RECREATE

The lights are on green for

Augmented Reality in field service

TRENDBOOK

The opportunities offered by
Augmented and *Virtual Reality*

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It is not a question of whether field service organisations will use Augmented and Virtual Reality tools (AR/VR) on a large scale, but when. More and more companies are equipping their engineers in the field with tools for video collaboration and interactive manuals, for example. In maintenance work, engineers are increasingly equipped with Virtual Reality glasses, which brings static information to life for them. In this trend book, we describe the current viewpoint on Augmented Reality in field service.

Sky-high customer expectations

Customer experience is becoming increasingly important for Field Service organisations. After all, that's how you distinguish yourself from the competition. The rising popularity of Augmented Reality in Field Service is therefore no surprise. After all, Augmented Reality contributes to improving your service. You can read more about how this works in chapter three.

Return

good customer service pays off, of course. We all know that customer satisfaction increases retention and revenue. But AR also delivers returns in other areas. In the supply chain, we see that major players, such as DHL, provide employees in distribution centres with vision picking tools, with the help of smart glasses. Using smart glasses, the employee sees a digital picking list, is automatically guided to the correct position and scans the picked products. It's a great deal faster than working with paper lists, and the chance of errors are vastly reduced.

The lights are on green for Augmented Reality in field service

Take advantage of it now!

On the right track

Are you ready to take advantage of Augmented Reality? In this trend book, we will put you on the right track with tips from successful pilot projects and existing user cases.

Will you carry on waiting to see how the competition use AR to:

- Increase customer loyalty?
- Increase productivity?
- Improve the quality of services?
- Benefit from new technologies?

As we noted earlier, there are a number of international parties that have set up pilot projects with augmented, virtual or mixed reality in their field service organisations. A selection of successful case studies and pilot projects are described below.

SIEMENS

Case 1:

Virtual co-operation at Siemens

Siemens-experts and local service engineers use Augmented Reality to work together on the maintenance of gas turbines, even if they are ten thousand kilometres apart. Virtual technology makes maintenance even more efficient and effective, and improves uptime. An expert miles away can see what his colleague sees, thanks to smart glasses. Remote gestures from the colleague are projected onto the image, to guide the service technician who has both hands free to complete the tasks required. Information from the cloud and 3D images of parts and objects are combined, so that the engineer is given the best possible instruction on site. The on-site work is completed faster and the customer does not have to wait for the availability of an expert, which also saves on travel costs.

BOMBARDIER

Case 2:

Bombardier on the right track with AR

Bombardier, a leading manufacturer of trains, train components and other transport equipment, among other things, has started using AR. The company can now realise significant cost savings for each service call by remotely resolving technical issues with the help of Augmented Reality. Maintenance staff use a tablet to read diagnostic data from equipment while they walk through the train. They can easily identify possible defects or weaknesses in parts and have direct access to the vehicle's service and maintenance manual. They can then quickly perform corrective actions and tests to ensure that the equipment is working properly.

Thanks to artificial intelligence, the train can also anticipate defects and transmit diagnostic data to traffic control. The fleet supervisor can then communicate directly with the train and carry out maintenance using voice recognition software.

Rexroth
Bosch Group

Case 3:

Remote support at Bosch Rexroth

Bosch Rexroth, a supplier of hydraulic drive systems, can now offer remote support to customers, alongside the existing service offered, thanks to AR. The co-operation between employees and the the visual aspects of the AR technology led to an increase in the quality of the service.

Problem-solving has been significantly improved, compared to telephone consultations. Certainly in the pilot project location, Sweden - where distances and travel times are long - AR provided a solution for both Bosch Rexroth and its customers. The customer can rely on shorter downtimes and Bosch Rexroth are even able to tap into a new source of income, with AR as a new business model.

Change to Augmented Reality has provided a *new source of income* for Bosch Rexroth

MAINTENANCE NEEDED

The fact that many organisations see the potential of AR is demonstrated by analysts predicting that expenditure on AR technology will exceed 100 billion dollars (more than 89 billion euros) by 2020.

In summary, over the next few years, we can expect an exponential growth of AR in the field service industry. The technology industry is already considered to be the main economic driver of AR, in which field service plays an important role in many AR user cases.

MAINTENANCE NEEDED

VERIFICATION IN PROGRESS

Field Service and Augmented Reality, *a perfect fit?*

In recent years, the focus of service organisations has shifted - all eyes are on the customer experience. As it becomes more difficult for companies to distinguish themselves on price or product, the customer experience and providing excellent service are paramount. Augmented reality assists greatly with this.

Until recently, service teams were considered to be a costly, cumbersome organisational unit that could only operate reactively. That way of thinking is now turning 180°. Service is becoming a means to proactively optimise the customer experience. Excellent customer service is essential and should be faultless. It is important that customer loyalty is increased by providing optimal service, insight into processes and involving customers in them:

- **Solving problems more rapidly.** If the expert is not available, you can confidently send a less experienced field service employee, who will be remotely supervised by a colleague if necessary.
- **More one-time fixes.** If the problem turns out to be different from the one expected, a manual can easily be obtained, or external advice sought. This ensures

that there is no need to make a new appointment.
- **More insights for your customer.** Not only do your service engineers benefit from AR, so do your customers. For example, they send an image of a broken device to their supplier so that they can carry out simple repairs themselves, supported, of course, by an expert.

Service is becoming a means to proactively optimise the customer experience

Augmented Reality ✕

SHOW PRODUCT ⌃

The *ultimate customer experience* in practice

A large interior design retailer sees opportunities on many different fronts to use AR/VR or MR (Mixed Reality) to better serve the customer. In the first instance, there are possibilities for sending customers into a physical shop with a head-mounted device or smart glasses. Customers use their device to set up part of the shop with Augmented Reality, for example as a living room and they select items digitally to place in the physical space. If we extend this to the

home situation, it is quite conceivable that the customer will use the camera function of a smartphone or tablet to place items in their own living room. A link to the webshop or a contact form is easily accessible, and suddenly you have a very hot lead. Coupled with a link to the ERP system, stock management or production system, so that the customer also has a good idea of delivery times and costs to avoid disappointment. Finally, it is also possible

to add codes to a paper catalogue that, in combination with a mobile app, make items come alive for the customer to view and order.

With all these possibilities, the customer already has one foot in the shop or webshop to place their order. Now you just need to ensure a flawless production and delivery process.

Realise the **benefits** of AR and the enhanced capabilities that **Virtual Reality** will bring to your workforce

The four opportunities for
AR & VR in Field Service

So you have just read some very interesting case studies. What are the opportunities for your own organisation that you can benefit from straight away?
The possibilities can be divided into four main themes; *visualising, training, interacting, contracting and simulating.*

So what are the opportunities for your own organisation that you can benefit from straight away?

Visualisation
In the context of 'The ultimate customer experience in practice', we can see all the key AR user scenarios. The first of these is visualisation. AR applications provide a kind of X-ray image, revealing and displaying information that would otherwise be difficult to see. Like the way door supplier Skantrae ensures that the customer can visualise a door in his or her own interior. Also think about solutions in industry: complex machines are visualised with 3D images, so that components can be viewed separately.

Training and Supervision
A second major opportunity for AR is in training and supervising people. AR offers

a different approach to the education, training and coaching programmes of businesses. It is precisely these activities that improve productivity and make work easier and more rewarding. Written manuals and excessively long instructional videos are replaced by real-time visual support with AR geared towards the specific job. Complex 2D diagrams are transformed into interactive 3D holograms that guide the user through the necessary processes. Boeing achieved time savings of 35 percent in this way on the assembly of a part of an aircraft wing made up of 30 different parts. And more importantly: new employees can be trained on the job at lightning speed, which is a great advantage in times of labour shortages. The fact that headmounted devices (HMD) are becoming increasingly sophisticated, stable and affordable means that these types of applications are increasingly being used.

Interaction

We have become familiar with using physical controls, such as buttons and touchscreens, over many years. We use these to interact with products. AR gives the interface a whole new dimension, for example by placing a virtual control panel directly on the object to be controlled. Control of the product then takes place by means of an HMD, hand gestures or by using voice commands. Productivity in complex industrial environments could easily be increased by 30 percent, as demonstrated by a recent GE pilot project on wind turbines.

Simulate with Virtual Reality

Although we know VR mainly from the gaming world, it is also proving to be of great value to Field Service organisations.

Further examples, could include training environments where work has to be carried out in very remote or dangerous areas. Or if the equipment is not available for a certain training course, VR technology places technicians in a virtual environment using holograms of the machinery.

By combining AR and VR, users can overcome distance (by simulating remote locations), transcend time (by reproducing historical contexts or simulating future situations), and transcend scale (by placing users in an environment that is either too small or too large to physically experience). In addition, bringing people together in shared virtual environments improves mutual understanding, collaboration, communication and decision making. For example, car manufacturers use AR

and VR to get geographically dispersed engineers to work together, with holograms of vehicle prototypes.

Written manuals and excessively long instructional videos are replaced by real-time visual support with AR geared towards the specific job.

The *digital* industry

The American giant General Electric (GE) was faced with the choice of how best to respond to the digitisation of the industrial sector: do it yourself or outsource it? GE decided to take up the challenge itself; data and analytics are the driving forces behind the transformation of its global activities. GE wants to be both a platform business and an application business. It therefore built a cloud platform to manage and analyse machine and industrial data in real time. It is a generic platform, with no preference for certain sectors of industry. The analytical services are provided as a public cloud for a 'gated community', which means that only recognised industrial enterprises have access to them. Apps for the platform are only allowed on the PaaS (Platform as a Service) after being assessed by GE.

GE also launched an alliance programme designed to connect System Integrators, telecommunications service providers, independent software suppliers, technology suppliers and resellers with GE's technology and digital industrial expertise. In this way, a complete digital chain benefits from the data and services. It is clear that field services can benefit hugely from this kind of development.

05 Are you ready for the
future of Field Service?

In this trend book we have described the most important opportunities you can implement to make a difference to your customers with Augmented Reality. Augmented Reality allows you to stay one step ahead of the competition.

✔ AR and VR provide information in a format and via a device that is precisely tailored to the situation of the user. When a field service employee uses the camera function of his tablet to scan article numbers of machine parts, the correct manual is immediately displayed on his or her screen.

✔ AR and VR ensure that the same field service employee with a Head Mounted Device immediately gets a 3D image of a machine in front of their eyes. Productivity increases significantly.

✔ AR and VR allow the customer to experience how virtual elements behave in a real environment. Consider the consumer environment, where interior parts from a virtual catalogue can be placed in your own living room. This boosts the customer experience to a superior level, increasing conversion rates and sales.

✔ AR and VR enable an organisation to improve business processes and implement new business models.

Benefiting from AR and VR is not a matter of course. In this trend book we have looked in detail at the conditions for success. An important element is the integration of data. AR solutions must be fed with correct data on the basis of which employees, customers and clients can experience this extra dimension of AR and VR.

The lights are on green for moving ahead with Augmented Reality. The time is right and the technology is ready. *Are you ready to experience the benefits?*

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Want to learn more? Contact Recreate

Do you want to find out more about Virtual, Augmented or Mixed Reality?
Contact Recreate and we will advise which technology fits best with your business process.

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