

Industry perspectives on the transformation of security, safety, business intelligence and operational efficiency



Contents

Executive summary	3
Introduction	4
Methodology	5
KEY FINDINGS	
Top trends impacting the future	7
9 insights: From the acceleration of cloud and edge Al to growing use of facial recognition	9
Deep-dive: Responsible Al in video surveillance	15
Conclusions	19
Axis approach to Al	20
Appendix	21

Executive summary

As Al continues to transform video surveillance, its potential to improve security and safety, operational efficiency, and business intelligence is increasingly recognized.

This report examines the key opportunities and challenges and expected future trends in these areas but also how responsible practices are becoming crucial for companies in relation to their use of Al. Drawing insights from qualitative research as well as quantitative data sources, it outlines the possibilities and hurdles that Al poses.

Themes such as the balance between cloud and edge computing, ethical considerations, customer expectations, and the need for collaboration emerge. Looking ahead, AI in security, safety, and beyond will likely focus on generative AI, integrated capabilities, smarter AI systems, and deeper IoT integration, while also navigating complex ethical and privacy issues.

Key insights identified

- 1 Al adoption surges with differences between markets
- 2 The transition to cloud and edge Al continues to accelerate
- 3 Integration of diverse data generating insights
- 4 Growing use of facial recognition
- 5 New opportunities for business intelligence and operational efficiency
- 6 Al integration challenges bridging expectations and capabilities
- 7 Partnership and collaboration to enable Al integration
- 8 Navigating responsible Al
- 9 The road ahead future trends to watch: generative AI, smarter AI pipelines, AI and IoT convergence



Introduction

The rise of Al has created new possibilities for how organizations monitor and secure their environments. From facial recognition to predictive analytics, Al-driven systems have transitioned from cutting-edge innovations to essential tools for enhancing safety, security, for providing business intelligence, and enhancing operational efficiency. However, as Al evolves, so do the challenges associated with its deployment.

Al adoption offers significant advantages, including greater efficiency, improved decision-making, and enhanced output quality, benefiting businesses and society alike. However, it also presents challenges around privacy, cybersecurity, and technology integration, emphasizing the need for trust, responsibility, and accountability.

At Axis, we are leading this transformation, working closely with partners, end customers, and other stakeholders to shape a future where AI enables a smarter, safer world.

Methodology

This report explores opportunities and challenges shaping Al adoption in safety, security, business intelligence and operational efficiency. It combines insights from eleven indepth interviews with carefully selected experts from Axis global partner network, each demonstrating a proven track record and extensive expertise in the field of Al. Technology partners and system integrators from across the world were selected and interviewed during 2024. Each interview lasted approximately one hour and followed a semi-structured format.

To supplement the interview findings, data was drawn from two global surveys conducted by Axis in Q2 2024: the annual Axis sales channel survey and the Axis end customer survey. The Axis sales channel survey was sent to distributors and channel partners in 68 countries, generating about 4,900 responses. The Axis end customer survey was distributed to end customers in 64 countries, yielding around 900 responses.

A very special thanks to:



























Top trends impacting the future

The Axis sales channel survey and Axis end customer survey asked partners and end customers to identify the top trends impacting the video surveillance industry and their respective businesses. Both groups — channel partners and end customers — highlighted cybersecurity, risk and privacy, Al and generative Al, analytics and actionable insights, as some of the most significant trends shaping their industry and operations.

It's worth noting that several of these areas could be perceived to overlap and influence each other. This is confirmed by the in-depth interviews, where many of these topics are discussed together, highlighting their interconnected nature.

The top 3 trends impacting end customers

Cybersecurity, risk and privacy emerge as the top priority for end customers, with 61% of respondents ranking it as a critical area of impact. Analytics and actionable insights follow, identified by 36% of end customers as significant. Finally, Al and generative Al are recognized by 34% of respondents as transformative technologies, impacting the future of their business.

Which of the following trends do you consider most significant for your business in the near future?

Maximum 3 answers

Cybersecurity, risk and privacy: 61%

2 Analytics and actionable insights: 36%

3 Al and generative Al: 34%

34%

of end customers identify AI and generative AI as game-changing trends that will significantly shape the near future of their businesses.

62%

of partners rank Al and generative Al as one of the most significant trends impacting the industry in the future.

The top 3 trends impacting partners

Survey results reveal that partners recognize cybersecurity, risk, and privacy as well as Al and generative Al as the two most significant trends shaping the video surveillance industry, with both ranked by 62% of respondents. 50% of partners also highlight analytics and actionable insights as a key trend.

Which of the following trends do you think will be most important for our industry in the near future?

Multiple answers possible

Al and generative Al: 62%

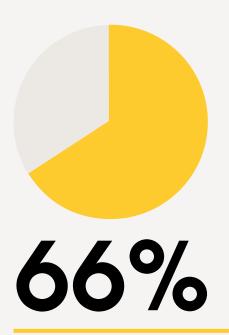
2 Cybersecurity, risk and privacy: 62%

3 Analytics and actionable insights: 50%

Senior management among partners name AI and generative AI as the leading industry trend

Axis sales channel survey reveals the top three industry trends identified by senior management, highlighting their top priorities shaping the future of the video surveillance industry. The survey gathered insights from over 600 representatives in top and senior management.

Al and generative Al lead the rankings with 66% of senior leaders recognizing these technologies as the most significant trend. Cybersecurity, risk, and privacy follow closely, noted by 61% of senior executives. Rounding out the top three, analytics and actionable insights were ranked by 56% of senior management as a key trend.



of senior executives and top management identify AI and generative AI as the most significant industry trend poised to impact their business in the future.

The interview findings reveal several thematic insights:

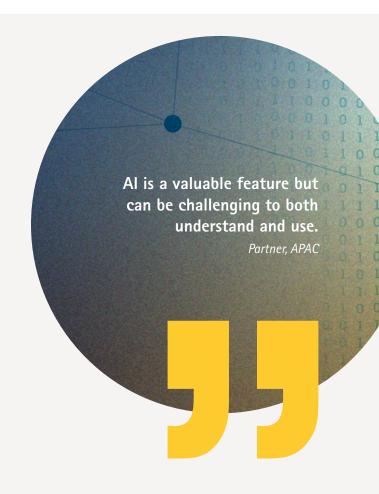


Al adoption surges – with differences between markets

Interviewees unanimously reported a significant buzz around AI, with interest skyrocketing over the past few years. Customers are not only becoming more curious about AI but are also growing increasingly knowledgeable about its potential applications. Despite this progress, most agreed that we are still in the early days of AI adoption, with much room for growth and refinement.

Al adoption appears to be more advanced in certain markets, such as the US, Japan, Singapore, and certain parts of Europe, where customers are more actively seeking Al solutions to improve surveillance and operational efficiency. Experts attributed this to variations in market maturity, regulatory frameworks, and customer readiness to invest in and deploy Al solutions.





2

The transition to cloud and edge Al continues to accelerate

The shift from traditional on-premise server systems to hybrid architectures continues, where cloud-based technology is combined with edge Al solutions.. This development is driven by the need for easier scalability, faster processing, and improved bandwidth usage. Edge Al plays a crucial role by enabling faster, local analytics with minimal latency that is essential for real-time responsiveness in critical situations.

At the same time, cloud integration is becoming increasingly important, especially for managing large installations on multiple sites. The hybrid model, which combines the immediate processing capabilities of edge Al on cameras with the scalability and easy access to systems in the cloud, is emerging as the preferred approach by many. This balance allows organizations to harness the strengths of both technologies.

By moving AI processing closer to the source, on edge devices like cameras, companies can reduce bandwidth consumption, enhance efficiency, and better support real-time applications such as security monitoring. As this trend continues, the hybrid approach is expected to continue to shape the future of AI in security, safety, business intelligence and operational efficiency.

3

Integration of diverse data generating insights

The integration of diverse data sources for a more comprehensive analysis is emerging as a trend that could revolutionize safety and security while elevating business intelligence and improving operational efficiency. Experts predict that integrating additional sensory data, such as audio and contextual environmental factors, to complement video data will enhance situational awareness, provide more actionable insights, and offer a more comprehensive understanding of events.

Experts emphasize that combining multiple streams of data enables more accurate detection and prediction of potential threats. For instance, in emergency scenarios, pairing visual data with audio analysis can allow security teams to respond faster and more precisely. This richer, context-aware approach reflects how human operators process multiple inputs to make informed decisions, representing a significant step forward in improving safety, security, and operational efficiency.



Growing use of facial recognition

Facial recognition has become widely adopted in many countries, particularly in Asia, where it is commonly used for urban security, surveillance, and commercial applications. In contrast, adoption seems to have been slower in Europe, the US and countries like Australia and New Zealand due



Looking further ahead, we'll see Al combining data from multiple sources for better insights. Multimodality as a concept has been there for quite some time, but I think it will accelerate. And that will enable more intelligent decision-making.

Partner, APAC

We see customers integrating Al with additional sensor data to provide richer, more actionable intelligence. And that is a whole new game.

Partner, Americas

to stricter privacy regulations and public concerns about surveillance. However, the introduction of new regulations is helping to clarify how facial recognition should be applied by differentiating use cases based on risk and providing a clear framework for its responsible use

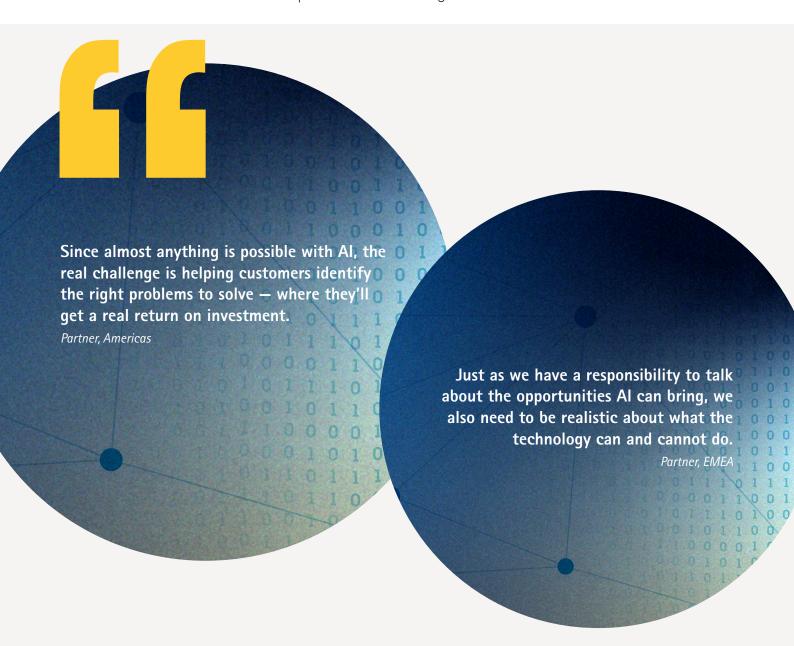
Interviewees predict that facial recognition will continue to gain traction globally. Ethical considerations around its use remain a central focus, particularly in regions with strong privacy laws. Most interviewees highlight that there are effective ways to implement facial recognition responsibly, including aligning with privacy regulations and maintaining transparency about how the technology works and should be applied. This transparency is seen as critical to building and maintaining public trust in the technology.



New opportunities for business intelligence and operational efficiency

The integration of AI is transforming network cameras into powerful, data-generating sensors. By integrating AI-enabled edge devices, such as cameras, with large-scale computational power like cloud computing, the video surveillance industry is being redefined. Experts highlight this paradigm shift in the interviews and report that AI-powered video solutions are increasingly being implemented in sectors like retail, logistics, and manufacturing. Common use cases include space optimization, people counting, asset tracking, and resource management.

A recurring theme in these discussions is Al's ability to deliver significant cost savings and operational improvements. By integrating video analytics with broader business systems, companies can achieve better resource allocation, automate processes, and make more informed decisions.





Al integration challenges: bridging expectations and capabilities

Across multiple interviews, a recurring theme emerged: the challenge of effectively integrating AI technologies to build systems that deliver better value. This is not just about leveraging technology for its own sake but about creating solutions that address specific needs and generate tangible benefits.

While Al offers significant potential to enhance surveillance and detection accuracy, several experts say they face difficulties in combining the right tools and technologies to produce reliable results. Selecting the optimal combination of Al software and hardware to meet customer needs efficiently remains a complex task. Advancements in Al hardware have paved the way for new capabilities, but they also introduce challenges, particularly for integrators working to ensure compatibility with existing legacy systems.

Another critical issue is the gap between client expectations and the actual capabilities of Al solutions. Customers often anticipate near-perfect accuracy — especially for applications like license plate recognition or anomaly detection. However, Al systems may typically achieve accuracy of 85–95% under some conditions, which may not align with these expectations. Factors such as video quality and environmental variability, also play a role in determining performance and the fact that different use cases inherently have different accuracy.

This challenge seems to be particularly evident in facial recognition and motion detection systems, where transparency about the strengths and limitations of Al technologies is essential. Experts emphasized the importance of managing expectations and fostering trust by clearly communicating what Al can — and cannot — achieve.



Partnership and collaboration for effective and responsible Al integration

The ethical challenges associated with the rapid deployment of Al technologies underscore the importance of choosing the right partners. Several interviewees stressed that selecting collaborators with aligned values — especially in areas like privacy, compliance, and view on Al ethics — is essential for them.

Partnerships that emphasize alignment on values and goals also play a critical role in overcoming the hurdles of Al integration. Collaboration among Al developers, integrators, and end users was repeatedly identified as a key factor for enhancing the reliability, relevance, and long-term success of Al implementations. By involving customers early in the process, stakeholders can ensure that the technology (and the intended use of it) is better understood, and user feedback is incorporated.

One practical example, highlighted by respondents across regions, is the concept of collaborative surveillance projects. In these initiatives, customers actively participate in the design and ongoing feedback loops of Al systems. This handson approach results in tailored solutions that address specific needs while keeping ethical considerations and real-world applicability in focus.



I think that ethics in partnerships shouldn't be taken lightly. We've turned down customers who wanted to use our technology in ways we felt were unethical. Choosing the right partners and the right customers is also a part of acting responsibly.

Partner, EMEA



Navigating responsible Al

Interviewees emphasized that responsible Al and ethical considerations are critical priorities in the development and deployment of Al systems. Many expressed concerns that decisions based on Al could become biased or unreliable. Other risks could be connected to privacy violations, where facial recognition and behavior recognition may create both legal and ethical challenges.

A recurring theme among respondents was the importance of embedding responsible Al practices early in the development process. This means designing systems that prioritize fairness, transparency, and data privacy from the outset, rather than integrating these considerations after deployment. The most significant risk highlighted by many was the proliferation of biased Al, which could have harmful societal consequences if not properly managed — especially when applied in sensitive applications like surveillance.

Several interviewees pointed to the EU AI Act as a pivotal regulatory framework shaping the responsible use of AI, particularly in high-risk areas. Most respondents viewed the Act positively, welcoming the clarity and predictability it brings. Several interviewees also called for increased regulation in other parts of the world to ensure that responsible AI practices are mandated by law on a global scale.

The ethical use of facial recognition was another area of discussion, particularly in regions with stringent privacy laws. Many customers in these areas remain hesitant to adopt facial recognition technologies.

While regulation was broadly acknowledged as necessary to build trust and accountability, several interviewees also stressed the need for a balanced approach to safeguard innovation while addressing critical privacy and data security concerns.



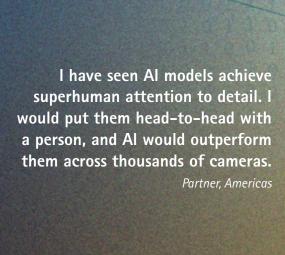
The road ahead - future trends to watch

The rapid pace of technological development in AI makes it increasingly difficult to pinpoint specific future trends. As several interviewees pointed out, the speed of innovation often makes trend forecasting seem impossible. Instead, there seems to be a collective focus on adaptability and continuous learning as technology evolves. Ultimately, while the future is difficult to predict, the direction seems clear: AI solutions are not only becoming more powerful, they are also increasingly efficient, and more integrated with a broader ecosystem of technologies.

Generative AI continues to transform security operations and enhance decision-making

Generative AI has emerged as a significant area of interest, and this was also mirrored in the survey results. While several interviewees highlighted the risk that expectations of generative AI's capabilities are inflated in some areas, the technology was broadly seen as offering promising applications, especially in security and safety. For operators working in security, generative AI will provide tools that support situational awareness and improve their ability to respond effectively to incidents. Over time, it will make automation of complex processes possible, improving operations, enhancing decision–making, and aiding in the planning, scoping, deployment, and configuration of surveillance systems.





Smarter Al pipelines

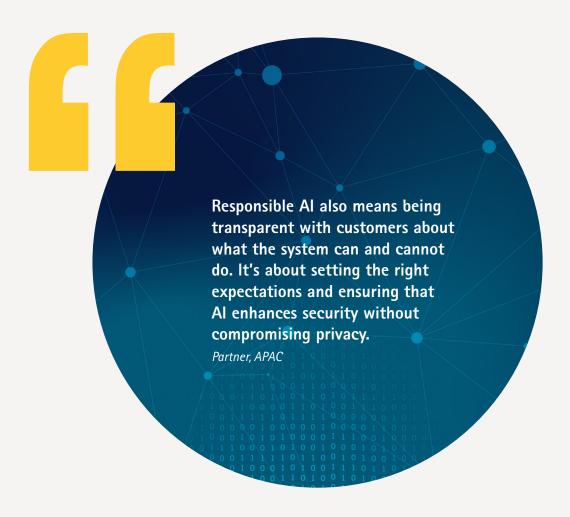
Deep learning and large neural network models continue to be pivotal in advancing Al capabilities. However, it's not just about scaling up the size of these networks: the focus seems to be shifting toward building smarter and more efficient Al pipelines. These pipelines aim to reduce computational power demands while maintaining — or even improving — accuracy. These efficiency gains can be critical for broadening Al's applicability, especially in resource-constrained environments or edge-based deployments.

Al and IoT convergence

Another trend is the integration of Al with IoT and sensor technologies, which is driving the evolution of surveillance systems. By combining video data with inputs from sound detection, motion detection, or other sensors such as temperature sensors, systems are becoming more intelligent and responsive. This convergence allows for more proactive, context-aware surveillance solutions capable of addressing complex security challenges in real time.

Deep-dive: Responsible AI in video surveillance

As Al continues to transform security, safety, business intelligence and operational efficiency, the conversation around responsible Al has gained increasing importance, raising fundamental questions about privacy, ethics, and the potential for misuse.



One of the central themes emerging from the expert interviews is the need for responsible Al practices. Some of the key topic areas that were brought up:

- > Facial recognition is highlighted as a very powerful AI, but also one of the most controversial. While it has the potential to enhance security and safety, it can also lead to serious privacy violations if misused. Experts noted that in regions like Europe, where privacy laws are stricter, there seems to be a greater emphasis on ensuring that AI, including facial recognition technologies, are being used responsibly.
- Human oversight is key: Several interviewees stressed the importance of maintaining human oversight in AI decisionmaking processes. AI can provide valuable assistance but should never replace human judgment to ensure
- that ethical considerations and context-specific nuances are taken into account. Given this, AI systems must be designed to support, rather than replace, humans.
- > Transparency a prerequisite for trust: Transparency is pointed out as a key to building trust for Al systems. Customers and end users need to understand how Al operates, what data it collects, and how decisions are made. Without transparency, there is a significant risk of distrust, especially when it comes to sensitive applications like facial recognition. Being transparent about systems' limitations and capabilities is an important part of this.

Data privacy and security are major concerns in using Al for surveillance, especially in regions with strict data protection laws. Interviewees emphasized the importance of handling personal data, with great care.

To meet privacy regulations and ethical standards, experts agreed that companies must also focus on minimizing data collection and anonymizing data whenever possible. These practices help reduce the risk of privacy breaches while safeguarding sensitive information.

Many interviewees also emphasized the importance of privacy by design, advocating for Al systems that limit the need for personal data. For instance, systems could be developed to analyze patterns or behaviors rather than identifying individuals directly, achieving effective results while minimizing the collection of identifiable information.

With AI systems increasingly relying on large datasets and networked infrastructure, data security is paramount. Systems must be designed to protect against cyberattacks and unauthorized access to sensitive data. This includes adequate encryption, secure storage practices, and strict access controls, just to mention a few of the measures needed.

Al enables human-augmented workflows — filtering out noise and allowing humans to focus on what actually matters.

Partner, Americas

We always say that Al should act as an aid, not make the final critical decisions. A human in the loop is essential, especially in security where the stakes are high.

Partner, EMEA

- > Bias and fairness in Al systems: Al systems, particularly those involving facial recognition and predictive analytics, are vulnerable to bias if not developed and tested carefully. This is especially important for the safety and security applications where biased Al can lead to false positives or unfair outcomes for individuals, such as misidentification or unequal treatment of individuals. Interviewees emphasized the need for more diverse training datasets and rigorous testing to ensure that Al systems are fair and unbiased.
- Ongoing monitoring and testing: Responsible Al also requires continuous monitoring and testing to ensure that systems remain fair, accurate, and unbiased. This involves regularly updating algorithms with new data and conducting audits to identify and address any potential biases.
- Compliance and governance in focus: As AI technologies evolve, so do the regulations governing their use. Experts highlighted that a key factor for companies deploying AI in safety and security is to stay ahead of regulatory changes and be meticulous in ensuring that their systems comply with existing and emerging laws.

The EU AI Act will shape how we deploy AI, particularly in high-risk areas like facial recognition. Companies will need to invest more in compliance to ensure their systems meet these new requirements — and those that will follow.

Partner, EMEA

We are excited about edge Al.
Besides improving performance,

privacy is enhanced when you are

not passing data through multiple

Partner, APAC

different systems.

Public trust is the cornerstone of any industry's license to operate. In-depth interviews highlight that widespread adoption of Al depends on maintaining the confidence of the public, authorities, and policymakers. This trust must be built through responsible Al practices adopted across industries, not just by individual companies.



The use of Al in security, safety, business intelligence, and operational efficiency is growing rapidly, with both partners and end customers recognizing its potential and the opportunities it brings. Despite the advancements made in recent years, there remains caution around the technology's limitations and risks. A clear understanding of what Al can realistically achieve, how new regulations set the scene for future innovation, and what responsible Al means in practice is needed.

Axis approach to AI

Axis approach to AI is rooted in one overarching principle: That AI technology, just like all technologies, should leverage and augment human intelligence, build on respect for human rights and should benefit people and society. This is in line with Axis vision, to innovate for a smarter, safer world.

As a company, we are committed to the advancement of Al driven by ethical principles. We stand by the OECD Principles on Artificial Intelligence, prioritizing transparency, trustworthiness, and the protection of human rights and democratic values.

The key pillars of this approach are:

- > Human-centric with respect for human rights: Al technology should serve to enhance human capabilities and contribute to a better world. Al must be designed to ensure safety and respect for people.
- Responsibility and accountability: We are committed to building the world we want to live in, and we acknowledge the societal impact of our work. This means that we develop, deploy, and use AI responsibly in our operations and across our value chain. We are accountable for the AI systems we create and to ensure they follow ethical principles, comply with laws, and manage risks.
- > Responsible innovation: We never inhibit explorative technology development because we believe that overlooking opportunities carries the risk of missing out on enhancements that could benefit individuals and society. However, there is a significant difference between exploring new ideas and commercializing them. We only commercialize innovations that we ethically stand behind and are in line with our vision of innovating for a smarter, safer world.
- A risk-based approach: We understand that different Al technologies carry different risks. To fully grasp these risks, potential applications and use cases must always be considered before new products and solutions are made available to others. All our products and solutions undergo thorough assessment before being made available to the market.

- Embedded ethics: Technology will invariably outpace legislation. Given this, emphasizing ethics within culture and practices is increasingly crucial for us as responsible innovators. While ethics are deeply embedded into Axis core values, culture and ways of working, genuine responsibility also requires clear processes, governance, and transparency.
- > Knowledge-led leadership based on partnership and collaboration: As industry leaders, we believe it is our duty to shape safe and ethical Al practices within our industry and to facilitate an informed discourse on Al's capabilities, strengths and limitations and ethical dilemmas. This responsibility involves educating and sharing our expertise and learnings with others from partners and end customers to political decision-makers, civil society, and media.



Al remains one of the most powerful and transformative technologies within the video surveillance industry. While there are significant opportunities for Al to improve safety and security, operational efficiency and business intelligence, there must be a focus on ethical implementation and meaningful integrations which drive value.

Mats Thulin | Director of Al and Analytics Solutions, Axis Communications

APPENDIX

Appendix 1: About Axis end customer survey and Axis sales channel survey
The annual Axis sales channel survey and the Axis end customer survey are two global
studies conducted by Axis during Q2 2024. The Axis sales channel survey targeted
distributors and channel partners across 68 countries, resulting in 4,900 responses.
Meanwhile, the Axis end customer survey was sent to end customers in 64 countries,
gathering approximately 900 responses.

Both surveys included questions designed to explore impactful trends expected to influence respondents in the near future. For end customers, the question read: "Which of the following trends do you consider most significant for your business in the near future?" Respondents were allowed to select up to three options.

For distributors and channel partners, the question read: "Which of the following trends do you think will be most important for our industry in the near future?" Respondents were allowed to select multiple answers.

The available answer options were identical for both respondent groups:

- > Al/Generative Al
- > Environmental sustainability
- > Ethics and trust
- > Cybersecurity, risk, and privacy
- > Cloud solutions
- > Analytics and actionable insights
- > IoT and interconnectedness of physical devices
- > Digitalization (moving existing processes into digital technologies)
- > Supply chain efficiency
- > No opinion

Appendix 2: About the in-depth expert interviews

The in-depth interviews for this report were conducted with selected experts from Axis partner network during 2024. The purpose of these interviews was to gain qualitative insights into the current landscape of experts working with AI to improve security, safety, business intelligence or operational efficiency as well as to explore the opportunities, challenges, and ethical considerations associated with AI integration in this area.

The interview process involved the following steps:

- 1. Participant selection: Experts were carefully selected based on their knowledge and experience in Al to ensure that a diverse range of perspectives was captured.
- 2. Interview format: Each interview was semi-structured, allowing for flexibility in discussion while ensuring that key topics were covered. This format encouraged participants to share their insights and experiences in depth.
- 3. Data collection: Interviews were conducted through online meetings, in person sessions, or phone calls, depending on participant availability. Most sessions were recorded and then transcribed for analysis.
- 4. Analysis: The transcriptions were analyzed to identify key themes, trends, and insights, which were then integrated into the report.

The interview guide included the following questions:

- > Can you briefly introduce yourself and your role within your organization?
- > For how long have you been working in the security and surveillance industry?
- > What is your experience with AI technologies?
- > How are you working with AI today?
- > What do you perceive as the primary opportunities for utilizing Al in video surveillance to enhance safety, security, and beyond?
- > Which technologies do you see most potential in?
 - Gen Al, LLM, foundational models, Video Analytics, Machine Learning, NLP, Natural Language Processing, Biometrics, Predictive Analytics
 - Semantic learning and symbolic learning
 - Ranked according to potential, long-term vs short term
- > What are the key challenges associated with the integration of AI in these areas?
- > What are the biggest risks associated with the integration of AI in these areas?
- > What do you do to mitigate these risks?
- > How do you envision Al evolving in the safety, security, and surveillance industry in the next year?
- > And in 5-10 years?
- > How do you perceive your market in relation to this development?
- > What does responsible AI mean to you in the context of the security and surveillance industry?
- > Do you see any risks in regard to ethics?
- > Do you know any good examples of responsible AI initiatives from the industry? Are these from within your organization?
- > What do you believe will be the most significant developments or trends in Al applications in the coming years?
- > How do you think the industry can address the challenges tied to Al discussed earlier?
- > How do you see Axis role in this?

About Axis Communications

Axis enables a smarter and safer world by improving security, safety, operational efficiency, and business intelligence. As a network technology company and industry leader, Axis offers video surveillance, access control, intercoms, and audio solutions. These are enhanced by intelligent analytics applications and supported by high-quality training.

Axis has around 5,000 dedicated employees in over 50 countries and collaborates with technology and system integration partners worldwide to deliver customer solutions. Axis was founded in 1984, and the headquarters are in Lund, Sweden.

