

PORTFOLIO

2020
2021





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"The best way to predict the future is to invent it."

Alan Kay (*1940), American computer scientist

About us

We have been operating successfully in the industrial market since 1998 as Webware-Experts OHG. We develop, plan and implement progressive and innovative IT solutions as an IT service provider at three locations. Over the years, we have been able to build up technological and methodical know-how through our work in the field of network and internet technologies. This allows us to cooperate with different customer groups and partners across industries and to provide individual IT services.

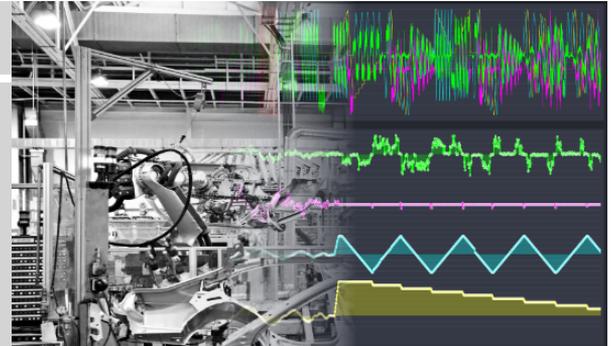
The future-oriented topics of Industry 4.0 and the Industrial Internet of Things are of central importance to us. This is also reflected in our portfolio. Whether products, services or the technologies behind them – modern applications, solutions and methods are the basis for progress and innovation in the industrial market.

Our competence is the expertise of our employees combined with a strong customer orientation. We work closely with our customers and partners to optimize business and IT processes and thus make them more efficient, more economical and more future-proof.

Therefore, we pursue the goal of customer satisfaction across all services in our company. We achieve this not only through the quality of our solutions, but also through partnership. That's why we build on a communicative, transparent and trusting basis for a long-term and successful cooperation.

Products

Our product line for the after-sales process in machine and plant engineering is a future-oriented complete solution to control all important areas of modern industrial maintenance efficiently and user-oriented as well as to optimize maintenance operations.



Services

Our services optimize the core processes of companies in the industrial sector. We support companies in the planning, implementation and support of IT projects based on innovative software development methods and technologies.

Technologies

Our products and services are built on advanced technologies. With a focus on Industry 4.0 and the Industrial Internet of Things, we rely on a strong future orientation and individually tailored solutions.



Products

Modules

weMonitor



... enables predictive maintenance and production monitoring.

weManage



... is designed for the efficient control of service processes.

weReport



... is used to record maintenance work with documentation.

weInspect



... allows the on-site technician to be supported by remote experts.

weInspectAR



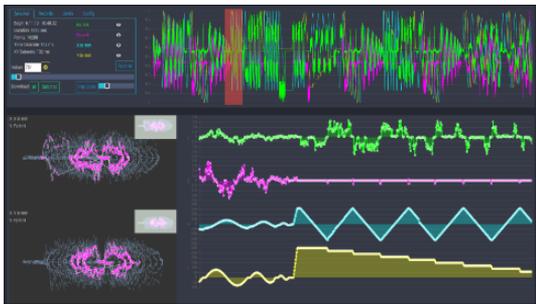
... allows hands free work and simultaneous access to information.

Modern internet technologies are becoming increasingly important in the industry. Connected machines and systems are steadily moving further into the focus of operators in the context of Industry 4.0 and the Industrial Internet of Things. The progress of hardware and software reveals previously unused potential and leads the field of industrial maintenance into a new generation with additional production monitoring.

Our solution offers machine and plant operators economic, technical and organizational advantages. The comprehensive and user-oriented software with a modular, cloud-based structure contains all the key areas of modern machine and plant maintenance: service management, predictive maintenance and production monitoring, cooperation options, failure analysis and repair as well as documentation.

This also gives machine and system manufacturers decisive competitive advantages in the area of customer service. These lead to an increasing economic importance of service departments and a noticeable increase in the satisfaction of machine and plant users.

Machine manufacturers and operators keep track of all relevant data of their plants by using **weMonitor**. The monitoring is based on modern internet technologies and intelligent data processing. **weMonitor** is therefore the ideal basis for predictive maintenance and an effective production monitoring of machines and plants. The software is exclusively configured and adapted to meet individual requirements.



The module has future-oriented predictive maintenance functions to display the extensive overall system. In order to implement predictive maintenance cost-efficiently, it is necessary to identify potential problems and malfunctions at an early stage. Therefore, **weMonitor** relies on innovative technologies that describe and analyze machines and plants with complex threshold values as a coherent system. Extensive options for recording and analyzing sensor data allows the machine to investigate the system behavior during the development and initial operation phase. Predictive maintenance in conjunction with machine learning thus not only serves to increase plant availability, but also effectively reduces maintenance costs by predicting machine downtimes and defects.

 **weMonitor** uses machine learning as core technology to provide an optimal analysis. The purpose of machine learning is to bundle, store and analyze machine and plant data. This enables the machine to generate knowledge based on self collected experience independently. Two self-developed predictive maintenance algorithms are used for this task, which are specially optimized for the application scenario of evaluating the machine condition.

weMonitor as an innovative production monitoring system also visualizes the production process from the collected machine and plant data. These relate to cross-machine, process-oriented views as well as to views that contain relevant key figures (e.g. OEE) for each machine or plant. The data from production monitoring is linked with detailed sensor data relating to physical production processes to enable detailed analyses. Problem areas can also be quickly and effectively identified on this basis within the framework of lifecycle management and quality assurance.

Application scenarios of **weMonitor**:

- » Realtime Analytics
- » Quality Assurance
- » Diagnostics
- » Anomaly Detection
- » Lifecycle Management
- » Monitoring/Alerting
- » Signal Analysis



weManage

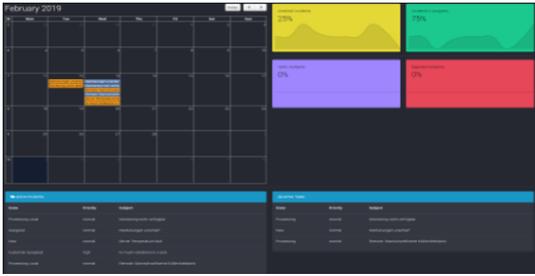


Cloud technologies are closely linked to the implementation of IIoT platforms in the area of predictive maintenance. Based on established technologies, the goal is a scalable approach to providing IT infrastructures, platforms and software over the internet without the need for local installations. Both deployment and usage are realized solely through protocols and interfaces – usually via web browser. Fog computing is also used to outsource certain functions from the cloud close to the network. In addition to reducing the volume of data, this also reduces the load on the used bandwidth. Another advantage: sensitive data remains on site and does not have to be transferred to the cloud.

weManage as a server-based platform is the organizational center of the industrial customer service process. All relevant service actions are represented in this software module, which is independent of location and system, making it the central node for data, activities and communication. Users are offered a wide range of functions to make the decisive service activities more efficient, clearer and easier to manage. **weManage** includes various software features that are ideally matched to each other. Besides the possibility to manage service personnel, service orders and incidents are generated, forwarded, processed and much more.

In order to achieve clarity while maintaining a high level of overall functionality, **weManage** is equipped with a role and rights system. This makes it possible to assign different rights to users such as service technicians or managers so that each participant is given the rights that are important to him during service work.

The service provider's manager thus maintains an overview of the entire service chain with **weManage**: from the receipt of the incident report to the end of the repair process, the control is handled by the platform.



The platform provides an overview of the current status of the malfunctions, the tasks to be performed, the current location of the personnel and the malfunction reports of the machine operator. The service technician, on the other hand, can view all data related to the respective incident and add further information. In addition, **weManage** provides him with more tools. These include the access to historical machine data as well as comparisons with past incidents of a similar kind and the applied solution strategies.

weReport

weReport supports the service technicians with the systematized service reporting during and after successful completion of the customer service work. The module documents detected machine failures and work performed as well as evaluates the relevant information later on. It also makes it possible to record the materials used. The service technicians are supported by a standardized keyword system, which can be expanded with own entries if required. **weReport** generates a service report based on the logged information. To optimize further company processes, the module can be connected to the company's own ERP system. In this way, the information can be used for further processes even more easily and seamlessly.

weReport thus offers efficiency improvements on many levels. The direct input of relevant data not only reduces the documentation effort, but also allows for later analysis. Statistical comparisons allow, for example, weak component groups or particularly susceptible machine types to be identified over a sensibly selected period of time. For this reason, the possibilities of data usage are individually coordinated with each machine manufacturer and user and adapted to the specific requirements.



A basis for our Industry 4.0 and IIoT applications are modern communication protocols and high-performance, specialized NoSQL databases. In order to effectively and efficiently meet the challenges of data volumes in modern maintenance and production monitoring, the basis is a fast data setup. The purpose of fast data is to process and evaluate the accruing data in real time. **weReport** also uses an innovative backend technology with a graph database.

welnspect

welnspect is the future-oriented module for an easy cooperation between service technicians and remote experts. The teamwork is carried out via web browser on each end device. It offers users an interactive graphical user interface as a central element that can be used simultaneously by two or more users on different end devices. **welnspect** is extensively equipped to reduce service costs and to enable effective collaboration: photo and video function, text and audio chat, document sharing as well as checklists for standardized instructions are optimally coordinated to achieve fast success together. Another important aspect is the bundled experience of the remote experts. This experience is made available to the service technicians through teamwork in real time via **welnspect**. Urgent malfunctions can thus be resolved faster, which leads to a minimization of processing times and costs.



Another aspect of the IIoT platform is the microservice architecture. Instead of providing one large service, it is split up into separate, small services, which allows functionalities to be implemented quickly. In short: the IT architecture is modularized. The individual services are usually designed for a single task, but are specialized for that purpose. Together they form an optimally coordinated service package.

welnspect AR

welnspect AR enables service technicians to work without interruption. When troubleshooting an incident, they are supported by remote experts (e.g. via video chat) and the system in real time without having to stop working for communication. A checklist function is also available.



welnspect AR relies on technical progress in the form of data glasses. By means of augmented reality, service technicians can see the real events with additional digital information such as the machine status or sensor data.



Besides the required IT knowledge, we have extensive industry and process know-how, which has been accumulated in the course of many projects in recent years. We have planned, implemented and supported small and medium-sized projects as well as multi-year enterprise projects during this period. A characteristic feature of our services is a partnership approach with the goal of maximizing customer satisfaction. In order to guarantee this throughout, our services are always based on current, innovative, powerful and sustainable software development methods and technologies.



We modernize and optimize the core processes of companies with our services. These include:

- » Research and Development
- » Procurement
- » Logistics
- » Production
- » Service

Our service offer includes support in all phases of IT projects. We bring this spectrum from planning to implementation and support also in the context of cooperations in the industrial environment, especially in machine and plant engineering, as a research and development partner. In this context, we provide support in close cooperation not only on the software level but also on the system level (e.g. regarding the interaction of sensor technology, embedded systems and IoT gateways).

Project Planning

The projects to be implemented by companies can have different characteristics. They can be described by their content on the one hand and by their time horizon on the other. A distinction can be made between strategic and tactical projects, which is also reflected in our consulting spectrum for the industrial environment.

» **Strategic Consulting:**

Our strategic consulting services are for the senior management of companies. The consulting services are mainly related to the introduction of new or the further development of existing business models. The introduction and use of new technologies effectively opens up potential for optimization, which improves the business result in the long term. Within strategic consulting, we distinguish between *business-oriented* and *technology-oriented* consulting.

In the *business-oriented* consulting, we develop business strategies together with the respective company, including innovations and technologies to optimize selected process areas. On the other hand, in the *technology-oriented consulting*, we develop a strategy for the company that shows how technologies can be used to enable innovations. The goal is to have a lasting positive impact on competitiveness. A combined consulting can also be realized in addition to the individual consideration with the respective thematic focus.



» **Tactical Consulting:**

We deal in our tactical consulting with tasks that are carried out in the industrial context of individual projects. These consultations can initially be upstream of a project. Thus, it is discussed in advance whether the potential project should be implemented or not. We offer in this case consulting services that serve to clarify the order. Other consulting variants focus on already decided and/or ongoing projects.

In addition to *consulting in the context of clarifying orders* (e.g. feasibility studies or process analyses) and *consulting in the context of projects to be carried out* (e.g. IIoT solutions and B2B software), we also prepare *documents for project implementation*. These contain planning and specification documents which are based on various methods such as the classic waterfall model or the agile Scrum method.

Project Implementation

The implementation of a project can be realized on the basis of different software and system engineering methodologies. The methodology to be applied (e.g. Scrum or Kanban) depends on various factors and is individually adapted to the respective project in consultation with the company. Within the project realization, a distinction is made between the design and the implementation phase, whereby the concrete processing of the two areas depends on the selected method and can also be partially processed in parallel.



Our services are also based on innovative technologies. Whether modern applications with multi-platform support, multi-server systems, runtime environments based on cloud technology or API design in the context of complex platforms. The strong future orientation through powerful technologies also comes into effect here.



» Design:

Before an application, a system of hard- and software or even a platform is implemented, important design decisions have to be worked out. In addition to architectural developments, the focus is on the technologies that can be used to design viable solutions, taking into account the specific constraints of the project.

- *Architecture Development:* Our development of the technical architecture is based on a requirements analysis. This can include hardware, communication and software aspects.
- *Frontend Design:* We design customized, ergonomic frontend systems depending on the area of application. The specific design of these systems takes into account aspects of user experience.
- *Backend Design:* Different requirements have to be considered when designing backend systems, depending on the planned range of functions. We develop these with regard to the target platform, expandability, flexibility and maintainability, performance and scalability as well as integration with other systems.
- *System Design in an Industrial Context:* The design work we offer also includes complex system design. This can involve a number of technologies and subsystems and can not only refer to a software design.
- *Design of Runtime Environments:* We also design the runtime environment as part of a technical architecture. This can be a bare-metal runtime environment or based on container or cloud technology, depending on requirements.
- *Service/API Design:* We also have know-how and experience in the design, implementation and operation of entire platforms (e.g. **weMonitor** as IIoT platform).

» Implementation:

The specific creation of the application or platform in the implementation phase is made on the basis of previously carried out activities in the area of project planning and the subsequent architecture and design development. As important components of our implementation strategy, we use continuous delivery and continuous deployment processes to be able to generate intermediate results quickly at the earliest possible stage. These are evaluated together with the client so that agile software development methods can be implemented.



• *Frontend Implementation:*

A user-friendly and powerful implementation of the user interface of an application contributes to its acceptance. In doing so, we attach great importance to an attractive and high-performance solution.

We are able to develop and implement HTML5-based frontends, mobile applications and AR/VR applications.

• *System Implementation:*

We also offer the implementation of entire systems in the industrial sector. These consist of software components as well as coordinated hardware such as server systems. In this field, we support automation tasks, production and process monitoring or sensor data acquisition, predictive maintenance and predictive quality.



We use innovative technologies in all four areas of implementation. This means the use of modern programming languages and frameworks, microservices and highly specialized databases, private cloud instances or coordinated solutions consisting of sensors, IoT gateways, embedded systems and AI hardware.

• *Backend and Platform Implementation:*

We implement the backend of applications or entire platforms with different strategies and technologies.

These can be solutions based on microservices or with additional database requirements. Furthermore, we integrate backend systems with applications that are already existing at the customer's site.

• *Implementation of Private Cloud:*

We also offer the creation of an own private cloud instance. An own private cloud provides a considerable plus in terms of IT security (especially data security). Another advantage is the lower operating costs. That is being the case if the cloud is used to run certain complex applications with a constant workload on a permanent basis.

Within our project support, we focus on the productive implementation and long-term operation of the previously created solution. We also offer a corresponding range of services with many years of experience in this area.

» **Going Live and Initial Operation:**

In the transitional area between project implementation and project support, a developed system must be made productive and put into operation after successfully completing tests (functional tests and load tests). This can be implemented quickly for smaller systems, but in individual cases the special features of the specific operating environment must be taken into account. For larger systems, on the other hand, it can be a longer process. In such a case, we roll out the application with documentation step by step over a certain time period.

» **Second Level Support:**

Once an application or platform has been created and put into operation, the system is usually used by a larger number of end-users. In second level support, we mainly provide support for complex operating sequences or for rarely executed and complex configuration or administration tasks. The goal is to effectively relieve the users and prevent problems during operation.

» **Third Level Support:**

Our third level support assists with extensive problems that require extended technical know-how. We ensure that our employees not only have detailed knowledge of the application or platform, but also master all technologies used within the application or platform.

» **Administration and Support of Runtime Environments:**

Administration and support tasks should also be scheduled for modern, high-performance runtime environments. For this purpose, we offer corresponding services, which include monitoring of the runtime environment including error analysis and debugging as well as planning of further tasks or support in the development, administration and updating of (multi-)cluster solutions.



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