Retooling for the future

Claudius Peters, a 100-year old German equipment manufacturer, is transforming into an agile company by developing a new digital culture and skills. Explaining what it takes for an industrial company to make the transition, the cement industry supplier provides examples of how it has developed added value for customers based on client requirements, technological advances and agile approaches.

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In 2014 Claudius Peters made the decision to transform itself into a company of the future and began an innovation journey entitled "Inspired Excellence." The four key goals were to increase customer satisfaction, deliver a higher-quality service, reduce lead times and lower costs.

Transforming Claudius Peters into an agile company requires developing a new culture and digital skills. Yesterday's know-how only provides a few answers to the questions of today and tomorrow.

The company understands digital transformation to be an inner attitude, not a project. It is mainly a change in the mindset of people who work within the organisation, rather than a change in technology. Designers and engineers must adapt to modern ways. They have to view themselves as a data manager and programmer.

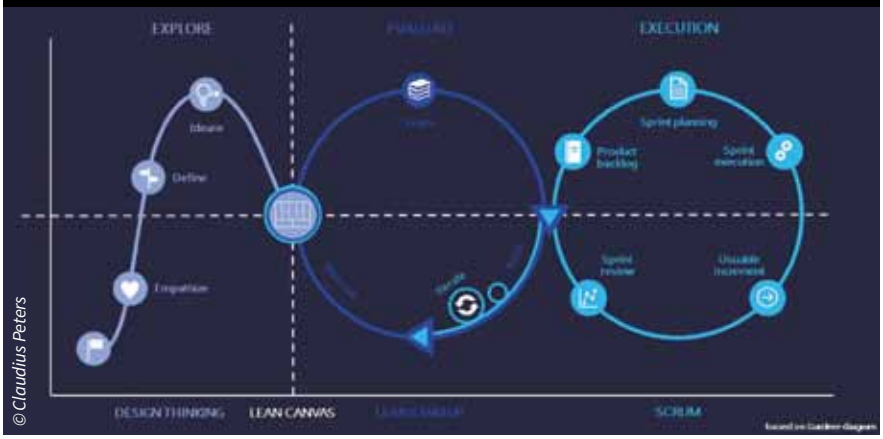
For over five years, Claudius Peters has been using Digital Catalysts, ie students who temporarily work on digital projects to show the company new ways forward. These interns can play a crucial part in product innovation, sometimes even solving problems that had not been addressed successfully in the past with conventional methods. They are used to learning, seeing something they do not know and delving further.

Claudius Peters tries to empower change agents who are responsible for product innovation and then promoting its adoption to the company. These 'Agile Agents' are encouraged by a "just do it" ethos. Often return on investment (ROI) is not calculated before the start, giving agents the freedom to generate and develop ideas.

Why transform into an agile company?

Agility enables a company to adapt quickly to a rapidly-changing environment.

Figure 1: agile methods approach at Claudius Peters



Therefore, it can provide solutions for industrial companies in disruptive markets.

Agility is more about attitudes, values and principles than just methods, processes and tools. It requires leadership at all levels, with agile leadership supporting agile thinking, self-organised teams and a culture of trust, openness and continuous learning. Ultimately, agile leadership is all about people.

Leadership should support the transformation of a company into a learning organisation. Teams can only grow in a fearless environment where everyone can say what they think and where there is a strong level of trust.

A culture in which mistakes are understood to be part of the learning process requires courageous decision-makers so that managers do not fall into old patterns. This mindset facilitates the Build-Measure-Learn approach, which is important for the evaluation of new ideas, such as future business models.

Organisations should step outside their comfort zone to explore, create and evaluate innovations. Innovation is a repeatable process that needs support on three levels: leadership, organisational design and processes/methods.

As it is important that a company solves the customer's problems, using agile approaches like Design Thinking helps a firm learn about the customer's real pain points and needs (see Figure 1). Consider agile methods as holistic approaches to transform a company into a learning organisation.

Digital skills are increasingly important for industrial companies. At the same time, these highly-specialised skills are changing so rapidly that many companies are outsourcing them. Nevertheless, an organisation should develop and expand essential digital core competencies. Possibilities include digital catalysts, hackathons, data communities or collaborations with start-ups or universities. It is also important to begin with small steps. There are many simple agile tools available such as task boards, daily stand-up meetings or focus time.

Digital developments driven by customer requirements

Claudius Peters has developed added value for its customers on the basis of client requirements, technological advances and agile approaches, examples of which are presented below.

CP Smart Engineering

In December 2011 LafargeHolcim invited all major cement industry suppliers to Zurich, Switzerland, to present the producer's new tender workflow. The vision was to revolutionise the cooperation between LafargeHolcim and its suppliers with the help of a versatile data model – the software system Engineering Base (EB) system from Aucotec. All suppliers were asked to look into the idea and its implementation.

To better understand LafargeHolcim's requirements, Claudius Peters worked with a team of four on the engineering platform and carried out extensive tests. This process involved three days of training and a two-month test period.

When an order was placed for a complex fly ash terminal from Vliegasunie BV in The Netherlands at the beginning of 2012, with equally-high requirements for integrated and networked engineering data and documents, Claudius Peters decided to carry out the complete order using the cooperative platform EB. From the process flow diagrams (PFDs) and the piping and instrument diagrams (P&IDs), to the detailed electrical engineering documents, the Claudius Peters team completed the order quickly and efficiently with the "just do it" motto in mind.

In line with the 'The Lean Startup' approach, during the project execution Claudius Peters asked itself 'what went well' and 'what should we improve?' After the completion of four projects using the EB Claudius Peters rolled out the cooperative platform EB for all orders and, since 2016, also for all offers.

During the sales phase customers now receive an integrated data model including everything from process data to automation. The customer then receives, upon request, all inputs/outputs and all the data necessary for planning, regardless of whether it is the end-customer or not. This solution thrives on the intelligent linking of engineering data.

Before long, customers wanted to use this data everywhere and on every device. Therefore, Claudius Peters created the possibility to export this intelligent data into its Cloud solution, the Claudius Peters Portal. The customer is now at the centre of intelligent data and can use it from anywhere on any device.

Claudius Peters often receives requests on current project executions that it previously would have rejected as impossible. Today, its EB customising team has the digital skills to easily implement such requirements on an on-the-fly basis. This is the result of an agile approach and inputs from Digital Catalysts.

CP Smart Design

In August 2017 LafargeHolcim's capex team informed a few industry suppliers, including Claudius Peters, that it was looking for new approaches to plant design and implementation. Specifically, it wanted to discuss how Building Information Modelling (BIM) could be used to improve cooperation during plant design. BIM is an intelligent 3D model-based process that gives architecture, engineering and construction (AEC) professionals the insight and tools to plan, design, construct and manage buildings and infrastructure more efficiently.

At that time Claudius Peters had limited knowledge about the BIM model. Therefore, it visited the Autodesk Universities in Darmstadt, Germany, and Las Vegas, USA, to gain a better understanding of the capabilities of the BIM360 platform and met with a member of the LafargeHolcim capex team to discuss details further.

In March 2018 Claudius Peters started

Figure 2: the cooperative platform Engineering Base

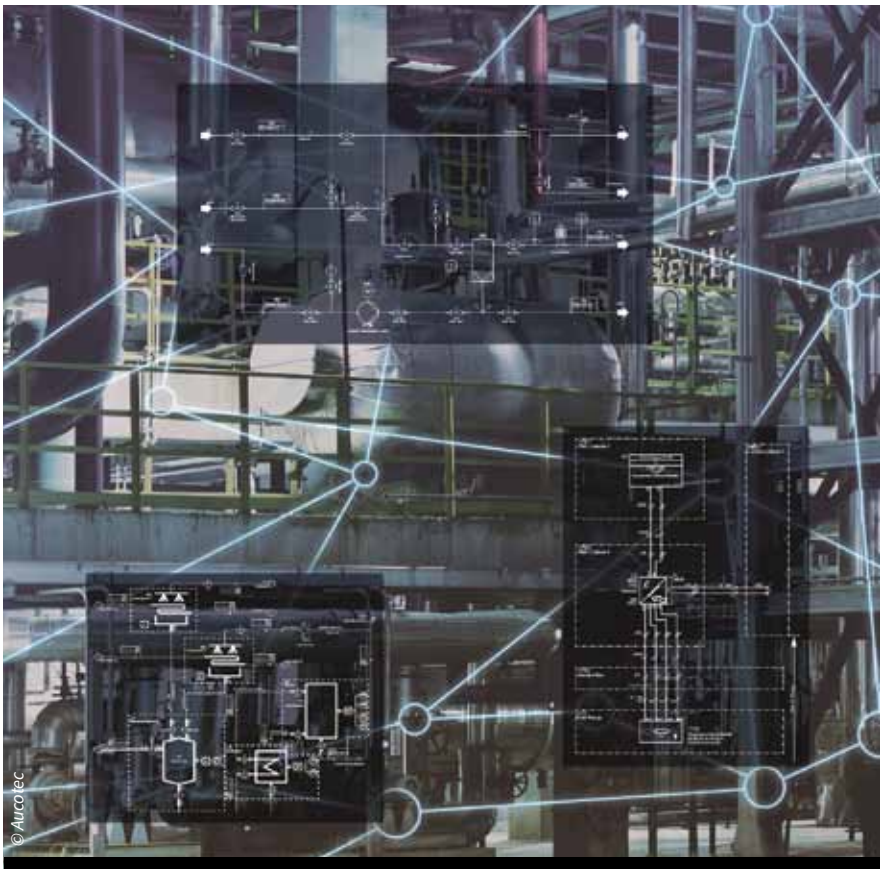


Figure 3: EB enables interdisciplinary cooperation between plant design and automation

a 30-day test with a small team. After two weeks the first results were requested by Claudius Peters. The team said: "Please don't take BIM away from us. We already have 25 colleagues from all departments online and use it on 11 real jobs. It already offers us an unbelievable added value in the internal cooperation."

Claudius Peters has been regularly using the BIM collaboration since April 2018. Today it invites customers to the BIM360 Cloud platform during the offer phase. It has over 200 projects and 300 active users online on the platform. The entire project team, customer and some suppliers involved can access project documents and 3D models from anywhere. This ensures that all stakeholders are informed about the planning status at all times. It allows the customer to participate in the design process easily, efficiently and actively, and formulate requirements.

With customers increasingly demanding faster project lead times and related information, the modern Cloud collaboration enables Claudius Peters to focus on a working method for the future that enables collaboration on one platform – a very important factor for the company. The BIM360 platform is also easy to learn and highly scalable.

This new way of working was also supported by a team of four and a student who worked with the BIM platform in detail and trained all Claudius Peters' internal colleagues.

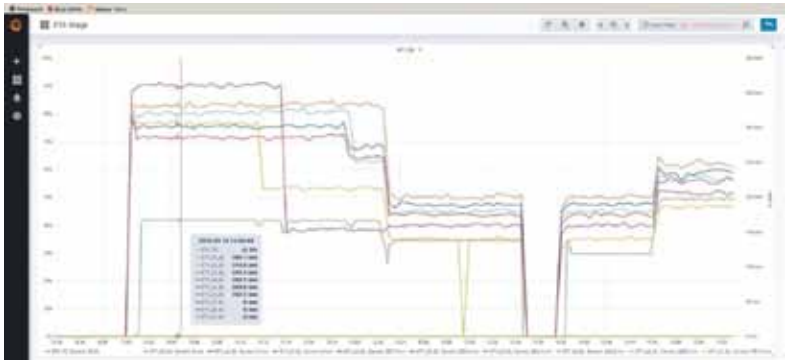
CP Smart Device

The CP Smart Device solution monitors equipment to gather operating and process data. The overall concept of the Claudius Peters' Smart Device is hardware-independent. With this flexible software approach, Claudius Peters has created the ability to analyse problems and find solutions to diverse tasks with the help of a data-driven concept. This information is then passed to operating staff.

One example is the smart ETA cooler. A large cement manufacturer in China asked Claudius Peters to create a way to provide fast support in the event of any issues occurring during ETA cooler operations. Data and efficient remote support were needed for accurate analysis and fast assistance. Therefore, the company adapted the CP Smart Device software concept to this case.

Every cooler delivered by Claudius Peters since 2018 has been equipped with the Smart Device functionality. Up to 240 different types of data are stored for a period of five years, after which time the oldest data is deleted daily.

Figure 2: the trend display shows the measured values



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Data can be accessed through a secure VPN connection via the Internet (worldwide access), or via the control cabinet with a PC, smartphone or tablet, as well as offline using an SD Memory Card.

The data is displayed via a html interface using an Internet browser. Here individual trends can be put together quickly and easily. Data can also be exported via Excel for evaluation. Figure 2 shows how the trend display shows the measured values.

This means that in the event of a malfunction, a Claudius Peters specialist can provide access assistance remotely. Process optimisation as well as any problems can be identified at an early stage and action recommended. By using the CP Smart Device in the ETA Cooler, operations can be improved, uptime optimised and downtime minimised.

At the suggestion of customers, in the last two years Claudius Peters has developed five different case uses for its CP Smart Device. The company always aims to develop these solutions with customers so problems can be resolved precisely.

The CP Smart Device is based on a Bachelor's thesis and was an approach that was completely new to established colleagues.

Catalysts for change

Digital Catalysts and new digital skills are the absolute preconditions for significant change. Nearly every major change at Claudius Peters has been achieved with the involvement of young, external talent.

A new agile organisation requires a massive change in mindset for all members of the company. It is easy to quickly create changes and results in individual teams. However, bringing the entire organisation together to meet the demands of modern times can be a long and rocky road. For Claudius Peters, getting as many colleagues on board its agile transformation journey has been key so that the company is best prepared to avoid extinction and meet the needs of a fast-changing world and market requirements. ■

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