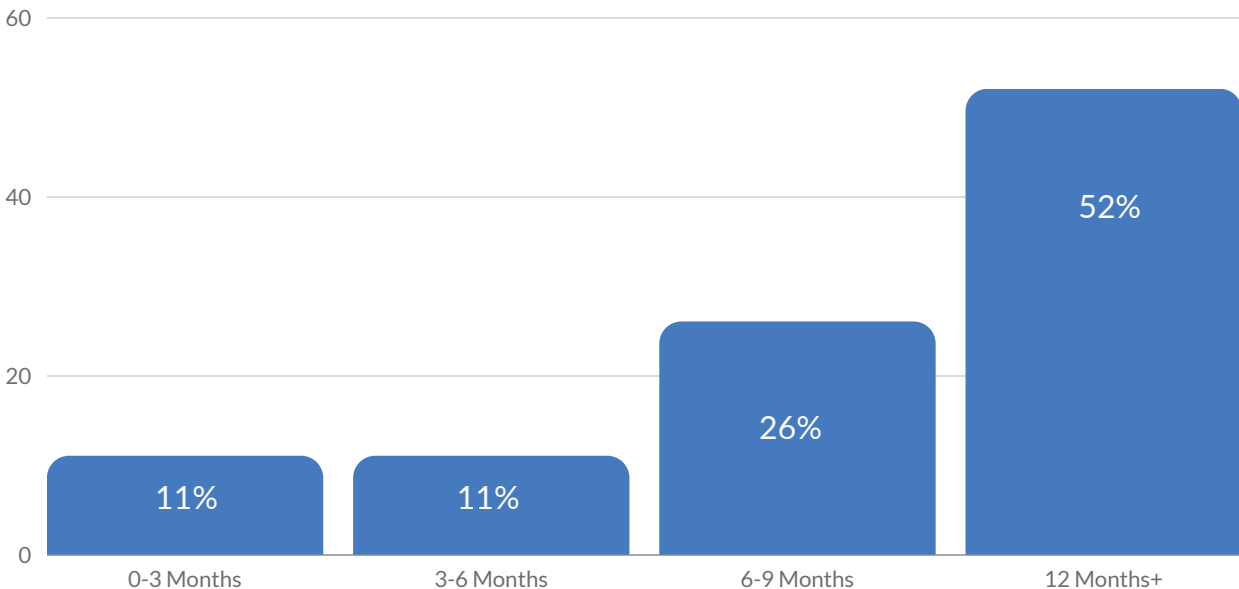
Current Usage of AI in ITOps



Future Roadmap for AI in ITOps



Timeframe for AI Adoption



Analysis

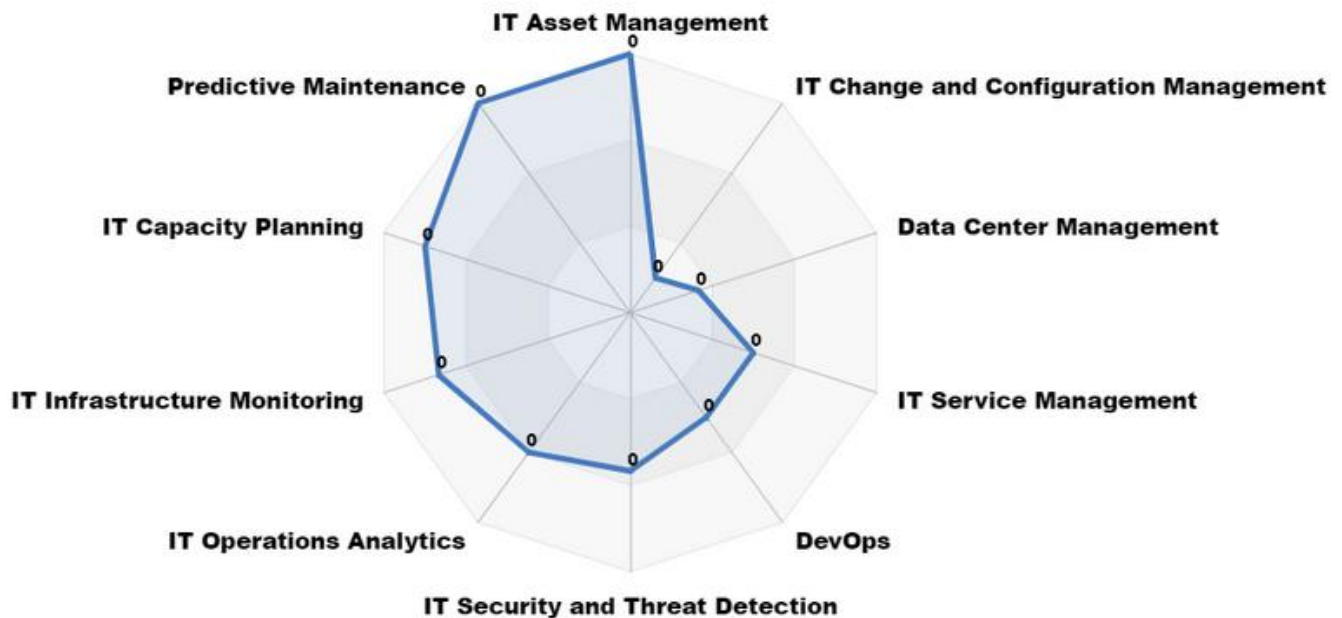
AI in ITOps

We took a deep dive into the use of AI in ITOps and asked respondents who confirmed its use, to tell us how the technology is applied.

Our radar chart reveals a distinct emphasis on planning and monitoring tasks. IT capacity planning, operations analytics, predictive maintenance and asset management all feature strongly.

We can also see more limited AI use in security and threat detection tasks.

This supports the growing adoption of AI-powered software solutions that base threat detection and mitigation on patterns of computing behaviour by individuals rather than traditional signature-based algorithms.



Usage Patterns

AI in NetOps

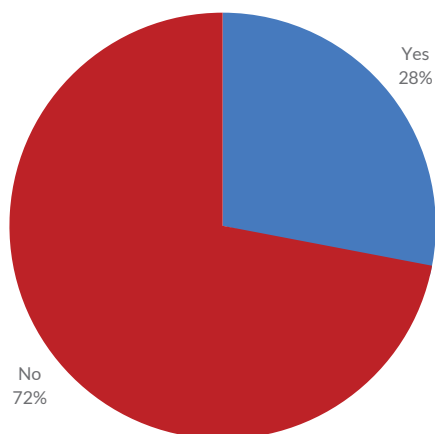
In our next section, we explored the use of AI in network operations. As networking specialists, we were very keen to take a closer look at whether organisations are managing their networks with the use of AI technology.

Given that networking hardware vendors such as Juniper Networks are openly promoting their capabilities in this area, we wanted to explore this in more detail.

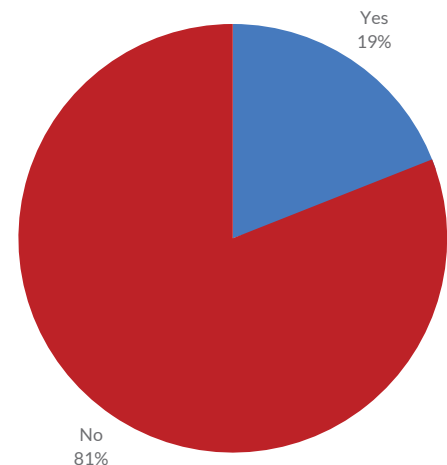
The picture is practically identical to that of ITOps with 28% answering positively. Mainstream adoption it seems has quite a way to go.

And in terms of future adoption, just under one fifth or 19% revealed firm plans. The planning horizon beyond 12 months rises to 60% in the case of NetOps and just 5% are looking to implement the technology in the very short term.

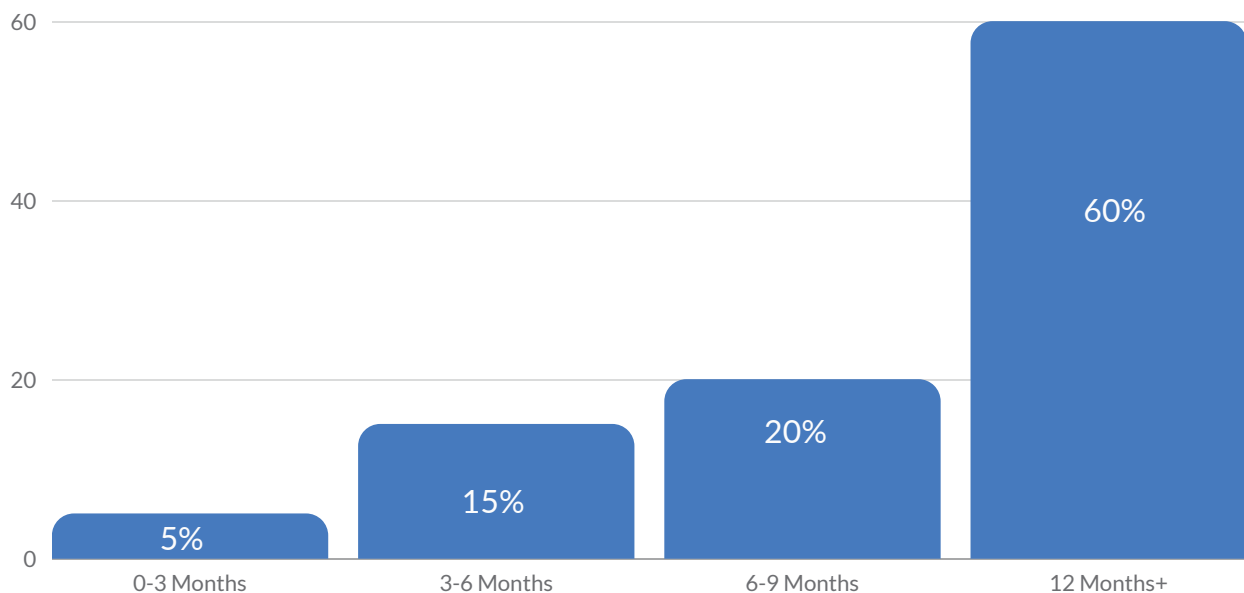
Current Usage of AI in NetOps



Future Roadmap for AI in NetOps



Timeframe for AI Adoption



Analysis

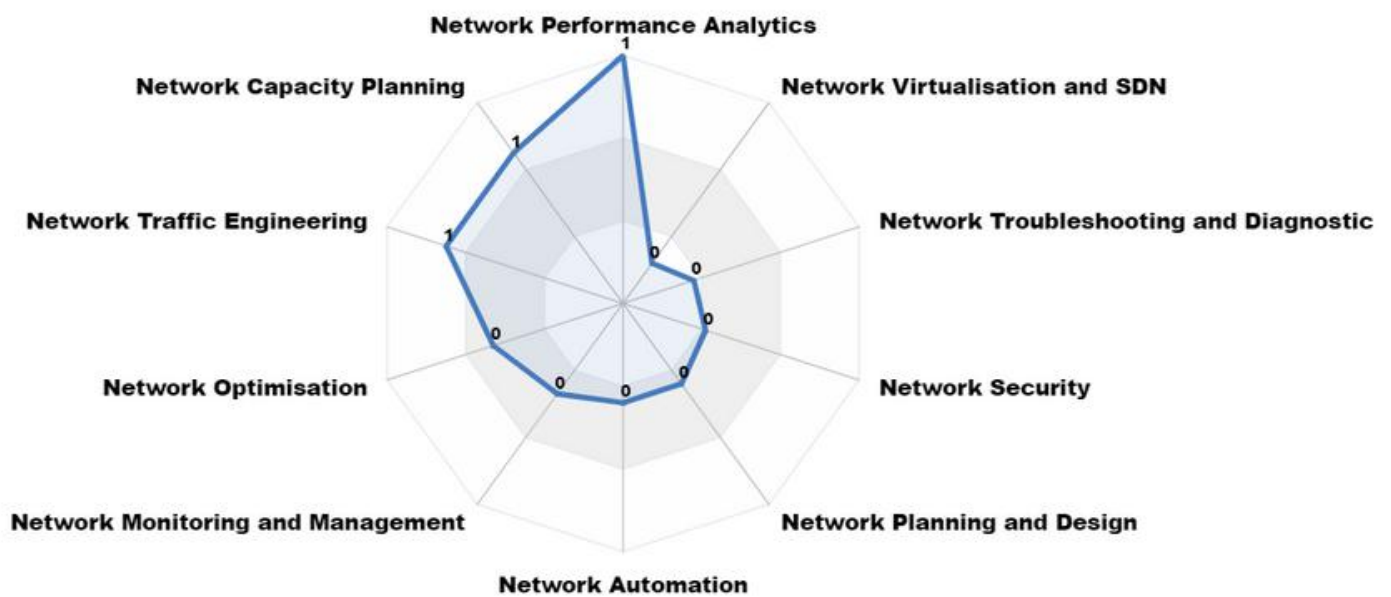
AI in NetOps

In taking a deeper look at what our early adopters are using AI for, our radar chart reveals a varied picture.

Use across network performance, capacity planning and network traffic engineering appears to be reasonably common but interestingly the sphere of network security is relatively untouched.

It's also interesting to note that network troubleshooting and diagnostics are low on the list.

This is surprising as hardware vendors such as Juniper Networks have recorded early successes with AI in IT service management and clients reporting a significant reduction in support ticketing as a result of AI-powered natural language processing systems for diagnosing and solving network connectivity issues.



Perceptions of AI and Decision-Making

Perceptions

AI SENTIMENT

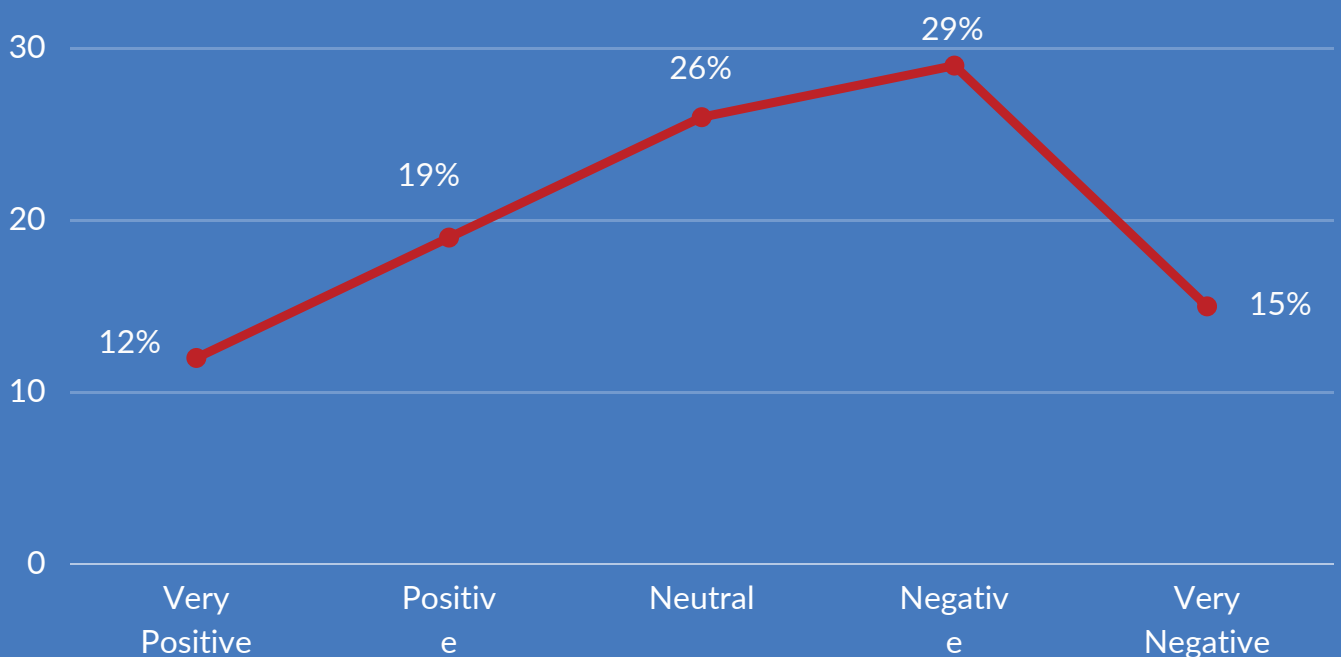
Our qualitative research section started by looking at the overall perception of AI as it applies to its use in IT operations.

44%

negative sentiment

31%

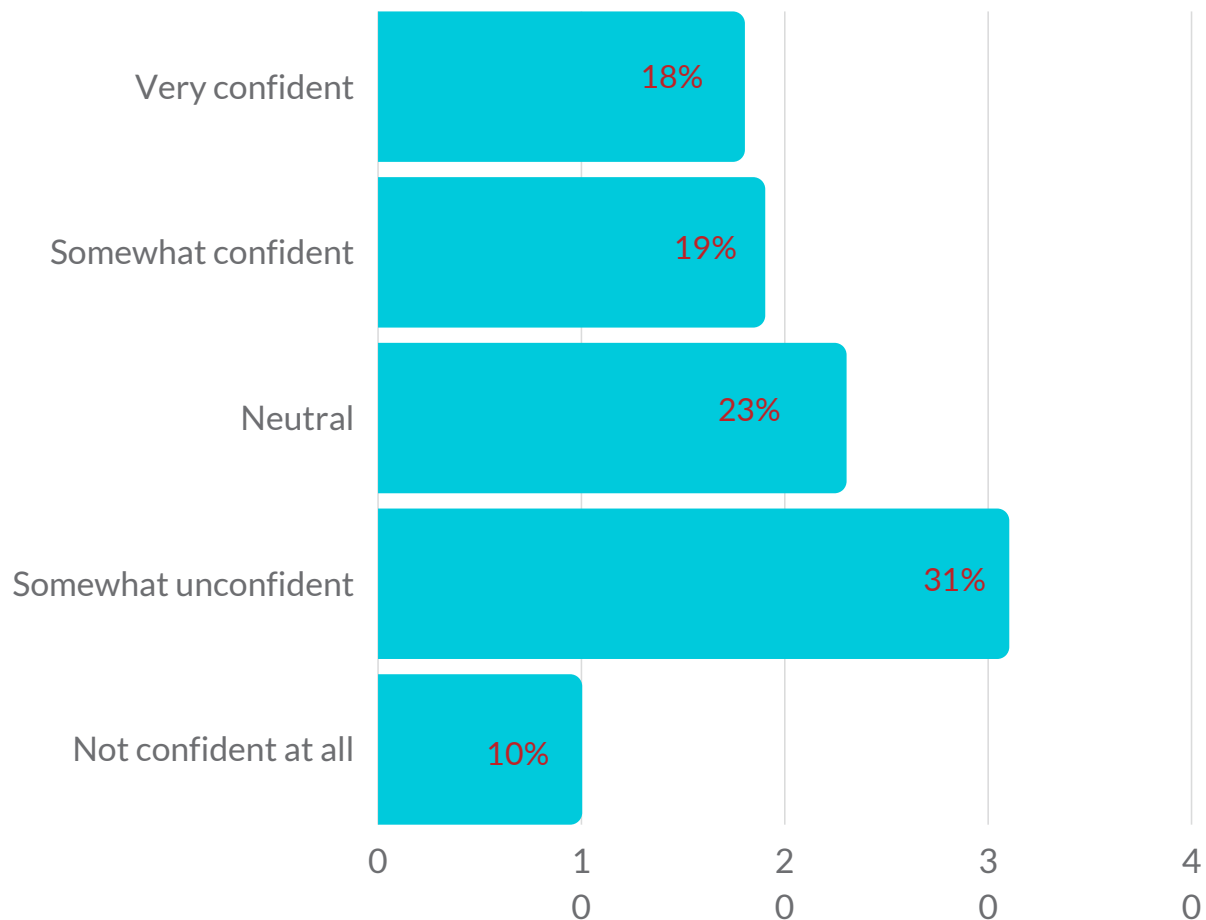
positive sentiment



Our graph reveals a cohort of IT professionals whose opinion is definitely split across the spectrum of sentiment.

Almost half or 44% reported a negative or very negative sentiment relating to AI while just under one third or 31% recorded a positive one.

One quarter of respondents were neutral on the subject reflecting yet again a 'wait and see' approach to AI adoption.



CONFIDENCE LEVEL IN AI OUTPUTS

We continued by asking respondents about their level of confidence in AI outputs. In other words, to what degree do they currently trust the technology to deliver an accurate result?

It's interesting to see results which largely track perceptions of AI across the positive/negative axis.

Just over one third or 37% reported a high level of confidence.

Under half or 41% reported a low level of confidence while just under one quarter or 23% were neutral when asked.

The results yet again portray a picture of widespread uncertainty as to the accuracy and integrity of AI models. A lack of understanding of how AI models are trained and built undoubtedly feeds into this level of uncertainty as results reveal later in our report.

Building Confidence

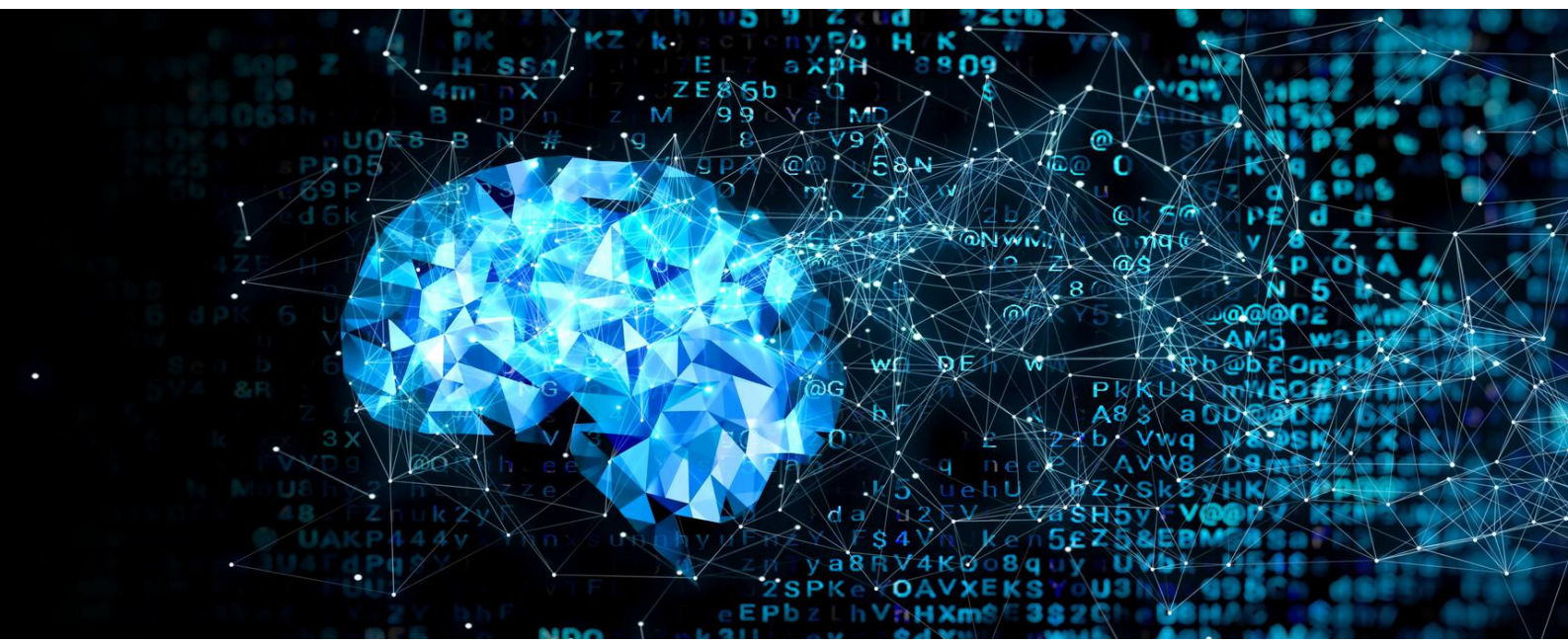
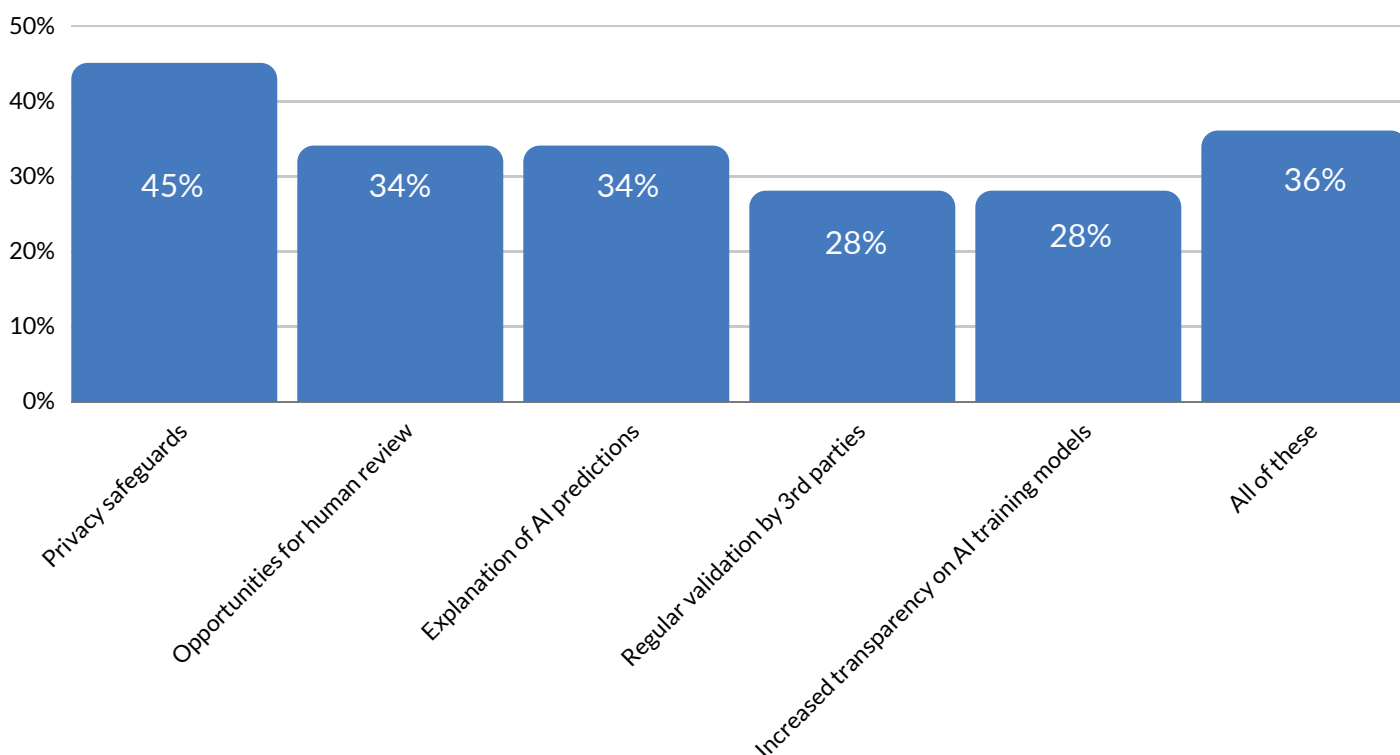
ENHANCING TRUST IN AI

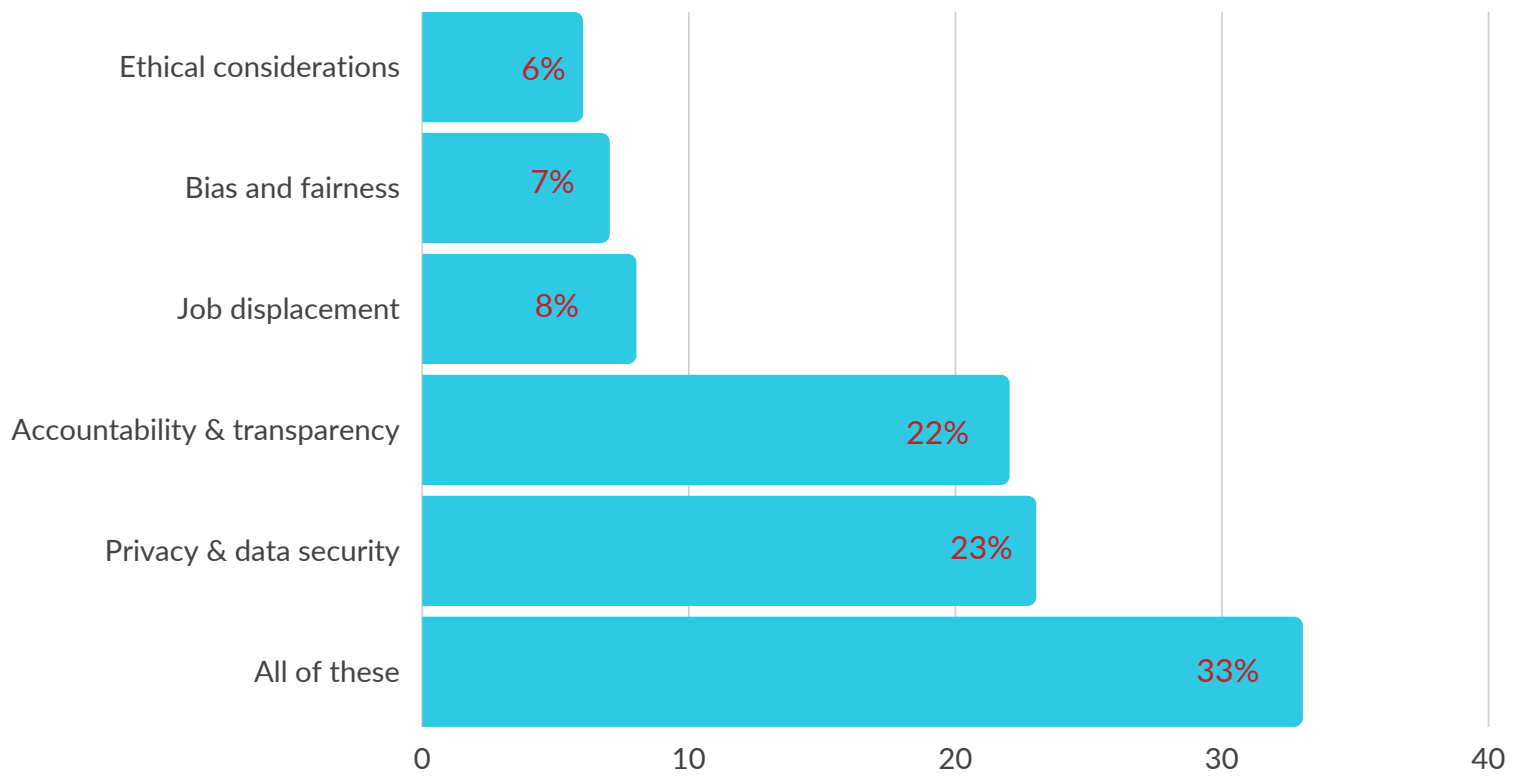
The subject of trust is a common one that has emerged in our research. With a large cohort of respondents displaying a negative attitude to AI and low levels of confidence in its outputs, we asked respondents to tell us what measures or actions could enhance their trust in AI technology for IT operations.

Multiple answers were allowed in this case.

Increased privacy safeguards emerged as the most frequent response followed by opportunities for human review and explanation of AI predictions.

However, over one third of our respondents or 36% said that all the measures cited were required indicating that proponents of AI have a lot of work to do address these issues, before widescale adoption in the enterprise is likely.





AI CHALLENGES FOR DECISION-MAKERS

Tied to our last question around trust, we also asked respondents to tell us the most important challenge they consider in using AI in ITOps.

As can be seen from the results, a wide array were cited with one third of all respondents saying that all of these challenges applied to their own circumstances.

The top response cited after that was privacy and data security followed by accountability and transparency.

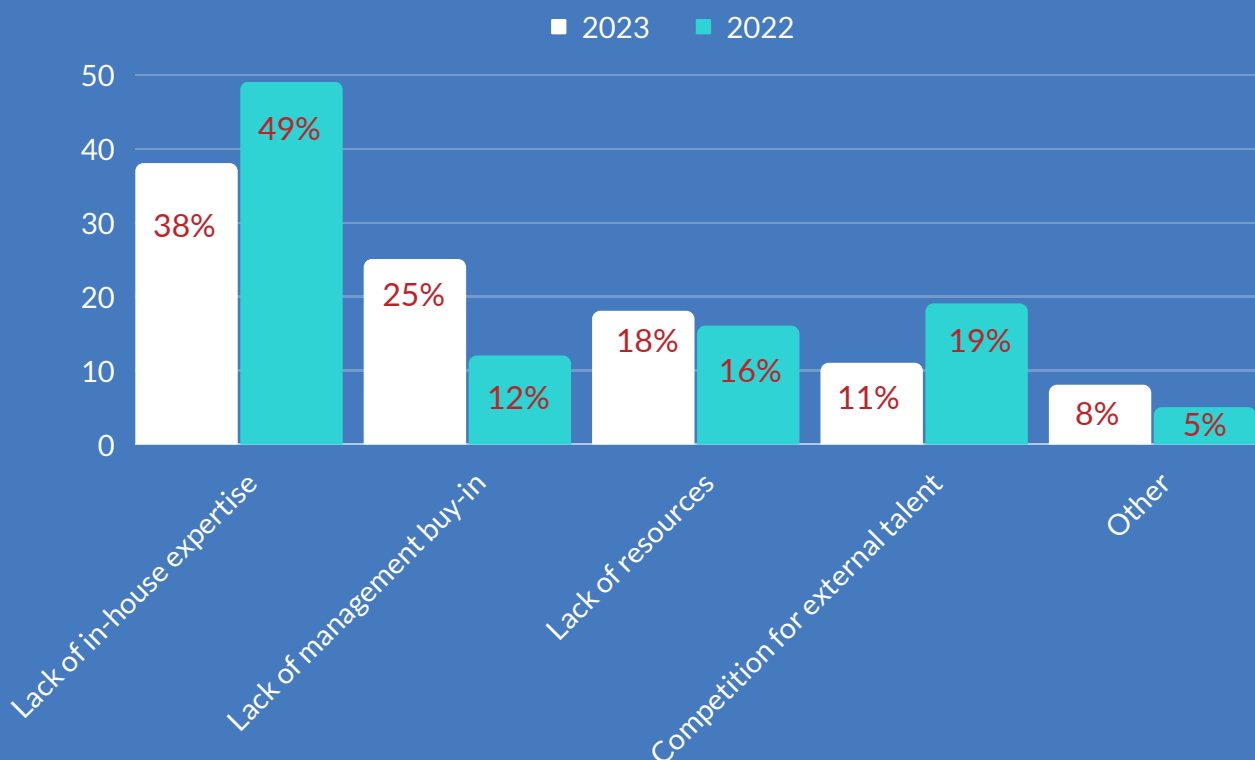
Interestingly, job displacement does not register as a major factor for the second year running. Despite lots of media articles highlighting the potential loss of jobs due to AI adoption, our IT professionals are not concerned by the prospect of displacement.

For two years running, just 8% of respondents cite it as a concern with other factors playing a far more important role for IT professionals.

Comparison

BARRIERS TO ADOPTION

A general shortage of IT skills has been highlighted in the Irish market for some time now and it appears the adoption of AI technology has suffered as a result.

38%*lack of in-house expertise***25%***lack of management buy-in*

When asked about barriers to adoption, 38% of respondents cited a lack of in-house expertise. Interestingly, this figure has declined from a high of 49% in 2022. Perhaps the spate of high profile redundancies from some of the large tech firms here has loosened the labour market somewhat.

However, one in ten of respondents still cite competition for external talent as an issue, perhaps indicating that the specific skills required for AI projects are in demand and commanding a premium in the market.

Connected to the question of expertise is the lack of resources cited by 18% of respondents in 2023. This view is consistent with 2022's result where 16% cited resources as a barrier to adoption.

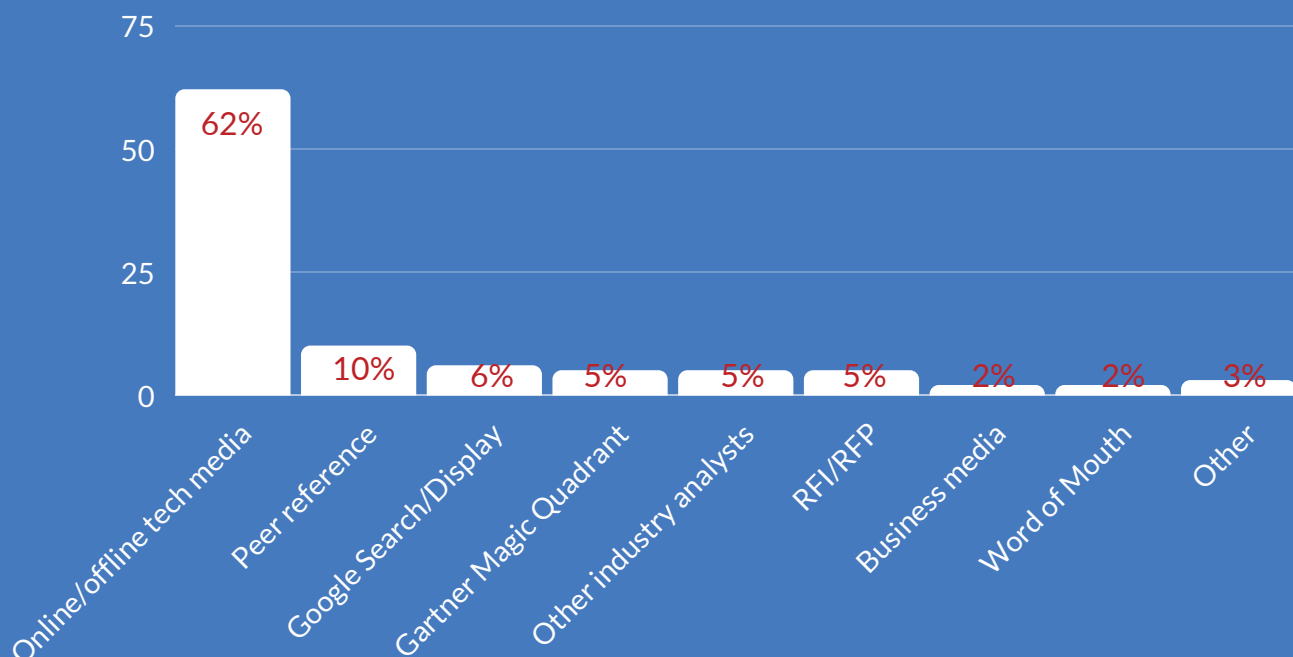
On the flip side though, lack of management buy-in has increased from 12% in 2022 to 25% in 2023. As more information about AI percolates our consciousness, perhaps risk averse decision-makers are taking a more conservative view of adoption, reflected too in the responses to some of our previous questions.

DECISION-MAKING

SOURCES OF INFLUENCE

Decision-makers are influenced by many factors when it comes to adopting new technologies. Enterprise technology buyers are notoriously conservative as cost and investment can have a profound effect across a global organisation if the technology fit is mismatched.

We wanted to understand these primary sources of reference.

62%*online or offline tech media***6%***Google search and display networks*

As can be seen from the chart, online or offline tech media are rated highly and are seen as a trusted source of information. Peer reference comes in second place and is some way behind at 10%. It's important nonetheless and will explain why tech companies place such emphasis on sharing customer success stories with their audience.

It's interesting to note the Google Search/Display network is not highly rated by buyers in the B2B technology industry.

The advertising network may be effective for consumer-based purchases or even low-level subscription-based ones in the technology space, but they are not a player in terms of influencing large-scale infrastructure investment in enterprise.

These results are consistent with those from last year's survey where tech media and peer reference were also cited as the top two influencing factors.

"It's early days but I think that once matured, AI will play a role in IT operations and allow for the automation of many routine tasks."

"Negatively - do not want to have to "trust the machine""

"With progression and human validation we can build trust in throughput."

"It offers both challenges and opportunities. This is especially true in the security realm where threat actors are using AI to orchestrate acts whilst admins are using AI to monitor and remediate at machine speed."

"Unclear on the best use cases and understanding the value and risks."

"Increased operational efficiencies, productivity boost and declined margin of operational error."

"It will become seamless and be used in all aspects of IT. However, a bit like weather forecasting, it will do a good job 85% of the time but will not be perfect for many years to come."

FUTURE AI EVOLUTION

Finally, we in an open-ended question, we asked respondents to share their opinions on the future of AI within IT service delivery.

The consensus is almost unanimous. There appears to be a guarded welcome for the technology within the sphere of both ITOps and NetOps.

Many of our survey respondents can see clear use cases for the technology, which they believe will deliver more efficiency and productivity.

However, this is caveated by an awareness that trust and confidence in the tool needs to be built from the ground up.

CONCLUSION

Our survey reveals that current adoption levels for AI are relatively low. There are many outstanding issues to be resolved. Issues around accuracy, validation, transparency and integrity. It seems that many senior IT decision-makers are taking a 'wait and see' approach when it comes to deployment.

That AI will be widely adopted in IT operations at some stage in the future is not under debate. IT professionals clearly see relevant use cases and clear, tangible benefits around productivity, efficiency and cost reduction.

The only question is one of pace. How quickly will the AI industry acknowledge concerns and address them in a meaningful way?

For our part, we work with vendors such as Juniper Networks who are committed to transparency and integrity around AI usage.

We look forward with great interest to our survey in 2024.

"We're committed to experience-first networking. And that means co-ordination between automation, insight, and AI-driven actions from the edge to the cloud. More specifically, correlation is required across the WLAN, LAN, WAN, Data Centre, and security domains to deliver cohesive operations and experiences."

KENN LARKIN, CEO,
AGILE NETWORKS

ABOUT JUNIPER NETWORKS

Juniper Networks is dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security, and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability, and equality. For more information, visit www.juniper.net



ABOUT AGILE NETWORKS

Agile Networks is one of Ireland's leading system integrators and part of the PlanNet21 Group. The company is based in Dublin's Citywest business campus and boasts a team of highly accredited network engineers, tasked with designing, deploying and supporting IT infrastructures based on leading hardware and software vendors. The company is an Elite Plus Partner with Juniper Networks, Ireland's first and only such partner in the Juniper Networks partner eco system. This accreditation recognises its status as the company's most successful partner on the island of Ireland.



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