



CASE STUDY

IIoT in the AWS Cloud

Klöckner Pentaplast drives sustainability using AWS IoT and Machine Learning Microservices

A data-driven transformation, Klöckner Pentaplast reduces plastic waste in three months in the AWS cloud by leveraging Syntax's domain expertise



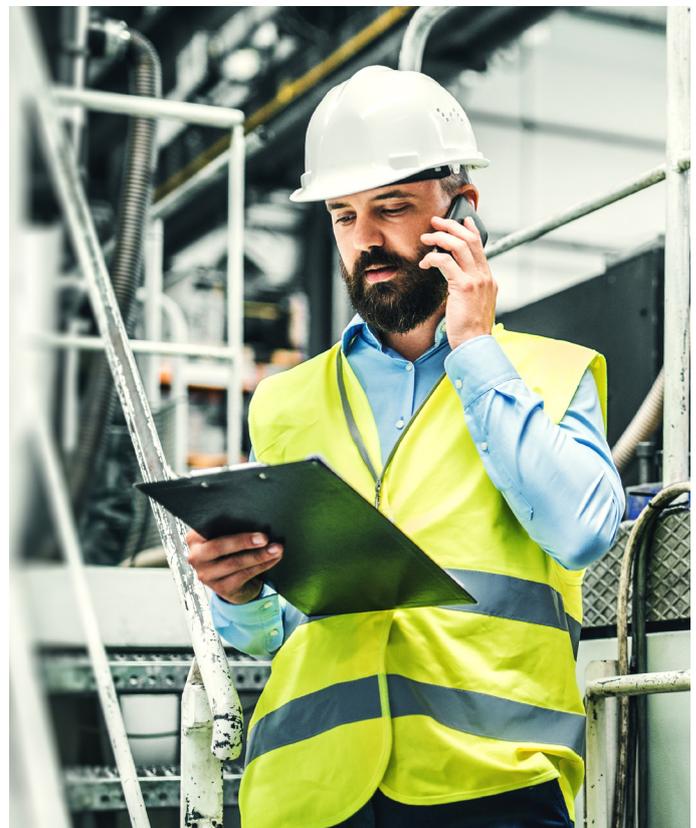
As a global manufacturer of plastics, films and packaging, global locations of Klöckner Pentaplast operate local manufacturing execution systems using sensors and cameras to take quality control measurements. “We have been collecting quality data, raw material data, energy data and much more for 20 years,” explains Prof. Dr. Frank Kleinert, Director of Business Excellence at Klöckner Pentaplast. Locally though, the individual

setups and configurations are different everywhere. „From an IT point of view, this is of course suboptimal,” emphasizes Maik Ewald, Group Director IT Infrastructure at Klöckner Pentaplast. This means that all measured values and information were stored in their own silos and had to be painstakingly compiled each time for valid analyses. If there were problems in a plant, these could be traced using the data, but only afterwards.

Starting point: simplification and standardization

Klöckner IT therefore set its sights on the task of promoting a simplification and standardization of the infrastructure at localized locations, breaking down silos to be able to combine and visualize data. In the first step, those responsible should be made aware of inconsistencies at an early stage and possible problems made predictable. “And for that you need a lot of linked data. Without data it is just somebody else’s opinion,” says IT Director Ewald. To promote the project within the company, the team began looking for a use case that clearly illustrated the benefits of such transformation.

Recognizing errors early became real issue when analyzing weekend production activity and a quality assurance issue went undiscovered until Monday. “It was clear to me that we had to recognize something like this more quickly. We have measuring devices that record the thickness of a film in the production process at 30,000 readings per hour. If we link this with additional information with our Manufacturing Execution System (MES), we will be able to react immediately in the future and not even finish producing the faulty film,” says Prof. Dr. Kleinert. These reduction efforts not only saves time and money, but also supports Klöckner Pentaplast’s consistent sustainability strategy, which aims to use resources such as energy and raw materials as carefully as possible.



Why AWS and Syntax as the partners for their Cloud Transformation Journey



The colleagues from Syntax speak the same technical language as we do, they know their way around the industry. That is not a matter of course. They understand us and find solutions. That's really great.

Prof. Dr. Frank Kleinert
Director Business Excellence, Klöckner Pentaplast

When looking for a suitable AWS Partner, Syntax was a clear choice due to their global footprint and a depth of industrial, technical and cloud expertise that could cover initial proof of concept in Germany and then able to roll it out internationally in Spain, England, Canada, South America, and USA. In addition, to clear up initial questions and uncertainties quickly and easily, cultural, and linguistic proximity was also helpful.

“Initial discussions went very well. Syntax immediately understood what we wanted, reflected feedback, and expanded our perspective with our own implementation suggestions,” reports Maik Ewald. Prof. Dr. Frank Kleinert adds: “They knew what an extruder, a calender and a film were – if you speak the same technical language, you understand each other very quickly.”

Klöckner Pentaplast found a highly scalable and global cloud environment with AWS that combined machine learning and artificial intelligence with a manufacturing solution. “We are not an IT system house. We can operate our facilities well, but we needed support for our planned cloud transformation - for machine learning and artificial intelligence,” says Ewald.

Syntax brings Data to AWS Cloud in 3 months

The team started with a kickoff on site in Montabaur to discuss possibilities and goals and to visit the production. “We were already using different systems in the cloud. But at that point it was about breaking down data silos. Technically, we simply couldn’t map those 30 locations with 30 different quality systems ended up writing to the same database. We know where the data is, we are familiar with the sensors and their connection. But how do we get the data into the cloud?” says Ewald. It was also about making AWS’s microservices such as artificial intelligence and machine learning usable. We had an environment in mind where we could visualize and calculate data in such a way that the on-site operator is shown in a traffic light system in red, yellow, or green whether the ongoing production is within specifications.

Syntax was able to bring in different practical perspectives for data modeling, structuring, processing, and hosting and to show optimal scenarios for manufacturing based on their many years of industry, cloud, and diverse project experience. „Our data storage, for example, had grown historically and was correspondingly heterogeneous, so it was not so easy to process for the cloud. And the interfaces were a particular challenge. But with all its expertise in the manufacturing environment, Syntax always had solutions ready,” recalls Prof. Dr. Kleinert. After setting up the gateway and implementing the data modeling, Klöckner Pentaplast was integrated into SynSights. With the IIoT platform developed by Syntax, companies can combine machine data from different sources,

centrally monitor and control it - and the dashboard always shows the current live status.

After only three months, the proof of concept was successfully completed. The data from the various measuring systems, cameras and sensors flow as desired via the local gateway directly into the AWS cloud without any detours or middleware, where it is enriched with information such as order number, customer and specifications from the MES and returned to it after processing written back. And the operators receive a clear traffic light visualization of the data. „Now we can see the drive speed of the machine, the power consumption, the measured film thickness and possible errors, the order number and the customer almost in real time - and how quickly we are currently producing with which result,” reports Prof. Dr. Kleinert with satisfaction.

Information that used to be stored individually in local silos is now immediately accessible in the cloud. In the future, this approach will be implemented as a kind of blueprint at all locations and a total of 142 systems will be connected. “That was our feasibility study and it worked well. Very quickly and our expectations were fully met. Now it’s time for the international rollout,” says Ewald happily. Prof. Dr. Kleinert adds: „When presenting our successful PoC, the colleagues from the USA said directly, ‚We want it to be exactly the same.‘” The first completely converted location will therefore be the branch in Rural Retreat in Virginia.



Company-wide impacts in savings and improved sustainability

The entire value-added chain benefits from the new solution: planning and production, because the production of faulty batches can be stopped promptly; purchasing, which must procure fewer raw materials; and sales, as the already very low rate of returns continues to fall. And in general, the entire use of resources is reduced - in line with the sustainability strategy. "This cloud transformation means concrete savings, sustainability and job security," emphasizes Prof. Dr. Kleinert.

"I can only say: this is how agile works. We used the existing structures, sensors and systems and simply tapped the data - and implemented the entire project during operation without downtime in just three months, without anyone in the company noticing. We were on time, in scope and on budget," emphasizes Ewald. "With the cloud connection and the new possibilities, we really triggered a wow effect in the departments." Ideas have been bubbling up in the company since the presentation of the AWS connection.

"Predictive maintenance, visual inspection, visualizations for different roles, optimizing energy consumption, in the future always using the data to select the machine for a specific production that produces the goods the fastest, most sustainably and with the desired quality, implementing individual customer specifications - there is a bouquet of opportunities when you have such data and insights at

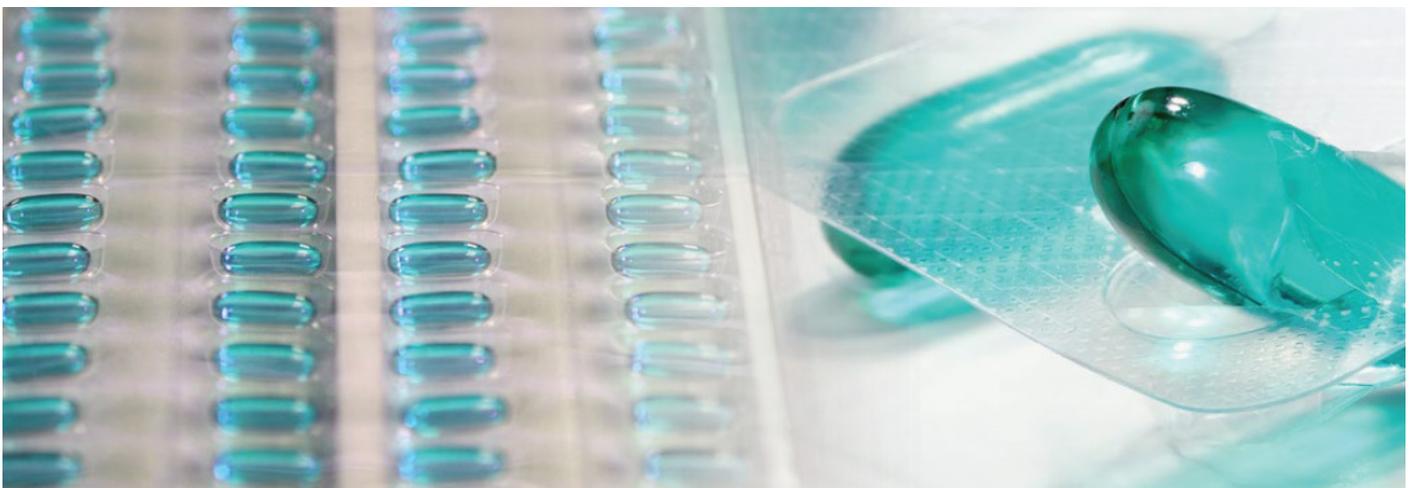
your disposal," summarizes Prof. Dr. Kleinert. "Now let's not exaggerate. We decide together with Syntax what we implement and how we do it."



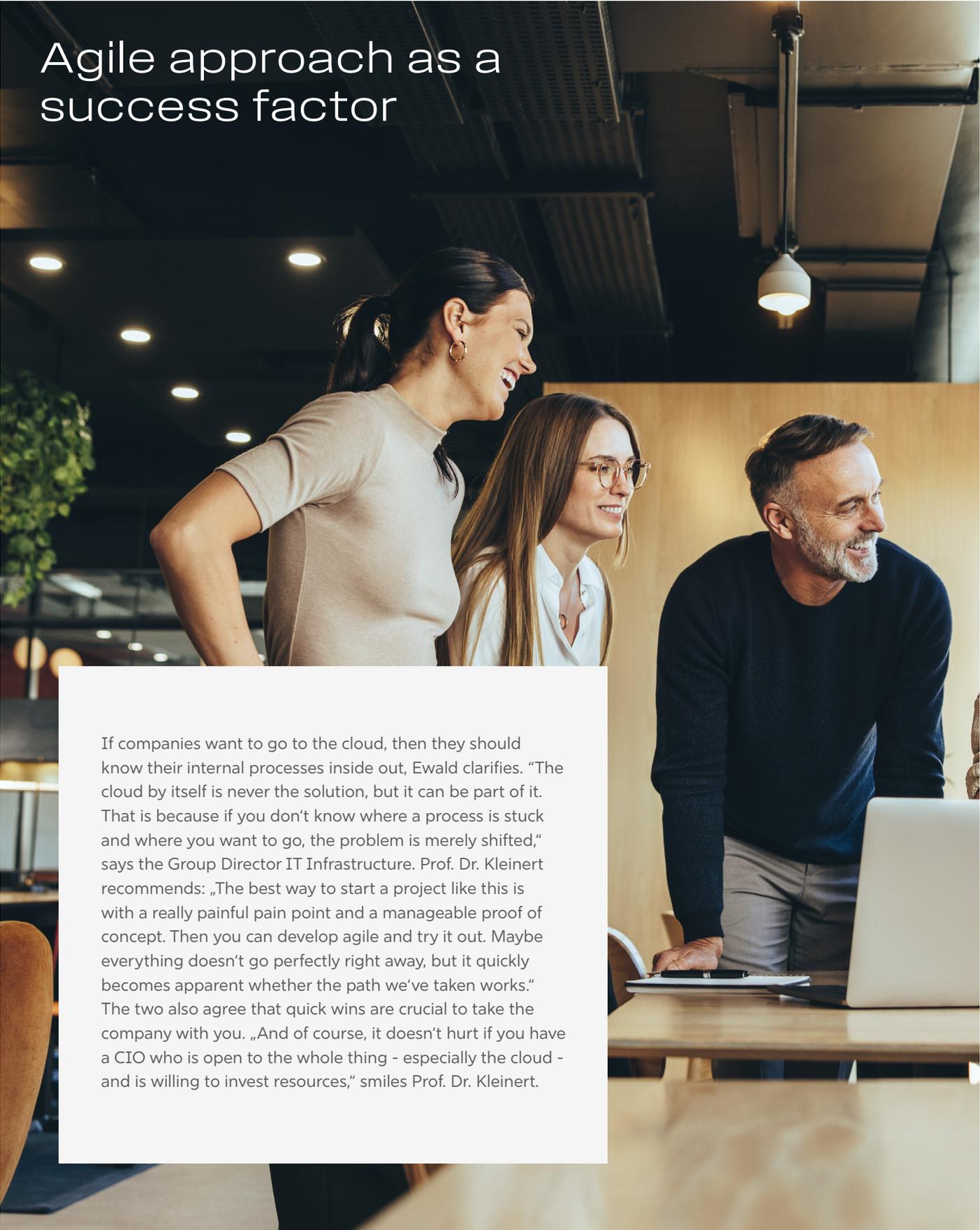
We were in scope, time and budget and were always on the same line - from the offer to the implementation. Syntax didn't want to sell us an oversized solution but developed a tailor-made product according to our ideas. The IT service provider is in a great position and an ideal partner.

Maik Ewald

Group Director IT Infrastructure, Klöckner Pentaplast



Agile approach as a success factor



If companies want to go to the cloud, then they should know their internal processes inside out, Ewald clarifies. “The cloud by itself is never the solution, but it can be part of it. That is because if you don’t know where a process is stuck and where you want to go, the problem is merely shifted,” says the Group Director IT Infrastructure. Prof. Dr. Kleinert recommends: „The best way to start a project like this is with a really painful pain point and a manageable proof of concept. Then you can develop agile and try it out. Maybe everything doesn’t go perfectly right away, but it quickly becomes apparent whether the path we’ve taken works.“ The two also agree that quick wins are crucial to take the company with you. „And of course, it doesn’t hurt if you have a CIO who is open to the whole thing - especially the cloud - and is willing to invest resources,” smiles Prof. Dr. Kleinert.



About Klöckner Pentaplast

Klöckner Pentaplast (kp) is focused on realising its vision: the sustainable protection of everyday needs. kp is a leading global supplier of rigid, flexible and specialty films that serve the pharmaceutical, medical device and food markets, among others. With a broad and innovative portfolio of products, films and services, kp plays an important role in its customers' value chain by safeguarding product integrity, protecting brand reputation and improving sustainability. kp's sustainability strategy „Investing in Better“ emphasises the company's commitment to achieving ten clear goals for long-

term improvements. These include increasing the recycling and recyclability of products, reducing carbon emissions and continuously improving employee engagement, safety and diversity, equality and inclusion. kp has been awarded a Gold rating by EcoVadis, the leading platform for environmental, social and ethical ratings, placing it in the top 3% of rated companies in the plastic product manufacturing sector. Founded in 1965, the company has 30 plants in 18 countries and employs more than 5,600 people at over 60 locations worldwide. Further information can be found at [kpfilms.com](https://www.kpfilms.com).



About Syntax

Syntax provides comprehensive technology solutions and trusted professional, advisory, and application management services to power businesses' mission-critical applications in the cloud. With 50 years of experience, 700+ customers, and more than 2,000 employees around the world, Syntax has deep expertise in implementing and managing multi-ERP deployments in secure

private, public, or hybrid environments. Syntax partners with SAP, Oracle, AWS, Microsoft, and other global technology leaders to ensure customers' applications are seamless, secure, and at the forefront of enterprise technology innovation.

Learn more about Syntax at [syntax.com](https://www.syntax.com).

Learn more about Syntax IIoT Synsights

With our deep understanding of manufacturing and cloud computing, discover how you can leverage AWS services with powerful analytics and Industry 4.0 standards. Customers can start benefiting from the implementation of industrial Internet of Things thanks to

Syntax Synsights that covers networking of production facilities, data analytics, predictive maintenance and quality and remote monitoring to improve cost efficiency. Visit our [Syntax IIoT page](#) to get started.

Contact us

[syntax.com/contact](https://www.syntax.com/contact)

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