IoT from a single source.

Bechtle IoT Solutions as a general contractor—From network and hardware, data storage and applications to operations.

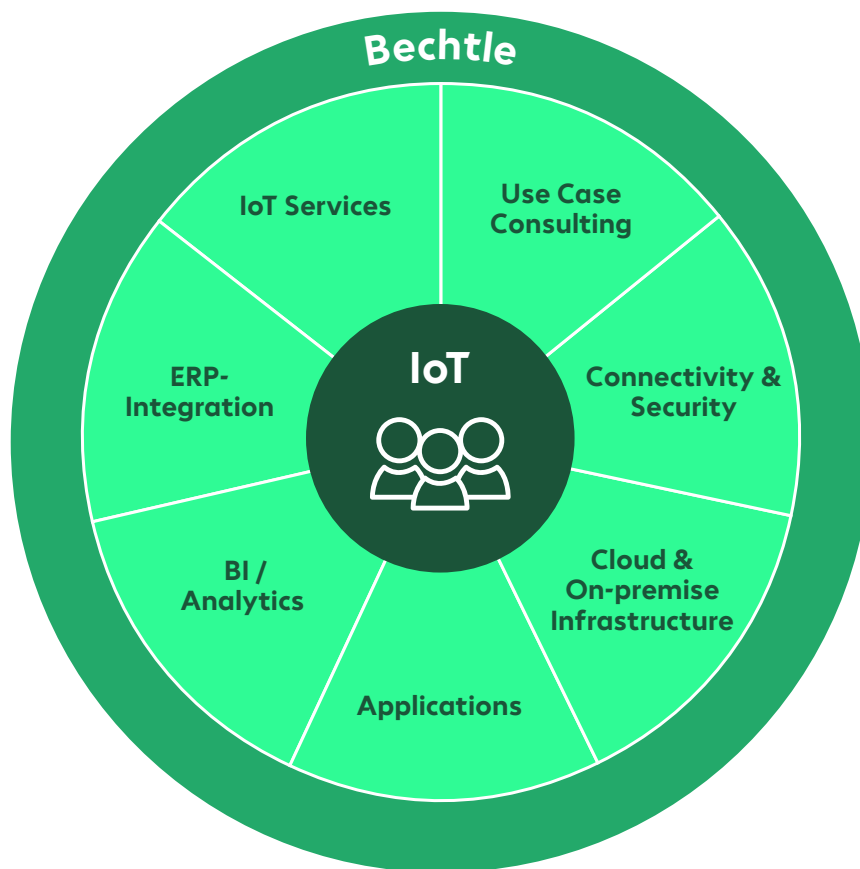**bechtle.com**

Your strong partner
for all your IoT projects!

Want to leverage the benefits of the Internet of Things (IoT) for your business, but you just don't have the resources or expertise? Or do you already have IoT solutions in place and are looking for a roll out partner to help you scale them or launch them on the market as a digital service? Well, you've come to the right place!

Bechtle IoT Solutions is an IoT general contractor and implementation partner offering everything IoT-related **from a single source**—from sensors and platforms to IT security and rollout services. We support SMEs, large corporations, cities and municipalities as equals offering support during all stages of an IoT project.

There are a whole host of reasons why businesses and organisations invest in IoT, but no matter if you are looking to **boost your competitive edge** through digital services, **intelligently design** production facilities and offices with modern networks, or **boost the efficiency** of machinery and systems using IoT and AI, we're your perfect partner! Discover and leverage the full potential of IoT and **let us help you get off to a flying start!**

One for all: Our extensive IT experience and resources mean we have exactly what you need. Bechtle handles all aspects of your IoT project for you. The benefit? You have one point of contact which significantly reduces complexity.

IoT is the obvious complement to our existing business activities. **As one of Europe's leading IT providers** with more than **85 IT system houses and IT e-commerce subsidiaries in 14 countries**, Bechtle has decades of experience in networks, cloud and data storage, IT security, data and analytics, managed services and much more. These fields form the foundation of a successful IoT business and are perfectly complemented by our warehousing and logistics expertise.

Bechtle IoT Solutions is an independent business unit offering the support of English- and German-speaking experts, extensive expertise and the advantages of a large partner network. We are a member of IoT-relevant ecosystems such as the **LoRa Alliance®**, play an active role in international IoT communities and support the development of standards such as omlox and umati and work with Bechtle Financial Services to offer **financing and hardware leasing**. We have the capacity, expertise and the infrastructure to plan, implement and operate a whole host of IoT solutions for you. Discover more about IoT Solutions' services in this brochure and get in touch for a no-strings attached consultation. Contact details can be found on the last page

What are the benefits of the Internet of Things?

IoT gives users an insight into the location and status of physical objects without having to be in the same room as them. This could be a production facility's energy consumption, the status of a piece of machinery, the temperature of a cooling system, a tank's fill level, the location of logistics container or much more. Sensors collect data, transmit it over a network to a server where an IoT application makes it legible.

IoT makes it possible to optimise processes, reduce costs and evolve new business models and many businesses and organisations are utilising it to overcome challenges such as the lack of a skilled workforce or to achieve their sustainability goals. The use of artificial intelligence (AI) is closely linked to IoT with AI used to analyse large volumes of data and the results forwarded using IoT technology. To find out more about IoT's potential and how it can be used, get in touch today.

Go your own way—
With our vendor-neutral advice.

We know that each company has its own business requirements that need to be taken into consideration when it comes to integrating IoT solutions. If IoT is still relatively uncharted territory for you, we tend to kick off our projects with a **consulting workshop** in which we discuss your challenges and objectives and suggest suitable IoT solutions. If, however, you and your company already have IoT solutions in place, we can jump in on your **ongoing project** to help in the scaling process.

The best thing about the advice we offer is that it is **vendor-neutral** and **network-agnostic**. As a system house, we aren't tied to a specific network standard, but can always select the solution that best suits your needs. We have access to an **extensive partner ecosystem** that covers platforms and work with **best-of-breed** gateway and sensor solutions that have proven their value on the market to ensure that we can optimally tailor the solution to your needs.

With Bechtle IoT Solutions, you can also be sure of extensive market experience. With numerous **projects for businesses in all kinds of industries** under our belts, we are on top of all popular IoT solutions, understand which sensors and technologies are best suited for each use case, as well as which have already been tried and tested in rollouts. We're also familiar with the challenges an IoT project can bring and understand how best to overcome them. All this experience has given us specific knowledge of the various IoT segments and extended our expertise to cover **smart retail, smart logistics, smart production, smart metering and smart buildings.**

As your partner, our aim is to support your continuing growth, which is why we offer in-depth **workshops on select network technologies** including **LoRaWAN** and **UWB**, in which our experts present the potential of specific technologies, offer extensive advice and provide starter kits for initial applications.

IoT networks at a glance—
Making the right connections.

A network could be described as a data highway, on which data from sensors, cameras and gateways make their way to various platforms, which is why it is so critical for IoT projects and should be selected only after **careful analysis** of the planned use case, the volume of data to be transmitted, maintenance intervals and transmission range. **Security** is another aspect that needs to be considered from the very start. Our experts offer vendor-neutral advice on the numerous IoT networks, discuss the **strengths and weaknesses** of each technology with you, and configure a future-proof network that supports modern working in accordance with your requirements. Below is a brief introduction to the most common IoT network technologies:

1

LAN and W-LAN—For large data volumes.
Local Area Networks (LAN) and Wireless Local Area Networks (WLAN) are able to transmit large data packages, making them the perfect choice for transferring camera recordings, sounds and control commands for machinery. However, these benefits are often negated by the high infrastructure costs and technologies' short range, which is why other types of networks are growing in importance in the field of IoT. Bechtle currently employs some 450 experts in the field of LAN and W-LAN.

2

LPWAN (low-power WAN—Long-range versatility.
LoRa (long range), NB-IoT and Mioty are all LPWAN networks, are ideal for multiple use cases and require little infrastructure. LPWAN technology can also transmit data over a distance of up to 15 km, doesn't require a huge amount of power (battery life of around ten years) and be easily upgraded without cables or a power connection. Having said that, LPWAN is only suitable for transferring small data packages and is often used for the real-time logging of water and power consumption. However, its rapidly growing ecosystem means it can be used for multiple other use cases. The extremely versatile LoRa can be found in smart factories, asset tracking, retail, logistics, smart cities and smart buildings among others.

3

BLE (Bluetooth Low Energy)—Energy-saving indoor tracking.
Bluetooth utilises radio waves to network devices within a ten-metre radius. In contrast to regular Bluetooth, BLE consumes significantly less energy, and so keeps costs down. It is most often used in buildings such as production facilities and hospitals where objects are fitted with a BLE sensor to transmit information on their status and location. Compared with UWB, BLE is more affordable, but has a much smaller range, lower data rate and isn't as precise when it comes to tracking.

4

UWB (Ultra Wide Band)—Determining exact position.
Ultra Wide Band is a wireless technology renowned for fast and stable data transfers over short ranges. It's ideal for challenging environments with a lot of metal such as steel which can interfere with Bluetooth signals. Despite these conditions, UWB can very accurately detect an item's location, enabling it to track the precise location and movement of objects in a room down to 15 centimetres. In terms of IoT, UWB is most often used in production and logistics, but in the future, it will be increasingly rolled out in public buildings and shops to allow micro-navigation with modern smartphones serving as navigation devices as most have built-in UWB chips.

5

5G—For fast data transfers.
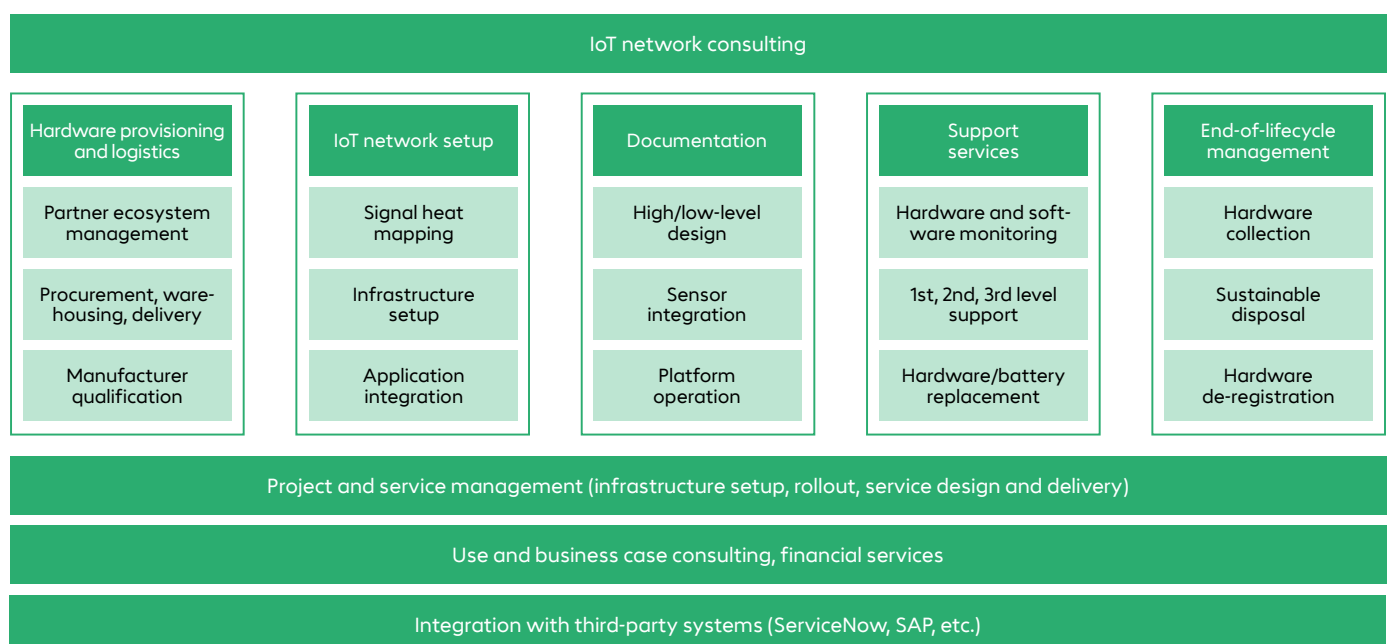Most of us know 5G as a new mobile network standard, but businesses are also benefiting from the high and fast data transfers with low latencies that 5G offers. The technology is great for automating production processes and future key tech such as virtual reality (VR) and augmented reality (AR). 5G is also used to control camera-based systems and autonomous vehicles in logistics.

Implementation and services—*The extra mile is where we get started.*

As an IoT general contractor, we don't only consult on the Internet of Things, but also take on the **full implementation and operations** of your IoT infrastructure. No matter if you need us to set up a network, connect machines using sensors, put together documentation or handle edge gateway security or system monitoring, we provide everything **from a single source**. We've even got you covered if you are looking to **create a digital IoT-based product** with the expertise required, standardised processes and suitable references. Bechtle IoT Solutions is by your side from day one until your project is completed and also allows you to purchase complementary **managed services.**

We're also the right port of call when it comes to the **rolling out** your IoT solutions, combining decades of IT experience with excellent vendor partnerships, a tried and tested warehousing and logistics network and transparent financing offers. Our customers are also increasingly asking about our **Device as a Service concept**, which we provide to give you a strong foundation to **realise IoT projects of any size**. Thanks to professional project planning and the expertise of our teams, reliable, fast and secure **rollouts with hundreds and thousands of sensors** are just another day at the office for us.

Implementation phases of an IoT project with Bechtle.

IoT network consulting				
Hardware provisioning and logistics	**IoT network setup**	**Documentation**	**Support services**	**End-of-lifecycle management**
Partner ecosystem management	Signal heat mapping	High/low-level design	Hardware and software monitoring	Hardware collection
Procurement, warehousing, delivery	Infrastructure setup	Sensor integration	1st, 2nd, 3rd level support	Sustainable disposal
Manufacturer qualification	Application integration	Platform operation	Hardware/battery replacement	Hardware de-registration

Project and service management (infrastructure setup, rollout, service design and delivery)

Use and business case consulting, financial services

Integration with third-party systems (ServiceNow, SAP, etc.)

IoT with Bechtle—
Select projects.

We've put together some select projects in which our IoT solutions have really proven their worth.

TRUMPF turns to Bechtle as its IoT partner.
TRUMPF SE + Co. KG headquartered in Ditzingen, Germany, is collaborating with several partners to distribute the public omlox standard they have developed together and used predominantly in production and logistics. TRUMPF needed a partner for on-site infrastructure installation at the customer's premises and turned to Bechtle and we are now planning and setting up the required networks and server structure.

Smart logistics with Lufthansa Industry Solutions.
We offer smart logistics solutions in collaboration with our partner, Lufthansa Industry Solutions (LHIND), to enable the real-time tracking and tracing of freight and allow automated payments through Track & Pay. As LHIND's infrastructure partner, Bechtle is responsible for all sensors, offers financing and leasing services and implements the solution at the customer's site. Incidentally, the sensors used are omlox-based.

AI-powered quality assurance for the SCHLOTE Group.
Together with the SCHLOTE Group—a German automotive supplier—we are working on a digital solution to allow artificial intelligence to carry out quality assurance of the parts produced. In an industry such as this, a holistic approach that covers security and operator concepts is especially important and we are supporting SCHLOTE with everything from a basic concept and hardware procurement, the creation of an overarching concept to rollout.

Rollout of 50,000 sensors plus platform and sensor operation.
Bechtle has been commissioned to handle IoT services at several production facilities of a large pharmaceutical player. These services including operating IoT platforms and sensors, documenting processes, migration concepts for LoRaWAN infrastructures plus the setup of a central procurement platform. We also support the customer in the planning and installation of 50,000+ sensors.

Scaling a Microsoft Azure-based IoT platform.
IoT also has a part to play in the natural world. We designed an operator concept for an IoT platform based on Microsoft Azure for a manufacturer of forestry, gardening and landscaping equipment and also helped the customer when it came to scaling and optimising the platform. Over the course of the next five years, over 120,000 devices will be linked up and end customers will be able to use it to procure digital services they can use to receive software updates for their devices as well as data on operating times.

We'd love to connect with you!

With Bechtle IoT Solutions, you can rest assured that you have a reliable and experienced partner by your side to drive your IoT project's success. We have knowledge of all kinds of industries, understand your business needs and have skilled employees and the perfect solutions at our disposal. You'll get everything you need from a single source—from consultation to implementation all the way through to operations.

We look forward to hearing from you.
Your Bechtle IoT Solutions Team

Your Bechtle
IoT Solutions partners:

Stefan Schweiger
Business Manager IoT Solutions

Has been working as an IoT executive consultant since 2014 and is in charge of strategic development. Before joining Bechtle, he was a manager at a logistics company for many years and also working in international machine engineering.

Katharina Klaß
Senior IoT Solution Consultant

Has several years' IoT experience and is passionate about all the possibilities it offers companies of all sizes. She worked for a large telecommunications company before joining Bechtle.

Patrick Hardes
Professional Consultant bei Bechtle Network & Security Solutions

Has extensive experience as a network engineer and is familiar with all kinds of network infrastructures to offer consultation, implementation and management services.

Have some questions? Want a consultation? All you have to do is e-mail us at:

iot@bechtle.com