

# Navigating Physical Security:

## Top Trends You Should Know About in 2024

In the ever-evolving world of physical security, staying ahead means embracing the dynamic shifts and innovations that shape the industry's landscape. As we set our sights on 2024, a year set to redefine security standards, Videonetics stands as a leading force committed to deciphering the upcoming trends that will impact how we safeguard our cities, premises, people, assets, and invaluable resources.

Explore the following key trends to stay informed and enhance your security measures -

### A. Emergence of On-the-Spot Computing

The security industry is experiencing a transformative change due to the rise of on-the-spot computing. As security systems progress and generate increasing amounts of data, the need for real-time data processing has never been more crucial. On-the-spot computing, which essentially means processing data at the edge of a network, is gaining prominence for its ability to address this need. This approach allows for quick and responsive security systems by reducing latency and processing time, enabling them to counter potential threats promptly. This emerging approach of on-the-spot computing offers clear advantages over centralized models by handling data closer to its source. It unlocks the potential for real-time processing at accelerated speeds, resulting in action-oriented outcomes.

- **Reduced Bandwidth Usage:** By processing data at the edge, only relevant information or events can be sent to the central system, reducing the amount of data that needs



transmission over the network. It can be particularly beneficial in applications with limited bandwidth. Edge AI systems can continue to operate even in the absence of a network connection.

- **Increased Privacy and Security:** Edge AI can perform analytics on the edge device without transmitting sensitive data to a central server. It enhances privacy and security, as potentially sensitive information doesn't need transmission over the network.
- **Secure & Scalable:** Edge AI system architecture is modular, scalable and distributed. Processing data locally can ensure that certain types of sensitive information stay within specific geographical boundaries, aligning with data protection regulations.

### B. Multi-Modal Analytics for Improved Detection

In pursuit of heightened security, the trend of security systems utilizing multi-modal analytics takes center stage. Multi-modal analytics, powered by AI, enables security systems to analyze data from various sources, including images, video footage, audio recordings, and other sensor data. This comprehensive approach allows

systems to detect more intricate patterns and behaviours, significantly improving their effectiveness in identifying potential threats. Multimodality, involving the collaboration between multiple resources or systems, enhances threat detection by reconstructing the overall picture based on data from various sources and providing a more accurate depiction of an event, helping security personnel make better-informed decisions.

- **Increased Accuracy and Robustness:**

Multi-modal analytics can improve accuracy in threat detection. Different modalities may capture complementary information and combining them allows the system to cross-verify and reduce false positives or negatives. Multi-modal systems are often more robust in challenging environments and detect threats detected early. For example, if one modality, such as visual data, is compromised (e.g., due to poor lighting conditions), other modalities like audio and other sensors can still provide valuable information.

- **Object Tracking and Identification:**

Multi-modal analytics can improve object tracking and identification capabilities. Integrating data from various sensors and cameras allows for more accurate tracking of individuals or objects across different environments. For example, by combining the intelligence and capabilities of RADAR, Camera, and Analytics Server, we can have more insights and accurate events in Advanced Traffic management solutions

### C. Integration of AI with Visual Intelligence

The integration of Artificial Intelligence (AI) with visual intelligence marks a significant leap in the capabilities of security systems. By leveraging AI algorithms, systems automatically detect and track suspicious behaviour, adapting over time to improve accuracy and effectiveness.

**Various industries are looking to adopt AI-enabled video analytics to gain actionable insights:**

- Industrial sites can ensure better safety and compliance by detecting safety hazards like smoke, fire, accidents, people not wearing helmets/PPE, etc. through video feeds and AI algorithms. Real-time alerts can prevent injuries and damage.
- Urban municipalities and law enforcement agencies can leverage crowd behaviour monitoring, aggression/violence detection, and real-time alerts for prohibited activities to detect crime, track suspects, and respond faster to emergencies. Automated license plate recognition can help identify wanted vehicles or suspects.
- Transportation hubs and traffic authorities can analyze video feeds to detect traffic violations, prevent congestion, and respond to incidents quickly using analytics for vehicle classification, wrong-way driving detection, and more.
- Retail stores can use facial recognition to identify frequent shoppers and known miscreants. Customer traffic pattern analysis through heatmap generation can help optimize store layouts. People counting and queue management can improve customer experience and store operations.
- Healthcare institutions can monitor mask detection, social distancing violations, and PPE compliance to ensure better pandemic preparedness and hygiene. Patient monitoring and fall detection can help improve

healthcare services.

The integration of visual intelligence from video and images with AI and machine learning unlocks invaluable business intelligence and public safety capabilities across multiple sectors.

**D. Growing Importance of Privacy and Ethics**

As AI becomes more integrated into security and video surveillance systems, ethical monitoring, and privacy concerns have gained more eyeballs. Responsible and collaborative AI development is critical to ensuring that systems are designed and used in a way that protects individual privacy and civil liberties. It includes preventing the misuse or abuse of data collected by security systems, and ensuring organisations & individuals maintain control over their data and store only minimum anonymized data.

**E. AI and Cloud - A Symbiotic Alliance**

In the interconnected realm of physical security, the symbiotic alliance between AI and cloud has emerged as a trend. This trend represents integrating AI-powered solutions with cloud-based platforms, offering unprecedented flexibility, scalability, and convenience. This collaboration enhances the capabilities of security systems by leveraging the computational power and storage capacities of the Cloud.

**F. Increase in Adoption of Video Surveillance-as-a-Service (VSaaS)**

The surge in Video Surveillance-as-a-Service (VSaaS) adoption is reshaping the security landscape, fuelled by rapid expansion and convenient accessibility of cloud infrastructure. The widespread shift to remote work and the necessity for secure, real-time access to security data resulted in the swift embrace of cloud-based solutions. According to a Morphean survey, senior decision-makers in the

UK, Germany, and Sweden saw a 3% increase, climbing from 48% in 2019 to 51% in 2021, in the adoption of cloud-based VSaaS.


Key drivers behind this trend include cost-effectiveness, ease of deployment, scalability, the growing need for real-time access to data, and maintenance.

VSaaS can easily integrate with other cloud-based services, such as analytics platforms, storage solutions, and AI-driven applications. This integration enhances the overall functionality and capabilities of the surveillance system.

Cloud-based storage options made available by VSaaS providers offer flexibility and cost-effectiveness that allow users to choose the amount of storage they need and pay for it on a subscription basis, avoiding the need to invest in and manage on-site infrastructure.

**Conclusion**

The Path Forward: Videonetics and the Changing Security Landscape

Videonetics takes a step forward, incorporating innovative solutions that align with the significant trends in 2024. Whether using on-the-spot computing for rapid threat responses or integrating ethical AI and VSaaS, Videonetics leads by example. As we navigate through 2024, we urge you to think of Videonetics as a reliable guide, embodying a commitment to excellence and forward-thinking in the realm of physical security. Join us in acknowledging these transformative shifts for a future that prioritizes safety and reflects the progressive principles that Videonetics embodies. 

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