

Rail

Solving business critical challenges to provide a safer and smarter travel experience

Key challenges

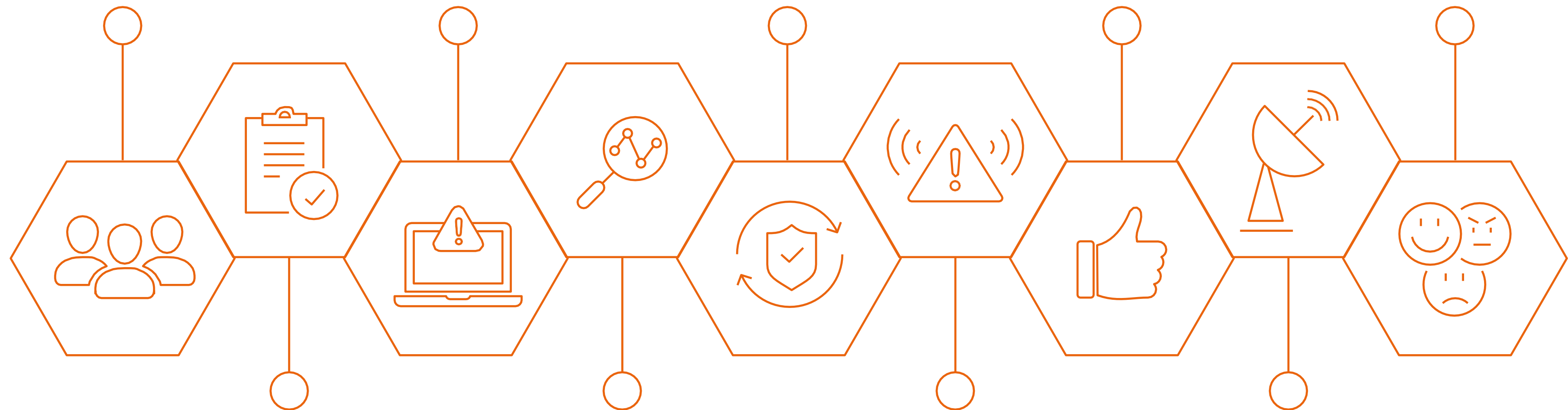
Ensuring passengers have a safe & smooth journey

React in real-time to incidents

Maintaining a safe, yet unobtrusive security protocol

Providing a first-class frictionless experience to traveller's

Maintain security operations throughout the passengers journey



Proactively manage crowds and queues

Support and analyze multiple video streams simultaneously

Providing real time alerts on stocks and instore analytics

Overcome poor network and bandwidth saturation

Capabilities for solving these challenges

Atos Computer Vision Platform provides:

Real time video analytics to support business analysis

Understand passenger flow, behaviours and site usage to increase revenue. Detect demand trends to forecast purchases and detect hot areas.

Secure and frictionless travel journey

Reduced queues and bottlenecks through Automatic identity checkpoints based on facial recognition and passport scanning.
Detect abnormal behaviours using AI and Scenario based rules.

Enhanced security

Real time video surveillance to detect abnormal behavior and prevent threats.
Automatic alerts enabling staff to be retasked, such as to security gates when queue lengths are increasing. Dynamic reporting covering operational parameters. GDPR compliant solutions.

End to end offering from consulting to support & management services

Maintains Edge devices and provides secure access locally on both human and machine interface level. Atos makes sure that functionality and secure connectivity are up-to-date by automatic monitoring of edge devices and identifying unusual events in real time.

High inference & streaming capabilities at the edge

Atos Computer Vision Platform is powered by BullSequana Edge nano, BullSequana Edge or BullSequana SA20G servers.
All three servers are equipped with powerful Nvidia GPUs for real time computer vision analysis.

Ipsotek VISuite

Ipsotek is a pioneer in the field of artificial intelligence video analytics solutions for mission critical applications. Ipsotek's easily configurable solutions make video searchable, actionable and quantifiable, providing crucial operational insights resulting in reduced operator response times and the ability to define behaviors as they unfold in real-time in dynamic and complex environments. Use cases include crowd management, face recognition, intrusion detection, perimeter protection, number plate recognition, traffic management and COVID-19.

Ipsotek is an Atos company.



Crowd & queue management

[Crowd management](#)



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[Crowd management](#)

[Face recognition](#)

Real-time traffic data, along with historical data series, can be used to recognize the formulation of queues. Staff can be alerted to react in time, avoid the forming of long queues, thus improving customer satisfaction and business efficiency.

Security lanes



Queue
Monitoring Lane
Bypass
Face Recognition
Abandoned
Objects

Landside Crowd Management



Social distancing monitoring
Queue monitoring
Abandoned object
Overcrowding detection
Incident Response
Intrusion/Loitering near critical area
Crowd Movement Detection*

Atos Computer Vision Platform provides a range of solutions to automate elements of this task and turn CCTV footage into actionable real-time data, alerts, and reports to reduce costs, improve response time, and augment passenger experience.

Security

[Intruder detection](#)

[Airport security](#)



LEARN MORE >

[Face recognition](#)

Managing Security Lanes, Entrances, and Pinch Points requires constant monitoring for any violation. Even with high staffing levels, incidents can easily be missed as shown by randomised penetration testing.

Atos Computer Vision Platform can provide an automated backup to this monitoring by detecting many types of crowd flow and security violations. It also generates valuable data about how passengers use the area and how staff are performing in their role to reduce the time spent in security.

Face Recognition



- Watchlist Alarms (High Threat)
- Face Mask/No Mask Detection
- Face Blurring
- Forensic Search

Entrances and Pinch Points



- People counting (Ingress/Egress)
- Wrong way detection
- Face Mask detection
- Face Recognition
- Forensic search

Perimeter Protection



- Any person or vehicle approaching the perimeter triggers an immediate alarm to the control room with live GIS coordinates of the where the incident is happening.
- Thermal/IR Perimeter Protection
- GIS PTZ Tracking
- Restricted Area Intrusion Detection
- Virtual Perimeters

Once an individual has been identified, the person's image can be used for a site-wide search to find all areas that the person has accessed and to link each of these incidents together in a map view.

Rail tracks

A breach into unauthorised areas on the airfield or on rail tracks may interfere with some critical operations. Maintaining the flow of these operations ensures the protection of valuable assets and the interruption or delay of travels.

Atos Computer Vision Platform can cover critical areas within an airfield or train station and immediately detect any intrusion, whether it is a temporary CP line breach, environmental protest, or a hostile actor.

Intrusion detection



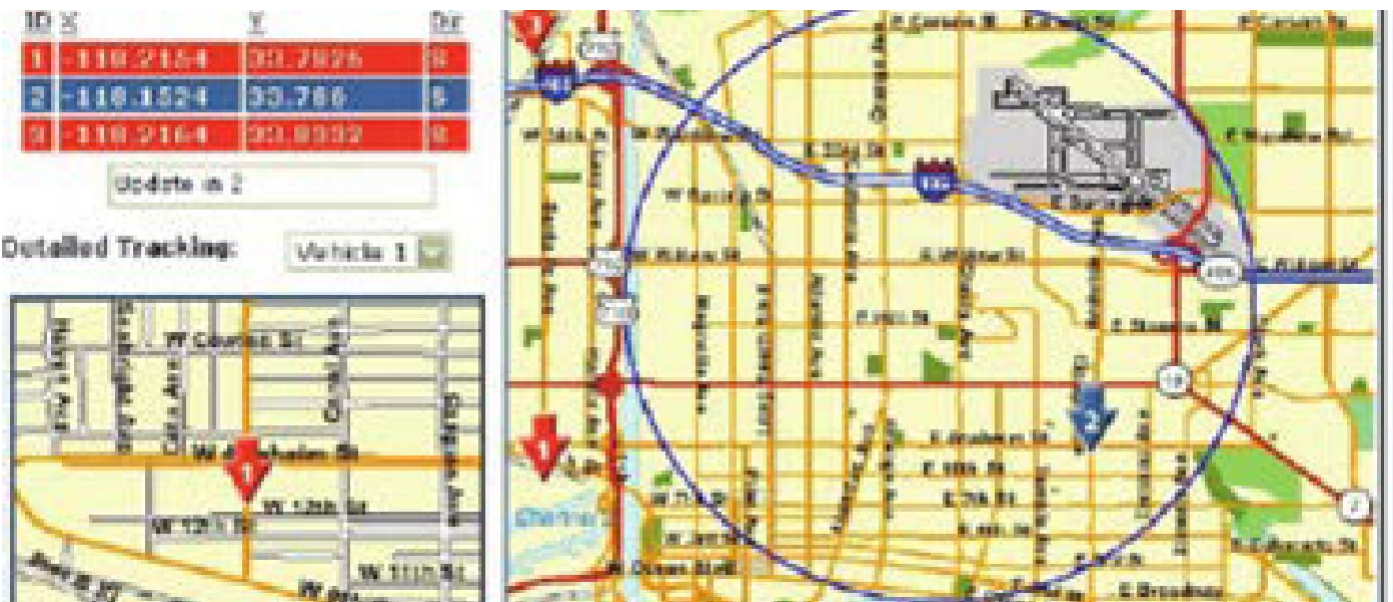
Person without PPE Detection



CP Line Violations



PTZ GIS Tracking*



[Intruder detection](#)

[Line crossing](#)

[Mask detection](#)



Parking management

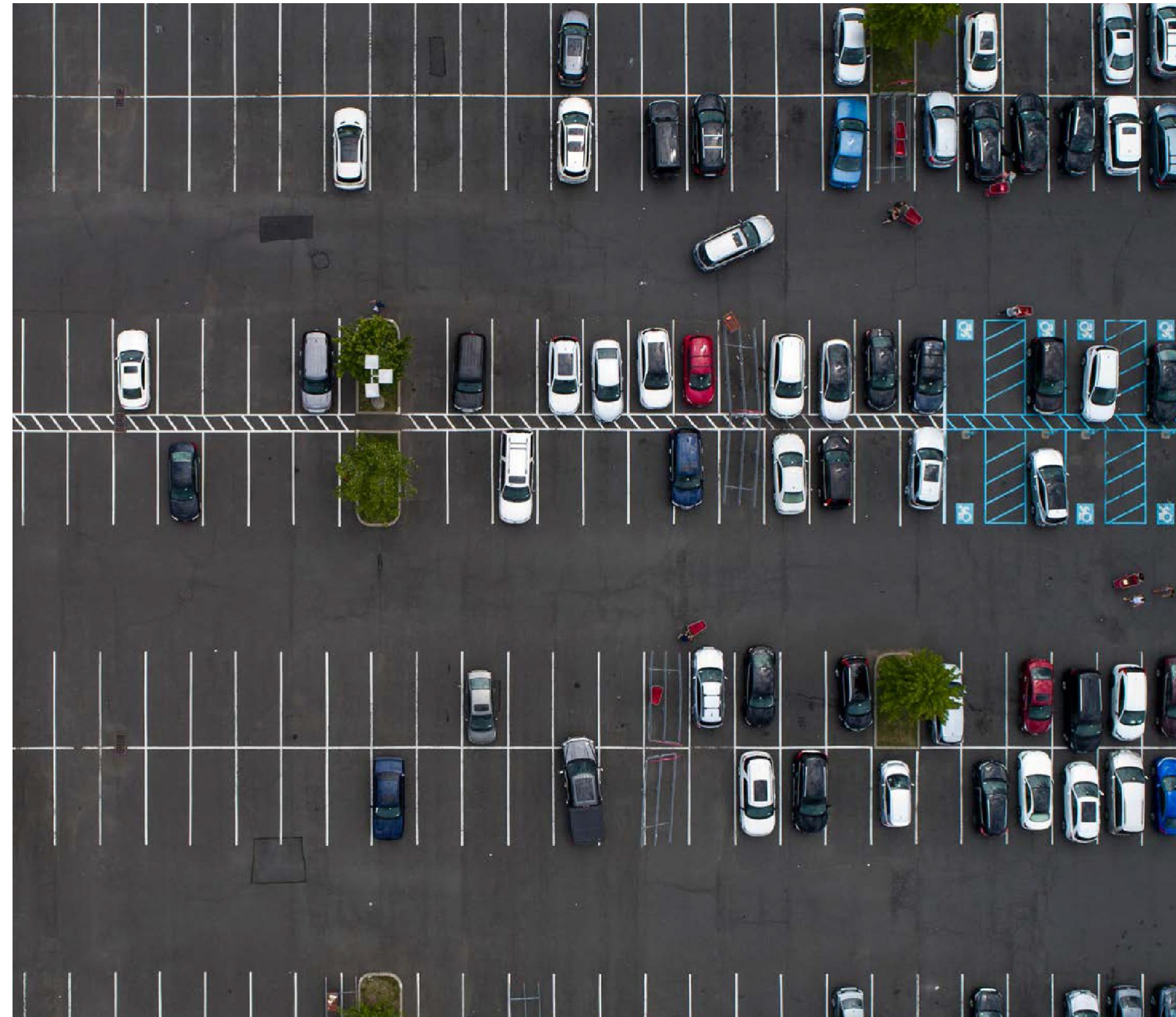
Illegal parking

Loitering detection



Traffic and road violations require accountability and evidence including video and captured license plates.

Atos Computer Vision Platform can identify the license plate of vehicles to monitor for fare evasion, report on the time in zone, or raise security alerts for restricted vehicles (or vehicles that do not match the license plate).



- Smoke Detection
- Wrong Way (Vehicle)
- Double Parking
- Car Park Occupancy
- Illegal Parking
- Stopped Vehicle
- Congestion
- Vehicle Type Counting
- Vehicle Travelling Wrong Way
- Vehicle Queue/Traffic
- Violation Heatmaps
- Automatic License Plate Recognition*



Reduce Congestion, Improving Passenger Experience



Prevent Lost Revenue from Fare Evasion

Road management

Roads are often the first experience that a passenger will have with an airport, and yet these areas are frequently heavily congested, cause significant delay, and contribute to the train station's carbon footprint. Frustrated or late passengers may respond by dropping off people in unauthorised areas or by violating traffic rules, causing further delays.

Atos computer vision platform helps monitor cameras in car parks, roads, tunnels, and bridges to alert operators of possible incidents early. By responding sooner and redirecting passengers, much of the congestion can be avoided, improving the journey and avoiding lost revenue.



Our pre-trained AI models detect:

- Illegal Parking
- Stopped Vehicle
- Congestion
- Vehicle Type Counting
- Vehicle Travelling Wrong Way
- Vehicle Queue/Traffic Violation
- Heatmaps
- Automatic License Plate Recognition



Reduce Congestion,
Improving Passenger
Experience



Prevent Lost
Revenue from
Fare Evasion

[Smoke detection
in tunnel](#)

[Illegal parking](#)

[Loitering
detection](#)
[Vehicle illegal
turn](#)



Level crossing

Level crossings cause some of the highest severity incidents, largest delays, and highest costs in any rail network. Appropriate mitigation measures are essential around all level crossings, especially those near cities and in rural areas.

Atos Computer Vision Platform can detect people, vehicles, and other objects that stop or deviate from the path on the level crossing, giving early (or secondary) warning to a possible incident.

Implementing Ipsotek at level crossings can save significant costs, reduce delays, and avoid incidents. The system can also be used to justify closing unused level crossings or for development route to find an alternative to a crossing.



- Monitor level crossing usage
- Automatic alarm if people are loitering or deviating from the path.
- Avoid incidents by detecting early or as a secondary verification system
- Generate reports of crossing usage by people, bicycles, cars, vans and other object types.
- Understand which crossings are higher risk, which crossings could be closed, and where other precautions are needed

Service areas

Vandalism to train carriages and theft of equipment is a major source of loss in the rail network but monitoring these areas requires too many operations staff to be economical

Atos Computer Vision Platform can monitor key areas, fencelines, and around trains to detect individuals entering high-risk areas automatically and immediately. This allows nearby security teams to respond or for the individual to be contacted via an audio address.

The system does not require staff to be on site – cameras could be deployed across a very wide area with alarms sent back to a centralised monitoring room. Intruders raise an immediate alarm, control room staff can monitor the situation, and police or quick response security teams dispatched.



- Detect work crews on track areas and alert control room staff to confirm, reducing the risk of accidents from miscommunication
- Detect and monitor PPE usage across the rail network.
- Generate reports and alerts to ensure compliance.

Develop new revenues with store analytics and operations

Store analytics

In-store data generated from points of sale, cameras, and sensors are ripe with insights that can help determine customer preferences.

The system provides:

- customer demographics
- Flow and Path map analytics: identifies popular and unpopular store aisles
- customer dwell time
- number of unique visitors.
- Dynamic Signage

With a better understanding of shopper behavior, retailers can improve store merchandising, increase overall sales, and deliver a better omni-channel experience for their customers. They can even break down product interest by age and gender to group similar products for the target customer.

Store operations

Focus on customer facing tasks
Less time on inventory counts
Less time on replacing misplaced items
No scanning for out-of-stock situations

Atos Computer Vision Platform powers the cameras in the aisles to scan items on store shelves to check stock levels, correct shelf location, and price accuracy.

Aware

Attract

Engage

Convert

Loyal



Computer Vision Platform

The highly scalable end-to-end computer vision platform

Pre-trained
& customizable
AI models



One hardware & software
platform providing pre-trained
& customizable AI models
enriched by Atos computer
vision experts through a
worldwide labs.

VISuite



VISuite empowers automation in CCTV applications through premium high end video analytics for live response and forensic investigations. It has been successfully deployed in mission critical solutions globally, across multiple verticals. VISuite is at the forefront of the Artificial Intelligence revolution backed by strong global patents.

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VISuite Forensics

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VISuite Investigation

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Full range of edge computing servers from edge datacenter/cloud to far edge

Atos Computer Vision Platform is based on compute intensive servers allowing cloud to edge computer vision models to process data in real time anywhere, whatever business constraints

BullSequana Edge nano



Plug & play analytics in a compact & ruggedized server

[Learn more](#)



BullSequana Edge



AI inference and training outside the datacenter

[Learn more](#)



BullSequana SA20G



AI inference & training inside the datacenter

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BullSequana X451



High performance computer vision computing for training

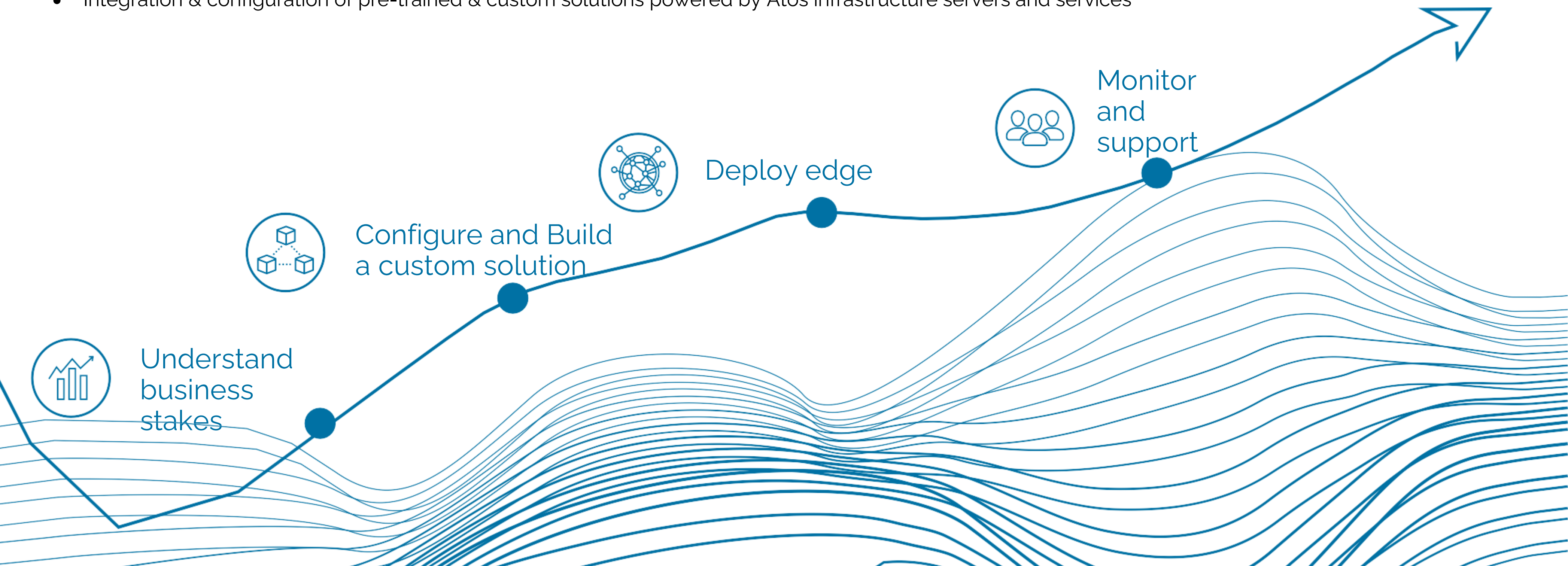
[Learn more](#)



Atos delivers an end-to-end computer vision approach

We take into account your existing infrastructure and your priorities, to go from idea to realization. The Atos approach combines business and technology expertise and accelerates the passage from idea to implementation.

- Delivering custom service with our worldwide expert labs
- Delivery & managed service to provide the best model to the customer APEX/OPEX Consulting
- Integration & configuration of pre-trained & custom solutions powered by Atos infrastructure servers and services



Further information



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About Atos

Atos is a global leader in digital transformation with 105,000 employees and annual revenue of over € 11 billion. European number one in cybersecurity, cloud and high performance computing, the Group provides tailored end-to-end solutions for all industries in 71 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos operates under the brands Atos and Atos|Syntel. Atos is a SE (Societas Europaea), listed on the CAC40 Paris stock index.

The [purpose of Atos](#) is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

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Let's start a discussion together

