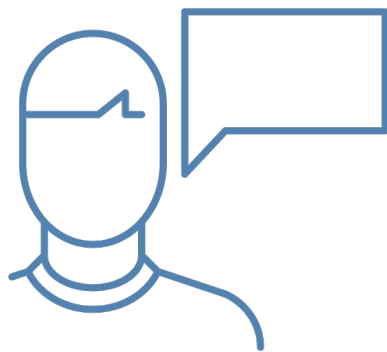




How to Put IoT Into Action

IoT has dominated the technology discussion in recent years, inspiring the imagination of the media, politics and the economy. While there was a lot of talk of possibilities and use case scenarios during this time, many companies are still struggling with the implementation.

On the whole, companies can work more productively, more cost-effectively and more flexibly with clouds. Using clouds, companies can get rid of the conventional, static data center with all its drawbacks. Especially companies in which the management of data centers is not a core competence benefit from cloud services.



- *How can the technical and business potential of IoT be realized at my company?*
- *How do I successfully bring my business through the necessary transformation processes?*
- *How does our company ultimately emerge as the winner of the digitization competition?*

There are no standard answers to these questions. Every company faces its own challenges.

In this whitepaper, we explore the rules and best practices that help companies put IoT into action and provide some tips for launching an IoT project.

Initial situation: Where companies are today

Today's world is characterized by a high degree of automation, which has massively advanced production efficiency in recent decades.

On the other hand, there are still gaps in the integration of data flows between production and enterprise resource planning (ERP) systems as well as the finished products in use. This also has to do with the fact that in many legacy systems are still active and do their job reliably, but do not have the necessary interfaces or use proprietary data formats due to data integration difficulties.

As a result, real-time control of processes in production seldom takes place. And it goes without saying that a large part of the communication and documentation in processes still run on paper.



However, dynamic production environments may change after documents are printed.

Digitizing, accelerating and making existing processes visible in small, striking steps is a task for the industry.

However, it must not stay that way. IoT, in its true form, is more than digitization.

For future viability in global competition, where it is increasingly difficult to differentiate solely by product and production quality, it is important to use the IoT for new businesses, services and revenue models.

And, even if traditional companies undermine their own classic business model, it's still better than losing out to the competition.

IoT becomes reality: What to do now

Rethinking the future of the company is a challenging undertaking.



What will your company look like 10 years from now?

Is your business model still sustainable and can it generate growth?

Where might young, wild disruptors lurk, threatening the existing business?

In order to deal with such questions in a structured and disciplined way, companies should form a digitization or IoT board where members of management, together with representatives of specialist departments and IT, develop the route toward digitization and initiate concrete projects.

A look beyond the horizon

It is important to involve external consultants and use your own staff as "trend scouts" to see what other companies are doing so your company is inspired.

An outside, fresh perspective is often required to interrupt the momentum of everyday life.



IoT: Why the digital twin is so important

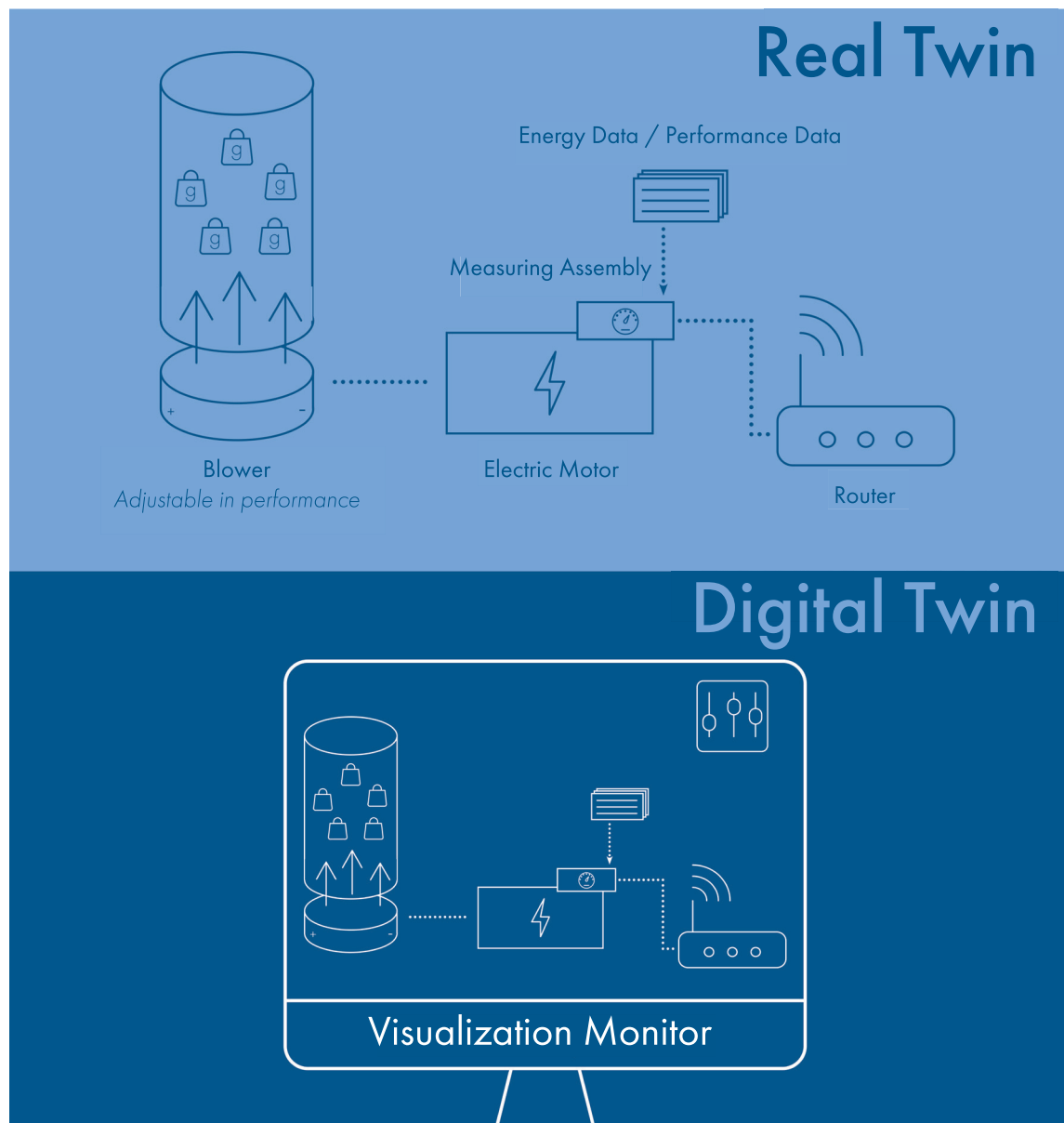
A core element of IoT is the digital twin of a product. A digital twin is not only important for production, but above all, throughout the entire life cycle of a product.

However, most companies are still a long way from having such a digital "as-built" copy of a product.

The digital twin is created by collecting, storing and structuring concrete machine and process data during production in combination with design and service data. The machine and quality data during production already provide valuable information for optimizing efficiency.

Once the product is completed, all existing data will converge into a specialized software solution, such as the SAP Asset Intelligence Network, to generate the digital twin.

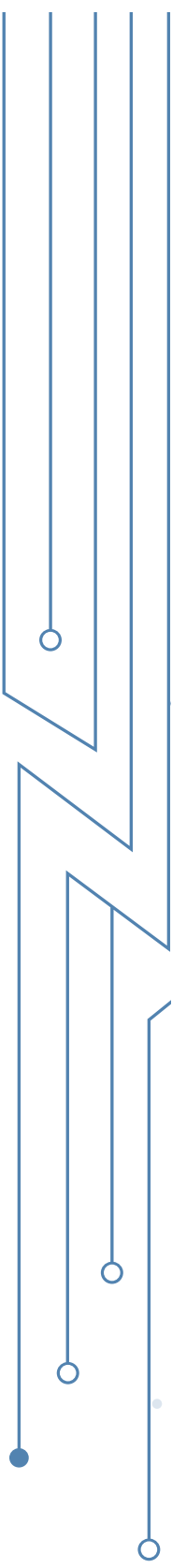
What a digital twin looks like



This may first be a model of the product, just as it has been produced, with all the individual parameters such as production date, raw material batches, temperature and pressure conditions, employees involved, etc.

Does the product have corresponding sensors? Is it possible to own its data analysis functionalities?

This digital twin forms the basis for a multitude of possible application scenarios.



For example, service portals or apps can be realized, via which a customer can monitor and control the current status of his or her machine. Moreover, for components used in larger complexes, the digital twin may serve as a data supplier for higher level control. For example, electric mobility and autonomous driving.

The digital twin will be a standard in production in the future.

Today, companies still have the opportunity, with the appropriate commitment, to create important unique selling points for the customer and a valuable development advantage.

Products can be upgraded, new revenue streams can be created, and new service-oriented revenue models can be built up.


A successful example of this is provided by the manufacturer of electric motors, VEM.

"More than just hardware." That is the goal that VEM has envisioned.

The digital twin of a motor is kept alive even after the sale and fed with fresh data on an ongoing basis.

The digital twin paves the way for a paperless, real-time control of machines and processes, both during the production of a product and during later use.

Shift leaders have an eye on the live condition of entire fleet of equipment, they recognize capacity gaps and open production slots. They work with the same information as colleagues in other factories and can centrally control and optimize production via a portal.



Allow: The shift leader and the success of the design thinking model

A digital transformation is a mammoth task for every company.

Digital transformation may take several years or may never end.

The first step is one of the most difficult.

What comes first?

What happens when the first domino is knocked over?



The importance of a cross-departmental and interdisciplinary team is critical.

When choosing the first IoT project, your company should be careful to find use cases that bring tangible benefits quickly.

The earlier an IoT case is used, the more practical experience can be gained for the next projects.

The power of design thinking

Only through practice can the last doubters in the company be convinced of the meaning of a new culture of change that affects many employees and their way of working.

Design thinking is an innovation method that consistently develops new solutions from the user's point of view.

The focus is not on the technology and process construction kit available, but on the real daily work of employees and the question of where and how to improve it.

In order to find solutions for the digitalization of production, take a closer look at the workday of a shift supervisor.

Where is efficiency on the track?

Where does unnecessary time exist?

Make sure the process and IT experts don't lose sight of the user or the personas defined that precisely describe and characterize users.

What drives them?

The imaginary users even get names to make the idea more concrete. And if it turns out that shift supervisor, let's call him Paul, never looks at the reports printed for delivery, because they're outdated anyway.

At this point, it is a good opportunity to get rid of paperwork and take care of a new real-time portal that integrates data directly from the machines.

Fail hard and fail fast

Agile development methods have proven to be the most suitable for this.

No big bang.

No overloaded specification sheets.

Just fast prototypes that quickly show benefits or quickly fail.

If they don't work, you learn your lesson and you try again.



The cloud as an IoT enabler

As an operating platform for such IoT solutions, there is no way around the cloud.

Cloud solutions can be set up quickly, are flexible and infinitely scalable.

SAP Leonardo provides comprehensive services for IoT and sets standards in terms of performance and security.

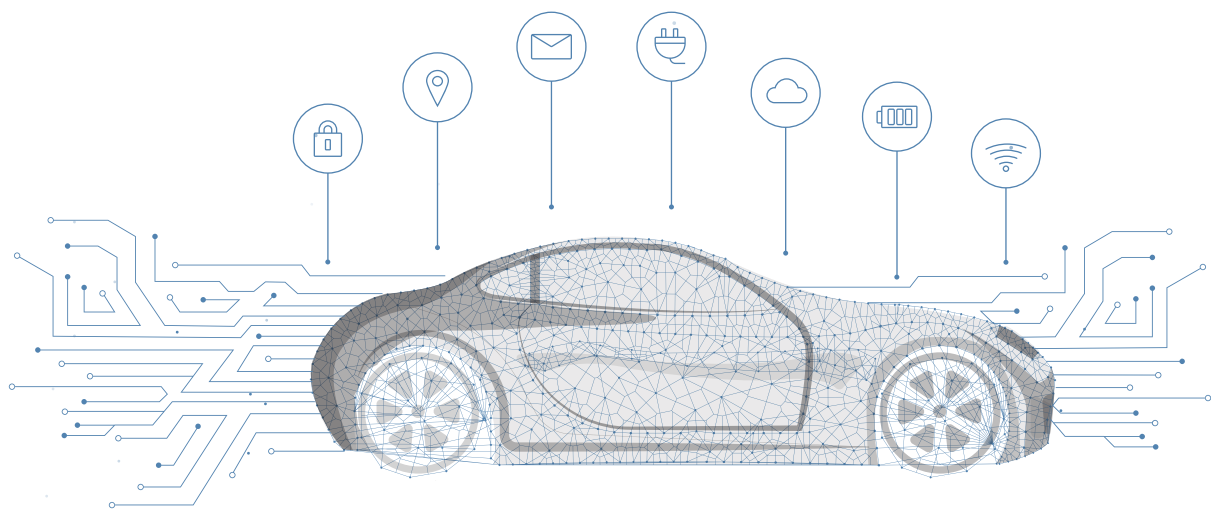
At the same time, it is the ideal environment for the already widespread SAP systems in the industry.



Case Study: IoT innovation at VEM

VEM is a leading manufacturer of electric motors. In order to ensure the future viability of their product portfolio and to open up new business models, VEM has the goal of being able to offer its customers real-time monitoring as an additional service for each individual engine.

For this monitoring, the electric motors manufactured by VEM are supplemented by a special measuring module with which actual load and operating states can be permanently recorded and evaluated.



The data is pre-selected locally on the electric motors "on-the-edge" via an IoT asset gateway, aggregated and then collected in the cloud.

The IoT gateway has state-of-the-art communication units to transfer data, for example, also via UMTS to the cloud.

The end user, such as a service technician of VEM or a maintenance person in charge of a customer, can then use the recorded data. For example, energy consumption can be analyzed according to the requirements of ISO 50001.

At the heart of the solution is the SAP Asset Intelligence Network, which, in addition to the jump to the machine monitoring app, also gives access to further information such as product specifications and manuals for the electric motor.

At VEM, the digital twin becomes the central hub for communication between the machine, operator and manufacturer throughout the entire process life cycle.



The Outlook for IoT

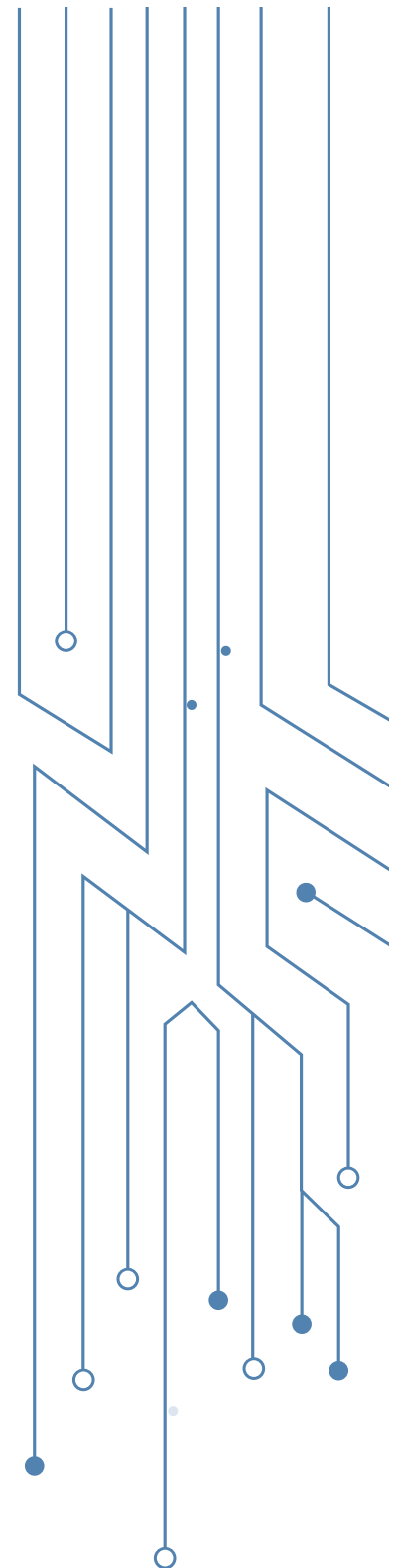
The digital twin is the central initial step towards future-oriented usability of IoT in the industry.

Once done, new and different types of services and scenarios can be realized.

For example, the collected data stored in the digital twin can be used for predictive analysis. This can be about predictive maintenance, but it is even more exciting when companies use their sensor and machine data for predictive quality management.

It can also be used to identify patterns in process data that influence product quality. Thus, a self-learning system can be created that continuously optimizes quality-relevant parameters. The potential savings from fewer service and warranty cases, and less production waste are enormous.

Such solutions can be built and scaled on the same technological platform. For an expansion of functionalities no migration is required. SAP and its special IoT services and powerful functionalities for storing and analyzing big data reliably accompanies companies on their way through the digital transformation.



6 tips for an *IoT implementation*

①



Bring in all key stakeholders across the company into the project from the beginning

②



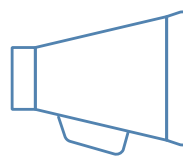
Use the possibilities of the cloud and its benefits of flexibility, performance, scalability

③



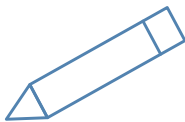
Rely on software that offers you the greatest possible flexibility and interfaces

④



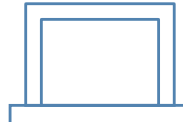
Start by selecting projects that bring tangible benefits and arouse curiosity and enthusiasm within your company

⑤



Work according to the design thinking methodology and develop solutions from a user perspective

⑥



When you start to digitize production processes, think about what the next steps should be and the role digitization in the product life cycle

About Syntax

Since 1972, Syntax has been providing comprehensive technology solutions to businesses of all sizes with thousands of customers trusting Syntax with their IT services and ERP needs. Today, Syntax is a leading Managed Cloud Provider for Mission Critical Enterprise Applications. Syntax has undisputed strength to implement and manage ERP deployments (Oracle, SAP) in a secure, resilient, private, public or hybrid cloud. With strong technical and functional consulting services, and world class monitoring & automation, Syntax serves corporations across a diverse range of industries and markets. Syntax has offices worldwide, and partners with Oracle, SAP, AWS, Microsoft, IBM, HPE, and other global technology leaders.

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