

## BACKGROUND INFORMATION

# Customers and partners

## AT&T

- The company: AT&T Inc. is the world's largest telecommunications company and the largest provider of mobile telephone services in the U.S. AT&T is currently ranked 13th in the Fortune 500 rankings of the largest United States corporations, with 2021 revenues of US\$168.9 billion.
- The challenge/need: AT&T is improving access to the right data at the right time to gain deeper insights and make better decisions in support of operational and sustainability objectives across the company.
- The solution: As part of the customer relationship, Siemens has installed a base of over 1,500 automation systems and 3,000 fire-safety systems for AT&T and is providing operational support for AT&T's National BMS Operations Center (BMSOC), which facilitates optimization of the installed base. Siemens is also running an enterprise program in support of AT&T's efforts to establish standardized maintenance requirements for automation systems as well as fire- and life-safety systems. As a next step, the open digital-business platform Siemens Xcelerator will enable maximum collaboration and solution-building opportunities to accelerate the digital transformation of AT&T and its customers.

## NVIDIA

- The company: NVIDIA's (NASDAQ: NVDA) invention of the GPU in 1999 sparked the growth of the PC gaming market and has redefined modern computer graphics, high performance computing and artificial intelligence. The company's pioneering work in accelerated computing and AI is reshaping trillion-dollar industries, such as transportation, healthcare and manufacturing, and is fueling the growth of many others.
- The challenge: To enable companies across industries to create the first AI-enabled, full-design fidelity live digital twins. This technology would allow teams to interact with, explore and make changes to their design. Combining manufacturing and operational information in a more immersive way will unlock new levels of optimization, innovation and confidence in decisions.
- The solution: Siemens and NVIDIA are expanding their partnership to enable the industrial metaverse and increase use of AI-driven digital twin technology. As a first step in this collaboration, the companies plan to connect the open digital-business platform Siemens Xcelerator with NVIDIA Omniverse, a platform for 3D design collaboration and virtual-world simulation. This combination will provide the foundation for an industrial metaverse that uses physics-based digital models from Siemens and real-time AI from NVIDIA to enable companies to make decisions faster and with increased confidence.

## BMW

- The company: The BMW Group is the world's leading premium manufacturer of automobiles and motorcycles. The BMW Group production network comprises 31 production and assembly facilities in 15 countries; the company has a global sales network in more than 140 countries.
- The challenge/need: The BMW Group has just announced BMW ifactory, a global strategy to reinvent its automotive production and set new industry standards in climate protection and competitiveness.
- The solution: In an ecosystem with strong players, innovations can be delivered faster. The integration of Siemens Xcelerator with Nvidia's Omniverse will help industrial customers to transform their manufacturing operations. Early adopters like BMW are already paving the way.

## Elvia

- The company: The future is electric, and Elvia plays a central role in the electrification of Norwegian society: Ensuring that almost two million people in Norway's largest network area – about 50,000 km<sup>2</sup> – have electricity in the socket.
- The challenge/need: The energy transition is being accelerated by digitalization. Norway is an electrification leader in the areas of electric vehicles (80% share of new car sales in 2022) and electric heating. With more than 90% hydropower, the country has already achieved a high degree of decarbonization in its power generation. However, a new initiative for residential photovoltaic systems will lead to a massive rise in distributed energy resources.
- The solution: In the past, Siemens control center software had already helped to deal with the massive increase in electric vehicles in the Oslo area. Together with Siemens, Elvia is now rethinking the grid as a co-innovation partner of Siemens grid software. "Situational Awareness," which is sometimes referred to as "Low-voltage Visibility," is a co-innovation project that aims at co-developing a tool for better visibility into the low-voltage network. Cloud technologies, modularity, flexibility, scalability and easy integration will be of essence to overcome silo-thinking, integrate data, and create an ecosystem that brings different actors together.

## Merck

- The company: Merck, a science and technology company, operates across healthcare, life science and electronics. From advancing gene editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere.
- The challenge: Transparency and interoperability to break down data silos.
- The solution: Merck and Siemens are collaborating to ensure quality and trust in a machine-to-machine (M2M) connected world. By combining their technologies, they are envisioning an end-to-end solution that will enable customers across industries to rely on one immutable "single source of truth" between production and laboratory quality control using an approach that is scalable across the entire value chain. Stakeholders are to have access to all data across the entire lifecycle of a product – from product design to use by the end consumer.

<https://www.merckgroup.com/en/news/siemens-machine-to-machine-trust-28-10-2021.html>

## Thameslink

- The company: Thameslink is a 24-hour, 149-station network on the British railway system and is part of Govia Thameslink Railway (GTR), the largest train operating company in the UK.
- The challenge: To meet the growing demand for rail, upgrading existing infrastructure is a key goal. Digital technologies, services and innovations enable higher availability, more punctuality and better utilization of trains, which benefits the operator and its customers.
- The solution: Railigent gathers and analyzes data from the train fleet, which enables smart operations decisions. Up to nine million data points are generated across the fleet each week. This information helps show exactly how the trains are running and makes it easier to diagnose faults. Condition-based, predictive maintenance leads to system availability of up to 100%. The train fleet also has the capability to operate advanced signaling technologies, which allows higher capacity and punctuality and thus improves passenger satisfaction. Plus, Thameslink's total costs of ownership and maintenance costs decreased by 10%-15% through optimized processes.