



**DIGITIZATION. CONCRETE!**  
FOR ME. FOR EVERYONE.  
FOR MUTUAL PROGRESS.

**T · · Systems ·**



## **DIGITIZATION. FOR ME.** HOW OUR LIVES CHANGE FOR THE POSITIVE.

Quick messages allow easy communication with our friends and business partners. Our cars navigate us directly to the nearest available parking space. Payment? At the touch of a button. We don't have to give our entire medical history every time we visit the doctor. Why? Because the doctor already has all of our information. At work, machines and devices tell us plenty by themselves. What exactly? That they have to be serviced, for example. We receive automatic warnings when our freight is being stolen. On our smartphones we can see the progress of our tasks in which many others are involved as well. It's on track!

There are endless examples of how much easier modern technology has made our lives. And in our exciting everyday life we almost forget that one big word is behind it: Digitization.

# **DIGITIZATION. FOR EVERYONE.** EVERYONE CAN PROFIT IN THEIR OWN WAY.

Digitization is far from being a hype topic any more, but is part of everyday business. You are able to use the available technology as you need it. You have the choice of whom you want to connect with. You can decide which steps you wish to take toward digitization. For better customer service. But also to make life easier for your employees. To ultimately create the market edge you want.

T-Systems will help you on your way. Whether you are at the beginning of your digitization journey or are already in the midst of it. In our reference examples, you can explore the wide range of digitization options that simplify our clients' lives every day. We explain the challenges that brought them to us. Which solutions – from the cloud as an enabler through IoT and analytics to artificial intelligence – they have implemented. How they protect themselves from cyber-attacks. And above all, how they profit from all of this today.

**Be inspired to realize your individual digitization success.**



|  |    |
|--|----|
| <b>Hamburg:</b> Digital parking management for the best parking experience .....           | 8  |
| <b>Salzburg Research:</b> Traffic jam alerts from the Open Telekom Cloud .....             | 10 |
| <b>MobilZeit GmbH:</b> Vehicle geolocation via secure, scalable DSI vCloud .....           | 12 |
| <b>BwFPS:</b> With telematics to a need-based service mix.....                             | 14 |
| <b>Concardis:</b> 360° view of customers .....   | 16 |
| <b>EDEKA:</b> Digital keys centrally managed .....   | 18 |
| <b>CHECK Services:</b> Food and meals retain their 1A quality .....                        | 20 |
| <b>Quehenberger:</b> Smart bees watch the freight.....                                     | 22 |
| <b>Krones:</b> Logistics with the world's easiest IoT .....                                | 24 |
| <b>ISS:</b> Efficient use of building space .....  | 26 |
| <b>Elevators / escalators manufacturer:</b> Predictive maintenance minimizes downtime..... | 28 |
| <b>Baumüller:</b> Machine maintenance and process optimization from the cloud .....        | 30 |
| <b>Pfannenberg:</b> Remote monitoring of connected refrigeration units .....               | 32 |
| <b>KAESER KOMPRESSOREN SE:</b> Compressed air as a service .....                           | 34 |
| <b>Eaton Corporation:</b> Smart factory as a service.....                                  | 36 |
| <b>NZR:</b> Energy management from the cloud.....  | 38 |
| <b>Energy provider:</b> Automation of IT and HR services .....                             | 40 |
| <b>Linde:</b> Smart security for the smart world .....                                     | 42 |
| <b>Telematics Infrastructure:</b> Securely connected digital healthcare.....               | 44 |
| <b>Deutsche Telekom – Sea Hero Quest:</b> Mobile app aids dementia research.....           | 46 |
| <b>FUSE-AI:</b> Artificial intelligence fighting cancer.....                               | 48 |

# HAMBURG

Digital parking management for the best parking experience – complete, simple, reliable



- Around 1.8 million residents, 850,000 motor vehicles
- Over 100,000 parking spaces, of this around 12% are managed
- Implementation of the “Intelligent Parking” project as one measure of the “Traffic 4.0” strategy

## THE PRODUCT Park and Joy

With Park and Joy, the Free and Hanseatic City of Hamburg has realized an area-wide intelligent parking system of public parking spaces and in private parking garages. The app shows the availability of parking spaces in the desired area in real time and navigates the driver to them. After parking the vehicle, the parking space is booked online and a digital parking ticket is created with just two clicks. The driver can pay the parking fee per minute using all common payment methods.

### THE CHALLENGE

- Intelligent traffic management and reduction of the traffic created by searching for parking spaces
- The app for the driver is intended to make the parking procedure easier, from searching for a space to payment
- Use of various data sources from sensors to information from mobile phones, parking meters, occupation time history and much more
- The least possible energy consumption
- Only one partner for app, sensors, connectivity, secure computing and area-wide roll-out

### THE SOLUTION AND USPS

- Park and Joy as smartphone app to find, book, park and pay
- Digital marketplace for parking spaces puts the city, parking space operators and drivers onto one platform
- Sensors report the occupation status of parking spaces, computing in the highly secure Telekom Cloud
- Independent of mobile network operators
- Complete solution, with seamlessly integrated components (smartphone app, NB-IoT sensor technology, city platform, data transmission network, back-end)

### THE CUSTOMER BENEFITS



#### Attractive for drivers

A complete service: find, book, park and pay with a user-friendly smartphone app



#### Reliable visibility into available spaces

Sensor fusion ensures transparency for 80% of relevant spaces



#### Attractive for cities

Effective control instrument to promote multi-modal transport



#### Less traffic caused by searching for parking spaces

Takes pressure off of infrastructure and protects the environment



#### Attractive for parking space operators

Higher utilization of parking spaces and increase in revenue



#### Scalable solution

Simple inclusion of additional parking spaces and functions

# SALZBURG RESEARCH

Traffic jam alerts from the Open Telekom Cloud



- Independent Research Institute of the Province of Salzburg
- Task presented by the Province: Analysis of traffic situation, predictions of traffic jams, better planning of construction projects

## THE PRODUCT Mobility service

To optimize traffic in Austria, the Research Institute provides a platform that is intended to promote fewer traffic jams and better traffic planning. The data originate from telematics systems of fleet operators, from the StauFux app, with which the drivers can record their trips and from street sensors that measure when and where how many vehicles drive.

### THE CHALLENGE

- Normal traffic data displays such as in Google Maps are not useful for traffic planning
- Requirement for a GDPR-compliant cloud solution for the StauFux app, data storage and processing
- Own servers could not meet the requirements
- Need for flexible, scalable resources to add new fleets at any time

### THE SOLUTION AND USPS

- Platform, web back-end and app run in the Open Telekom Cloud
- The anonymized data from the telematics systems of the fleet vehicles, from the app and from street sensors are transferred to the cloud and securely processed
- At peak times on a working day, each minute up to 5,000 fleet vehicles send their data to the cloud
- Traffic authorities have access to historical traffic data allowing better planning of future constructions
- Need-based scalability of IT resources

### THE CUSTOMER BENEFITS



**The highest degree of security**  
Operation in highly secure Deutsche Telekom data centers in Germany



**Flexible scalability**  
New data sources, such as fleets, can be integrated for more precise data



**Low costs**  
Own hardware no longer necessary; billing according to consumption



**High transparency**  
Traffic jam information accessible to all road users



**Secure operation**  
High degree of system reliability thanks to 99.95 % availability



**Planned prognosis function**  
Users not only see the current traffic situation, but also the development

# MOBILZEIT GMBH

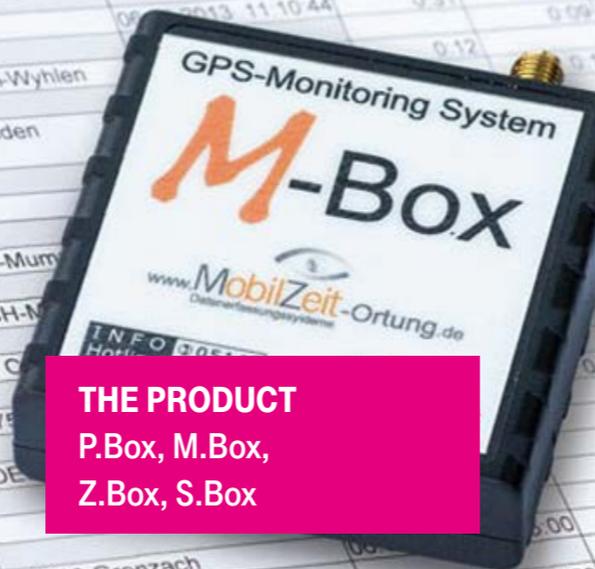
Vehicle geolocation via secure, scalable DSI vCloud



- Headquartered in Winsen (Aller), Germany
- Has specialized in innovative data capture solutions for over 20 years
- P.Box for employee time tracking, M.Box for vehicle geolocation, including geofencing, Z.Box and S.Box for mobile time tracking
- Customers include industry, tradespeople, service providers

## THE PRODUCT

P.Box, M.Box,  
Z.Box, S.Box



In many industries, knowing the exact geographical location of vehicles and equipment is essential. MobilZeit employs GPS to locate assets for businesses of all shapes and sizes. It is supported by the secure, scalable DSI vCloud infrastructure from T-Systems – creating the ideal basis for expanding MobilZeit’s dynamic business model.

## THE CHALLENGE

- Reducing own hardware in an external data center
- Minimizing related costs
- Eliminate inflexible infrastructures
- Heterogeneous customer base for geolocation via M.Box; highly dynamic business that calls for maximum flexibility and scalability
- Protection of sensitive customer data
- Open to the integration of other products and innovative technologies, e. g. within the scope of Industry 4.0

## THE SOLUTION AND USPS

- Seamless transmission of data from thousands of vehicles to the secure DSI vCloud in Munich via M.Box
- Flexible usage model based on DSI vCloud covering both predefined and fully flexible resources (CPU & RAM)
- Server scalability thanks to VMware technology
- Once-only migration of each IP address (per vehicle)
- M2M data card in the M.Box transfers positioning data to the MobilZeit server in the vCloud every minute or every 10 seconds
- Analysis via locally installed software with export function

## THE CUSTOMER BENEFITS



**Greater reliability**  
Higher availability means fewer customer complaints



**Increased flexibility**  
Scalable resources for fluctuating business needs



**Time savings**  
Rapid provisioning in response to request by phone call or email



**Robust data protection**  
Customer data resides in a highly secure data center in Germany



**Simple expansion**  
Easy addition of new M2M, IoT and Industry 4.0 solutions



**Low CapEx**  
Expansion possible without having to increase on-premises hardware assets

# BWFPS

With telematics to a need-based service mix



## BwFuhrparkService

- Mobility service provider for the German Federal Army
- About 650 own employees
- Pool of about 24,000 vehicles (as of June 30, 2018)

## THE PRODUCT Digital Drive

The BwFPS offers civil vehicles to the departments of the German Federal Army for all purposes and all trips by employees and soldiers for short term as well as long term rentals. Car sharing and carpool options are also offered. With Digital Drive, BwFPS collects all of the information for optimizing vehicle use together with their customers.

### THE CHALLENGE

- The task presented by the Federal Ministry of Defense is to provide transparency in the mobility needs of the departments
- Proof that it is possible to collect, analyze and integrate mobility data into the service in order to create additional value for the customer
- Finding a simple and proven telematics solution
- The highest of requirements regarding IT security and data protection

### THE SOLUTION AND USPS

- Digital Drive telematics solution from Deutsche Telekom
- Equipping vehicles from various departments with OBD2 adapters including SIM cards
- Anonymized transfer of the VIN and usage parameters into the highly secure Telekom Cloud
- Integration via SAP-PO middleware into the SAP-BI system of the BwFPS for filtering, aggregation and analysis
- Visualization of results in the internal military portal

### THE CUSTOMER BENEFITS



**Simple handling**  
Rapid initial set-up with Plug & Play



**Improved profitability**  
More efficient vehicle use through better occupancy



**High transparency**  
Complete overview of the use requirements of the departments



**Reduced costs**  
Savings on unneeded vehicles and their operating costs



**Best mix**  
Need-based mix of long and short term rental models with equal comfort



**Additional options for use**  
Predictive maintenance with Digital Drive for optimized workshop services

# CONCARDIS

360° view of customers



- Full-service payment provider in the DACH region
- 440 employees, 482 million transactions each year
- Intelligent solutions for cashless payments at point of sale and in e-commerce

**THE PRODUCT**  
Salesforce Sales Cloud  
und Service Cloud

Every year, Concardis processes 482 million cashless transactions at a value of over 45 billion euros. There are recurring processes such as queries, complaints or orders that require a highly efficient CRM system. With Salesforce Sales Cloud and Service Cloud, the sales and service of Concardis are now perfectly set up.

## THE CHALLENGE

- Replacement of the old CRM system with integrated cloud solution
- Centralization, automation and process mobilization
- Bundling of information on a digital platform
- Merging of processes from marketing, sales and service
- Automated processing of previously paper-based processes for customers and partners
- Highest data protection with auditable system hosting

## THE SOLUTION AND USPS

- Implementation of Salesforce Sales Cloud / Service Cloud by T-Systems MMS on the cloud platform of T-Systems
- Implementation of a central ticket system for nearly 50,000 customer and 25,000 partner run processes each year
- Digital documents in the CRM and automatic forwarding as a ticket to the responsible person
- Integration via interfaces and data provision via middleware
- Data protection and data security according to German law

## THE CUSTOMER BENEFITS



**Maximum security**  
Highest data protection and security level of the T-Systems cloud



**More customer satisfaction**  
Short reaction times, personalized help and improvement in quality of service



**Higher productivity**  
Efficient, automated business processes with multi-device access



**Sustainable efficiency**  
Elimination of piles of paper and reduction of manual tasks



**Complete transparency**  
All information on partners, customers, sales opportunities and activities



**Seamless communication**  
Across all channels including mobile access for 350 employees and 100 partners

# EDEKA

## Digital keys centrally managed



- Marktkauf is part of the self-service warehouse segment of EDEKA
- 4,200 square meters of modern sales floor in Adendorf, which is tailored to regional requirements
- Motto: "Simply good shopping for food"



### THE PRODUCT Mobile Identity & Access

The Marktkauf Center in Adendorf in the Lüneburg district of Lower Saxony is on track for digitization. The goals were to improve not only frequency and revenue by offering a better shopping experience, but also processes "behind the scenes". For example, operation of all doors, gates and goods lock gate systems by employees, suppliers and service providers.

#### THE CHALLENGE

- Suppliers arrive day and night at various times and require access
- Employees carry giant key rings with them and often have to search for a long time for the right key
- Service providers such as caretakers, cleaning and security staff also need the right keys
- Key loss requires replacement or changing the lock systems

#### THE SOLUTION AND USPS

- Central access management for employees, suppliers and service providers with Mobile Identity & Access
- User information and authorizations are managed in the secure cloud
- People receive individual, temporary access rights and tokens on their smartphones
- Automatic opening, unlocking or activation of doors
- Access can be revised at any time

#### THE CUSTOMER BENEFITS



##### Simplified processes

Key rings and manual access provisions no longer necessary



##### Maximum transparency

Data protection compliant recording of opening and closing times as well as access



##### Impossible to be lost

Changing of lock systems and remaking of keys are omitted



##### High security

Encrypted transfer; authorizations are not on the smartphone



##### New possibilities

Flexible deliveries of goods by suppliers – even at night



##### Need-based solution

Key function translated 1:1, additional functions, changeable and scalable at any time

# CHECK SERVICES

Food and meals retain their 1A quality



## CHECK CLOUD<sup>®</sup>

Get organized for better food.

- CHECK Services: Transparency within the food supply chain
- Companies of the Max Maier Group like Rieber GmbH & Co. KG – a global supplier of professional kitchen technology with 600 employees

### THE PRODUCT CHECK CLOUD

CHECK Services has the goal of organizing the logistics of food via intelligent returnable systems and to connect quality related data along the food supply chain. In order to enable delivery of fresh food from the field to the plate without waste and economic pressure, the partner-wide platform CHECK CLOUD was created.

#### THE CHALLENGE

- Maintaining food safety according to the HACCP guidelines (Hazard Analysis and Critical Control Point) by the FAO / WHO
- Seamless monitoring and documentation of hygiene and temperature of food and dishes along the processing and transport chain
- Digital instead of manual forwarding of information
- Automatic alarm function to protect from deviations
- Need for visualization of measurement data with reporting

#### THE SOLUTION AND USPS

- One platform for all manufacturers with app and sensors
- Simple set-up of a digital monitoring system with QR codes and app set-up
- Automatic monitoring of refrigerated warehouses and transport containers, as well as manual temperature and hygiene documentation via app and linked Bluetooth core temperature sensor
- Data are transferred to a Telekom IoT platform within the Telekom Cloud and processed there
- Results visible via web display, alarm and reporting functions

#### THE CUSTOMER BENEFITS



##### Digitized process

Previously paper-based processes are completely digitized with comprehensive data availability



##### Continual transparency

Hygiene and temperature data of the process chain from goods delivery to food serving in real time



##### The highest degree of security

Adherence to the EU-GDPR and guidelines of the HACCP, officially recognized



##### Digital evidence

to adhere to the regulations as well as keeping condition of food and dishes intact



##### Quality improvement with lower costs

Increases the quality of food and prevents returns, protects from outages of refrigeration systems



##### One platform for all manufacturers

Open to partners, interfaces to enterprise resource planning systems, connection of manufacturer devices

# QUEHENBERGER

Smart bees watch the freight

## Quehenberger logistics

- Full service logistics provider for industrial and trading companies focused on Central and Eastern Europe
- 2,900 employees at 85 sites in 18 countries provide individual and comprehensive services for the customers

### THE PRODUCT Shipment & Asset Monitoring\*

\*powered by Roambee

The “bees”, which are equipped with sensors and attached to the freight, report parameters such as location, temperature, manipulation, humidity to a dashboard of a web portal, during the entire journey. This intelligent real-time monitoring reduces risks and creates a high degree of transparency with verifiable transport quality.

#### THE CHALLENGE

- Increased risk of theft for certain goods and on some routes
- Late deliveries absolutely must be avoided
- Desire for situation transparency for critical shipments
- Strategic need for digitization and automation
- Complete solution instead of combination of individual functions
- Successful tailoring of the transport and monitoring solution to the individual needs

#### THE SOLUTION AND USPS

- The bee transfers status information regarding the shipped goods via mobile communications and by cloud to the relevant customer user portal
- Rapid adjustment of the defined transport parameters and goods-critical threshold values
- Alarms in case of deviations from threshold values
- Central organization in the control tower
- System integration for automated take-over of transport data

#### THE CUSTOMER BENEFITS



##### Complete transparency

Overview of freight status during the entire shipment



##### Rapid determination of cause

Clear proof for insurance claims or legal disputes



##### Minimized risks

Avoidance of theft and delays through proactive action and early customer information



##### Better customer service

Individual additional monitoring service and supplemental freight information



##### Increased efficiency

Less effort for entries through centralization and system integration



##### Higher customer loyalty

Integration option into the customer's own enterprise resource planning system, such as SAP

# KRONES

Logistics with the world's easiest IoT



- Manufacturer of components, plants and factories for beverages and liquid food products
- 15,299 employees worldwide
- Re-conditioning and exchanges of parts as a service

## THE PRODUCT IoT Service Button

The Bavarian manufacturer of filling and packaging systems for the beverage and food industry never lets their customers wait for repaired plant components no second longer than necessary. Because after the successful proof of concept of the IoT Service Button, Krones permanently integrated the T-Systems solution into their processes. The pick-up process starts at the touch of a button.

### THE CHALLENGE

- Maintenance and repairs of components for beverage systems take place in a separate process
- Uncertainty of exact completion date leads to unnecessary maintenance and holding times
- Previously, each shipment process was started with a call
- The delayed pick-up costs time and slows down customer service

### THE SOLUTION AND USPS

- 28 pick-up locations equipped with the IoT Service Button
- When the customer's part is ready to be dispatched, a message is sent to the Telekom IoT platform with a simple touch of the button
- The platform automatically notifies the logistics department via SMS or e-mail that the machine component is ready to be picked up
- Krone transmits up to 100 notifications using the IoT Service Button in logistics

### THE CUSTOMER BENEFITS



#### Simple implementation

Plug & Play; WLAN / own infrastructure not necessary; wireless transmission



#### Intuitive handling

Simple assignment of location, rules and messages per button in the admin portal



#### Reduced process costs

First time automation of the pick-up process and simple self-service



#### More transparency

Delivery documentation for auditing can be called up from the system



#### Huge time savings

Acceleration of logistics in the delivery chain



#### Informative feedback channel

A response to the pick-up request can also be sent via the button

# ISS

## Efficient use of building space



### ISS Facility Services Holding

- Service company in the building management field
- 480,000 employees, 10.73 billion euros in revenue each year
- Specialist in technical facility management, catering, cleaning, security services and support services

### THE PRODUCT Digital Facility Management

The global leader of facility services offers industry-specific and solution-oriented services for all types of buildings. With Digital Facility Management, ISS optimizes the services for customers. Based on collected sensor data, existing space, building technology and resources can be used with significantly more efficiency. Comfort parameters can be improved and costs reduced.

#### THE CHALLENGE

- Building areas can be set up optimally according to actual tenant needs
- Ideally with intervention options for improving comfort parameters such as air quality, humidity and temperature
- Implementation of monitoring for use-oriented services and avoidance of unnecessary use of resources
- Reduction of costs caused by unneeded heating, windows left open unnecessarily and lights left on

#### THE SOLUTION AND USPS

- Complete solution for effective and use-oriented monitoring of work space, building technology, room quality and comfort parameters in the buildings
- Pre-integrated sensors for monitoring: Use of work space, building technology, windows and doors, CO<sub>2</sub>, humidity, noise, light and temperature
- Unique complete package consisting of: sensors depending on need and scenario, IoT gateway, IoT cloud platform and portal (Connected Things Hub), optional extension with any customer system, integration and support

#### THE CUSTOMER BENEFITS



##### Maximum transparency

Nearly real-time monitoring of use of space, building technology and comfort parameters



##### More revenue

Optimal use of space and bundling allows to take over unused areas and rent them to other customers



##### Immediate intervention option

Measured values will be improved rapidly through suitable actions



##### Lower costs

Avoidance of unnecessary costs for provision and service



##### Improved service

Simple increase of comfort parameters tailored to the customer needs



##### More customer satisfaction

Adjustment of rental fees and utility costs to the actual needs

# ELEVATORS / ESCALATORS MANUFACTURER

Predictive maintenance  
minimizes downtime

**THE PRODUCT**  
Predictive Maintenance

Elevators and escalators need to work reliably. Identifying errors or failures before they cause outages can have a significant impact. Deutsche Telekom leverages its extensive IT and cloud computing experience to allow manufacturers to “see into the future”.

## THE CHALLENGE

- High maintenance costs
- Unplanned repairs disrupt day-to-day business activities
- Faulty elevators, e. g. in factories, can seriously impact production
- Company image suffers through downtime

## THE SOLUTION AND USPS

- Monitoring of elevator / escalator KPIs
- Use of measuring devices such as acceleration sensors and magnetometers
- Data analytics with automatic generation of service requests
- Synchronization of order and equipment data
- Secure data transmission and storage in T-Systems' cloud infrastructure

## THE CUSTOMER BENEFITS



**Lower costs**  
30 % reduction in maintenance costs



**Greater flexibility**  
No need for predefined maintenance intervals



**Greater transparency**  
Visibility of the entire maintenance process



**Easier planning**  
Significant reduction in downtime



**Enhanced maintenance**  
Support for service engineers when identifying root causes



**Higher quality**  
Improved image thanks to improved customer satisfaction

# BAUMÜLLER

Machine maintenance  
and process optimization  
from the cloud



## BAUMÜLLER

- German Hidden Champion, specialist in automation and drive systems
- 1,900 employees at over 40 locations worldwide
- BAUDIS diagnosis system for machines since 1998

### THE PRODUCT BAUDIS IoT

The BAUDIS IoT system helps companies monitor production processes, as well as optimizing and preventing unplanned downtimes of machines. The system can be used via an industrial PC or with the retrofitted BAUDIS IoT box to monitor the operating parameters of the machines. Problems can be detected and eliminated early and production processes can be optimized in the long run.

#### THE CHALLENGE

- Predictive maintenance for existing and new machines
- Worldwide connecting and location-wide benchmarking of machines and installations for process optimization
- Relevant data can be retrieved from any device around the world
- Search for a cloud that offers the highest data protection and the greatest data security
- Flexibility and scalability of the solution
- Can be used in series machines and large installations

#### THE SOLUTION AND USPS

- Implementation of BAUDIS IoT in every machine park is possible regardless of location, manufacturer or year of construction
- Networking of global installations via the Open Telekom Cloud
- Data are transferred to the Open Telekom Cloud via WLAN, LAN or LTE
- Certified according to Trusted Cloud Data Protection Profile (TCDP) 1.0

#### THE CUSTOMER BENEFITS



##### More flexibility

Appropriate retrofitting and demand-based provision of IT resources



##### Higher machine run times

Better planning for maintenance measures



##### Central analysis

Every location can access the centrally analyzed operating data



##### Improved customer satisfaction

Cost reduction and time savings through fewer breakdowns and remote support



##### Maximum data protection

Fulfills the strict requirements of the EU-GDPR



##### Optimized utilization

Benchmark of machines in various plants using big data analyses

# PFANNENBERG

## Remote monitoring of connected refrigeration units



- Medium-sized company with locations in 50 countries
- Product spectrum in electrical engineering from air conditioning for switchboards through process cooling to signal technology
- Customer-specific solutions as additional focus

### THE PRODUCT Condition Monitoring

There must be a constant temperature of 35 degrees in control cabinets. Expensive machine damage and production stops may result if functions fail. Climate control and process cooling help prevent this. The cooling devices from Pfannenberg in the eCOOL X series can be integrated into users' processes and be monitored remotely via cloud.

### THE CHALLENGE

- High risk of damage if the climate control in cooling units is affected or fails
- Prevention of reduced productivity
- Reducing expensive travels of service technicians
- Optimization of control of cooling units
- Improvement of customer service
- Boost in innovation in terms of Industry 4.0

### THE SOLUTION AND USPS

- Read-out of measurement data, such as the temperature in the control cabinet and revolutions per minute of fans, control of cooling units
- MODBUS interface for integration of the cooling device into the flows of machines and processes
- M2M mobile communications connection
- Data storage and analysis in a secure, ISO certified data center
- Automatic notification of service technician in case of failure

### THE CUSTOMER BENEFITS



#### More transparency

Call-up of installation condition via the internet at any time on PC, laptop, tablet and smartphone



#### Longer machine life span

Constant temperature control prevents damage to the built-in semi-conductors



#### Higher availability

Rapid reaction to incidents and reduction of downtimes



#### More productivity

Savings on manual checks and trips to machine location



#### Predictive service

Possibility of preventative maintenance through automatic data analysis and evaluation



#### Corporate IT is not affected

Cooling units are connected to the Cloud of Things via mobile communications

# KAESER KOMPRESSOREN SE

Compressed air as a service based on a fully managed Industry 4.0 solution



- A leading international provider of compressed air management systems
- 5,000 employees and annual revenues exceeding €650 million
- Key success factors are development, service/ support, provision of spare parts, air-as-a-utility option, and expert advice

**THE PRODUCT**  
Industry 4.0 solution

The Internet of Things is transforming business models. For example, instead of purchasing a machine, customers simply buy the service. The basis is the M2M technology and Industry 4.0 competency of T-Systems. Because T-Systems takes care of the entire system with a fully managed solution – from Enterprise Mobility Management, through development and integration of the apps to Application Management – the market leader Kaeser can focus on its core business.

## THE CHALLENGE

- New option, compressed air as a service, requires extremely reliable compressed air supply systems
- Implementation of predictive maintenance to resolve potential problems before they can cause outages
- Capture and analysis of very large quantities of sensor data to generate predictive models
- Provision of relevant data via field employees' mobile devices to simplify and accelerate maintenance

## THE SOLUTION AND USPS

- Fully managed, end-to-end Industry 4.0 solution that integrates all systems
- Industrial PC and IoT client receive sensor data from compressors at customer sites
- M2M platform (T-Systems)
- SAP HANA Cloud Platform, SAP Predictive Maintenance and SAP HANA Cloud Platform mobile services (on premises at Kaeser)
- Application Management for the mobile platform (T-Systems)
- Mobile app in conjunction with Mobile Device Management and Enterprise Mobility Management (T-Systems)

## THE CUSTOMER BENEFITS



**Maximum reliability**  
Prevention of outages for compressors in operation worldwide through proactive problem resolution



**Greater customer satisfaction**  
Pay-as-you-use air-as-a-utility offering gives customers a complete solution



**Improved service productivity**  
Mobile technology enables more efficient employee deployment



**Attractive air-as-a-utility offering**  
New service creates competitive advantage



**Greater efficiency**  
A one-stop, managed solution



**Future-proof system**  
The application will be continuously improved and enhanced

# EATON CORPORATION

Smart factory as a service



- Components and systems for mobile and industrial hydraulics, electrical systems and energy distribution, road-vehicle and aircraft components
- 95,000 employees, customers in more than 150 countries

## THE PRODUCT Predictive Maintenance

The success factor is the bundling of experience from Eaton with its uncontested automation competency and Deutsche Telekom, with its wide ranging IT and cloud expertise, for example at Azure, industrial IoT and predictive maintenance.

### THE CHALLENGE

- Real-time equipment monitoring with support for remote maintenance via VPN
- Remote monitoring and analytic predictions as digital services for other components
- Secure IoT solutions for manufacturers who wish to connect their systems with the cloud
- Simple integration of Eaton automation components into an IoT platform via the Eaton front end Galileo

### THE SOLUTION AND USPS

- Smart factory solution as an "IoT Ready Package" with analysis of sensor data to trigger predefined actions, based on threshold values
- Long-term storage of machine data in the Open Telekom Cloud
- Visualization of machines and components as virtual twins on a dashboard
- Azure as base for big data analyses, condition monitoring and predictive maintenance

### THE CUSTOMER BENEFITS



**Enhanced transparency**  
Condition monitoring of machines and components



**Zero downtime**  
High availability through predictive maintenance



**Greater productivity**  
Flexible, reliable operation of equipment and factories



**Improved service**  
Predictability leads to greater customer satisfaction



**Lower costs**  
Increased automation, less manual work



**Digital business**  
Innovative services for machine operators, manufacturers and consumers

# NZR

## Energy management from the cloud



- NZR GmbH & Co. KG: six companies, 180 employees
- Long-term partner for measurement and system technology in electronics wholesale and for energy providers

### THE PRODUCT CountVision energy management software

With the web-based CountVision software, energy-intensive industrial companies can improve their energy efficiency and fulfill the requirements of an energy management system according to ISO 50001. This system offers the option of enriching the collected consumption and energy data through own company-specific parameters. Display is possible on freely configurable dashboards or as reports.

### THE CHALLENGE

- Energy efficiency is a great trend due to increasing energy prices, savings potentials and public subsidy options
- Gaining of new customer segments for energy management software without an on-premises installation
- Software must be cloud-compatible
- Need for computing resources for data analysis
- High security requirements for sensitive data

### THE SOLUTION AND USPS

- Operation of CountVision in the Open Telekom Cloud
- 1,400 or 2,400 GB storage and backup storage in the Open Telekom Cloud
- Modular system offers needs-oriented IT resources
- Multiply certified, highly secure Deutsche Telekom data centers located in Germany
- Certification according to TDCP 1.0 certifies Open Telekom Cloud GDPR compliance

### THE CUSTOMER BENEFITS



**Secure platform**  
Highest data protection and data security level of the Open Telekom Cloud



**More revenue**  
NZR Group enters new customer segments with the cloud-based product



**Secure transfer**  
State-of-the-art encrypted communication



**Attractive for users**  
NZR customers use CountVision highly efficiently without using their own data center resources



**Scalable computing capacity**  
Needs-oriented resources for the increasing number of connected meters



**Improved energy efficiency**  
Exhaustion of savings potential through simple use of CountVision

# ENERGY PROVIDER

Automation of IT and HR services

**THE PRODUCT**  
ITSM and HR-Portal

After separation from the parent company, the energy provider had to build its own IT infrastructure. An HR management portal also had to be implemented at the same time as the IT Service Management (ITSM). To automate these processes, the central ServiceNow platform was implemented within the German Telekom Cloud in cooperation with T-Systems and operational services (OS).

## THE CHALLENGE

- Creation of own profitability
- Tight schedule of only one year
- Implementation of own automated processes
- Simple execution of ITSM for smooth IT operations
- Central management of all HR concerns from administration and authorizations through remuneration to time management
- Transparency for all employees involved in the processes

## THE SOLUTION AND USPS

- ITSM based on ServiceNow
- HR portal based on ServiceNow
- Single point of contact for all HR requests by ticket
- Self-service for employees
- Integrated HR case management
- ServiceNow SaaS and professional services from one source

## THE CUSTOMER BENEFITS



**Lower costs**  
Shorter lead times for all requests through automation



**Higher process quality**  
Reduction of manual errors through digitization



**Unburdened and productive employees**  
Replacement of a number of previously manual activities



**High degree of usability**  
Consistent and intuitive user interface in the customer design



**Maximum transparency**  
The status of each request is available at the touch of a button



**Many expansion options**  
Functional extensions, such as need for training and technical integration, e.g. into the SAP systems

**LINDE**

Smart security for the smart world

  
**THE LINDE GROUP**

- 57,600 employees, €17.11 billion turnover
- Stock exchange listed, international technology company with core business in gases and process plants that extract or produce gases

**THE PRODUCT**  
Safety Solutions

One billion security-relevant data from 3,000 data sources are fully automatically analyzed every day in the Cyber Defense and Security Operation Center (SOC). Approximately 200 security experts work around the clock to counter cyber-attacks – at the Master-SOC in Bonn and in connected locations around the world. Their task is to protect the Telekom systems and those of its customers, such as Linde.

### THE CHALLENGE

- Increasingly connected production environment at Linde
- Growing data volumes are harder to manage, and at the same time, attacks are more strategically sophisticated
- More targets for attack mean greater vulnerability
- A need for immediate detection and defense from attacks
- Implementation of the global security strategy at Linde
- Availability of security experts and network expertise

### THE SOLUTION AND USPS

- Hybrid security model: Linde and SOC in interaction
- Tool for Security Incident and Event Management (SIEM) for constant network monitoring
- Immediate detection of conspicuous data records, ad-hoc reaction
- Malware library as information pool with approximately 20 million malicious codes
- SOC provides first and second level support

### THE CUSTOMER BENEFITS



#### Need-based concept

Responsibilities and activities are shared among Linde and T-Systems



#### State-of-the-art technology

Always a step ahead of attackers with artificial intelligence and machine learning



#### High quality

No false alarms, but rapid and reliable alarms



#### Learning system

Known and unknown attacks are detected, findings flow into the library



#### Comprehensive protection

Checking the cyber status, analyses, counter measures, recommendations for action, prognoses



#### Bundled expertise

The entire security expertise of Telekom in SOC – all in one unit

# TELEMATICS INFRASTRUCTURE

Securely connected digital healthcare

**THE PRODUCT**  
Medical Access Port-Bundle

Telematics Infrastructure (TI) stands for security, improved professional communication between the participants and optimal patient care. The closed-access network only allows verified persons access to the TI. Thus, electronic health card, security module card and health professional card can be used via eHealth card terminals which are connected to the primary system through a connector.

## THE CHALLENGE

- Doctors' practices and clinics enter the world of TI
- Need for an efficient and easy to implement connectivity solution
- Procurement, implementation, commissioning and interplay of all components
- Availability of trained expert staff
- Ensuring smooth operation

## THE SOLUTION AND USPS

- Medical Access Port-Bundle as a starter package for use of TI, consisting of
  - A connector and stationary card terminals with installation and configuration on site
  - Optional: additional card terminals or keyboard with integrated card terminal and mobile card terminals; expansion to multiple operating locations
  - Operation and services: VPN access service account; maintenance of the connector and card terminals; service
- Total system from one source

## THE CUSTOMER BENEFITS



### Digitized communication

Institution-wide and interdisciplinary professional communication



### Easy entry

Complete bundle from one source for the start, including expert advice



### Maximum legal security

Patient data will be transmitted securely between institutions in the future



### Harmonized Medical Access Port-Bundle

Aligned hardware and software products as well as service with updates



### Future-proof solution

Preparation for the realization of future specialist applications



### Audited connector

In mid-2018, gematik issued admission for the connector from T-Systems

# DEUTSCHE TELEKOM – SEA HERO QUEST

Mobile app aids  
dementia research



## THE PRODUCT AppAgile (PaaS)



- 230,000 employees, revenues of €60 billion
- In conjunction with subsidiaries, the Group operates on five continents
- Makes innovative technology available for research into major problems faced by society

In the smartphone game “Sea Hero Quest”, the voyage through a water-world allows brain researchers to gain information on the navigation behavior and loss of orientation of people of any age around the world. Already more than 5 million people have downloaded Sea Hero Quest, and the number of virtual reality users is constantly growing.

## THE CHALLENGE

- AI-supported analysis both for the trained data science experts as well as for newcomers to data science
- Provision of hosted computing resources as development platform for the Sea Hero Quest game app
- Unpredictable user numbers and data volumes
- A scalable production environment required to handle peak loads
- Reliable 24/7 availability required
- High cost efficiency and minimal upfront investment

## THE SOLUTION AND USPS

- Data science workstation for use of artificial intelligence
- AppAgile as a Platform as a Service (PaaS) solution and auto-scaling back-end for development and operation
- Docker container allowing fast changes to instances
- Platform can “breathe” in line with changing demand
- Operation of AppAgile in the secure Microsoft Azure Germany Cloud

## THE CUSTOMER BENEFITS



**High performance**  
Supports the processing of giant volumes of data with artificial intelligence



**High data security**  
Anonymous data is saved in accordance with the strict GDPR



**Extremely rapid time-to-market**  
Provisioning of the production environment at the touch of a button



**Minimized risk**  
Product can be launched without need for own infrastructure



**Automatic scaling**  
Support for peak loads



**Usage-based pricing**  
Pay-per-use price model for the Microsoft Azure Germany Cloud

# FUSE-AI

Artificial intelligence  
fighting cancer



FUSE-AI

- Start-up for artificial intelligence in healthcare
- Self-developed algorithm for the analysis of MRT images recognizes anomalies such as carcinoma, marks them and provides an estimation of whether it is benign or malignant

**THE PRODUCT**  
Diagnosis support

Radiologists currently analyze each MRI image manually when searching for tumors. Now artificial intelligence can assist in the diagnosis: The FUSE-AI system can detect and classify carcinomas on MRI images. It marks anomalies on the images and assesses whether the tumor is benign or malignant.

## THE CHALLENGE

- The start-up is still at the beginning of its development
- An MRI provides more than 2,000 images per patient and examination in the scanner
- The founders of FUSE-AI need flexible and scalable computing resources for the analysis of large quantities of data from MRI scans
- Very variable need of computing resources
- Highest capacity only for image analysis

## THE SOLUTION AND USPS

- Artificial intelligence from the Open Telekom Cloud
- Scalable IT resources on demand
- Multiply certified, highly secure Deutsche Telekom data centers located in Germany
- Certification according to TDCP 1.0 certifies Open Telekom Cloud GDPR compliance
- Platform services such as Distributed Message Service (DMS) assume FUSE-AI's administrative tasks

## THE CUSTOMER BENEFITS



### Secure platform

Highest data protection and data security level of the Open Telekom Cloud



### Unburdened medical professionals

Radiologist detect distinct alterations in tissue more quickly and reliably



### Maximum cost efficiency

No investments in own computing resources, only need-based costs



### Rapid market success

FUSE-AI's founders can establish their start-up more quickly and sustainably on the market



### Flexible computing capacity

Scalable resources enable big data analyses at any time through artificial intelligence



### Optimized patient care

Rapid, precise diagnosis makes a contribution to improvement of care



## **DIGITIZATION.** FOR MUTUAL PROGRESS!

Whether private or in the business world, we've never had it so good. The promise of the social market economy to create "prosperity for all", must also be honored in the digital economy. Prosperity goes hand in hand with technical advancement. With connectivity and technologies that include everyone and give everyone a personal opportunity of participation. With the knowledge that digitization also helps to meet the great challenges, from climate change to diseases such as cancer, dementia or Alzheimer's. With the realization that data protection and conscientious handling of data in all areas of society and the economy must be taught and learned. And there is much to suggest that we can master all of it. If, and only if we continue to use the protective and secure technologies that digitization provides.

**PUBLISHED BY**

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