

Strategic Alliance

**SIEMENS** | **Atos**

# The Alliance shaping an ever more connected world

Advancing digital industry and intelligent infrastructure



# How the Alliance is shaping the connected world



**Roland Busch**  
President and CEO, Siemens AG

“We will continue to combine the strength and expertise of both companies to bring innovative digital solutions to our customers.”



**Rodolphe Belmer**  
CEO, Atos

“Leveraging our strong strategic Global Alliance with Siemens, we aspire to accelerate the digital transformation and growth of our customers. We want to contribute, together, to the consolidation of a sustainable, safe, and decarbonized digital ecosystem, focused on tomorrow’s digital challenges.”

**We are living through an era of exponential connectivity. The physical and digital worlds are ever more connected. ‘Things’ are becoming more intelligent and autonomous. Trains and cars drive themselves. Production lines optimize their own processes. Buildings look after the people inside them.**

Orchestrating this connectivity and harnessing the ensuing data is a complex but worthwhile task – to balance transforming the economy while ensuring sustainable use of the world’s resources.

Delivering a vision of a connected world takes an organization that itself has converged—one that combines the best of both the digital and real worlds.

The strategic Alliance between Atos and Siemens is based on a trusted partnership for intelligent industry and infrastructure. For a decade, this joint powerhouse has been delivering groundbreaking digital-industrial solutions in all sectors around the world.

We are at your side, bringing together all the capabilities to realize your vision of sustainable and secure digital industry and infrastructure.





# What we do and how we do it

## Digital and physical united

The combination of a global technology powerhouse and a leader in digital transformation provides the special mix of capabilities required at the meeting point of information technology and operational technology. Our integrated services enable you to overcome the complexities and exploit the opportunities of the connected world. We provide end-to-end solutions tailored to your needs, so you can improve your existing operations or implement completely new business models.

## Global scale, local touch

Atos and Siemens are both truly global companies; so, no matter how large or complex your operations are, we have the scale and capacity to deliver robust, standardized, and efficient solutions. With a presence in around 200 countries and a global workforce of about 400,000 employees, we are keenly aware of local regulations, and we have people on the ground to provide solutions that work for local needs.

Atos and Siemens are part of Horizon Europe, the biggest research and innovation framework program in Europe, running from 2021–2027. It promises to achieve breakthroughs, discoveries, and world-firsts by taking great ideas from the lab to the market, especially in the field of digitalization. Fourteen projects are currently under way, including:

- maximizing the impact of a data-driven economy;
- predictive security for IoT (Internet of Things) platforms and smart objects; and
- Artificial Intelligence (AI) supporting cancer patients across Europe.

Atos and Siemens are founding members of GAIA-X, a European Alliance for industrial data and cloud, in which representatives from politics, business, and science are creating a proposal for the next generation of data infrastructure in Europe. This will be a secure federated system that meets the highest standards of digital sovereignty, while promoting innovation.

The project will be an open, transparent digital eco-system, where data and services are made available, collated, and shared in an environment of trust.

## Secure, sustainable solutions

As you make your digital enterprises and infrastructure more connected, autonomous, and intelligent, we ensure that they remain secure and sustainable. With a combined total of around 7,500 cybersecurity professionals worldwide, we build security into all our solutions by design. We are committed to achieving ambitious decarbonization goals ourselves, and to assisting you in the pursuit of your own.

## Innovation and co-creation

Over the years, we have jointly invested in key technologies — like AI, edge computing, cybersecurity, and blockchain — based on a commitment of €330 million. We are also involved in a variety of industry-standard initiatives in these fields.

**Read on to find out more about proven examples of our co-innovation which is bringing together physical and digital solutions in key industries around the world.**



# Manufacturing

## Scaling smart factory programs

Manufacturing companies operate in a highly challenging environment. Success requires agility and responsiveness. For those prepared to invest and digitally transform their organizations, the rewards are significant.

Through our work with a focus group of leading manufacturers, we have found that most have already identified their use cases and completed proofs of concept. Their concern now is how to scale up across their global enterprise at optimum cost and speed.

Scaling up smart factory initiatives takes clear operational goals, integrated equipment data models, and robust data pipelines. Machine learning (ML) may also need to be employed for both real-time and offline analytics.

Our Alliance is actively resolving these issues by providing global manufacturers with end-to-end solutions that address their major challenges.

## Smart control rooms increase focus and performance

Production monitoring systems in process industries raise huge volumes of potential alarms every day. Eighty percent of them can be ignored, but filtering out the ones that cannot takes a huge manual effort

— and getting it wrong can be a costly mistake.

Atos and Siemens bring together an open IoT eco-system and a ML algorithm into a smart control-room solution. It predicts events and avoids downtime, fine-tunes consumption of raw materials, and maximizes quality of output—enabling chemicals, manufacturers, and CPG producers to optimize Overall Equipment Efficiency (OEE).

### Optimize energy consumption

We helped one consumer-packaged-goods manufacturer, which had a brownfield site and heterogenous technology, to optimize energy consumption at machine level. We used a ML algorithm to monitor and manage shopfloor equipment, optimize its utilization, and reduce energy consumption — and cost.



### **Digital twins for asset transparency and performance**

Digital twins are virtual replicas of products or assets such as factories, oil platforms, or windfarms. They visualize IT, OT, and operator data in context to enable intuitive interaction and feedback. We use them to increase asset availability and performance, as well as reducing operational costs. In addition, they are very useful in proofs of concept for critical infrastructure.

Our digital twin for renewable energy won the Digital Leadership Award at Re ASSET 2020. We implemented it for India-based windfarm operator, Renom Energy Services, whose CEO, Lakshmanan Subas Chandra Bose, told us, “The integrated digital twin platform is encouraging us to rethink our current business model, from time-based to generation-based.”

### **AI-powered test parameters optimization to improve quality**

Manufacturers are continuously digitizing and standardizing their production processes. Siemens and Atos have jointly developed AI-driven quality control leading to higher first pass yield (FPY) in the production of printed circuit boards (PCBs). Robust testing with data-driven classifications and recommendations avoids current and future errors.

As a result, the ML model tremendously reduces pseudo errors as proven in the Siemens’s Motion Control equipment manufacturing plant Erlangen (50% of pseudo error reduction has already been achieved – this rate should improve to 80-90% after refinement of the solution). It further delivers decision support for test-engineers in the context of setting the best parameters and displaying all relevant information in real time within one common dashboard on the shop floor.

### **Better data speeds time to market for CPG**

Consumer packaged goods (CPG) product lifecycles are getting shorter. There’s a pressing need to streamline the R&D and formulation process, integrating it with procurement and manufacturing. Atos has implemented the Opcenter RD&L (Research, Development, and Laboratory) from Siemens for a well-known, global CPG customer.

This joint solution has brought consistency to data across the company, increasing flexibility and reducing complexity. Improved data accuracy has compressed the product approval process from 3-4 weeks to 3-4 days. Costs have been lowered due to improvements in process optimization, quality testing and product recalls. Regulatory compliance issues have been reduced thanks to more transparency and control.

# Transport

## Multi-modal transport and Logistics 4.0

In a sector disrupted by new entrants, business models, and marketplaces, transport and logistics organizations need to be resilient and have a relentless focus on cost and value. Atos and Siemens help transport organizations transform to multi-modal transportation and realize their vision for Logistics 4.0.

By implementing a digital program including IoT, Advanced Analytics, and blockchain, we ensure you deliver superior customer experience (CX) and achieve competitive advantage. With advanced forecasting, superior demand and supply simulations, process automation, and complex route optimization, we enable you to:

- rethink journey experiences for passenger and freight;
- boost agility and streamline costs;
- develop new offerings in next-generation eco-systems; and
- guarantee safety and compliance at every stage of the journey.

## NExTEO – High end signaling and automation technology for mass transportation

The French Public Railway Company SNCF needed to increase transport capacity for commuter transport in the Paris region by safely reducing the time interval between trains travelling along the RER E line. This has become necessary, because the Paris region's commuter rail network has remained largely unchanged while the number of passengers continued to grow.

In 2016, Siemens and Atos teamed up to implement a new system of automation, control, and supervision of trains called NExTEO. For this project, which represents an unprecedented technological challenge, Siemens leverages the expertise of Atos in supervision systems on the national rail network. Siemens has introduced high-end signaling and automation technology for mass transportation in dense traffic areas and developed and deployed its new technology trains operating system CBTC (Communication Based Train Control) combining supervision system ATS Vicos CBTC and Airlink radio communication.

The innovative system has revolutionized operations starting with the RER E line, while drastically improving punctuality and passenger satisfaction. Together Siemens and Atos are co-creating secure solutions to meet forthcoming European rail modernization legislation, which requires all European rail infrastructure and security systems to be digitized by 2030.

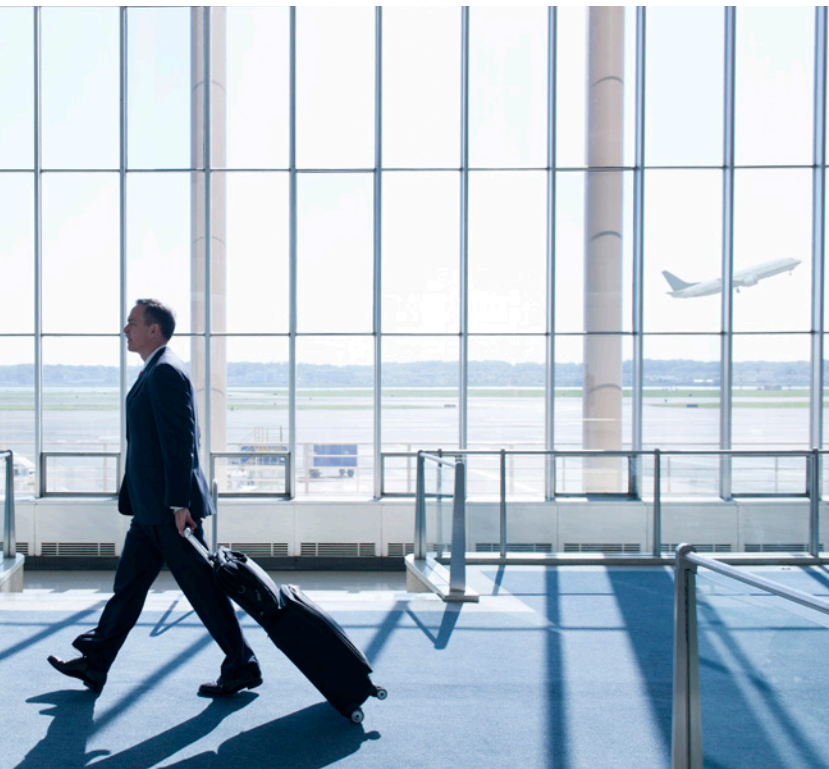




## **Société du Grand Paris – transit network infrastructure**

A consortium of Atos, Axione, and Siemens is supplying, implementing, and maintaining a multi-service network and video monitoring system on three new automatic metro lines being added to the Grand Paris Express rail network. This is the largest urban transport project in Europe and the contract will last a minimum of 18 years.

Through the combined capabilities of Atos in cybersecurity, Siemens in video surveillance and access control, and Axione in metro rail telecommunications, the consortium will provide the Société du Grand Paris with a highly resilient, secure, and sustainable rail management network.



## **One airport journey**

Imagine you are going on a journey from one of Europe's busiest airports. You arrive on a train built by Siemens, guided by its signaling and automation solutions. Or, you park in a car park that uses a ticket-and-entry system built by Atos. Your e-ticket is delivered to your phone by an Atos-managed network. The information on the screens in the airport comes from an Atos system, while the physical infrastructure was built by Siemens. The Siemens security system is powered by Atos edge analytics, providing a seamless and safe journey. The airport power distribution system, operated by Siemens, runs on digital infrastructure provided by Atos.

In this decarbonized airport, digital innovation powered by Atos enables the Siemens-controlled heating, ventilation, and air conditioning systems to significantly reduce the energy consumption of the airport. Only a digitally-enabled power system can optimize the power consumption of an airport and, coupled with Atos's consulting capability, unlock the road to zero carbon while maintaining passenger comfort.

If you made the same journey in a few years' time, facial recognition might mean you don't even need to bring your passport. An AI algorithm trained by Atos data scientists would optimize the movement of Siemens-powered service vehicles around the airport, getting them to the right place at the right time even if schedules slip.

Atos and Siemens through their trusted Alliance deliver a safer and more satisfying experience for the traveler, and a more sustainable environmental footprint.

# Municipalities and power utilities

## Transitioning energy with smart grids and services

Atos and Siemens work together to integrate IT and OT for digital utilities. We believe that responsiveness, anticipation, and co-creation with operators will be key success factors to help manage the energy transition together.

Our smart grid offering covers distribution management systems, geographic information systems, and smart metering. We cover the entire energy value chain, providing utilities with customer relationship management and billing systems, data analytics, e-vehicle charging infrastructure, and energy trading and risk management systems.

## Driving decarbonization with e-charging solutions

E-mobility is growing fast, with 125 million electric vehicles expected to be on the road by 2030. Charging infrastructure needs to expand capacity by 15 times in the next 10 years.

Citizens in Milan, Italy, now benefit from a new integrated e-vehicle charging platform as-a-service. This includes a consumer app to start and pay for the charge, and detailed analytics on infrastructure and customer behavior for the utility. It has been welcomed as a great step forward in decarbonization for the city.

The Atos-Siemens Alliance will offer this as a white-label solution to smart cities, parking owners, fleet managers, enterprises with their own charging points, mobility service providers, and charge-point operators.

## eMetering

Amid rising volumes of meter data, changing regulation, and pressure on margins, utilities need to update their legacy systems and develop new commercial services for customers. Our Alliance has deep experience in meter data management, and we are certified in market-leading solution EnergyIP.

We replaced the legacy system of Spanish utility company, Repsol Electricidad & Gas, with a new standardized yet customizable system. Siemens provided the modern application and Atos executed the systems integration. Now Repsol Electricidad & Gas has one integrated meter data-management system with an open, modular architecture, fit for the future and with significantly lower internal costs.

Atos and Siemens manage more than 130 million smart meters worldwide.

Siemens has been positioned by Gartner, Inc. in the Leaders quadrant in its 2018 Magic Quadrant for Meter Data Management Products for its EnergyIP Meter Data Management (MDM) product.

# Hospital infrastructure

**Due to a worldwide aging population, the healthcare sector is seeing an exponential increase in demand for services. Organizations facing staff shortages and cost pressures see digitalization as one of the main ways to become more efficient.**

**Smart hospitals use digitalization to improve staff efficiency, reduce energy costs, and mitigate risks such as infections, ransomware attacks, and power outages. Most importantly, smart hospitals use technology to improve the patient experience.**

**In smart healthcare, many different systems have to work together, and this calls for integration. Our Alliance provides hospitals with the highly integrated systems they need to increase levels of efficiency, patient care, and staff safety.**

## Hospital decarbonization

Healthcare is responsible for 5% of global carbon footprint. Hospitals consume 2.5 times more energy than a commercial building of similar size. We offer one integrated package for reducing energy costs and CO<sub>2</sub> emissions for both building infrastructure and IT systems.

## Real-time location services

Only 40% of hospital equipment is in use at any given time, and nurses spend 72 minutes per shift looking for it. Siemens provides advanced IoT infrastructure to capture the location of equipment, staff, and patients. This data is then integrated by Atos into workflow systems to optimize equipment utilization.

## Cybersecurity

Cyberattacks on hospitals are common. It is important to make sure that hackers cannot use OT infrastructure to gain access to IT systems or vice versa. Since Atos is #1 in Europe and #3 worldwide for cybersecurity, and Siemens is among the top 10 global software publishers, together we can provide the holistic approach to cyber- security that digital hospitals require.

## Crisis management

Events such as the pandemic or large accidents require hospitals to scale up quickly and manage a crisis efficiently. This means staff, IT systems, medical equipment, and the building itself must be adaptive. The co-operation of companies such as Siemens and Atos is crucial in providing an integrated crisis-management solution to enable staff to face challenging events effectively.

## Low-carbon technology for the public sector

Siemens is one of the approved suppliers to a Net Zero Carbon Delivery Framework for any UK public sector bodies wishing to use current and future technology to define a pathway to net zero. Participating authorities include central government departments and executive agencies, National Health Service (NHS) Healthcare Trusts, educational establishments, fire and rescue services, social-care bodies, housing associations, local authorities, police authorities, and public corporations.

## **Atos and Siemens support the UK Government's New Hospitals Program**

The New Hospitals Program is the biggest hospital building program for England in a generation, setting out a plan to build more than 40 digitally advanced hospitals. Atos and Siemens have been commissioned by the NHS's digital arm, NHSX, to develop national guidance on the delivery of digitally advanced hospitals. Together, Atos and Siemens have:

- defined a digitally advanced hospital vision and a set of design principles to ensure digital technology and cyber security are considered at every stage of the process;
- developed a capability model that will enable healthcare services organizations to become digitally advanced;
- identified a set of technologies that digitally advanced hospitals should consider implementing; and
- outlined a number of personas and user journeys to show how technology can improve staff and patient experience.



# Harnessing connectivity to create a safe and sustainable future together

## Decarbonization

Atos is a leader in the sustainability of digital services and technologies. The company has been carbon neutral since 2018 — offsetting the full scope of our operational emissions. Now it is on track to achieve net-zero by 2035 — neutralizing all carbon under its influence, including that of suppliers and partners.

Siemens is one of the first major industrial companies aiming to achieve 100 percent renewable energy and worldwide net-zero carbon footprint by 2030. We exceeded our half-way target in 2020 and, as of February 2021, had invested €65 million in energy-efficiency projects at our production facilities and buildings, reducing CO<sub>2</sub> emissions and resulting in about €13 million of savings per annum.

We help our clients achieve their own decarbonization goals in several ways. Atos offers a digital decarbonization assessment — a six-week study of current emissions and carbon reduction actions against organizational ambitions to reveal where and how to move forward on decarbonization. Siemens provides services, products, and technologies to drive energy-efficiency optimization, reducing OPEX costs, increasing resilience, and improving public image.

## Driving cybersecurity standards

Atos and Siemens were among the founding members of the Charter of Trust, the world's first joint charter for greater cybersecurity, established in 2018. Together with the other partners, we believe that effective cybersecurity is a precondition for an open, fair, and successful digital future, and that by adhering to and promoting the 10 principles of the charter, we are creating a foundation of trust for all. As a credible and reliable voice, we collaborate with key stakeholders to achieve trust in cybersecurity for global citizens.

## Technology collaboration

Innovation and customer-centricity have been at the heart of our Alliance since it began in 2011. Together, we have pioneered many groundbreaking R&D programs such as industrial data analytics and machine intelligence, digital twins, edge computing, and cybersecurity. These have been co-developed by experts from our two companies, have been released to the market, and have created significant business value for our customers.

Over the past five years, Atos and Siemens have co-operated on AI R&D, focusing on machine intelligence. One of the key challenges in AI is developing the ability to deliver value-added services that are industrialized and repeatable. To address this, our experts have built a trusted AI deployment platform on which to design and build high-value use cases. The aim is to establish a wide range of generic industrial AI capabilities and service offerings — security operation centers, data center management, video security, digital signage, and bots — to enable the rapid implementation of machine intelligence at industrial scale for our customers.

Atos and Siemens devote significant effort to forward-looking technology innovation such as quantum computing, Augmented Reality/Virtual Reality (AR/VR), and blockchain. We follow an incubation process that aims to deliver new value to a specific market, for example food and beverage, where the use of blockchain promises significant advances in food traceability.

### **Blockchain, a game-changer for Food and Beverage**

Siemens and Atos have joined forces to improve blockchain delivery for our customers by creating a set of generic re-usable blockchain components. Our unique approach provides customers with tested interoperability, improved quality, speed, efficiency, and sustainability in solution delivery. Together, we can solve a wide range of traceability problems for our customers —whether it is following a shipment around the globe or tracing ingredients from farm to fork.



# About Siemens

Siemens AG is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability, and internationality for more than 170 years. Active around the world, the company focuses on intelligent infrastructure for buildings and distributed energy systems, and on automation and digitalization in the process and manufacturing industries. Siemens brings together the digital and physical worlds to benefit customers and society. Through Mobility, a leading supplier of intelligent mobility solutions for rail and road transport, Siemens is helping to shape the world market for passenger and freight services. Via its majority stake in the publicly listed company, Siemens Healthineers, Siemens is also a world-leading supplier of medical technology and digital health services. Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of electrical power that has been listed on the stock exchange since September 28, 2020.

In fiscal 2020, which ended on September 30, 2020, the Siemens Group generated revenue of €57.1 billion and net income of €4.2 billion. As of September 30, 2020, the company has around 293,000 employees worldwide.

# 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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