



HEITKAMP & THUMANN  
GROUP



# INNOVATION

HEITKAMP & THUMANN GROUP

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H&T Presspart



H&T Battery Components



H&T Industrial // H&T ProduktionsTechnologie



WESTFALIA Metal Hoses // Doby Verrolec // WESTFALIA Metal Components



## Foreword

**T**his annual innovation magazine is written for our colleagues, customers, suppliers, and other collaboration partners. It should provide you with an overview of selected innovation topics and projects that are important to the Heitkamp & Thumann Group.

“Most companies that don't innovate die,” says Henry Chesbrough. Innovation is the driving force behind progress and sustainable organic growth. For the Heitkamp & Thumann Group, innovation has always been at the center of its corporate philosophy and entrepreneurial activities. We put our trust in a culture of innovation that is employee-driven and build upon the strengths of our group of companies. We focus on validated learning and try to follow the famous innovation axiom “Fail fast and cheap to succeed sooner”.

For the Heitkamp & Thumann Group INNOVATION is the process of making changes, large and small, radical and incremental, to products, technologies, processes, business models and services. These changes need to result in something new that adds value to our customers.

We now wish you an insightful reading experience and look forward to discussing further innovation topics with you in the future.

Best wishes,  
Your Innovation Committee of the Heitkamp & Thumann Group

*Matthias Seiler // John O'Halloran // Volker Seefeldt // Stefan Hauk // Hans-Jürgen Neugebauer // Ameet Sule // Richard Turner // René Scheffler // Till von den Driesch*

*March 2017*





# Through the Eyes of an Ethnographer: Creating a ‘Culture of Innovation’

How can an organization such as the Heitkamp & Thumann Group become more innovative? This is the question facing senior managers at many companies today. But increasing the output of successful new products, processes and services is difficult, as it involves different aspects of management. Senior managers who decide to focus on a culture of innovation need to avoid certain pitfalls. For example, many companies start by simply asking their employees to submit ‘out-of-the-box’ ideas. However, developing a culture of innovation is not that simple; it requires an organization to understand—diagnose—its current strengths and weaknesses (seeing things through the eyes of an ethnographer).

A culture of innovation motivates people, encourages independent thinking, and challenges teams to achieve incremental and non-incremental (semi-radical and radical) innovation by taking calculated risks. Companies such as Apple and Google are known for their innovative culture and the level of freedom they give their employees. However, companies that try to copy Apple and Google often fail, since creating a culture of innovation is less about copying and more about building on existing strengths. Furthermore, B2B companies require a different culture of innovation than a consumer-focused company like Apple!

What are the key attributes of a company that excels at innovation (organic growth)? Based on research in multiple

B2B and B2C firms, the table below shows the attributes of a culture of innovation, including a strong focus on customers, openness to new ideas, and effective cross-functional teams, which have enough time and resources to work on selected innovation projects. The following table provides a useful tool to diagnose a company’s strengths and weaknesses.

### The approach of the Heitkamp & Thumann Group

Some years ago, the Heitkamp & Thumann Group started a group-wide innovation initiative that also assesses the innovation culture on a regular basis. The most recent culture survey (designed by the Chair of Economic and Organizational Psychology of LMU Munich, Prof. Dr. F.C. Brodbeck and Dr. J. Reif) was answered, analyzed and discussed by all divisions and business units. In addition, cross-functional and cross-divisional groups of employees are attending workshops where they are trained on how to ‘diagnose’ and strengthen the culture of their company with regard to innovation. Employee engagement is key at the Heitkamp & Thumann Group and so are the important differences between the business units and divisions. During culture workshops the participants apply approaches such as those used by ethnographers. Workshop attendees have the opportunity to influence how the Heitkamp & Thuman Group manages innovation in the future.

### Key Attributes of a Culture of Innovation<sup>1</sup>

| Attribute                        | Ways to build this attribute  |
|----------------------------------|---|
| Customer-centricity              | <ul style="list-style-type: none"><li>— Be strongly focused on serving customer needs</li><li>— Train employees in methods to identify customer needs</li><li>— Identify company values and preferred behaviours</li></ul>                                      |
| Openness to new ideas            | <ul style="list-style-type: none"><li>— Ensure high levels of trust</li><li>— Use appropriate (not excessive) levels of control</li><li>— Use experimentation constantly</li></ul>  |
| Effective cross-functional teams | <ul style="list-style-type: none"><li>— Recruit and work with creative people</li><li>— Build collaborative and diverse cross-functional teams</li><li>— Reserve and protect the time needed for innovation</li><li>— Ensure effective communications</li></ul> |
| Well-defined processes           | <ul style="list-style-type: none"><li>— Have ways to generate ideas</li><li>— Select ideas focusing more on growth than costs</li><li>— Create flexible but fast implementation processes</li></ul>   |
| Risk tolerance                   | <ul style="list-style-type: none"><li>— Actively avoid risk aversion</li><li>— Focus on learning rather than blame</li></ul>  |
| Reward and recognition           | <ul style="list-style-type: none"><li>— Provide the opportunity to join challenging projects</li><li>— Give full and regular recognition</li></ul>  |
| Effective leadership             | <ul style="list-style-type: none"><li>— Provide a clear vision on the role of innovation</li><li>— Set appropriate boundaries</li><li>— Show executive sponsorship and participation</li><li>— Give a commitment to innovation in terms of time</li></ul>       |

<sup>1</sup> Based on Goffin and Mitchell, *Innovation Management: Effective Strategy and Implementation*, Palgrave (2017)

Specifically, workshop attendees:

- 1 Determine the innovation needs of a company and how well the current company culture supports innovation.
- 2 Identify ways how Heitkamp & Thumann as a group of companies can innovate more effectively (learning also from other B2B companies—see Case Study: Ericsson).
- 3 Decide how the differences between business units and divisions provide opportunities for more innovation (rather trying define a “one size fits all” culture for the Heitkamp & Thumann Group).
- 4 Specify their ideas on how the cultural change can be achieved as part of their daily work.

Innovation in the Heitkamp & Thumann Group is a group-wide activity and not something that only a single department is responsible for. Therefore, the results of innovation surveys

### *Innovation at the Heitkamp & Thumann Group is a very important group-wide activity*

and culture workshops are crucial—they give a comprehensive set of employees’ ideas on how the Heitkamp & Thumann Group can enhance its ability to innovate and to accelerate organic growth. As a family-owned, mid-sized B2B company, the Heitkamp & Thumann Group has a long tradition of innovation on which it can build. However, with increasing global competition, it is time to ensure that each of the divisions and business units finds the way in which it can innovate constantly and effectively. Your ideas on how the Heitkamp & Thumann Group can further strengthen its culture of innovation will be welcomed.

*Keith Goffin and Matthias Seiler (see also page 25)*

### Case Study—Ericsson

Ericsson, is a Swedish supplier of communications equipment, software and services. But how does it create a culture of innovation? Ericsson has its ‘Innova’ website for collecting ideas and any promising project can receive venture capital-style (VC) funding. VC funding means that the idea will never be granted full funding in one tranche; rather, it will only receive injections of cash at each phase. Secondly,

the first ‘funding’ is a prepaid credit card with \$500 and one week’s time—in which the idea’s proposers have to demonstrate the viability of their idea. This challenge brings out the best in people and if the week generates promising findings, more funding is given. The credit card has become a symbol of openness to new ideas at Ericsson, and of the effective process for investigating and implementing ideas.



# H&T Presspart: An Interview with the Chairman

**H&T Presspart is a specialized manufacturer of high precision metal and plastic components for the pharmaceutical industry. H&T Presspart's bespoke deep-drawn and injection-moulded components stand for competency, quality and innovation.**

**Mr. Schmelzer, you are the Chairman of the Presspart division and General Partner of the Heitkamp & Thumann Group. Why do you think innovation is important to your division?**

**Peter Schmelzer:** Let me start by saying on behalf of the Heitkamp & Thumann Group that innovation is an integral part of our strategic orientation. It has top priority throughout the Group.

Let me describe the H&T Presspart division in a few words. H&T Presspart operates exclusively in the healthcare sector, working primarily with the pharmaceutical industry. Our existing business as a contract manufacturer is performing well. We manufacture assemblies and components based on our customer's specifications, primarily for the inhalation sector a segment of the drug delivery industry.

For a number of years, we have been focusing increasingly on providing added value to existing and new customers through innovative product solutions. An emphasis on creating greater added value for our customers is therefore an integral part of the H&T Presspart strategy.

**How would you summarize the core competencies of H&T Presspart?**

**Peter Schmelzer:** As in all the other divisions and business units of the Heitkamp & Thumann Group, the customer is the central focus of H&T Presspart. I know that this may sound trivial, but this customer orientation originates from having a strong background in contract manufacturing. I am absolutely convinced that such customer orientation propels us to develop further competencies as an enabler of successful innovation.

Something that is very important for our customers is not only our ability to develop customer-specific solutions and scale them thereafter, but also our ability to launch these solutions globally and on a large scale. This is one of our core competencies. It enables us to enter into long-term partnerships with our customers. This is true for the H&T Presspart division as well as for all the other business areas of the Heitkamp & Thumann Group. In addition, collaborating with large OEMs on a global level, in the pharmaceutical industry, for example, always contributes to the strength of our group.

**What is your innovation vision for the H&T Presspart?**

**Peter Schmelzer:** We aim to distinguish ourselves from our competitors. Most of our competitors are large companies and groups that focus very much on product development and approach their markets from this angle.

As mentioned previously, we do things a little differently. Our aim is to maintain our strong customer focus and we therefore try to work on innovative solutions together with our customers. As a result, in many cases, we do not claim to develop our own products but wish to do so in cooperation with our partners.

We originate from a traditional metal-forming background and have expanded to plastics through acquisitions. In the past few years, we have succeeded in combining our traditional business with our innovative products. We always look at innovation in the selected sectors in combination with the question, "How can we work together with

our customers to provide future-oriented, innovative solutions?"

**In this context, how important is the subject of innovation culture to you?**

**Mr. Schmelzer:** We are obviously aware of the fact that innovation plans always involve a certain amount of risk and that mistakes are therefore inevitable. We claim to have developed a culture that encourages innovation, and use it to learn from our mistakes. Not only that, our innovation process also includes a commitment to so-called validated learning, i.e., not necessarily wallowing in our errors but also making a specific effort to learn from these errors systematically and more quickly than our competitors.

This also includes an information, communication, and cooperation platform which makes information available to everyone involved in the innovation process across business units.

With respect to innovation culture, we face the challenge of creating an environment that allows us to integrate all our employees into our innovation processes and get them involved on the basis of their roles and strengths. Only through the involvement of employees in this way are we going to be able to succeed in achieving positive, sustainable results in our efforts to make our company future-oriented.

**Do you practice systematic innovation management in the Heitkamp & Thumann Group and in the H&T Presspart division?**

**Peter Schmelzer:** Some years back, we decided to professionalize our innovation management process. We have

since built a balanced innovation portfolio. This involves incremental business development topics, right up to an overall project pipeline with semi-radical and radical projects, which are typically described as "Far-Out".

We identify innovation search fields and, based on these, focus only on specific, clearly defined sectors. Healthcare is one of these.

The Stage-Gate® process for non-incremental innovations, which has been customized and implemented for the Heitkamp & Thumann Group, helps us proceed in a structured manner and systematically raise and answer questions related to our innovation portfolio. This helps us evaluate our portfolio.

A possible, ongoing challenge is that we still should have more ideas in our so-called innovation funnel. We need to think about ways to become more

For us, "Fail Fast/Fail Cheap" means processing all projects and ideas—even those that failed or were stopped prematurely. There is still some work to be done in this area.

Working with innovation also obviously involves exploring other sectors and not just our core market sectors. We must therefore learn to accept that we probably do not understand everything in as much detail as in our core sectors. Taking a decision which involves a certain amount of uncertainty is also part and parcel of the necessary learning curve. An innovation culture is a prerequisite for this.

Secondly, we must be able to process the reasons for failure in a better manner within the framework of our project management, which is carried out very systematically. We will continue to work intensively on learning from past mistakes.

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## *Innovations are bringing us closer to our customers*

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active throughout our Group. But I also feel that we can look back with satisfaction on what we have achieved with regard to the structuring of our processes.

**The popular mantra "fail fast and cheap to succeed sooner" is often very important for successful innovations in a B2B setting. Do the innovation activities at H&T Presspart involve learning from mistakes?**

**Peter Schmelzer:** Yes, that is very important. In my opinion, there is still much catching up to do in this area. Balancing our innovation portfolio and the processes involved in it will take a long time until optimized structures will be established.

**Without giving away any confidential details, could you mention the important directions in innovation that H&T Presspart is taking? Could you also mention the competency or product areas in which your customers can expect new offers from H&T Presspart in the future?**

**Peter Schmelzer:** At H&T Presspart, we have a relatively narrowly defined strategic grid. And that is because we do not want to move too far away from our core sector based on our technical as well as our market-relevant core competencies. In principle, we are focused on the pharmaceutical industry; more specifically on drug delivery systems especially in the field of inhalation. We are a world leader in

the pMDI (pressurized metered dose inhalers) sector to treat asthma and COPD (chronic obstructive pulmonary disease) patients.

We are striving to become a one-stop-shop for our customers. And this is not just because our customers find it easy and important to get a comprehensive range from one vendor but also because the components manufactured by us are technically dependent on each other to a great extent. It is therefore good to attempt to expand our portfolio systematically. We want to grow in the field of inhalation in other sectors as well. We therefore work intensively on the development of a Dry Powder Inhaler (DPI). You can certainly expect some innovations in this area in the future.

We are also moving into so-called adjacent market segments, which are closely related to our business. One such area is that of nebulization (dispensers), where we look to manufacture components and devices for drug delivery systems in the area of drugs for the nose, eyes, and ears and are working intensively towards expanding in these sectors. Digitization in the healthcare sector, and particularly in the pharmaceutical industry, is another major core subject for us. The insulin sector is a pioneer for this in the pharmaceutical industry. The sector is already extensively digitized and this development is bound to penetrate into other sectors as well. We are obviously taking the inhalation sector as the basis for developing a value-adding digitization platform for our existing and potential customers.

**Thank you for this interview, Mr. Schmelzer.**

*Peter Schmelzer // General Partner of the Heitkamp & Thumann Group and Chairman of H&T Presspart*



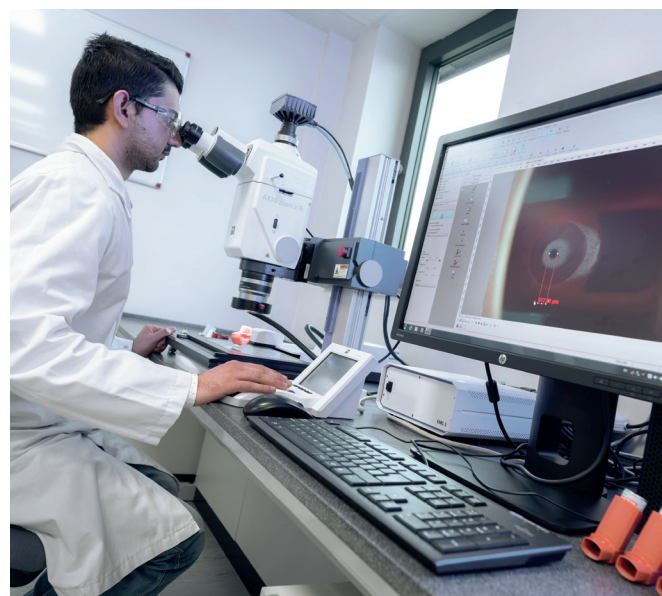
# Adding Value to Customers and Supporting Innovation by Driving Product Development

**H**&T Presspart is the world's leading manufacturer of components for metered dose inhaler (MDI), including MDI canisters and injection-moulded MDI plastic actuators. As a part of the strategic initiative the Inhalation Product Technology Centre (IPTC) was set up in Blackburn UK, within the H&T Presspart division. IPTC supports the strategic projects and most importantly drives innovation to H&T Presspart customers in line with their requirements. IPTC further enhances the capabilities of H&T Presspart and focuses on device development as well as offering device – drug interaction related performance know-how to our customers.

## The push and pull for innovation

The push and the pull of innovation can truly be witnessed at the IPTC.

The pull is driven by the customers, who are multinational innovative organizations, as well as by the generic producers. These organizations need support in understanding how the different components, such as the cans and the actuators of an pMDI (pressurized metered dose inhalers), interact with each other in respect to the formulation. Therefore, the challenge for those companies is to develop this know-how in order to get the best products onto the market in the quickest possible time.



Although multinational companies operate their own laboratories, they require support with the packaging components that can be produced in an optimum way and provide the best support for the formulation.

Generic producers often have an even greater need regarding this know-how and require a great deal of support in the components area. IPTC charter is to provide this expertise. The state-of-the-art competencies and the

## *IPTC innovates inhalers, actuators, and end of life indicators*

level of support has become a major differentiator for IPTC in the market. IPTC not only understands the component selection, their functions and the production implications but can also identify the need for support in respect of the formulation.

To create an innovation push in the market, IPTC provides expertise generated in the inhalation area to adapt in related markets. The current strategy therefore clearly suggests that IPTC looks beyond cans and actuators.

On the pull side of innovation IPTC has a cutting-edge offering in supporting existing H&T Presspart customers in the pMDI product lines, but it is also capable to truly innovate in the DPI (dry powder inhaler) product lines.

Using the in-depth expertise about device development and formulation in the pMDI segment, IPTC provides – according to specific customer needs – product innovation as a service to the DPI segment.

IPTC offers comprehensive understanding about formulation and how the formulation works with all the components. This requires extensive competencies across a broad range of disciplines.

This includes component and device evaluation which comprises actuator concepts and add on devices such as dose counters, screening, and optimization, metrology and specification development, inhalation products in vitro



The Inhalation Product Technology Center (IPTC) of H&T Presspart is developing specific know how to support the pharmaceutical industry

characterization, analytical method development and formulation development support.

One of the most recent breakthrough innovation of H&T Presspart was the revolutionary development using a sub-micron plasma process for the treatment of MDI canisters. IPTC further enhances H&T Presspart's capabilities by fine-tuning the process parameters bespoke to the customer formulation.

In accordance with the vision of H&T Presspart and the requirements of its customers IPTC continuously evaluates the market needs for product innovation and developing new devices. IPTC is excellently positioned to meet those requirements and to create further value for our customers in the pharmaceutical industry.

Headquartered in Blackburn UK, IPTC utilizes extensive office, research and laboratory facilities, all run by a dedicated team.

## **IPTC's unique competencies include:**

- inhalation device design, concept development and commercialization
- device customization and enhancement to meet formulation requirements
- device performance / interaction studies
- device metrology and specification development
- component / device evaluation, screening and optimization
- Leading inhalation product testing support
- multi-region regulatory support

In summary, IPTC functions as an innovation facility for H&T Presspart and its customers. Additionally IPTC is supporting developments to enable entry into related markets such as dry powder inhalers and nebulizers. It provides custom-tailored services for its customers with an individual business model for the development and testing of inhalation devices and beyond.



# Dose Counting – How Regulations and Price Points Lead to Innovation

**D**ose counting has been around for a while. In March 2003, the FDA (Food and Drug Administration), as the regulatory body in the US, published a document entitled “Guidance for Industry, Integration of Dose-Counting Mechanisms into MDI Drug Products”. As a consequence, it was stipulated that products for the US market should possess a dose-counting feature. At this time, the established pharmaceutical companies did not regard it as a major issue as they were protected by their patents, allowing higher price points to include such feature. However, things turned out to be far more dynamic as certain patents are expiring and generic companies are now looking to enter the market. This means that the demand for dose counters is now growing.

Consequently, this generated interest in H&T Presspart as a producer of actuators for dose counters. As actuators are relatively expensive parts a demand for lower-cost components was foreseen, particularly outside the US market. Given those parameters, a decision was made to address the market as a whole. This included the emerging markets for generic products as well as taking advantage of the demand for less expensive dose-counting products.

The H&T Presspart division is an MDI component supplier. In the aerosol can segment, it has a global market share between 75 % and 80 %. In addition, H&T Presspart is one of the largest manufacturers of plastic actuators, covering about one third of the total market.



Mechanical dose counter device and counting unit

The latter is how the Quantum (an MDI device) project got started. The intention was to ensure that the rescue therapy products could be made available to the entire market. According to FDA specifications, it is not important to know how many doses have been consumed, but rather to have a clear end-of-life indication. So, strictly speaking, the Quantum product is an end-of-life indicator, informing the patient that the MDI is close to being empty.

H&T Presspart’s patented Quantum end-of-life indicator has been developed to be a low cost, disposable dose indicator solution, ensuring patients don’t run out of their medication when they need it the most. It is built in to the MDI canister and is compatible with current filling and packaging lines. The innovative Quantum dose indicator system also features no mechanical parts, ensuring the patient has a fail-safe, robust and reliable end of life calibration system compatible with current filling and packaging lines.

The mechanical dose counter project deals with actual dose counting. It is counting every stroke and gives the patient a correct count of how many doses are left in the canister.

All of these dose counter devices require a lot of components. H&T Presspart had to come up with something which was cheap enough to be attractive for the generic companies. This required innovation. Aside from deciding to bring these product variations up to market requirements, additional efforts were required to ensure that the price points of these products become more affordable.



MDI canister production



End-of-Life indicators help the patient to understand how much doses are left

The process expertise of H&T Presspart is the driving force behind more efficient production, with the knock-on effect of being able to deliver the product components at a lower price.

The mechanical dose counter will be produced at the production plant in Marsberg, Germany. The project represents a significant innovation in process and technology. Special consideration has to be given to the fact that the production plant actually is a metal-forming factory with a lot of experience in handling metal products. The mechanical dose-counting project will bring injection moulding to this production site, as well as a complex array of assembly machines. This will add a totally new level of capabilities. The goal is to manage an integrated automated process. As the Marsberg site has considerable expertise in automated processes, it was initially a bold move to look at it from this perspective. However, building on the experience in Marsberg, bringing in the additional injections moulding competency was, in essence, the right way to utilize the core competencies.

Moreover, it was felt that the gains in manufacturing efficiency allowed for an innovative business model which could provide the generic companies with a product which has the price point needed to enter the entire market.

Of course, even greater innovation is centred on the eHealth and connected health market. This is a quantum leap away from merely counting doses. H&T Presspart’s new eMDI will

provide information such as when the patient was taking the doses and when the course of treatment will be finished. It will correlate the information on when the treatment was begun

*The process expertise of H&T Presspart is the driving force behind innovations*

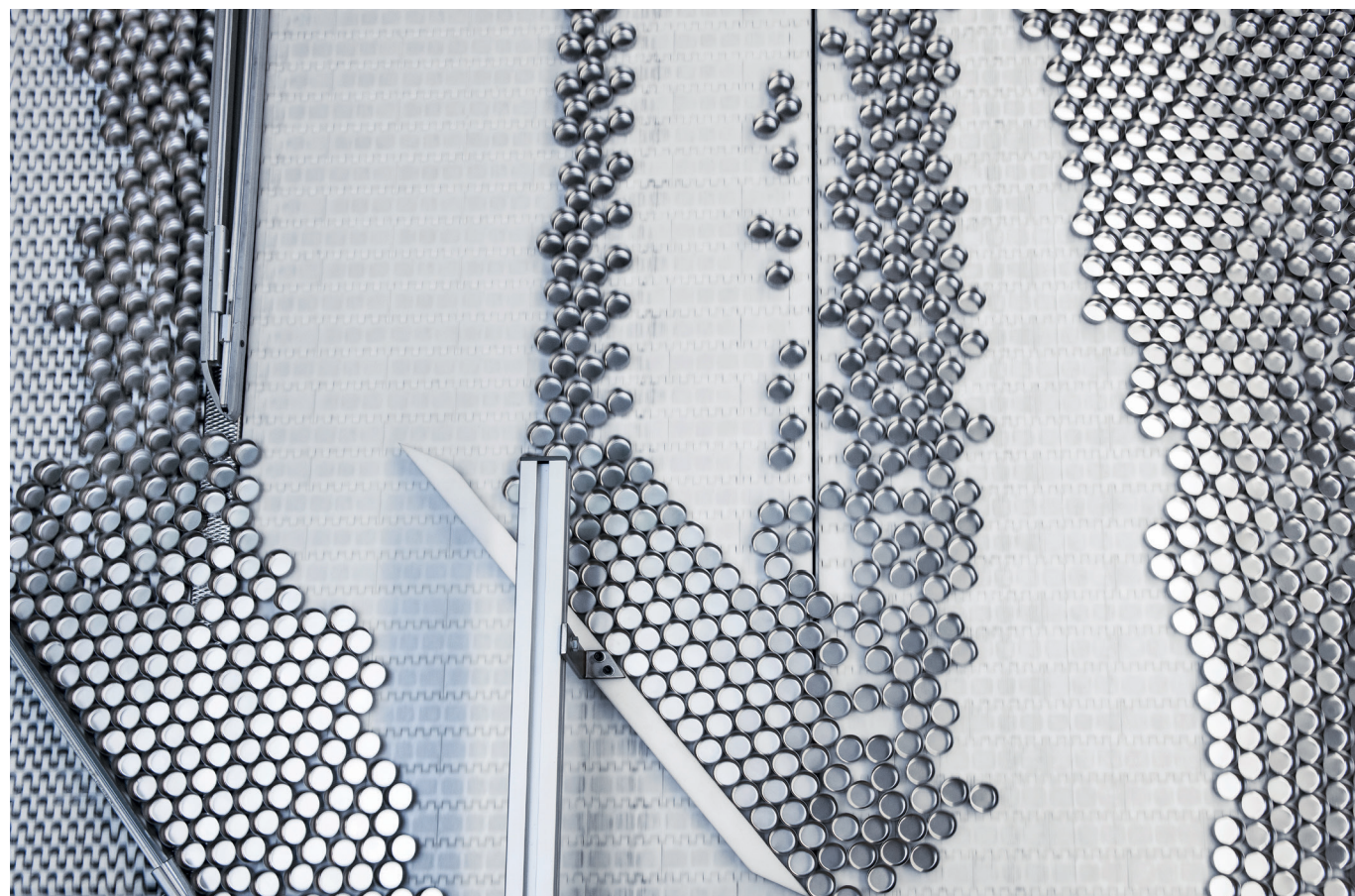
and how it was administered. Furthermore, it will, for example, indicate termination of treatment one week in advance.

The vision is clearly to add compliance functionality to an eMDI device. This is particularly needed in asthma therapy. The eMDI provides much more individualized tracking and gives a better indication of the remaining doses.

The eMDi launch took place in Edinburgh in December 2016 at DDL27 (Drug Delivery to the Lungs Conference).

As it happens, H&T Presspart is on its way to play a major role in the field of connected MDI devices. Smart functions to support patient compliance are the future. And the H&T Presspart division is very well positioned to become a part of the new emerging markets for MDIs.





## A Market Leader Innovates for Further Growth

**T**he H&T Battery Components division generates the largest amount of revenue in the Heitkamp & Thumann Group. It is the world's largest manufacturer of alkaline battery components. Deep-drawn battery cans are produced for all major battery manufacturers worldwide. The annual production is now around 9 billion units per year or 285 each second. Manufacturing takes place in four production plants around the world, each with a production capacity of 2-3 billion units.

An increase to around 10.5 billion units is forecasted for the next year. H&T Battery Components is on a strong growth path. This calls for innovative approaches. Battery cans are produced both for so-called primary batteries, such as alkaline batteries or lithium batteries used in smart meters and for rechargeable (secondary) battery systems such as Lithium-Ion batteries used for energy storage systems or for electromobility areas.

In the battery business, H&T Battery Components supplies the battery packaging while the battery manufacturers themselves deal with the battery's internal components. In the

alkaline range, however, packaging is increasingly affecting the performance of the cell. In secondary systems, various cell formats are in the market, round, prismatic and pouch. Therefore, it is strategically important to constantly monitor and evaluate the emerging trends, as different manufacturers have different preferences. All this has implications on manufacturing processes of the components for tools and machines.

The core competency of H&T Battery Components lies in the production of high volume, high precision deep-drawn battery cans. This also includes management of the supply chain which oversees both the supply of materials and the delivery logistics to the battery manufacturers. The global presence of H&T Battery Components is one of the important success factors.

Close interaction with customers provides the best possible support and enables important decision-making, no matter if the project covers all or only partial aspects.

The challenge for such a mass production is that each individual battery can should have the same high quality – and at a reasonable cost. Since there are huge volumes involved, it is not possible to economically test the quality of each individual battery can. This is compensated by an extreme focus on a robust production process to guarantee that products are manufactured at the required high quality. The divisional core competency is to realize this every single day 24/7 and, additionally, to achieve further improvements in terms of production speed and process quality.

This requires a unique machine technology, which is designed to have the best possible material utilization. The focus for innovations at H&T Battery Components is to continuously create value for the customers, e.g. through process and product innovation.

### Process innovation and innovative technologies – the prerequisites for future success

There is a very high demand for process innovation in the strong growing rechargeable sector. It is expected that fully automated production lines are required in the future. It begins by applying the material in form of a huge coil to the production line and, as a result, a 100 % inspected component is delivered at the end of the production line directly to the customer. With this a C2C (Coil-to-Carton) process is implemented. The alkaline segment of the division has already gained much experience, which is now being applied to create and implement such a process for secondary battery cans. The innovative challenge is to produce 24/7 fully automatically multiple billion cans per year with the highest possible quality level. The only way to cushion the cost pressure is by constantly innovating the production process and, in return, getting an even higher value-add for the customer.



### A new dynamic drives innovation even further

As a battery packaging manufacturer, H&T Battery Components has to face the dynamics created by the emerging e-mobility markets. This segment will see a new set of requirements regarding product safety and lifetime of up to 10 years under a variety of conditions.

### Quality requirements at high volume production drive process innovations

This new dynamic drives the need to innovate. In order to ensure a leading position in this market, it is also necessary to provide know-how and expertise to customers. This will be very helpful in ruling out any problems which might arise later on in production. H&T Battery Components functions as a product innovation and process innovation partner.

This is also a cultural change. The experience gained from up to now being in essence only a contract manufacturer can only be partially used in the area of product innovation. For these challenging new markets there is a need to become a solution provider. The advantage of H&T Battery Components as a medium-sized company is that we can provide our customers with far more flexibility and momentum than larger corporations.

Increased cost pressure encourages further process innovation. To be specific, innovation does not necessarily mean inventing something new but also looking into related areas to see whether anything can be applied in a modified form. In this context, innovation is defined as something which could be new for the division, but may already exist in another context. The premise is always that there is added value for the customer no matter if this means process or product innovation.

Our partnerships with steelmakers are very strong. This creates a win-win-win situation for all parties involved – for the material suppliers, for H&T Battery Components as the forming company and for the battery manufacturers. Only this sort of framework can provide potential innovations based on a healthy platform. The solid yet unique skills of H&T Battery Components are the guarantee for an innovative future with sustainable organic growth.

*Cans for primary batteries and secondary systems are produced by the billions each year*





## H&T Industrial: A New Business Unit Born to Innovate

**Mr. Neugebauer, you are a mechanical engineer and have already worked in several international positions for the Heitkamp & Thumann Group. Taking the core competencies of the Heitkamp & Thumann Group into account, what is your innovation vision for the group?**

**H.-J. Neugebauer:** The business unit H&T Industrial was founded in January 2016 to further continue the success story of the Heitkamp & Thumann Group. At first glance, H&T Battery Components and H&T Presspart might appear to have little in common. However, the driving factor behind our success is the continuous innovation of our production processes and our clear focus on demanding, high-volume production of deep-drawing parts.

The development of special production processes for high volumes is our core competency. Consequently, new products or existing components, which are not currently being produced as deep drawing parts, will be on our target list for innovations. It is reasonable to say that we are identifying products that are at this point in time being soldered or glued, for example.

Additionally, we also involve many employees at various locations around the globe. In our Innovation Tournaments

we record, analyze, and present ideas. Our approach in utilizing those Innovation Tournaments was principally to develop ideas with a medium-term focus.

For example, plastic parts can be replaced by metal parts. Alternatively, we can look into parts which are normally too long to be produced using forming technology. As a result, we may jointly consider with the customer if a new design can lead to a new advantage. This is, of course, easier to do with existing customers, as new customers might not disclose new developments.

**Mr. Mühlen, since January of this year you have been both Managing Directors of the newly founded business unit H&T Industrial. What is the aim of this new business?**

**Andreas Mühlen:** As explained previously, the aim was to allow the two divisions of H&T Battery Components and H&T Presspart to concentrate exclusively on their core businesses. Our charter is merely business development. Keeping our core competencies in mind, we identify and develop additional niche markets. We systematically look for new international markets which match our strategic profile.

**Which technological skills are bundled in your new business unit?**

**H.-J. Neugebauer:** To put it very simply—tool and process development for deep-drawn parts. We are quite aware that this is not the only relevant technology we need for the development of deep drawn parts. The deep drawing part competency is rather the stepping stone. It is a very important part and stands for our technology differentiation.

But we are looking far deeper into the production process, including all elements, such as:

- Presses: We develop our own presses especially for large series products that meet those special requirements. Our custom-developed transfer presses go hand in-hand with the tool technology. Since the forming process itself is difficult and critical, we prefer to control all parameters and try to reduce them as much as possible. Only a few companies around the world are able to do this.
- Washing technology: we have accumulated a lot of know-how for different processes.
- Special systems for assembly, inspection, post-processing.
- Post-processing: every process requires post-processing, for example, polishing.

This cluster of competencies has the advantage for our customers that we can deliver innovative solutions that are tailored to their specific needs.

**Is H&T Industrial located only at your Marsberg production site in the Sauerland region? Which technological competencies are bundled in your new business unit and which of those core competencies are not well-known and need to be communicated more intensively to your customers?**

**Andreas Mühlen:** The idea behind setting up H&T Industrial in Marsberg was to integrate all industrial business into one unit. This unit itself is managed in three profit centers and does not operate only in Marsberg. The profit centers are either independent companies or embedded in existing companies.

We constantly see the immediate amazement which new customers experience when they visit us. Our production philosophy is immediately apparent: We use exclusively our own machines and tools.

What a tour of our product site demonstrates is that the production of high volume components such as battery cans, aerosol cans, and injection-moulded actuators clearly illustrates our inherent core competency: an impressive technological know-how in the area of presses and tool design, as well as the company's own plant engineering.

For us, the term 'strategic partnerships' is not just an empty phrase. We are constantly talking with our customers. This creates strong, sustainable partnerships of which we are proud. Despite our high customer affinity, we cannot rest on our laurels. Our aim is to be part of a value-adding solution for our customers. We analyze the entire value chain and identify the cost share of our products in the value-adding of all components. By doing this, we have become innovative problem-solvers for our customers.

As specialists in high-volume manufacturing, we know that supply chain management is of the essence to

ensure that the right product of the right quality is available at the right time. Furthermore, we are aware that working capital has to be kept within limits.

**You are also a member of the interdisciplinary, cross-functional H&T Innovation Committee. Why is this committee important for the Heitkamp & Thumann Group?**

**As pointed out by Mr. Neugebauer, there is a significant proportion of projects that fail naturally, particularly in the area of non-incremental innovation projects. How important is a culture which permits errors and enables validated learning?**

**H.-J. Neugebauer:** There are no general rules for the development of innovation projects and processes. However, we

### At H&T Industrial we practice validated learning

**H.-J. Neugebauer:** This group-wide Innovation Committee is responsible for monitoring innovation within the Heitkamp & Thumann Group. It serves as a platform for the exchange of experience. The asking of critical questions is a common practice and ensures that both technical and commercial aspects are taken into consideration at an early stage.

We are striving to achieve a continuous enhancement of our innovation process and to develop and improve our culture of innovation. It is important for us to develop a culture which does not immediately suppress ideas. The challenge for our innovation culture is to keep an ongoing exchange alive between projects, market insights or vertical knowledge in the various business areas.

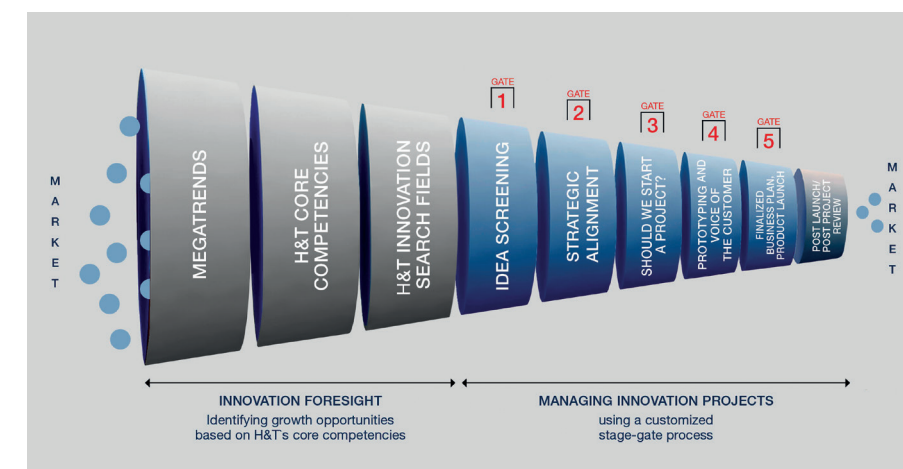
have set a good framework. We must ensure that failures can be transformed into a learning success. Therefore, we always analyze very systematically what went well and what can be done better. We practice validated learning and we are very aware that there will not be a perfect product initially, but rather what we have dubbed a minimal viable product.

To sum up, we are a special kind of start-up with a business model that has a sustainable business and large volumes in mind.

**Mr. Neugebauer, Mr. Mühlen, thank you for the interview.**

*Hans-Jürgen Neugebauer // Managing Director and Chairman H&T Industrial*

*Andreas Mühlen // Managing Director H&T Industrial*



Our innovation funnel at the Heitkamp & Thumann Group



# Customer Requirements as the Foundation of Solid Innovations and the Key to Performance

For over 60 years the business unit H&T ProduktionsTechnologie has been renowned for metal forming technologies. The company's tools, machinery, and equipment meet the highest demands of sheet metal forming over a broad range of applications.

H&T ProduktionsTechnologie simulate, design and manufacture tools and machines for the entire press shop applications. Precision and intelligent process control increase customer

*To improve the quality of the simulation results the gap between the real machine and the digital model has to be closed*

productivity. The two business areas PressSystem Technology and Tool Technology offer standards but also customized

solutions. A project starts by analyzing customer requirements and setting up a complete manufacturing process by simulation and analytics. Innovation embedded into daily improvements with radical or semi-radical innovations into product, process and service technology are in line with the design work.

The most popular product is the ServoSpindlePress as the most precise press on the market. H&T ProduktionsTechnologie is the market leader and expert in the development and manufacturing of ServoSpindlePresses for dynamic processes. The specific drive concept of these presses makes them the most precise presses on the market, not only for metal forming. ServoSpindlePresses ensure their user's competitive advantages in the form of excellent product quality due to low dimensional variations, highest machine availability due to quick tool changes and superior durability of the tools. The portfolio of these presses has been significantly expanded in recent years and supplemented by presses with under floor drive. The press capacities can reach up to 6.000kN.



ServoSpindlePress – The most precise press on the market

## INDUSTRY 4.0

**Cyber-Physical-Systems:** Embedded systems, linking real (physical) objects with information-processing (visual) objects and processes about information networks



## The intelligent interconnectedness of manufacturing and the era of Industry 4.0

H&T ProduktionsTechnologie has numerous development partnerships with universities and research institutions. The company and its partners are intensively working on self-learning machines based on the ServoSpindlePress technology. In addition, the lively international exchange of experience with customers ensures the continuous optimization and extension of the product features.

Next to conventional servo excenter presses, Spindle presses establish themselves more and more on the market and even more for the guidelines of Industry 4.0. Different applications and positive customer references prove that the machine concept has advantages in processes like form cutting, deep drawing with complex geometries, forming of high strength materials and several side operations align with quick tool exchange time. These advantages are referable to the intelligent variability, speed and variation in time, due to the active ram positioning control system which is actively working permanent during the production. Acceleration sensors, press force sensors, tooling sensors, part and transfer positioning and status sensors are intelligently communicating to each other. All the information coming out of the machine are the basis of productivity and predictive maintenance, and the machine and process status will be handled by an own programmed software called Vispress.

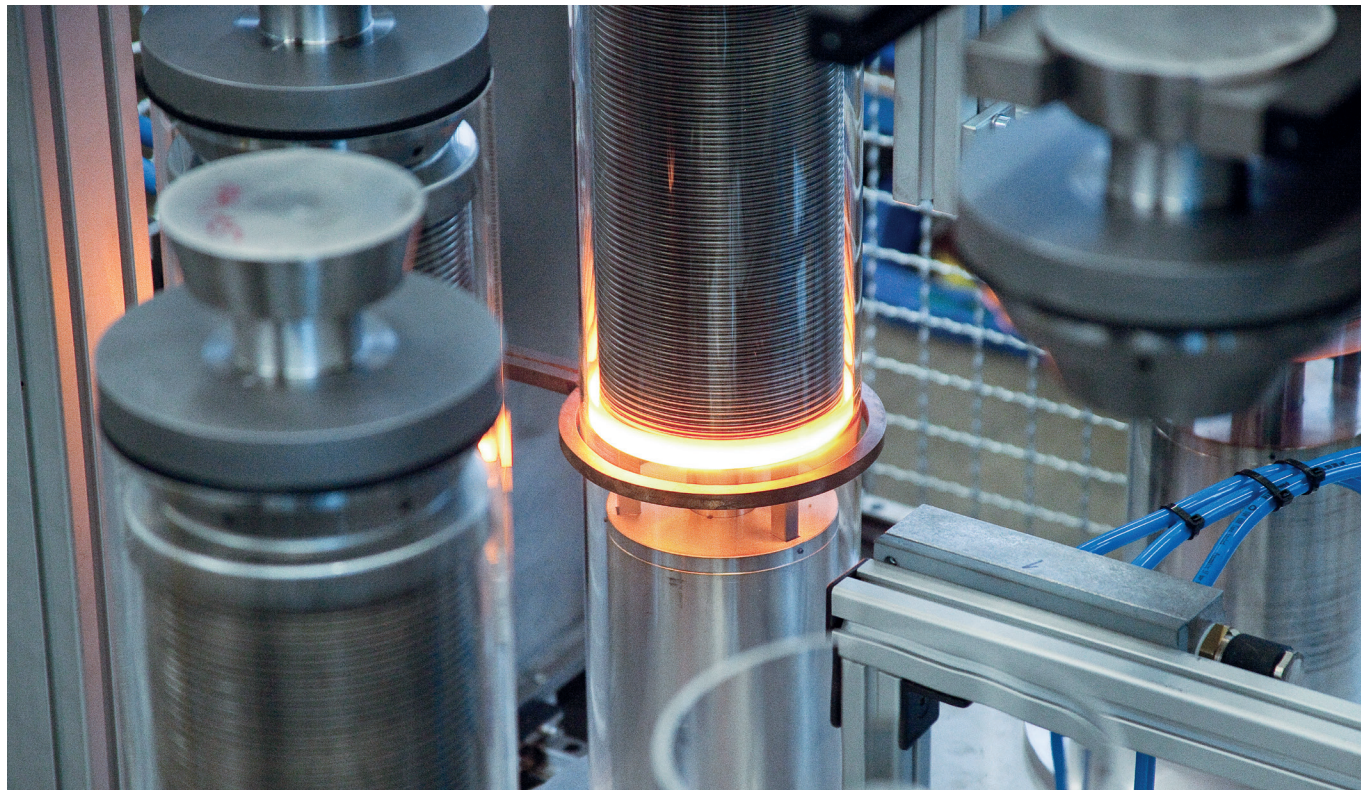
## Interactive 3D control panel with 3D collision protection

The next generation of the 3D collision detection is at stamping process. The advantage for the customer is to detect potential risks within the process. Together with the ISW Stuttgart H&T ProduktionsTechnologie developed a graphic based movement planning tool. The advantage of the new development is that the customer can use his own tool data to create a press and transfer curve based on graphics, without any need of a CAD license. As a result, all input parameters for Vispress will be generated. This new tool provides an additional function which enhances the set up work flow by implementing new tools at a SpindlePress.

## ServoSpindlePress goes industry 4.0

One of the major targets of the industry 4.0 is to make cyber-physical systems smarter. A base for that is a deep understanding of systems and processes. To reduce down time from production, the simulation of process and machines is getting more and more important. The digital twin of the real machine is a computer based model that allows precise simulation. To improve the quality of the simulation results the gap between the real machine and the digital model has to be closed. At that point, the digital shadow will be established to collect as much process and machine data as possible to increase the base for the digital model.





## Westfalia Metal Hoses – Innovative Exhaust Components for New Emission Regulations

**T**he introduction of the Euro 6 Diesel emission standard in 2014, which has stipulated a further reduction in CO<sub>2</sub> and NOx gases, has resulted in a demand for innovative decoupling elements. On top of gas-tightness and accommodation of small space design maximum flexibility is required. Westfalia's innovation, the Gastight Hose, meets and exceeds these specific demands.

The core competency of Westfalia Metal Hoses, a business unit of the Heitkamp & Thumann Group, is the production of flexible metal hoses. Since the 1930s, these products have been manufactured at the Hilchenbach site in the Südwestfalen region. In the course of the 1980s, it became apparent that such metal hoses could also be used in exhaust systems as a decoupling element between the engine and the aftertreatment system. Initially, strip wound metal hoses were used. These are exposing a high flexibility but are, however, not absolutely gas-tight.

As a result of the further tightening of the exhaust gas standard and the transition from Euro 5 to Euro 6, a requirement arose to develop a gas-tight metal hose with zero leakage.

Westfalia Metal Hoses' application engineers evaluate each situation and all relevant requirements in direct consultation with OEM customers. With many of them Westfalia Metal Hoses is listed as a development supplier and contributes design support as well as full lifetime validation on testing devices that re-enact real life movements and temperature loads.

An important focus for Westfalia Metal Hoses is to protect its developments by patents. Various product properties have merged into different patent applications. Besides patenting new product properties, the industrialization is the next challenge to meet. Westfalia Metal Hoses has a longstanding expertise to transfer its product ideas into unique serial production processes that meet the standards of global OEMs in terms of quality and reliability.

Three years into the Euro 6 Diesel emission standard, cost optimization has become a priority. Next to that, future challenges emerge from the initiatives to reduce CO<sub>2</sub> emissions. This is a main driver for the next level of innovations, such as downsizing of the engines and its adjacent parts.

Currently, two different categories of decoupling elements are produced utilizing two different manufacturing technologies: One is the production of strip wound metal hose and the other the Gastight Hose. Both production processes comprise roll-forming operations. The strip wound hoses are produced in one fully integrated inline-cutting process that combines forming, laser welding and laser cutting. A unique and proprietary welding operation is performed on the Gastight Hose. Both operations, as well as process technology and tooling, have been developed in-house.

A key success factor in making innovations real is the internal team spirit and the close cooperation between design engineers and production experts during transfer-to-series production. The only way to reach a stable 24/7 operation is to turn the daily feedback from the shop floor into process optimization that are then entering the PDCA (plan-do-check-act) loop.

### Process integration as an innovation driver and accelerator

Westfalia Metal Hoses not only produces decoupling elements but has also acquired expertise in assembly. On request, customers can avail of complete assembly, including bent pipe and connection technology with optional thermal insulation. An important innovation driver is the future optimization of the effectiveness of the production assembly. New products in the development pipeline shall significantly reduce assembly steps.

Since changes in regulations were introduced back in 2014, the requirement to shorten optimization cycles has increased. After the first generation of the Gastight Hose, Westfalia Metal Hoses is now producing its second generation. Gastight Hose Generation 3 is in large scale customer testing. These different generations reflect incremental innovations to enhance the existing product line. In turn, time-to-market is shorter compared to the earlier semi-radical Gastight Hose introduction.



Westfalia Metal Hoses decoupling elements, assembly including flexible hose and bent pipe

### Intellectual property protection is essential for product innovations

Westfalia Metal Hoses cultivates a very close partnership with customers to obtain feedback on development as early as possible. This also means that a prototype of the component can be made available as soon as possible pursuing the Minimum Viable Product approach. This allows to check whether requirements can be met within the customer's parameter framework. Westfalia has learned that each new market launch requires a lead user who is committed to jointly carry out the design validation.

As in the other business units of the Heitkamp & Thumann Group, the concept of the "Minimum Viable Product" is being pursued as part of innovation process methodology. Especially when coming up with non-incremental innovations, it is important to identify the customer's needs. In early development stages even sophisticated customers may not be fully aware of all product needs. Identifying these "Hidden Customer Needs" is part of the innovation practice which is implemented throughout the Group.

In the course of the development works Westfalia Metal Hoses has filed 70 different patents. Here a pragmatic approach is key: file as early as possible to ensure protection. In any event, even if the patent application is not further pursued, it always leads up to "freedom to operate". Thus, none of the competitors can prevent the applicant from exercising on the described product or method.

### Synopsis of Westfalia Metal Hoses' learning curve on innovation:

- Integration of lead users is essential to stimulate open communication
- Early and clear definition of the decoupling element requirement
- Timely filing of patents provides freedom to operate
- Joint development and design validation with lead customers is essential
- Direct contact with the customer's R&D department is key
- Continuous observation of market segments to identify new potentials





## Setting Standards of Tomorrow's Automobile Markets

**M**etal structures in seat, body, and chassis are fundamental elements in an automotive vehicle. Maximum stability and security combined with low-weight structures are the requirements for the suppliers of these components.

Westfalia Metal Components, a business unit of the Heitkamp & Thumann Group, is a specialist in forming technology and has excellent development and large-scale production skills of light and simultaneously high-strength products in this sector.

The company has extensive know-how in the technological design of tools and reliable processing of modern light-weight construction materials, especially for high-tensile steels. Depending on the customer requirements the product developments are executed in aluminum, magnesium or composite materials.

One of the innovation success stories reflecting the light-weight process solutions for the automotive industry is the application of high manganese-content steels for side impact beams. This innovative component concept is characterized by excellent forming properties, low component weight, and a high degree of safety reserves in the case of

### *A specialist in metal forming technologies driving automotive innovations*

a car accident. These excellent performance characteristics in combination with a detailed component development and convincing manufacturing expertise led to the company's first series application.

Already during the pre-development phase of a new generation of components there is a close cooperation between the company and the customer. The obtained results of the product development processes are systematically implemented into the design of the series production. The comprehensive production and material expertise of Westfalia Metal Components contribute to that development process as they ensure a safe and efficient forming of high-quality precision components. Moreover, joining and assembly processes are integrated into the production steps so that the company provides its customers with innovative system solutions.



## Innovation Leads to On-site Benefits

**T**he name Doby Verrolec, a business unit of the Heitkamp & Thumann Group, stands for first-class innovation as it not only pioneered the DobyGrip wire suspension system but is also the largest UK manufacturer of ductwork jointing systems.

DobyGrip combines quality and versatility to provide a complete solution for suspending fixed loads for HVAC systems (Heating, Ventilation, Air Conditioning) and electrical installations. At the heart of the solution is a strong, ergonomically designed zinc cast body with a patented gripping wheel design and inbuilt release mechanism which is used in conjunction with galvanized wire rope to produce fast and efficient installations. In fact, independent reports suggest that it can reduce installation times by as much as 60 % when compared with conventional systems.

These time savings are achieved through the fact that many of the tasks required to complete a traditional, threaded rod installation are eradicated. But there are other factors which have led to it becoming the system of choice.

The use of galvanized wire rope rather than rods and clamps for example reduces the overall weight of the installation and in the case of HVAC ductwork it allows runs to be suspended from any angle. There are also major safety benefits on-site and where traditional systems may cause a trip hazard while they are waiting to be fitted, wire rope suspension systems do not. Furthermore, no hot work is required to cut the components to length.

The recent addition of a bespoke cutting service for this solution further increases the benefits as it allows contractors to stipulate wire length at the specification stage leading to further time savings during the installation.

### *Doby Verrolec stands for first-class innovation*

DobyGrip has provided the construction market with an innovative, time saving solution and it is this theme of innovation which runs through all the company's products. For example, Doby Verrolec developed and built a machine to produce its VerroLoc Circular flange rings — it is the only UK manufacturer to produce these type of products. The company's HVAC profiles, which include duct jointing systems and stiffening profiles also follow the same theme, reducing installation time whilst ensuring efficiency through the reduction in air leakage.

Saving time, reducing costs, and achieving efficiency is something which the construction industry strives to achieve and through innovative solutions it is something which Doby Verrolec is able to provide across its entire product range.





# Innovation, Breakthrough Products, and Customers' Hidden Needs

**T**he Heitkamp & Thumann Group has a long history of innovation but is aiming to boost its output of new products. This article discusses the challenges of developing new products that address customers' hidden needs.

Many companies are focused on innovation and senior managers want their R&D departments to design something as novel as Apple's iPhone. However, most companies struggle to come up with novel ideas for new products. Every year, from the thousands of new products developed worldwide, product failure is more common than success in both the business to consumer (B2C) and business to business (B2B) sectors. What are the common reasons why products fail and what steps can companies take to prevent failure? This article will explain the key lessons from innovation research and how managers can apply them.

## Causes of product failure

The first lesson from research is that failure rates are high—many products fail to reach sales goals. Sometimes products fail because customers find they do not function correctly but by far the greatest cause of failure is a lack of product differentiation. Products must be differentiated—they must clearly stand out from the competition. Truly differentiated products offer unique features that provide real customer benefits. Research has shown that such products have an 80% chance of success, whereas me-too products (which simply replicate competitors' features) have only a 20% chance. Breakthrough products stand out from the competition because they are based on a deep understanding of customers' needs.

## Making market research work

The B2C sector has a long history of conducting market research and companies such as Unilever are known for conducting surveys and focus groups. But few B2B companies are proficient with such market research methods. In addition, focus groups and surveys rely on asking customers direct questions about the features they would like in future products. Direct questions are simply not effective since many B2B customers struggle to articulate their needs, or simply ask for further improvements to existing features. So conventional market research leads companies to develop incremental, me-too products and of course these have little chance of success. To avoid what is called the incremental

product trap, leading companies like the Heitkamp & Thumann Group are starting to use sophisticated techniques to uncover customers' hidden needs—those needs that they are unable to articulate or have not even recognized themselves. Such techniques are based on the social sciences (such as sociology, anthropology, and psychology), which focus on developing a deeper understanding than what can be achieved through direct questioning.

Hidden needs analysis is the name given to a collection of tools and techniques from the social sciences that can be applied in market research. The main techniques are repertory grid analysis (from psychology), ethnographic market research (from anthropology), and lead user groups. Each of the techniques has significant advantages compared to traditional market research and, when used in combination, they are very effective at uncovering customers' hidden needs.

Repertory grid analysis was developed by psychologists as a way to understand the patterns in which individuals think; to uncover their so-called cognitive maps. This technique is ideal for developing ideas for both new product and services, especially in B2B markets. It only uses one question, asked multiple times, to stimulate customers to compare and

## *Most conventional marketing techniques fail to uncover hidden customer needs*

contrast their experiences of existing products. Through the process of comparing and contrasting, customers' hidden needs are revealed, which can be used to develop breakthrough product concepts.

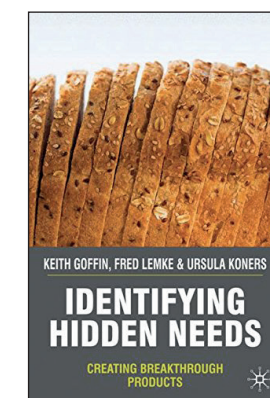
Another effective technique for uncovering hidden needs is ethnographic market research, which is based on ideas from anthropology, the social science which studies tribal culture. The techniques of ethnography help us understand culture and are directly applicable to understanding our customers. In market research, ethnography can unveil latent customer needs; the emotional factors that impact customer satisfaction; and the characteristics of customers that drive product usage. A common approach is to obtain permission to make videos of customers using existing products, and then conduct a deep

analysis of what customers said and what was observed. For example, Bosch Packaging identified the needs of production employees operating complex production lines. Observation gave deeper insights than simply asking operators.

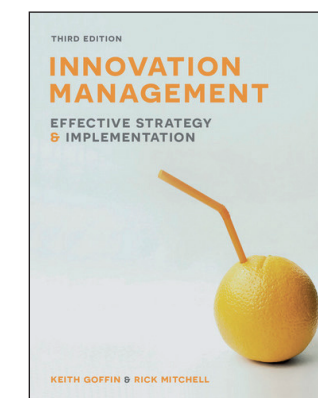
Lead users are the customers who use products under the most demanding conditions. For example, to understand how better hygiene-related products could be developed for the operating room, 3M studied the requirements of field hospitals in combat zones. In demanding situations users often have to modify products to work around their limitations. By looking at such modifications, ideas for product improvements for the broader market can be obtained.

During the last two years I have worked several times with the Heitkamp & Thumann Group. It is a fascinating mid-sized group of companies—a true hidden champion but, as many companies which have a history of technology-based innovation, it is facing increased global competition. The challenge will be to leverage the Group's core technological competencies by matching them to a deep understanding of customer needs. To address its ambitious organic growth targets, the Group has built its capability to innovate during the last two years. Part of this work has been a focus on customers' hidden needs and I am sure that this will enable Heitkamp & Thuman to develop breakthrough products that delight customers and contribute to the success of the Group.

Prof. Dr. Keith Goffin



*Identifying Hidden Needs: Creating Breakthrough Products* by Keith Goffin, Fred Lemke and Ursula Koners, Palgrave Macmillan (2010)



*Innovation Management: Effective strategy and implementation* by Keith Goffin and Rick Mitchell, Palgrave Macmillan (2017)



Keith Goffin is Professor of Innovation, New Product Development and Process Management at the Cranfield School of Management (U.K.). He is Director of the Centre for Innovative Products and Services (CIPS) and has extensive experience of product development from both an industrial and an academic perspective. During 14 years with Hewlett Packard (HP) Medical Products he worked on the development of the world's most successful patient monitor and designed the marketing campaign that took defibrillators from 3% market share to market leadership within six months. Parallel to his work at HP he completed a part-time PhD and his findings on customer service have been applied in companies such as Ford and NCR. At Cranfield he teaches on MBA and executive programmes and is a visiting professor at business schools in France, Italy, Germany and Sweden. His research interests are innovation culture, project-to-project learning, and enhanced methods of market research—so-called 'hidden needs analysis'. He has published over one hundred articles in journals and newspapers such as the Journal of Product Innovation Management, Research-Technology Management, and the Financial Times. He regularly acts as a consultant on innovation management to leading organizations. In May 2011 Keith was selected as the Financial Times Professor of the Week for his work on hidden needs.

# The Significance of Patent Searches in Innovation Management

As a leading partner for the development and supply of world-class precision formed components the Heitkamp & Thumann Group specializes in technology management. Such technology management activities require the prior acquisition and evaluation of information on technological developments among competitors. In this respect, patents constitute an important information medium, because, once they have been published, they are freely accessible to everyone, and also the official classification by the respective patent office facilitates assignment to products, or fields of technology.

## FTO searches

Freedom-to-operate (FTO) searches are carried out by companies needing to check whether intellectual property rights exist, or could be granted in the future, that could stand in the way of the development, production and introduction of a product on the market. These searches should initially be carried out in the early stages of product development and continued constantly thereafter, in order to have an overview of the patent situation in the field of interest at any given time.

A good search strategy is very important, as, generally, not all product features can be covered by one search. The scope of a FTO search can vary widely, depending on the complexity of the product, the target markets and the level of security required. However, such searches can never guarantee 100% security. A reason, for example, is that they are

carried out using keywords in the IPC or CPC categories. It is conceivable, however, for a relevant patent to have been classified in an IPC or CPC category differing from that contemplated for the FTO search. Furthermore, the patent and

## Early filing enhances the likelihood of Freedom-to-Operate

application documents use their own terms, which do not necessarily coincide with usual terms according to lexicons and may possibly not be picked up by the keyword search. FTO searches are, for this reason, only ever a part of business risk management.

The FTO search should also not be limited to technical intellectual property rights such as patents and utility models. It is sometimes advisable to include designs in the risk management.

As already described, a first search should be carried out at the start of product development in order to pick out high-risk solutions right away. This step will unavoidably remain incomplete, because not all the properties of the product are generally known at this stage. It is therefore necessary to supplement the analysis in the course of product development in order to check whether the selection of technologies itself does not add to the risks. Furthermore, application texts are not generally published until 18 months after initial filing at a patent office (priority date) and a patent search will thus always be 18 months behind.

If, during the FTO search, patent applications are discovered, for which a patent has not yet been granted and of which the scope of protection is not fixed, it will be necessary to regularly monitor the grant process for these patent applications by inspecting the files, in order to have the option of influencing any patent grant procedures through third party submissions or an opposition.

If a third-party patent is discovered during the FTO search that constitutes a risk to the activities of a business, consideration should also be given to acquiring a license, in particular if it is not possible or desirable to modify the product in order to bypass the patent, and there is only a modest outlook for revocation of the patent in question.



## Prior art searches

In order to prepare measures to 'derail' a patent application or a granted patent, a different type of search is required, namely a search for patents and other documents that were published before the priority date and anticipate or render obvious the claimed subject matter. This is known as a prior art search. In this respect, it is irrelevant whether these documents are granted patents or pending applications. The only important issue is that they qualify as prior art in that they were published, or at least an application has been made for them, before the priority date of the patent application in question.

Since the legal validity of the patent in question can influence the license fees, a careful prior art search is recommended before entering negotiations for a license.

## Further uses of patent data analyses

A patent search does not only provide information on whether intellectual property rights exist that could constitute an obstacle to the development, production and introduction of a product on the market. Rather more, especially if the patent search is carried out regularly, it provides clarification of the economic and technical development in different business sectors as well as the research and development policy of competitors. It is possible to draw conclusions on the effectiveness of your own research and development and

to additionally obtain valuable ideas or suggestions for new development strategies. Nowadays, it is possible to set out "patent landscapes" and to identify patent gaps or loopholes that would enable a company to establish itself in a niche market. Any innovative business should therefore be familiar with the prior art in order, for example, to avoid unnecessary investments in duplicate developments and to facilitate optimum development of its own operating potential.

The analysis of patent data additionally makes it possible to identify potential sources of technology procurement. For example, targeted searches can be used to identify those companies who have applied for patents in the fields of technology of interest. For this, the searchers can use extensive bibliographic data of the patents or patent applications and carry out, for example, patentee searches or inventor searches.

Furthermore, by evaluating technical, legal and strategic patent information, competition analyses and technology evaluations, amongst other things, can be formulated, in order to thus ascertain the position of the company within the scope of the competition. It is obvious that companies with a few strong patents are, or will be, much better positioned on the market than competitors with a weak patent portfolio or no patent portfolio at all.

I feel honored to be the patent attorney for parts of the Heitkamp & Thumann Group and thereby to be engaged in such an innovative high-technology environment.

Dr. Bernd Janssen



Dr. Bernd Janssen //  
LL.M. // European and  
German Patent Attorney //  
Partner at Uexküll &  
Stolberg // Hamburg





HEITKAMP & THUMANN  
GROUP

