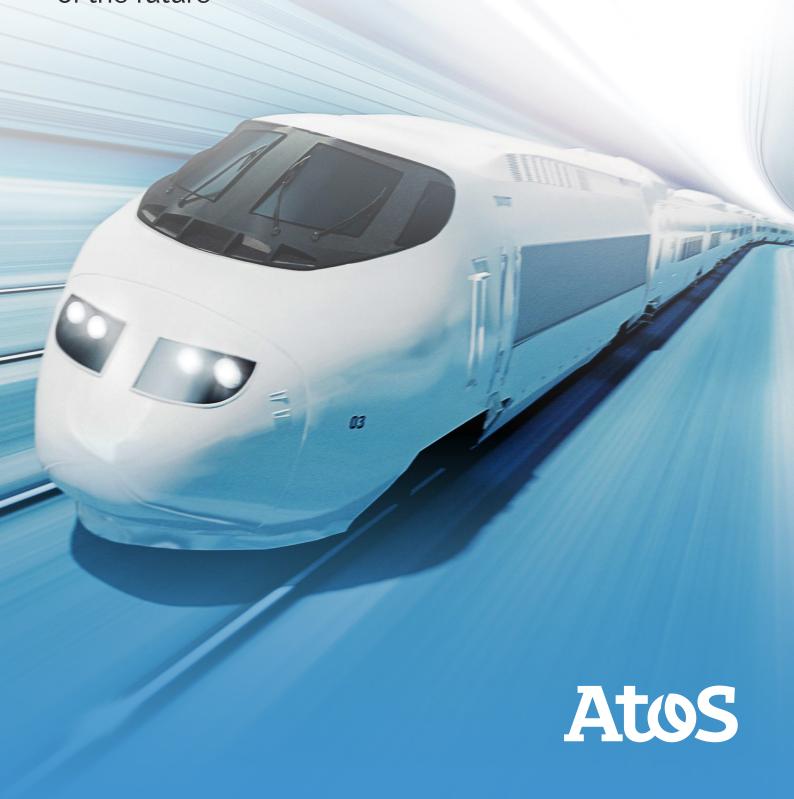# Atos in the global rail industry

Helping to create the safe, smart, sustainable railways of the future

Atos

In the 2030s, the rail landscape will look very different from that of today. Automated train operation and digitalized rail infrastructure and management will be mature. Big data from sensors on tracks and rolling stock will enable predictive asset maintenance. Freight will move along hyperconnected intelligent supply chains; and travelers will access multi-modal mobility-as-a-service.

Helping to realize this vision of the future, Atos works with rail operators, infrastructure and service providers worldwide. We deliver advanced fleet planning and management systems for punctuality and performance as planning cycles get shorter. We provide advanced infrastructure management and intelligent transport systems for high-performing operations. We develop interoperable data platforms at urban, regional, national and multinational levels. And we bring solutions and expertise in ticketing, payment and information systems to enhance customer service and maximize business value.

Atos' unparalleled partner ecosystem, together with our comprehensive portfolio, decarbonization solutions and focus on innovation, position us uniquely to support the rail industry achieve its ambitions. We look forward to collaborating with customers and partners on the journey to 2030 and beyond.

Roel Zuidema
Global Lead of Rail, Atos

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Challenges and opportunities for the rail industry

Building a rail industry for the digital age

With the imperative to keep people and goods moving, rail brings key advantages over other modes of travel. The success of high-speed rail underlines its efficiency, safety, security, availability and reliability. The urgency of climate change, together with the consequences of Covid-19, will drive more intensive use of public transport and a shift to rail as the most sustainable means of transport for medium-distance. Yet at the same time, the industry faces major challenges.

Increased demand year-on-year has pushed rail systems and lines to capacity. Pressures are immense to expand capacity while always meeting stringent safety standards and with existing track or infrastructure.

Demand for improved passenger experience particularly in relation to Mobility as a Service, ticketless travel, car charging, contactless payments and multi-modal door to door planning.

Pressures on costs have intensified, both in terms of investment and the drive for efficiency. With public expenditure on railways currently limited by the coronavirus pandemic, railways must look beyond sovereign financing to meet their investment needs.

The safety of passengers and employees remains paramount. In the new normal, it's likely that public transport will look very different to pre-pandemic in relation to hygiene and safety requirements and emergency prevention.

Accelerated decarbonization is essential to deliver on emissions reduction commitments and compete with other modes of transport. While electrification is key to greener mobility, more needs to be done to maximize the sustainability advantages of rail over road/air.

To meet targets to shift road freight from 18% to 30% by 2030, international supply chains must be seamlessly efficient and effective, with the challenge for rail companies to interact with others and maximize capacity and productivity along intelligent supply chains.

Long asset life and long-term investment cycles and planning brings extra challenges in a world in which business and technologies advance at digital speed, requiring rail companies to integrate multiple generations of technology into digital systems linked by secure IoT solutions.

As cyber threats become more complex, frequent and sophisticated, end-to-end and evolving cyber security strategies and responses are essential to keep people, data and systems secure, especially as the attack surface grows with increasing hyperconnectivity.

Embracing digital transformation is the key to succeed

As rail operators, service providers and partners build back from Covid-19, digital transformation is a critical enabler to meet every one of these challenges.
Enabling the connection of infrastructures, assets, employees, passengers and freight, this transformation will revolutionize the way railway services are operated, managed, maintained and provided.

Atos' capabilities and expertise in the rail industry

Passenger engagement

Passenger experience

Combining omni-channel, CRM, e/m-commerce, smart retailing and chatbots, we help rail organizations provide seamless 360° contextual customer experience across all digital and physical touchpoints. Our platforms and APIs integration services help rail providers to join or federate multi-player service ecosystems and provide multi-modal transport from any point to arrival.

Benefits:

- Improved passenger satisfaction, brand loyalty and revenue
- Increased passenger management capabilities
- Improved passenger safety
- Increased revenue from an intelligent integrated ecosystem generating business value

Ticketing and payments

Our automated fares collections and ticketing integration services, optionally powered by AI, enable to set up a truly end-to-end ticking management.

Benefits:

- Increased passenger satisfaction from seamless multimodal journeys
- Increased passenger numbers through frictionless travel
- Improved efficiency, revenue, pricing models and incentives through enhanced data collection

Fleet and carrier services

Fleet and asset management

Our digital fleet & mobile asset management platforms help rail operators to optimize management of their trains using IoT technologies.

Benefits:

- Increased capacity, reliability and efficiency of rail networks and assets
- Increased levels of passenger satisfaction
- Optimized operational expenditure with efficient preventative maintenance scheduling
- Reduced CO2 emissions and increasing fuel efficiency

Fleet operations systems

Our critical operations systems integration services for rail provide 24x7 orchestrated and secure transport services.

Benefits:

- Efficient train utilization resulting in operational costs reduction
- Increased visibility and control of the rail fleet and rolling stock
- Reduction in accidents and vehicle failures
- Utilized fleet data to drive innovation and improve the passenger experience

Rail processes and workplace management

Solutions for the day to day challenges faced by transport operators in operation efficiency and allocation of limited resources.

Benefits:

- Improved efficiency of on-site workers
- Proactive and data-driven decision making
- Increased employee and workforce productivity
- Decreased employee turnover
- Ensured regulatory compliance and staff qualifications are in place and up to date

Infrastructure management

Rail infrastructure operations

Our secure transport services help to transform your infrastructure to take advantage of the agile digital mobility. We provide railway critical communication services, traffic management for rail and remote monitoring using intelligent video analytics.

Benefits:

- Increased number of passenger journeys
- Improved customer / passenger experience
- Increased passenger trust and safety
- Improved safety and threat detection from video surveillance and analytics
- Improved visibility of assets allowing quicker and more informed decisions

Rail fixed asset management

Our services enable rail organization to inspect and maintain the infrastructure assets efficiently. Latest real-time predictive asset management technologies check the quality of an asset and help to better manage maintenance scheduling and asset renewals.

Benefits:

- Reduced downtime and increased asset availability
- Reduced costs of maintenance
- Reduced impact of disruptions, less financial penalties and refunds
- Improved workforce safety
- Improved train punctuality resulting in increased customer satisfaction

Intelligent Transport Systems

Our intelligent transport systems help to improve safety, efficiency, comfort and sustainability of transport, leveraging data analytics and integrating IoT technologies.

Benefits:

- Reduction in stops and delays at intersections
- Speed control and improvement
- Capacity and incident management
- Improved safety and mobility for passengers
- Enhanced employee and workforce productivity

Cyber Security

With the cyber threat landscape evolving at a rapid scale in a complexly growing environment, cyber security has become one of the top business risks.

Our portfolio brings the power of AI, big data analytics and automation to offer more efficient and agile security controls. Our portfolio is built on 6 building blocks:

- Trusted digital identities
- Industrial and IoT security

- Digital workplace security
- Data protection and governance

- Hybrid cloud security
- Advanced detection and response

Atos is #1 in Europe and a global leader in cybersecurity, we offer our rail industry customers end-to-end security with our team of over 6,000 security specialists and a worldwide network of Security Operation Centers (SOCs).

Decarbonization

We are committed to helping our rail industry customers to accelerate emissions reduction efforts on the journey to Net Zero.

From our climate consultancy practice, EcoAct, to our open and diverse ecosystem of partners, including research bodies, SMEs and technology partners, Atos is uniquely placed to support you each step of the way.

Through our own industry-leading Net Zero program, we know what it means to sustainably transform operations – learnings you can directly access through our partnership. We can help you to:

- Measure and map your decarbonization journey to meet your targets, including an assessment of your ambitions, your current emissions and maturity, and carbon-reduction action planning
- Decarbonize your technology through our green IT solutions and services

- Decarbonize your wider business through stakeholder engagement, efficiency measures, renewable energy and business transformation
- Offset carbon through offsetting projects and initiatives while working to meet your targets

Atos is a world leader in decarbonization, we have been recognized year after year for our environmental program and leadership in decarbonization.

References

Working with our customers to help ensure the safety, efficiency, capacity, sustainability and competitiveness of rail.

Supporting operationally critical applications for Network Rail

Atos has partnered with Network Rail for over 25 years; we provide systems administration, train performance, predictive maintenance, information distribution, asset management & safety management.

Supporting NMBS/SNCB to help reinvigorate the Belgian economy

During the Covid-19 pandemic, the Belgian Government decided to distribute 12 free train tickets per citizen to encourage 'staycations' and support its economy. Atos rapidly provided a secure and scalable solution that managed a million ticket requests in its first weeks, reaching 10% of the population.

Helping to deliver the Societe de grand Paris

Atos, Axione and Siemens are working in partnership to supply, implement and maintain the multi-service network and video surveillance system for three of the four future Parisian metro lines (15, 16 and 17); this significant network expansion is the largest urban transport project in Europe.

Accelerating digital transformation and data governance with SNCF

SNCF Reseau trusted Atos' consultative approach to define and implement a new data-driven strategy to facilitate data exchange, improve asset management and accelerate digital transformation. We built a data governance model to exploit the full value of data for over thirty of their projects using IoT and big data analytics.

Shaping the future Digital Workplace with PKP PolskieLinieKolejowe

Working with PKP PolskieLinieKolejowe, Atos delivered a new robust infrastructure platform, including migration of data, for HR SAP HANA. This helped PKP PolskieLinieKolejowe to drive out the full performance and efficiency benefits of SAP HANA solutions as part of a modern digital workplace.

High customer satisfaction through

Improving communication with passengers of S-Bahn Stuttgart - DB Regio. Atos provided the control center of S-Bahn Stuttgart - DB Regio with a future-proof IP-based solution for communicating with its passengers. This enables passenger-related announcements to be quickly transmitted to the trains and increases customer satisfaction. The solution integrates seamlessly into the existing infrastructure.

Supporting mission-critical IT

Underpinning a city's complex and high-pressure transport infrastructure, Atos helped transform a public transport company's IT Service Desk to enhance user experiences while achieving major efficiencies. Ranging from ticket gates to cable cars, a wide variety of essential technology must be supported.

Using gamification to improve safety of maintenance staff

Atos worked with a Dutch Railway company using gamification to drive behavioral change and increase the safety of their maintenance staff. The initiative led to 70% increased employee awareness to tackle safety issues and 65% acknowledge being more vigilant towards risk.

Our partner ecosystem

Worldline

Worldline is a world leader in the payments and transactional services industry. Atos and Worldline work in strategic partnership, enabling and supporting the digital transformation of rail, including advanced and connected payment services and passenger experiences.

Siemens

Our unique, strategic partnership with Siemens includes high-end signaling & automation technology for mass transportation in dense traffic areas. We combine rail expertise and the strong product and portfolio from Siemens and decarbonized digital platforms and services from Atos.

AnyVision

AnyVision is the leading provider of visual intelligence solutions on facial recognition and identification built to function on any sensor, with any resolution in real time. AnyVision and Atos bring together the brightest minds in AI and computer vision, helping the rail industry to ensure and enhance safety.

Hacon

Hacon provides cutting-edge software solutions for public transportation and logistics. Atos and Hacon deliver solutions for train planning and capacity management, enabling rail network providers and operators to optimize their infrastructure.

HERE

HERE is the global leader in its market, with start-of-the-art location intelligence to keep people, goods and organizations moving safely and efficiently. HERE support detailed mapping of every rail device track side, and, matched with an inventory list and Atos infrastructure expertise, upgrades and maintenance is made more efficient.

Hitachi Vantara

Hitachi Vantara's Internet of Things (IoT) and video analytics solutions, combined with Atos own data analytics and industry knowledge help to improved train performance, monitoring, maintenance, and passenger safety.

Perpetuum is a subsidiary of Hitachi Vantara, helping Atos to optimize railway operations, with self-powered, wireless sensing technology, combined with vibration engineering expertise and rich real-time analytics.

Bentley

Bentley provides digital twin technology and compliments Atos' expertise in predictive maintenance. Bentley's technology allows seamless exchange of data across colleagues and helps deliver real-time operational insight to support maintenance.

Skylock

Skylock is a leading authority for the design and production of anti-drone technologies for detection, verification and neutralization of unauthorized drones. Together with Atos, we can ensure the safety and security of railway infrastructure sites.

Railroad Software

Railroad Software provides industry defining software with personalized service from rail experts. Atos and Railroad Software work together to deliver rail terminal and railroad compliance software and solutions for management of railyards and track assets, and working hours compliance

Semtech

LoRaWAN is a technology for communicating small electronic IoT devices, accelerating IoT enablement anywhere. Atos and Semtech help the rail industry harness the power of IoT and cloud, enabling real-time communication of data and analytics to enhance performance and efficiency.

Stimio

Stimio Railway solutions improve railway competitiveness and bring benefits along the chain. From rolling stock to infrastructure, from usage to condition-based monitoring, for infrastructure managers, engineering and maintenance teams, Atos and Stimio work together to help improve rail operations.

Trafi

Trafi technology brings together public and shared mobility into a single Mobility as a Service platform. Atos and Trafi work in partnership to enable cities and territories evolve connected Mobility as a Service.

Research, development and innovation

Atos works in research and development (R&D) to promote and progress innovation with the rail industry and wider transport ecosystems.

We spend €235M in research and development, annually. We have 3,000 patents, 10 research and development centers across the globe and 3,200 experts involve in R&D. Our innovation and R&D labs cover strategic domains including artificial intelligence, cloud solutions, collaborative workplace, cybersecurity and many more. Our technological expertise and our capacity for innovation are major drivers of client satisfaction and business growth.

Data is at the heart of the rail industry's digital transformation, with the convergence of 5G, cloud, IoT and edge technologies combined with the power of automation and AI. We deliver innovative transport applications and blueprints to help the transport ecosystem to reap the benefits of these emerging digital technologies.

Just some of our projects

An intelligent, interoperable and integrative open source MARKETplace to incentivize the new data economy

I3-MARKET addresses the growing demand for a single European Data Market Economy by creating platforms that demonstrate that data economy growth is possible. i3-MARKET aims to provide technologies for trustworthy, data-driven collaboration and federation of marketplace platforms.

A smart dispatcher for secure and controlled sharing of distributed personal and industrial data

The project addresses the challenges of consumer consent and data security in the smart cities environment. The team is developing a framework for processing data owner consent, legal rules, and effective contracting, as well as joint security and privacy-preserving mechanisms.

Ecosystem for services based on integrated data streams from multiple sources

This enormous amounts of data generated by mass products represent major challenges for data-driven Industries. Unlike today's proprietary Cyber-Physical Product (CPP) ecosystems that are not open to third parties, this project focuses on what CPP and their sensor data can bring into industries.

A European federated network of information exchange in logistics

Fenix aims to develop the first European federated architecture for data sharing serving the European logistics community of shippers, logistics service providers, mobility infrastructure providers, cities and authorities in order to offer interoperability between any existing and future platforms.

Real-time condition-based maintenance for adaptive aircraft maintenance planning

By replacing fixed-interval inspection with adaptive condition-based interventions, ReMAP can deliver an estimated benefit to the European aviation of over 700 million Euros per year, thanks to lower maintenance costs, fewer unscheduled maintenance events and increased aircraft availability.

Contact us

If you want to learn more about:

Our portfolio and expertise

Our customer references

Our partner ecosystem

Our research and innovation

Our decarbonization ambition

Or have a question?

Email us at: rtlmarketing@atos.net

Visit our website at: atos.net/rail

Or if you want to speak with one of our experts, get in touch directly via message on LinkedIn:

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About Atos

Atos is a global leader in digital transformation with 107,000 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 is a SE (Societas Europaea), listed on Euronext Paris and included on the CAC 40 ESG and Next 20 Paris Stock Indexes.

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.

Find out more about us
atos.net
atos.net/career

Let's start a discussion together