

Success Story | 5G Campus Net



Innovative digitalization with 5G campus network

With the 5G campus network by Vodafone Business, BASF Schwarzheide GmbH is implementing a large number of future-oriented applications.



Together we can
vodafone
business

” The 5G campus network offers clear advantages where machines need to communicate with one another and large volumes of data need to be exchanged in near real time. “

Ole Gütschow, Head of Automation and OT Connectivity, BASF Schwarzheide GmbH.

The client:

BASF Schwarzheide GmbH has been part of the BASF Group since 1990 and has a workforce of around 2,000 employees in the south of Brandenburg. As a chemical company, BASF in Schwarzheide contributes significantly to greater sustainability by promoting the integration of renewable energies, making its production energy-efficient and aligning its activities with the principle of circular economy. The product range includes polyurethane base products and systems, crop protection products, water-based coatings, engineering plastics, foams and finishes.

The production site is one of the largest sites within the BASF Group in Europe. BASF Schwarzheide GmbH helps its customers to succeed as a reliable partner with intelligent system solutions and high-quality products. Around a dozen partner companies have already settled at the Schwarzheide site.

 **BASF**
We create chemistry

INDUSTRY: Chemical industry

VODAFONE SOLUTION:
5G Campus Isolated

www.basf.com/global/de.html

The challenge:

As a wholly owned subsidiary of BASF SE, BASF Schwarzheide GmbH also has the same aspiration as its parent company when it comes to digitalization: to act as a true pioneer within the industry.

The company faces challenges due to the structural environment in Germany, in particular the shortage of skilled workers caused by demographic trends and the sharp rise in energy costs. The company's clear strategy is to meet these challenges through innovation and technological solutions, including digitalization.

The aim is to be able to react quickly to changing conditions and to strengthen the site's resilience to the so-called VUCA world – volatility, uncertainty and complexity. Being able to work in a more agile and flexible way using the latest technology is also an important factor in recruiting junior staff and therefore also has a clear impact on the future viability of the company. Under these conditions, BASF Schwarzheide GmbH has a large number of digital and networked applications, all of which require extremely reliable and powerful connectivity. The company has decided to set up its own 5G campus network for this connectivity and to work closely with Vodafone Business to implement it.

“ WE CHOSE
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TER OF **5G TECHNOLOGY**
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BUTED TO THE DEVELOP-
MENT OF **5G CAMPUS**
NETWORKS.

Andreas Seide, Business Development
and Site Marketing, BASF Schwarzheide GmbH



The solution:

Sidewide 5G-Campus Network in Schwarzheide

“5G offers clear advantages where machines communicate with each other, large amounts of data are exchanged almost in real time and latencies must be kept to a minimum,” says Ole Gütschow, Head of Automation Technology and OT Connectivity at BASF Schwarzheide GmbH. Overall, he already lists around 60 use cases that will use the emerging 5G campus network. These include the flexible and quickly implemented network connection of production facilities, the tracking of large-scale equipment up to construction site containers, the networking and predictive maintenance of process analysis devices, telemetry applications, the control of industrial robots and drones, the networking of native sensors for energy metering, for example, and the networking of cameras for security systems, as well as for image analysis as part of quality assurance measures.

“5G is an important enabler for a variety of applications,” emphasizes Andreas Seide, Business Development and Site Marketing at BASF Schwarzheide GmbH “We see a lot more future applications that we will be able to realize once the 5G campus network is fully operational.”

In the short term, the focus will be on replacing cable-based networking; in the medium term, the expert anticipates a huge increase in the importance of autonomous systems. “Replacing cables in networking may not sound as exciting as other use cases,” admits Ole Gütschow. “But this example benefits most quickly and clearly from the advantages of a 5G campus network. Many use cases would not be feasible at all with cable-based networking but with 5G they can be implemented quickly, easily and economically.” In the future, more and more versatile applications for the local 5G network will be added to this use case. BASF is developing many of the solutions mentioned internally, in some cases with external partners, suppliers or universities and also in close cooperation with Vodafone Business, particularly in the area of connectivity. “We chose Vodafone because the digitalization group was an early and consistent supporter of 5G in general and the development of 5G campus networks,” explains Andreas Seide. “Our close and trusting cooperation has confirmed this assessment at all times: Vodafone is convincingly contributing its huge 5G expertise to the joint network construction and joint solution development. Both partners benefit from this. “The 5G campus network at BASF’s Schwarzheide site was put into operation as a test field in January 2022 and went live in mid-2024. A total of six antenna masts were erected at the site to provide the entire site with 5G network coverage. The first use cases had already been tested in advance as pilot projects and went live with the go-live. Further solutions based on the 5G campus network are now being implemented step by step.



The 5G campus network implemented by Vodafone operates completely autonomously on the company premises of BASF Schwarzheide GmbH. All connections and lines are bundled in the company’s own server room.

In a picture:

Innovative use cases thanks to 5G campus network

BASF Schwarzheide GmbH benefits from a 5G infrastructure tailored to this company – which operates on the company's own frequencies and as its own, completely self-sufficient radio network on the company's premises. There, 5G connectivity enables a wide range of applications.

1 Autonomous logistics systems for a precise and automated transport of materials and containers.

2 Control of industrial robots and drones, e.g. for plant protection and maintenance activities

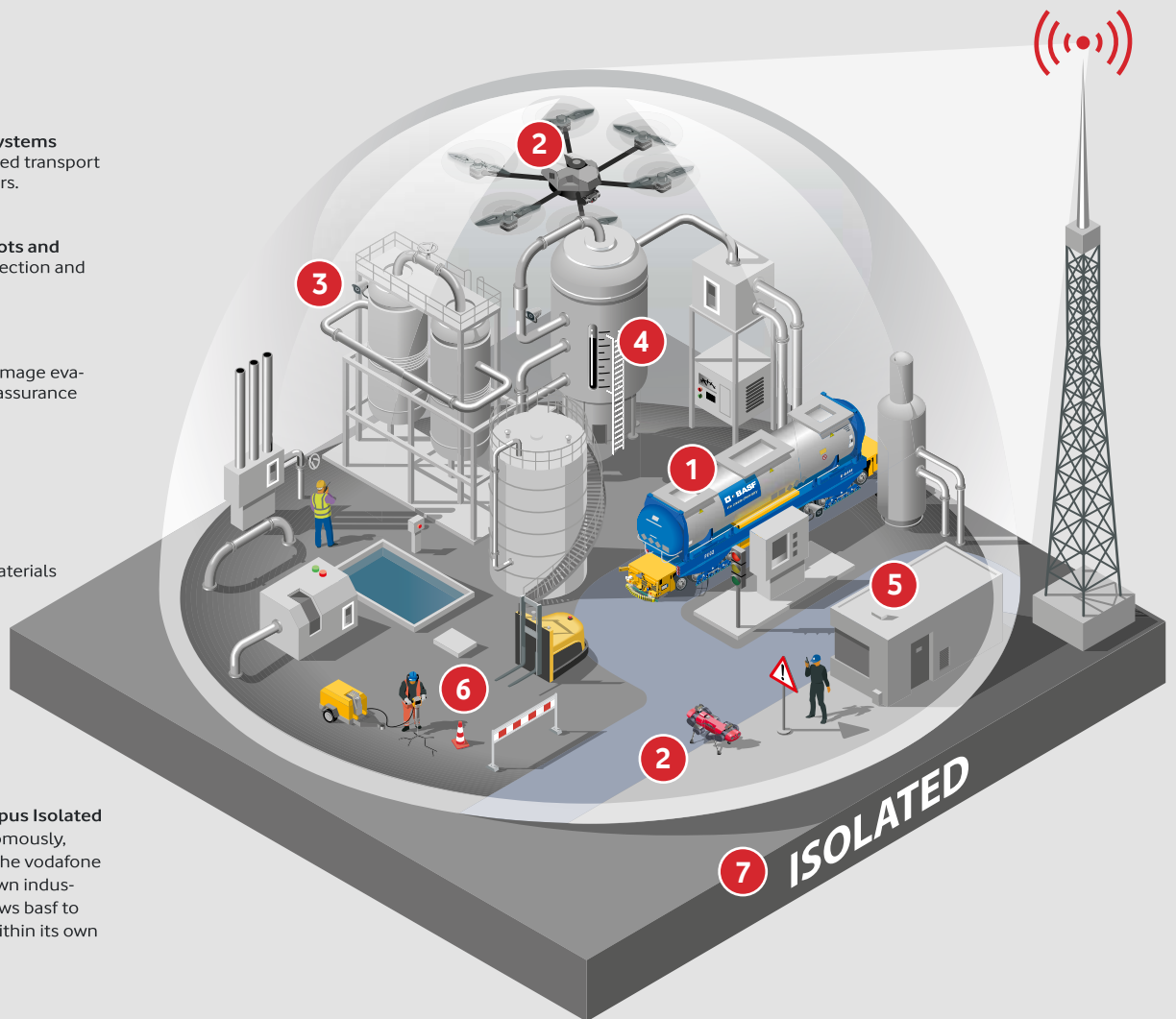
3 Linking cameras for security systems and image evaluation as part of quality assurance measures

4 Wireless connection of production sites

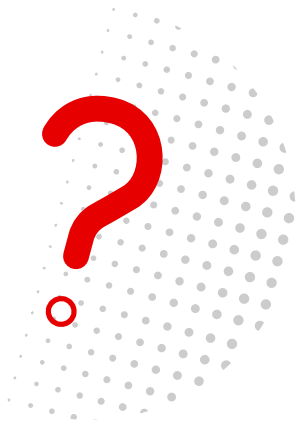
5 Tracking of assets and materials

6 Wireless redundant and secure communication e.g. in the context of occupational safety, traffic light control on the factory premises, alarm systems

7 Vodafone Business Campus Isolated works completely autonomously, without a connection to the Vodafone network. It uses BASF's own industrial frequencies. This allows BASF to communicate securely within its own network



FIVE QUESTIONS TO ANDREAS SEIDE AND OLE GÜTSCHOW



Why is BASF Schwarzheide GmbH relying on its own 5G campus network?

Andreas Seide: With the expansion of the 5G campus network, we are taking the next important step in the digitalization of our site. This mobile technology is an important enabler - it allows us to make existing applications more economical and to implement new, innovative applications that are not even foreseeable or conceivable today.

What specific advantages does 5G mobile technology offer over other networking solutions?

Ole Gütschow: 5G has particular advantages where machines communicate with each other, large amounts of data are exchanged almost in real time and latency must be kept to a minimum. With delay times of just ten milliseconds, the network reacts almost in real time and faster than any other mobile radio generation before. With 5G, the network also saves up to 20 percent power compared to previous mobile technologies.

What practical benefits do you foresee?

Andreas Seide: 5G is a key technology for new automation applications, the use of robots and drones and the ongoing digitalization of production facilities. The 5G campus network increases the competitiveness of our location and will also help us to offer young specialists an attractive and meaningful working environment.

Why did you opt for an isolated 5G campus network?

Ole Gütschow: We have the highest requirements in terms of availability, the exclusive capacity available and the detailed design of the 5G infrastructure on our company premises. There are also high security requirements. The "Vodafone Business Campus Isolated" solution was the optimal choice for all these factors.

How do you rate the cooperation with Vodafone during implementation?

Andreas Seide: Our collaboration has been close and trusting from the very beginning.

Ole Gütschow: And Vodafone always makes a convincing contribution to this joint solution development and the joint network construction with its vast 5G expertise.



Ole Gütschow is Head of Automation Technology and OT Connectivity at BASF Schwarzheide GmbH and is responsible for the construction and operation of the 5G campus network.



Andreas Seide is responsible for Business Development and Site Marketing at BASF Schwarzheide GmbH and therefore also for the 5G strategy.

In a nutshell:

” The 5G campus network offers clear advantages where machines need to communicate with one another and large volumes of data need to be exchanged in near real time. “

Ole Gütschow, Head of Automation und OT Connectivity, BASF Schwarzheide GmbH.

- **Powerful connectivity** for a wide range of digital use cases such as network connection, data acquisition, predictive maintenance and much more.
- **Exclusive radio resources** on exclusively local industrial spectrum - high capacity, high availability, high security.
- **Focus on data communication**
- **Full control over the operation and design of the private 5G campus network.** Data remains in your own network and data center and never leaves the campus site.
- **Standardized mobile radio transmission technology** with proven performance parameters and a wide selection of end devices and system components.



With Vodafone Business Campus Isolated, companies get their own, completely self-sufficient wireless network on their own premises from a customized 5G infrastructure - which operates on the company's own frequencies. making your data absolutely secure as it never leaves your company's premises. Vodafone offers its own solution for this special 5G stand-alone variant. For specific customer requirements, we also work together with selected, established manufacturers.

As a 5G pioneer and operator of large 5G mobile networks in many countries, Vodafone offers industrial customers many years of extensive experience in setting up and operating 5G networks. With our 5G campus network, you use an exclusive mobile network - tailored to the needs of your company. Your company will always receive the best solution depending on its requirements.

Get free advice now on 0800/172 12 34 or arrange a callback here.