

TRANSFER

The Steinbeis magazine

Transfer – Network – Competence

Technology seeks founder

How do you foster business start-ups?

“Give professors involvement in development projects in industry”

An interview with Jürgen van der List

Ignoring it won't make it go away!

How companies can prepare themselves for the
worst case scenario

Now, that's what they call a system

Internet applications with the OIT application framework

Electronics in automobiles

Steinbeis symposium spotlights energy-efficient systems

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Editorial

Dear Readers,

In reviewing 2007, we look back again on thousands of successful transfer projects. This year there was a noticeable leaning towards projects involving home-grown, small and medium-size enterprises. This fills us with confidence with respect to sales and business turnover. Rising sales in Germany, fuelled by the commitment of the transfer centers and sterling work carried out on projects, are a confirmation of the successful Steinbeis model. Apart from gaining in terms of flexibility, and their ability to focus on the needs of the customers, 2007 was also a good year for the 750 Steinbeis Enterprises because of the upturn in the economy. This acts as motivation to all of us to carry over the success from one year to the next and keep building on high sales.

Through their commitment, experts across the Steinbeis Network play a major role in speeding up innovation in the economy. Add to this ongoing economic instruments filtering down from politics – such as the creation of economic clusters, business start-ups, the expansion of regional technology parks and the introduction of centralized transfer offices at universities – the underlying positive attitude towards innovative thinking becomes even stronger. However, to maintain the knowledge advantage in an export-oriented country like Germany, innovation can no longer be seen

as an "optional extra". Companies have to consider it standard. Backed up by a political framework designed to encourage investment and innovative thinking really starts to gain momentum.

To respond to the growing number of customer demands, we dovetail knowledge and technology transfer with the processes of regional economic development. This is fuelled by Steinbeis' commitment to success, personal motivation and the outstanding quality of our services. The Steinbeis Network is now so varied and encompasses so many fields of technology and management, that it has the power and flexibility to work with business partners holistically, i.e. across the board. There is a strong feeling of "togetherness" at Steinbeis, which has particular benefits for people within the organization. Being part of the Steinbeis Network means enjoying independence on a financial level, but still knowing you have a dependable partner at your side.

As 2007 draws to a close, it is a time to gather our energy again and prepare ourselves mentally and physically for the task of mastering next year's challenges and constantly changing global markets. On that note, I would like to wish you a pleasant transition into the new year and many opportunities to practice transfer in 2008.



Sincerely,

Prof. Dr. Heinz Trasch



Photo: Achim Zweygarth

Very few companies are ready for the worst case scenario Ignoring it won't make it go away!

The pale look on his face says everything. Heinz B, Managing Director of a medium-size engineering company from South Germany [all names anonymous for confidentiality reasons], is sitting in an emergency meeting with his closest advisors: the PR spokesman and the company lawyer. Heinz B has just discovered that his company has obviously been the victim of industrial espionage for years. A brand new product just launched by the competition is an exact replica of a product the company had been developing behind closed doors.

Nobody dares say it. But everybody is thinking it. How many times has security been on the agenda at meetings? Take the computers in the development department. All equipped with CD burners and USB ports. Perfect for copying data. What about all the placement students and interns? They hang around the building for weeks at a time, but nobody really follows up where they actually came from. Then there was the head of development who suddenly handed in his notice six

months ago. Only days before he left, wasn't he still burning the midnight oil? Everybody noticed it, it was definitely captured somewhere, but the boss never thought it would come to this.

There are two facets to this disastrous scenario: industrial espionage on the one hand, the potentially massive image loss on the other. What will we do if the press finds out? What if it becomes public knowledge?

What will our customers think? A "right fiasco". Worse still, the financial impact could run into the millions. At his wit's end, the PR spokesman turns to the Steinbeis Transfer Center for Communication, Safety and Security (CSS) for a safe route out of this nasty predicament. Professional troubleshooters take on the case. A risk analysis. An internal and external investigation. Eradicate all security leaks. And, first and foremost: crisis communications.

Nobody is immune to disaster. Companies, politicians, trade associations, private individuals. If you ever stand in the public eye, there is always a risk of being shot down in flames. Intrinsicly, the bigger you are the more likely you are to be affected – as German giants such as Siemens, VW, Daimler and Vattenfall all know. The media watch them like a hawk, especially when they go through one crisis after another and management is obviously flagging.

Does this happen because big companies have more fixed and rigid ways of working? Or is it because of the chasm between decision makers "at the top" and workers at the grass roots, who are more likely to have their finger on the pulse? Or does a crisis instill so much panic at the top that, when push comes to shove, there's no more room for "sensible PR"? Say or do the wrong thing during a crisis and you can cause lasting damage to your image. This has a domino effect on your brand, and with this the entire company. Almost always, this affects the bottom line.

Stephan Schlenrich, who heads up the Steinbeis CSS, knows what happens: "When trouble's brewing, lots of bosses would rather stick their head in the sand." Next thing, they do a disappearing act, try to sweat it out, or make desperate attempts to keep mistakes away from the public.

The only problem is that the media are so complex and multifaceted these days that almost everything "comes out". Fires, accidents, product recalls, corruption, blackmail, food scares and even feuds – typical crisis catalysts guaranteed to capture public interest. Journalists hanker after such stories and love putting culprits under the microscope. "Time and again people try to deflect press attention or lay a false trail," says Stephan Schlenrich. But once a journalist has "smelled a rat", it is only a question of time before hard facts makes it into the public domain.

Schlenrich knows the ropes from personal experience. He worked as an investigative reporter for German television channel ARD for 23 years, including current affairs and politics programs. He also reported on crises for news programs, visiting places such as Baghdad and the Middle East, and also areas of Thailand affected by the tsunami. Schlenrich's colleagues included a variety of leading experts.

In the case of the machine maker from southern Germany with a mole in its ranks, the first task is to "bolt down the hatches": no more knowledge must be lost. Easy targets such as computer networks and communication centers are then checked by experts for manipulation or signs of attempted break-ins. Every access point to the factory and company offices is put under close scrutiny. The experts also take a close look at the former head of development as he is suspected of wandering off with secret drawings. Within a short time the company has a new security concept, also encompassing the setting up of an in-house crisis management team. Working closely with the customer, the experts from Steinbeis pinpoint individual crisis management and communications strategies. "There are plenty of off-the-shelf solutions on the market. They'll work for everyone – or no-one at all!" says Schlenrich.

The experts at the CSS Steinbeis Transfer Center believe not only in a fundamental analysis of existing company systems and potential risk, they place emphasis on prophylactic crisis management. The CSS approach is particularly effective when customers call in the experts to prepare for worst-case scenarios and set up protections. Their security maxim: crises, especially communications crises, shouldn't happen in the first place!

How to deal with stubborn journalists, how to ward off unwarranted attacks, and how to "maintain a brave face against all adversity" can be learnt on media and crisis communi-

cations courses offered by the CSS. Running through life-like simulations – involving "real" journalists and camera teams, in the atmosphere of a mobile television studio – company bosses, managers and PR professionals can be "given a grilling".

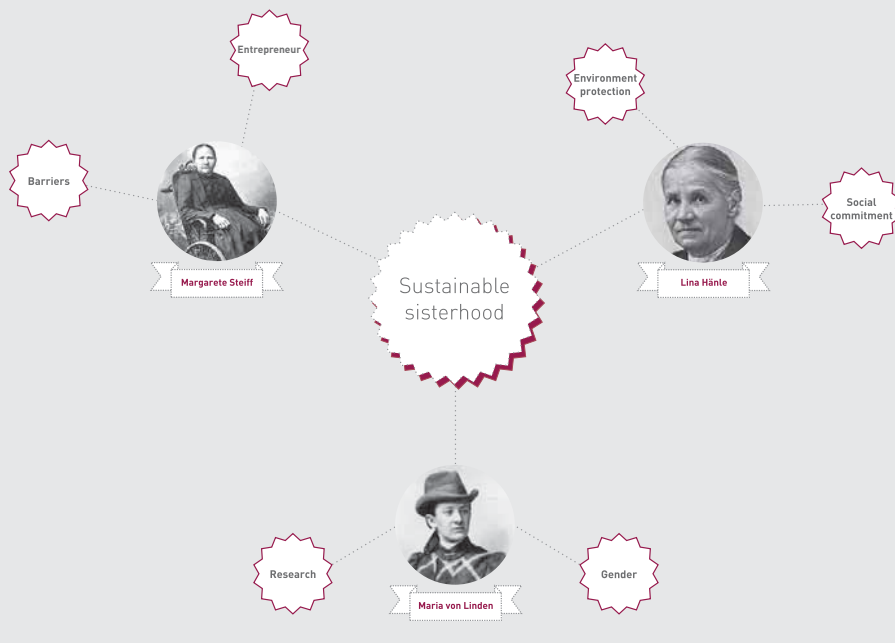
The transfer center has also been offering "hostile environments training" to German managers since January 2008. These courses are targeted at companies and organizations with dealings outside Germany. The aim is to provide managers, engineers, journalists, and NGO workers with a professional grounding on working overseas in international high-risk areas. Lasting five days, the course covers aspects such as: introductions to foreign cultures, first aid, what to do at military checkpoints, recognizing risky situations, evacuations, and even preparing psychologically for extreme situations like kidnappings. The permanent coaching team includes cultural experts, instructors of elite police and military units, doctors, psychologists and experienced experts on security and safety issues.

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Product development and project management – local history and posterity

Grandma's lasting inheritance

Sustainability and the arts can be "symbiotically reproductive", this is the baseline and result of the concept developed by Steinbeis's Prof. Ulrich Holzbaur in partnership with Uta Singer from the Giengen Cultural Office. Working on behalf of the Giengen Cultural Foundation, experts at the Aalen-based Steinbeis Transfer Center for Applied Management worked out a way to marry – interactively – the work of three of Giengen's most famous women with the concept of sustainability.



Work at the transfer centers is primarily concerned with practical management, development, creating concepts, strategy and modeling. In particular, Holzbaur focuses on issues relating to systematic planning during the early phases of project management. The Giengen project demonstrated that this also makes sense outside trade and industry. Going by the motto of Nachhaltige Weibsbilder – roughly translatable as "Sustainable sisterhood", the aim was to promote the town and sustainable development through Giengen's three famous daughters: Margarete Steiff, founder of the internationally renowned toy maker Steiff; Lina Hähle, the founder of nature conservation in Germany and Maria von Linden, the first female professor in Germany.

Searching a working partner for the project, Uta Singer, Head of the Cultural Office in Giengen, was keen to "say things

as they are". Singer had taken a shine to the town's famous trio, and they became important pillars in the town's new cultural development plan. In addition to the Steinbeis Transfer Center for Applied Management, Singer also pulled on board the University of Education in Schwäbisch Gmünd.

For Holzbaur, there was an obvious link between the concept of sustainability and the town's three daughters – Margarete Steiff, a successful entrepreneur despite her physical handicap; Lina Hähle, committed to the environment and social issues; Maria von Linden, researcher and developer. Holzbaur explains, "These concepts of product development and modeling are applicable to a wide variety of areas." His proposed theme for "the three famous daughters" was based on the following:

- An emphasis on experiential aspects, communication through experience
- Culture and sustainability – education as the basis of sustainable development, a role model, development skills
- The integration of internal and external effects by forming a link to culture and tourism
- A combination of a verbal and figurative landmark, integrating "Vor-Bilder" meaning role-model and the "Weibsbild" meaning a lady to the catchword of "Nachhaltige Weibsbilder" meaning strong women as a role model for sustainability – roughly translated via "sustainable sisterhood".

The mark left by the three women of Giengen on entrepreneurial undertaking, environmental protection, social involvement and innovation can be seen all around the town. The Steinbeis experts worked up a variety of concepts to convey the key message: emotion is used as a vehicle to communicate information and values in a credible and sustainable manner. The experiential aspects can be borne out in a variety of ways: anything from an adventure trail to a cultural monument.

There were a number of reciprocal approaches to integrate the concepts of the arts, culture and sustainability. Sustainable development can be seen as the conservation of human culture for future generations. The "Three daughters" concept can thus not only contribute to sustainable development within the context of education, it also forms a bridge between art and education, culture and sustainability.

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Pulsating DC power supply in electrochemicals

Precision electrochemical deburring of multifunctional components

When engineering mechanical systems and carrying out value-based optimization on machines, equipment and mechanical parts, the results are often parts referred to as multifunctional components. They do what the name implies, covering a variety of functions not with five or six individual components but with just one part. One benefit: join tolerances no longer have a negative effect on quality.

Another benefit with multifunctional parts: you save costs and time, an important plus when planning and organizing production because you only have to schedule in one part rather than five or six.

As a rule it is still necessary to machine finish multifunctional components. This creates burrs and sharp edges which conventional deburring processes sometimes have problems getting to. Sometimes they can't get to them at all. For years the solution has been to deburr the components electrochemically using an external power source. The only problem with this approach is that edges and profiles change unreliably because of scattering during electrolysis.

The Steinbeis Transfer Centers for Process Development, Electronic Engineering, and Chemical Engineering (all based in Reutlingen) have developed a process that provides a solution to this production problem. Experts at the transfer centers used a pulsating DC power supply in combination with a passivating electrolyte solution such as sodium nitrate. This way, between each power pulse, there is enough time for a passivation layer to form on the part connected as an anode. When the power comes on again the passivation has to be broken down again. The result is a sharper profile which ultimately culminates in a precise finish on the part just where it is needed.

In developing the new process, extremely high demands were placed on the capabilities of high-performance electronics.

For example, they needed pulsed voltages ranging from 5 to 40 volts, pulse frequencies up to 10kHz, negative pulses to control the dissipation of the passivation and even cancelling short circuits within individual power pulses.

The Steinbeis experts made a number of other improvements to the process by placing tool cathodes and anodes in a pressurized chamber with a controlled input and output of the electrolyte flow. The cathode made a feed motion with adaptive controlled electrolyte pressure, independent of the distance between the tool and the part being processed. The process is also suitable for complex three dimensional shapes such as deburring turbine blades or rounding of edges thereby minimizing notch effects. Any material that conducts electricity can be processed in this way, including carbides, Inconel (metal-based alloy) and conductive ceramics.



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An interview with Prof. Dr.-Ing. Jürgen van der List, 2007 Lohn Award prizewinner along with the Steinbeis Transfer Center for Microelectronics

“Give professors continuous involvement in live development projects in industry”

The Lohn Award was awarded again in 2007 as part of the annual Steinbeis Day. In front of an audience of more than 500 guests, the jury awarded the prize to Prof. Dr.-Ing. Jürgen van der List and the Steinbeis Transfer Center for Microelectronics in Göppingen for the many years of outstanding contributions to and projects in the field of technology transfer. The jury also recognized the personal commitment of Dr.-Ing. Wilhelm Schmitt, Senator E.h., as a long-standing member of the Board of Trustees and the Steinbeis Foundation Board of Trustees and Committee. TRANSFER spoke to Prof. Dr.-Ing. van der List, who founded the Steinbeis Transfer Center for Microelectronics in 1991 and has been pivotal in building and expanding its work.



The prizewinners from the Transfer Center for Microelectronics: Professor Dr.-Ing. Bernhard Schwarz, Professor Dr.-Ing. Rainer Würslin, Professor Dr.-Ing. Jürgen van der List, Professor Dr.-Ing. Heinz Osterwinter, Edgar Grundstein (left to right)

Professor van der List, first of all congratulations on winning the 2007 Lohn Award, to you and the Steinbeis Transfer Center for Microelectronics, the TZM. Taking a look at the TZM today, with 130 employees and customers in every corner of the globe, it scarcely seems necessary to ask why the Transfer Center was set up in 1991 at Esslin-

gen University's site in Göppingen. Despite this, could you tell us something about your original motives. What value-added were you hoping for? What could you offer to clients in industry?

In 1987 I was asked to set up a new faculty for electronics and microelectronics at Esslingen University. Within three years I had the professors and staff in place along

with excellent technical equipment, perfect for providing students with education and vocational training. I noticed pretty quickly that state-of-the-art equipment, hand-in-hand with the highly specialized knowledge of the professors was not only useful to students, it could also be interesting in research and development for companies in the surrounding area.

In 1991, I resolved to set up a transfer center for microelectronics with Professor Osterwinter. In setting up the centre I was aiming to achieve a number of things: on the one hand, university professors should teach their subjects with the practicalities of business in mind. For this to work best you have to give professors continuous involvement in live development projects in industry. The microelectronics transfer center is the ideal vehicle. At the same time, I wanted to meet some of the high ongoing costs of the electronics laboratories by generating income from industrial projects. Finally, joint projects within the TZM would strengthen cooperation between professors. And of course the department of electronics and microelectronics would become better known in the industry and the public in general through spectacular discoveries made by the TZM.

Once the TZM had been set up, we offered our services to a variety of companies in the area in a number of electronics fields and

received a warm welcome. Small and medium-sized companies in particular took the opportunity to use the modern equipment and expertise of the professors for their needs. The quick and spontaneous approach offered by the TZM was particularly appreciated, in particular with respect to customer requests, development work and speed support.

It is often difficult to resolve the chasm between universities and research establishments on the one hand and the actual transfer of products into industry on the other. Obviously the TZM seems to have got around this successfully. How did you manage to convince clients and the university to commit to the specific transfer process, from the university into client products?

The opportunity to become involved in product development only arose after we had established a sense of trust between the companies and the TZM by working on lots of projects. This gave us a chance to come on board with projects at the early stage of development. This led to more special demands that could only be solved by concentrating on specialist disciplines. We went about systematically restructuring internally. In the early years we covered off a spectrum of disciplines; for a number of years now we've been focusing on embedded systems, software and services for fields such as the automotive industry, automation technology, and medical technology.

One of the products that bears your hallmark is the automotive bus system called FlexRay. Could you briefly explain what is innovative about FlexRay and its advantage to your customers over conventional bus systems?

In recent years the use of electronic control devices in vehicles has risen continuously. These control devices are connected to each

other via "data bus systems" so they can exchange information. With the sharp rise in the number of electronic components in a car, the bus systems currently being used can't keep up. The new FlexRay bus system solves this problem by significantly accelerating the speed at which data is transferred. Certain functions in a car need immediate responses so the data has to be transferred via the bus system – without delay. FlexRay makes sure this happens. Compared to conventional systems, FlexRay also offers a lot more flexibility which is why it is being recognized by leading automotive companies as the bus system of the future. The FlexRay bus system is an open bus standard and is certain to be used in the future by most car producers throughout the world. First serial production cars and test vehicles are already equipped with the FlexRay bus.

One of your emphases lies in software development in the field of medical technology. Which problems are producers and users currently faced with and what developments are you aiming for in this area in the future?

Software is now an integral part of lots of types of medical equipment. According to trend research, the role played by software in medical technology will continue to intensify, especially when introducing innovative functions and operations. The increasing importance of software in medical technology is reflected by a number of things including new standards such as EN 62304 or the third edition of IEC 60601 1-1, placing detailed demands on the development of medical software. These standards provide a basic template for the things you need to take into account when developing software and the requirements to be fulfilled to set up certified software development. The problem is they tell us little about how to implement this basic template in practice. This provides producers with a certain amount of leeway in terms of methods, technology and the tools used in development, but it makes it

difficult to gain a grasp on the status of technology when developing software for medical technology.

Before we finish, could you please end the suspense? What will you do with the Löhn Award prize money?

We haven't thought about it in detail yet. But one thing is clear: people have put years of outstanding work into their projects so they deserve plenty of credit; something like a special event.

The Löhn Award

The annual Löhn Award recognizes outstanding transfer projects in fields using competitive technology along with knowledge transfer between science and business. The award was introduced in 2004 in honor of the achievements of Prof. Dr. Dr. h.c. mult. Johann Löhn. In particular, it recognizes the success of transfer projects measured by the quality of the transfer process and discernible transfer potential.

Application forms for the 2008 award are available on the Steinbeis website. The award is open to Steinbeis Enterprises and customers who have been involved in a transfer project. Prize winners are chosen by a jury made up of members of the Steinbeis Foundation Board of Directors and the Chairman and Honorary Trustees of the Steinbeis Foundation Board of Trustees.

For more information and application forms visit www.loehn-preis.de.

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How do you foster business start-ups?

Technology seeks founder

According to the latest statistics and data coming out of Germany, the transfer of technology into industry seems to be working well. With 16,900 registered patents in 2006, Germany ranks number 3 worldwide, behind the United States (49,600) and Japan (26,900). Per person, Germany is actually number 1. Thanks to the continuing number of innovations, in recent years Germany has developed into the global champion of exports. Even before this, the nation looked back on a rich history of innovation, filled with success stories – some resulting in multi-billion dollar markets: the television, fax machines, hybrid engines, even MP3 data compression. All of these inventions have one thing in common: they were mainly – or entirely – put to economic use outside Germany.

Germany certainly does not seem to be short of leading scientists. In the past 50 years alone, it boasts 20 Nobel prizes for chemistry and physics. Nor is it lacking in product ideas and patents. But entrepreneurs seem to be in short supply. Entrepreneurs who are brave enough to set up a company and convert concepts into products – despite the mistrust of their peers.

According to the 2006 Global Entrepreneurship Monitor, only 3 per cent of Germans between the age of 18 and 64 start up a company. Only 6 or 7 per cent of these are in the field of hi-tech (source: Spiegel magazine 42/2007). This puts Germany in 32nd place out of the 42 countries covered by the study. On top of this, around 30 per cent of all entrepreneurs were primarily motivated to become self-employed by the fear of unemployment. So it comes as no surprise to see the number of new technology companies going down – not up – when the economy is doing well. In the field of electronics alone, the number of start-ups has halved in the last decade.

University graduates are once again in a position to choose where they work; and more and more of them are opting for a career in industry. But do they know about the option of self employment and do they actually see it as a genuine alternative career path? In the meantime we are witnessing a knee-jerk reaction to this issue from politicians and educational establishments –

with calls for business training running in parallel to studies in the field of natural science and engineering. But the key issue here is not a lack of business understanding.

It is not this that is stopping young people choosing self-employment. The main problem is that they simply do not realize that there are sponsoring establishments, networks and investors there to support them. There is not enough inter-disciplinary exchange of information between business faculties and the natural sciences.

The Federal Government and Federal States have now created an infrastructure to facilitate technology start-ups: Exist-Seed, High-Tech Gründerfonds Management GmbH (272 million euros), business plan competitions and a variety of local networking initiatives. Ostensibly highly impressive, but given the decreasing number of start-ups it does not seem to have changed anything yet. It is an unfortunate situation, but it can be solved quickly without red tape.

To avoid bureaucracy, the first thing to steer clear of is merging business basics and natural science or engineering degrees. Students hardly have the time to do a second degree or go to more lectures to become familiar with the legal or commercial basics. Not unless they neglect their actual studies. What can work is postgraduate seminars with a business planning game. Coordinated with professors from the field, this option is simple and relatively cheap: when they are writ-

ing their diploma or thesis, young scientists and engineers are already thinking about their working career.

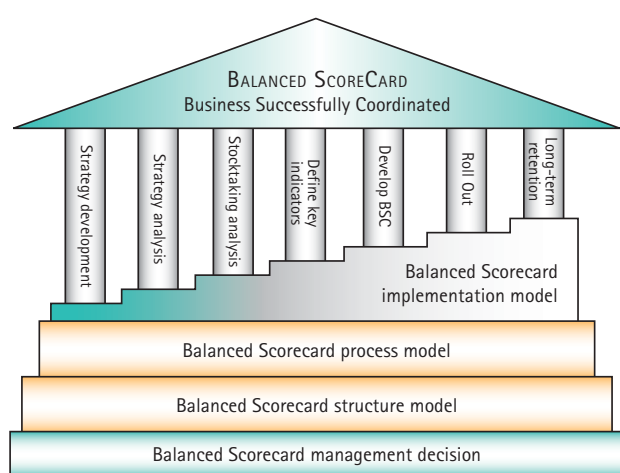
The key priority has to be to offer graduates additional avenues that work with their scientific knowledge and forge their future career. We need to embed them within the commercial context of business and provide them with the instruments to experiment and weigh up the opportunities and risks presented by technology start-ups. Ultimately, for this approach to work, it will be key for companies and universities to stop seeing spin-offs as competition for the best people. The opposite is true: they are a key engine of innovation for the good of all interest groups in society.

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Steinbeis student launches company-wide Balanced Scorecard

Decision-making support for managers

The BOS Group is an international supplier to the automotive industry. The company develops, produces, markets and sells systems for vehicle interiors. BOS employees 4000 people at 18 locations worldwide with a focus on Asian markets, the United States and Europe. Marcel Lehmann, a student on the Master of Business and Engineering degree program offered by the Steinbeis Competence Center at Steinbeis University Berlin, created and introduced the Balanced Scorecard (BSC) as a steering instrument for top management at 12 subsidiaries on three continents. Its aim: to provide management with an exact overview of this quickly expanding company.



Lehmann embarked on his project by examining the company mission statement and the resulting corporate strategy – in combination with measurable (and thus comparable) key indicators. Each key indicator was then evaluated according to specific targets before being translated into operative measures. Over and above financial indicators, i.e. hard facts, there were a number of soft factors captured by the Balanced Scorecard. Often one of the biggest challenges is how to make soft factors measurable. But the problems encountered and overcome while preparing the Balanced Scorecard became insightful when it came to subsequent use of the BSC.

In times of globalization, in which information advantage can be a fundamental survival strategy, few companies are likely to stop at conventional control instruments. The nature of international competition makes it essential for growing companies to identify quick-fire, efficient ways to process information. There are a few key issues to be

There are also country-by-country idiosyncrasies to be overcome when comparing performance. To compare a company's international subsidiaries, you need to keep things relative, if possible by simplifying factors such as the general legal environment and tax laws. Highly different product groups and production methods also make this comparison difficult, not only between countries but also within individual countries from factory to factory. Another critical success factor is how advanced the data is being produced by the enterprise resource planning system when defining original key indicators.

Typically, strategic goals are looked at from a variety of angles: finances, customers, processes and staff. The BOS Group expanded the model to take suppliers into account. There are a variety of Balanced Scorecard formats and BOS also decided to adapt the overall concept to suit the company.

addressed: where does the company stand now, what is the company's future goal and what is the most efficient way to achieve this goal. By implication, this means a company also has to measure how far it has gone in implementing its strategy. Measuring company success is the challenge faced in bringing about future success.

Their model pulls together three individual models.

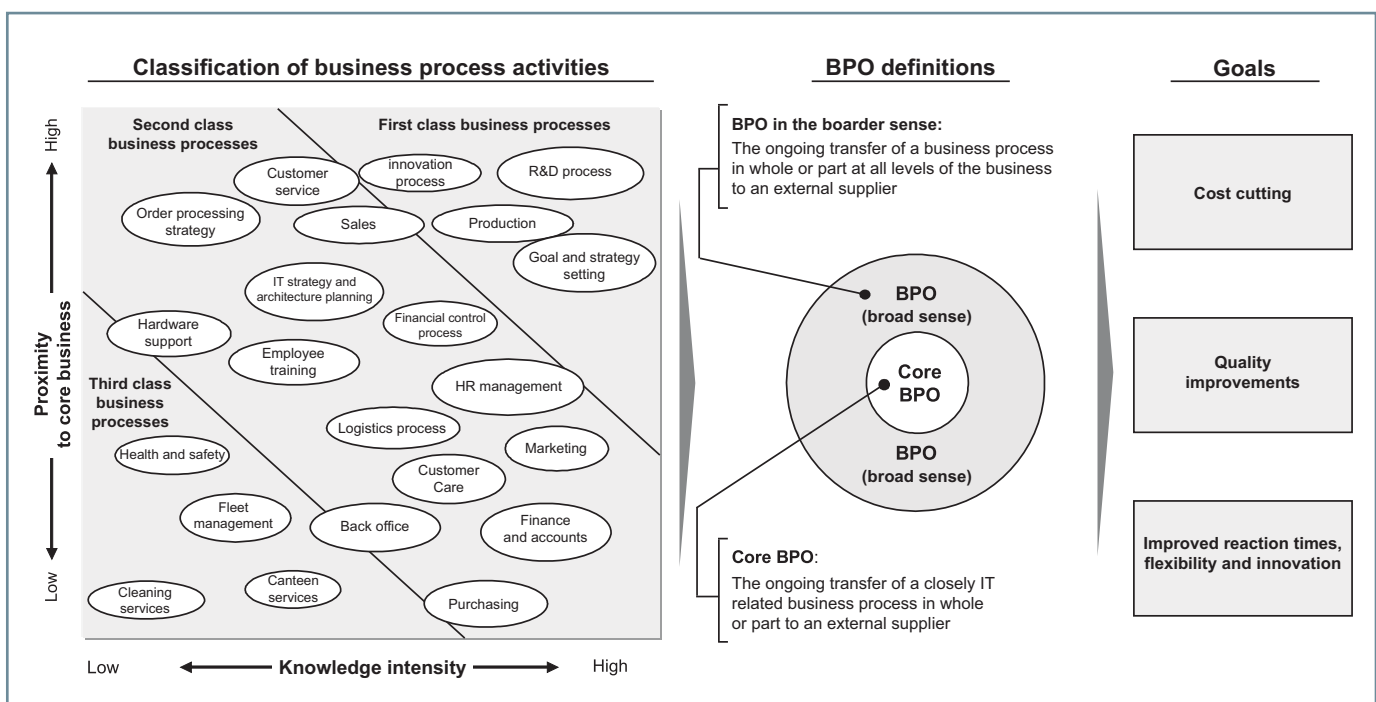
During the project, they reached each milestone as planned and actually exceeded them. In parallel to the implementation process a bi-lingual implementation manual was compiled containing checklists, schedules, comprehensive definitions, calculations and methods. It provides factories with support before, during and after implementation as a reference manual and source of information. Apart from helping the company set up standard procedures, the BOS Group now has a common understanding of the strategy, corporate values, goals and priorities. On top of this, the project led to new performance indicators such as precise productivity levels, and other soft and purely monetary indicators – and even early warning indicators.

The Balanced Scorecard is now a core senior management tool and reporting instrument. It provides decision-making support, is a source of information and is a major step towards mapping the group-wide strategy using key numbers. A key finding of Marcel Lehmann's project was the realization that people underestimate how difficult it is to identify the right key indicators and how this is influenced by intercultural factors.

A research project at Steinbeis University Berlin

The influence of Business Process Outsourcing on success

Faced with an increasing number of changes in environmental factors, for years business theory and practice has told companies that the best course of action is to focus on core competencies. Business Process Outsourcing (BPO) is becoming more and more important as an instrument for optimizing the company value chain. Despite the potential operative and strategic risks, BPO promises to cut costs across the board while simultaneously improving quality and providing time-saving benefits – such as a cutting product development cycles. Jan Bartenschlager, a PhD student at Steinbeis University Berlin, evaluated the potential success of BPO as part of a research project carried out at the Institute for Business Administration in Entrepreneurial Management (Prof. Dr. Pleitner and Prof. Dr. Sander). The partner company: Navisco AG.



BPO fundamentals

At the beginning of an outsourcing project, most of the emphasis is on a shift in technical infrastructure outside the company. Further into the project attention turns to applications and associated work processes. Moving complete businesses out of the company is a new approach to outsourcing that has become established in recent years: the process is called BPO. According to the much of the literature, it is a useful

way to focus on core competencies. BPO refers to the transfer and creation of business processes previously carried out by the company itself, to a third-party company which is independent both as a business and in financial terms. The other company holds commercial responsibility for the process in the long term. Business processes that do not count as core competencies (any more) are handed on to the external BPO

provider. It provides the output of the process – carried out outside the company – back to the outsourcing company in return for payment.

Irrespective of the wide use and popularity of BPO – which, according to research companies such as the Gartner Group and Pierre Audoin Consultants, is set to expand even further – very little is known about the

interrelated effects between BPO, strategic success factors and commercial success, reflected in monetary and non-monetary terms. It was against this background that the Steinbeis University Berlin research project not only shed light on the effects BPO has on success, particularly with regard to the strategic success factors of "time", "cost" and "quality", but also related monetary and non-monetary indicators of commercial success. To test the hypothesized effects on success, a structural equation model was used. This consists of hypotheses derived from theoretical assumptions of the influence BPO has on corporate success and is based on market and resource-based competitive theories.

To conduct an empirical evaluation of the structural model it was sufficient for statistical reasons to draw upon a universe of companies which already had experience of BPO. Companies were surveyed using a standardized questionnaire sent out to the biggest 1000 companies in Germany with more than 250 employees. Of the 1000 companies approached, around 120 returned the questionnaire.

The sample was big enough to provide a mass of data needed to identify statistically significant causal relationships. Checking estimates against recommended quality levels for structural and measurement models confirmed that the results were statistically highly significant.

The results make it possible to come to plausible conclusions about the hypotheses posed in the basic model, both statistically and with respect to the content, based on the highly confident explanations for variations. The validity of results was confirmed in further research by modifying the model making it possible to examine – on a differentiated basis – the influence of BPO measures on the success factors and indicators of corporate success.

The research project resulted in a battery of statements about the influence of BPO on success which can be summarized in the following:

- A key influence on the success of BPO is time, but also the success factor of "cost". Together, they go a long way towards explaining the medium and long-term indicators of corporate success.
- By contrast, the influence BPO has on quality and the resulting effect this has on corporate success is less important.
- BPO is primarily about removing the burden on business placed by processes that do not belong to core competencies. It has much less to do with expansion strategy for extending business into non-core areas.
- Nevertheless, it is possible to interpret the positive influence of the success factor "cost", and its effect on success indicators, as a "hygiene factor".
- For companies using BPO primarily to shift processes outside the company to gain short-term efficiencies – placing less emphasis on long-term positive aspirations such as improved adaptability to changes in the business environment – BPO is only partly suitable as a management approach.
- If it is all about core competencies, the results indicate that BPO only makes sense when all processes not considered core activities are shifted out of the business.
- Changes in the make-up of core competencies are associated with risk, as high investment is needed to bring processes that have been moved back into the business.
- One finding that should not be underestimated relates to the success indicator "employee satisfaction": the more processes

you shift out of the business, the more (pronounced) negative influence it can have on employee satisfaction.

The results of the study will be published in detail in 2008.

The author, **Jan Bartenschlager** is a PhD student at the Institute for Business Administration in Entrepreneurial Management at the Steinbeis University Berlin. He previously studied business at Hamburg University. In parallel to his studies Jan Bartenschlager has been working as a consultant at Navisco AG on a research project titled "The effect of Business Process Outsourcing on corporate success". Bartenschlager is a member of the certification committee at Steinbeis Certified Consultant (www.steinbeis-cc.de).

The **"Project Competence Doctorate" (PKP)** provides people in employment – and in a position to commit time and academic work towards a project at the Steinbeis University Berlin – with the opportunity to conduct research in keeping with the Steinbeis "project competence concept". Culminating in a PhD, the project places an emphasis on application and transfer. The PhD program entails a research project on a specific problem from business and colloquia.

For more information on the Project Competence Doctorate visit www.steinbeis-hochschule.de

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Keeping security cameras secure

IT security becomes a system

A high security system for surveillance cameras that would make it possible to use images as evidence in court. This was the goal of a project conducted at the Stuttgart-based Steinbeis Transfer Center for Mobile Communications and Embedded Systems. The Center carried out a security analysis on cameras for a company in the security technology sector. The project involved cryptographic issues, as well as a variety of network and platform security issues.



Photo: [photocase.com/Elvisbuletti](https://www.photocase.com/Elvisbuletti)

The system to be analyzed consisted of a camera with its own computer installed in critical locations. Typically such cameras are found in bank entrances or shopping areas frequented at night by drug dealers. The system also allows an operator at the police station to access camera data via PC and transfer information or administer the data.

The producer suggested using passwords to authenticate the identity of the operator. Logging in to the computer on the camera starts a session that disables root logins. ftp was used to transfer data. And telnet was used to control the camera, which had corresponding servers. Images captured on the camera were also digitally signed with a private key used by the camera. The operator

was also responsible for transferring data and managing the target system at the police station. For legal reasons, operators had to be sure – and in a position to prove – that the data captured by the system was from a genuine surveillance camera. The data had to come only from that specific surveillance camera, so it also had to be impossible for third parties to produce audio visual data

themselves and smuggle it into the system as a court case based on such falsified data would be untenable.

Each camera operated independently in a public area so it had to be protected from outside influence. The producer made it impossible to login to the device from outside with root privileges. To administer the unit locally it was therefore necessary to plug in a separate local terminal with root authorization, which in turn involved opening the camera. This process is time-consuming and can be worked out by others by looking at damage to screw fittings. It is unlikely that a hacker would be able to access the terminal, but for an administrator this was essential.

To fulfill the legal requirements of "indisputability", the camera would have to be able to sign image data with a private section of an asymmetrical pair of keys. In front of the actual signature, audio visual data would be hashed. Or in other words it would be given a short, indisputable identification number.

This is where the input of the Steinbeis experts was needed: cryptography. The MD5 algorithm used is no longer considered safe as experts managed to create so-called collisions some time ago that put the authenticity of the signed data at risk. It was therefore recommended that the producer uses a much more secure algorithm called SHA-256, especially for long term security. The signature key length was also extended.

The private key resides on the hard drive of the camera and can only be read by a user defined as "root". As remote logins are not given root privileges, the application in the camera that adds the signature either has to run as the root itself or use a setUid program to add the signature. This corresponds better to the "Principle of Least Authority" (POLA) rather than letting the whole, much more complex application run with full root privileges. A login via UserID password casts doubt over the quality of

passwords and safekeeping, so the producer was also given recommendations about password practices.

So why is the signature key kept on the hard drive? Because it must be possible for the camera to sign data automatically. And only the camera can do this if the key is not compromised. Data can then be safely assigned to individual cameras and it is not possible for operators or third parties to slip in signed data. The non-root concept for telnet and ftp is safeguarded and operators cannot work on signatures via remote logins.

One risk that does remain is that somebody steals the signature key and the entire hard drive. Depending on the length of intervals between checks by the company, this could remain unnoticed for some time. If intruders were able to extract the key, they could then sign data themselves – probably the worst case scenario for the entire system. Given this, it makes sense not to store the key on the hard drive, but instead to keep it in a hardware security module (such as a smartcard reader, plus smartcard) and only allow access with a PIN. Of course this PIN also has to be stored on the hard drive as the camera has to be able to sign material automatically, without operator input. To gain access to the signature key, the intruder would then have to steal the smartcard as well and if one goes missing, this can be logged and trigger an alarm.

It goes without saying that this system is complex but it has to be to ward off the unlikely event of a serious attack. The manufacturer and system operator have to weigh up the risks and decide whether it is worth investing in such a solution. The experts at Steinbeis also took a look at the transfer process between the camera and the operator. To authenticate access, telnet und ftp need a username and password, although both elements are transferred from one system to the other in simple text. Apart from the fact that this can be tapped into by an intruder during transfer, another disadvantage is that

there is no authentication at the final point of communication. In other words, operators can not be certain who they are sharing their highly confidential password with. An alternative to telnet and ftp is SSH protocol (secure shell). This method allows reciprocal certified authentication at both ends with a secure channel between the two. As a result, data transfer is safe at either end of the communication channel, as is the content.

A key aspect with security weak points on the Internet is the type of connection between each site. With dedicated lines, the only people with access to cameras are the operators back at base. Alternatively, cameras might be accessible via public lines such as telephone lines or modems. If they are, then depending on the type of connection it may be necessary to install a firewall on the camera.

The Steinbeis Transfer Center provided the client with a comprehensive choice of alternatives. The recommended solution was subsequently introduced leaving in place a much more secure surveillance system. The parameters chosen for the proposed crypto-algorithms were also designed with medium-term requirements in mind, and of course to ensure that images could be secured and used as evidence in a court of law.

More and more companies standardize their manufacturing processes

Safe yet reliable automation technology

Programmable logic controllers became an established part of automation technology years ago. In the meantime they have superseded conventional hard-wired controls across the board. Until now, the controls on safety-related machine parts had to have their own dedicated safety controls with a separate safety bus.



Photo: Siemens

The overall aim of security systems is to minimize the risk presented by technical fittings to people and the environment – without unnecessarily hindering production processes, machine operation or the production of certain products. To maintain functional safety, certain basic requirements have to be fulfilled: systematic failures have to be avoided or at least kept under control, the same applies to random malfunctions or outages. Regulations have been laid down on a national and international level in the form of norms. Their aim: to protect life and limb, machinery, and the environment. Simultaneously regulations aim to avoid unfair competition by offering different safety levels.

The degree of achievable functional safety is captured in the norms by a variety of terms:

SIL	"Safety Integrity Level"	IEC 61508/ IEC 61511
KAT	"Category"	EN 954
AK	"Requirement class"	DIN V 19250 und DIN V VDE 0800-1

For the experts at the Steinbeis Transfer Center for Technology Consultancy, the standardization of manufacturing processes, taking into account decentralized structures involving security systems, has been shifting towards center-stage more and more in recent years. The Center now looks back on years of projects in the field of automation technology, especially with the use of programmable logic controllers.

Medium-sized companies as well as large industrials – especially in the automotive field – draw on the support of the Transfer Center when planning and implementing control technology projects. The Center also trains people to set up the system. The team at the Transfer Center has worked on a variety of BMW projects since 2001, looking at concepts and implementation of training courses for planners and maintenance workers. One of their current projects involves training for Profinet workers from engineering and maintenance on the "safety integrated" systems outlined above.

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A ground-breaking label-free method for bioanalytical chemistry

Life Sciences meet high-tech analysis

The trend in bioanalytical chemistry seems to be moving away from labeled methods as these tend to disturb the natural activity of the biomolecules being investigated. By using label-free methods, you also slash ongoing costs as the analysis process is more simple. Also, label-free approaches not only provide you with quantification, you gather valuable data on the interdependent processes of biomolecules, which can be crucial when developing new pharmacological agents. The German company **biametrics Marken und Rechte GmbH** develops and protects the brand, know-how and rights of a unique family of products in the field of label-free biomolecular interaction analysis for the Life Science industry.

biametrics is a spin-off company set up by the Eberhard Karls University in Tübingen. The company was founded in May 2007 by three young scientists from a variety of backgrounds. To overcome their first hurdle, the scientists received support and supervision from Prof. Dr. Günter Gauglitz, who heads up the Optical Chemo- and Biosensors Steinbeis Transfer Center at the University of Tübingen. The set-up was ideal with the strong backing **biametrics** needed to launch its highly innovative products on the market. The young company is sponsored and managed by the Baden-Württemberg State "Young Innovators" program which also involves input from Steinbeis consultants.

The product family developed by **biametrics** spans three product lines:

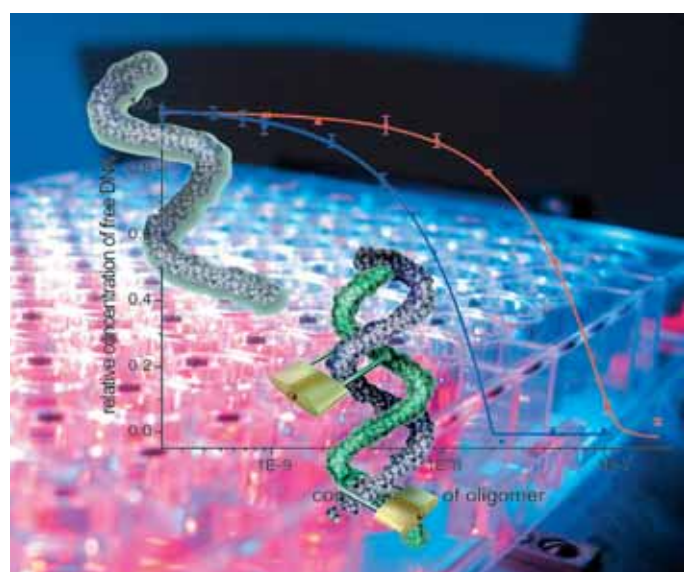
- versatile and extremely economical OEM detection units for one or a small number of measuring points for areas such as patient-related diagnostics
- an analytical platform for high-density arrays of up to 750 measurement points, comparable in terms of detection limit and performance to existing one channel biosensors
- a titrimetric plate-based HTS analysis system

Based on a method called reflectometric interference spectroscopy (RIfS), the analysis equipment developed by **biametrics** is more straightforward and stable than systems available up to now, without compromising detection limits. RIfS is a particularly versatile, time-resolved label-free measurement

technique. Compared to other, directly optic approaches, one particular advantage is temperature stability. As the only label-free direct optical measurement method, RIfS can be linked to electrophoresis for unraveling protein mixtures as well as mass spectrometry for subsequent structural analysis. By combining these methods even measurement techniques such as high-content screening can be used.

This **biametrics** technology is unique in a number of ways. The technology makes it possible to take time-resolved measurements of all sorts of biomolecular interdependencies, as well as to study living cells. Carrier materials can range from coated glass to plastics and other types of transparent materials.

As a result, this method is not restricted to layers of gold, particularly important with respect to experiments involving protein arrays, as proteins are often denatured on gold surfaces. The technique is also particularly stable as it is not sensitive to temperature fluctuations. At the same time, this allows you to alter temperatures during measurements. Because the technique can be linked to electrophoresis, unraveling of protein mixtures and mass spectrometry (structural determination) a unique combination of techniques is possible which could open up new avenues especially in pharmaceutical development field. **biametrics'** label-free



HTS analysis platform can be used in many, very different Life Science applications. This makes searching through substance archives for potential pharmaceuticals much easier. All experiments can be conducted as freely scaleable high-density arrays or on a titrimetric plate-based platform.

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A medical technology manufacturer harmonizes its websites worldwide

Works like magic, looks magnificent

Any company worth its salt will confirm that a quality website has to contain basic information on the company and its products. Thankfully, creating and managing basic website content is becoming more and more simple thanks to a variety of new website tools. But Karl Storz GmbH & Co. KG had slightly higher expectations: it wanted to demonstrate its leading position in the medical technology sector online, so to relaunch the website the company turned to the experts at the Steinbeis Transfer Center for Innovation and Organization.

The image displays three screenshots of the Karl Storz website. The top-left screenshot shows the 'Veterinary Medicine' section, featuring a navigation menu with 'Industrial Group', 'Veterinary Medicine', and 'Jobs & Careers'. Below the menu is a 'Welcome to the world of Endoscopy' banner. The top-right screenshot shows the 'Plastic Surgery' section, with a navigation menu and a banner for endoscopic techniques. The bottom-left screenshot shows a detailed navigation menu for 'HUMAN MEDICINE' with 'Plastic Surgery' selected, listing various sub-sections like 'Highlights', 'Online Catalog', and 'Training Centers and References'.

One look at the design was enough to confirm that it had been years since the last update. The content and functions scarcely reflected the image of a world-class company. Editing pages was cumbersome and complex. As the Tuttlingen-based endoscope manufacturer had expanded internationally, the content and design of website pages veered off in different directions making global marketing very difficult and providing

detailed information to clients problematic. It was time to create a new layout, software for writing and managing content and an overall website management process. As they were already sensitized to the issue, senior management called on the Eislingen-based Steinbeis Transfer Center for Innovation and Organization to support the entire project.

The original aim of the project was to make the existing website easier to edit and manage using a new content management system (CMS). Further down the line, the layout would be overhauled and new functions introduced step by step. Users should gain more value-added from the website so they would keep coming back to find updates and targeted information.

But the project team soon realized that the CMS would only be future-proof if it already fulfilled specific functional requirements. Also, migrating data to the new site was an ideal opportunity to adapt the layout and make it truly multi-lingual. When management was presented with the obvious benefits this would provide, they signed up to it straight away. The project brief was expanded, paving the way for a more stable solution for functional upgrades further down the line. As the project progressed, new features were created needing a link between the web application and internal systems such as SAP or the customer database, so the benefits of the project multiplied, but so did the work involved.

As a result the team worked almost in parallel on two sub-projects. The first was CMS selection. Originally three system classes were laid down: a) totally open framework systems with practically unlimited design and functionality freedom, although new website projects take a long time and need skilled input; b) out-of-the-box systems, for ultimate standardization that need little training, but only with strictly defined functional frameworks; c) freeware systems, with reasonable functionality and attractive set-up costs, worth considering for a variety of requirements. The system finally chosen was selected for the maximum amount of flexibility and sensible project schedules, hand-in-hand with strategic certainty – provided by an experienced system developer who would work on the project and implement it.

The other sub-project related to the design relaunch had to be based on the new corporate design without compromising interactive website features. Based on a rough navigation concept, several design agencies were briefed on the design elements to be taken into account for the possible look and feel of the new website. After examining the ideas, senior management selected its design partner.

Both sub-projects could now progress in parallel, albeit completely independent of one another. When you define navigation menus and still have to take into account large amounts of information, everything has to be clearly laid out. To set everything up properly you also need plenty of high-level website technology, dovetailing neatly with the design. The yardstick for each solution was always the anticipated user who had to be able to find content and click through the site without yet knowing the content or underlying structure.

With processes firmly in place it was now obvious who would do what and what skills they needed. The best approach was to pull together a project team from different departments: for many of the tasks – such as a product launch or updating recruitment advertising – it was easy to involve a departmental representative. Project members soon saw the benefits of the CMS: creative content writers enjoyed the simple way you can insert text and images and loved the advantages offered by an end-to-end IT solution. The system managers and web-experts soon took to the variety of options and link-ups to internal databases or the ERP system.

Once the organization basics have been taken care they can be built on in the next phase: rollout of cross media publishing features. In the future it will also be possible to burn website content onto CD as well as individual marketing documents and even entire catalogs. By dovetailing the technology and organizational factors with marketing processes, the CMS provides the company with the ways of working and the potential to raise efficiency. Of course, that is easier said than done. The company will have to map out and arrange organizational and technical interfaces on the one hand, on the other data and data infrastructures will need adapting to new processes. Depending on any given situation, and the quality of the data, this can take a long time. This operative time investment is often added

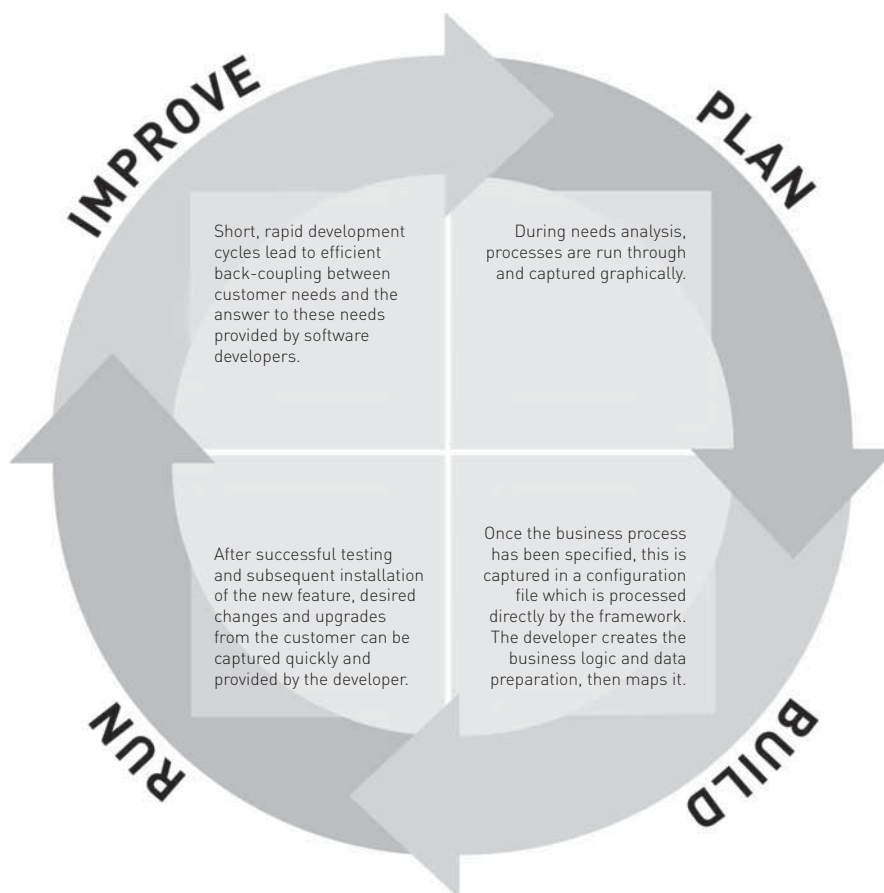
onto CMS projects although it can also be deemed part of the basic job in each department. Unfortunately, in the early parts of projects people often have unrealistic expectations of perfect data and crystal-clear processes. They then try to carry out fully-automatic data processing, but more often than not the data is not good enough.

Lots of CMS projects are doomed to fail because of the “simple task” of migrating data to the new IT infrastructure – not so with Karl Storz. Every challenge encountered was neatly ticked off. The project may have been much more wide-sweeping than originally planned, but neither the company, nor any of the experts at the Steinbeis Transfer Center found that a matter of regret.

Internet applications with the OIT application framework

Now, that's what they call a system

In many medium-sized companies whole work processes – also known as workflows – are sometimes set up and run using a string of Excel spreadsheets or Access databases. They can range from account management to ingoing payment systems, invoicing or bookkeeping. These systems were often devised by staff to make it easier to get the job done and they have to be updated constantly. Over time, they become part and parcel of the company knowledge base. Sometimes they even become established "business-crucial" applications.



The Object IT process model

The reasons for this trend are the justifiable demands placed by medium-sized businesses on software solutions: first and foremost, software solutions should be inexpensive and help the company reduce costs. This does not just apply to the cost of development in proportion to the system's usefulness, economic viability is also a factor of ongoing operating costs and the cost of maintenance. A system has to be flexible and versatile. If a business process changes, then so too should the software solution – quickly, and if necessary, with extensions.

The solution must match the individuality of the company and reflect specific business processes. It's rare to find a standard solution that meets all such criteria. So it makes sense to integrate existing company systems and tried-and-trusted software and merge everything into one IT system "cast from the same die".

The cost of new information systems and integrated solutions targeted at medium-sized companies varies widely. Solutions range from low-end systems with all of the known

deficits – the sort of tortuous maintenance, high error levels and low or non-existent integration offered by many one-off applications – to high-end solutions offering standard packages and full-blown enterprise resource planning (ERP). The cost of installation, development, upgrades and subsequent operation is immense, even though some areas of the business are not covered and the systems only focus on standard processes. Adaptations require specialist input, tying the company to the product and the provider.

To offer the company a solution at the medium to lower end of the scale on costs, the Object IT Steinbeis Transfer Center developed and created a modular system offering key technology infrastructure as a core functionality making it possible to use the system as a tool kit for rapid application development. For example, a provider-independent database interface is already in place and ready for use "out-of-the-box". So is a link to different directory services for authentication and authorization, as well as integration with known workgroup solutions.

As a basis for introducing the new modular system, it made sense to use a LAMP platform (Linux, Apache Webserver, MySQL database and PHP language). Another benefit: low license and hardware fees.

To set up applications quickly with this platform, which mainly entails working out the business logic and displaying data in the right way, an automated program flow con-

control is embedded in the Object IT framework. This control logic makes the run-time environment available for the business processes. All you then need for the software system is the business logic and data display (HTML pages). The business processes are worked out with the customer and then captured in a formal work flow description.

A key feature of the application framework is the facility to map out and model the page flow and the business logic between each page with simple "status-crossover diagrams". These diagrams consist of a few graphical elements so they are quick and easy to understand. The page flow is modeled and worked through directly from the framework. This makes it extremely efficient to demonstrate the requirement analysis to the customer, who can actually add requirements to the developing application. The Object IT framework also offers a fully developed process model, a control for the requirement analysis process and a development model for programming specific solutions.

The Steinbeis experts in Filderstadt are constantly updating the framework. For one of their latest versions they are planning to model - directly with the customer, on the screen - the page flow and business logic between page crossovers and then transfer this into the framework in the form of a generated configuration. It will then be no problem to make quick changes to the program flow and react even faster to new customer requests.

Application development with the Object IT framework is an inexpensive way to introduce application logic, as the technology infrastructure is already in place and the only costs incurred are for working out the business logic, and displaying the data and the requirement analysis. Apart from low procurement and operating costs for the open source software, there are hardware costs but these are low compared to standard commercial software solutions and thus easy on resources.

For small and medium-sized companies, the lightweight Object IT framework is an ideal integrated and efficient platform for specifying, designing and developing information systems, even business-crucial applications, quickly and cheaply.

Workshop: "Thinking about tomorrow – The ideal application architecture with Spring, Java Server Faces and JPA, in just one day "

Date: Friday 11 Jan 2008
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BBA degrees for managers

When managers attend lectures

The Steinbeis Transfer Institute for Innovation, Quality and Company Management (IQU) at Steinbeis University offers courses to the owners of small and medium-sized companies alongside their successors and managers. The BBA degree has been specially designed for manufacturing companies and industrials.

The students attend regular seminars while they build up knowledge primarily as a fast-track forum to exchange views. Lectures offer a safe environment to exchange knowledge and experience without feeling exposed.

For example the owner of a large metal-processing company will rub shoulders with the manager of an electronic component manufacturer, joined by the boss of a medical technology enterprise and the manager designate of a logistics company. Meanwhile the head of purchasing at a leading medium-sized company is enjoying

a conversation with managers from major companies and heads of quality, sales and production. This rich mixture of sectors, objectives and roles allows students to match learning, quickly, to insights picked up from lecturers.

The requirements placed on lecturers are correspondingly demanding. Apart from learning new things, for students it is also a possibility to apply new insights to the situation in their own company. A variety of voluntary visits to companies, special events and speeches also provide plenty of food for thought.

The first round of students is about to complete its Bachelor of Business Administration. For those interested there will also be meet-ups to keep learning new things and stimulate discussion. The next course starts in 2008.

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Photo: photocase.com/taddy_r

Targeted consulting for doctors, hospitals, banks and investors

On good advice

In the summer of 2007, general practitioner Dr. Werner Huber (name changed) fulfilled a life-long ambition and opened his own practice. For a six-figure sum, he had the opportunity to take over a solo practice. On top of the initial expense, he would have to finance renovations and install some more technical equipment. After reading an estimate from the National Association of Statutory Health Insurance Physicians (KBV) – namely that one third of resident doctors were under increasing financial threat, and that the "Creditreform" database expected the number of insolvencies to rise again – Huber decided to reconsider his plans. He turned to the Steinbeis Consulting Center for Healthcare Business Research & Management for an independent expert opinion.

Despite increasing revenues, the number of insolvent doctors' practices is rising rapidly. The Steinbeis Consulting Center for Healthcare Business Research & Management helps doctors to reorganize their practice in good time and so head off the worst case scenario. It provides start-ups with a comprehensive range of consulting services and support from experienced specialists. With a constantly updated healthcare database to draw on, the center also has a comprehensive battery of business and economic data.

Dr. Huber's case only exemplifies what is happening with lots of doctors in Germany, who, for age reasons, are selling up to start-up practitioners keen to take on their prac-

tice. Until the 1993 Health Care Structure Act, doctors had no restrictions in setting up their own practice. Since 1993 doctors tend to buy or take over an up-and-running practice. The number of doctors' practices in Germany has stagnated, in fact since 1998 it has only grown by 0.9 per cent. This trend mainly reflects the growing number of practices merging into shared practices. Between 1996 and 2006 the number of general practitioners working for national health schemes went down by 5.5 per cent, the number of specialists grew by the same percentage. This is also a sign of medical progress which primarily affects specialist numbers: treatment that used to be carried out by hospitals can now also be carried out in practices. As a result there was a

veritable boom in the number of practices in certain specialist areas such as oncology/hematology, anesthesia, cardiology and nuclear medicine.

Today's practices are like modern service providers. They need business strategies. The benchmark for Dr. Huber's takeover was based on the average turnover of a general practice in 2006: 208,062 euros. Of this, 82.9 per cent counts as health scheme practice, 15 per cent is private and 2.1 per cent comes from other sources of income. After deducting 52.8 per cent for costs the profit margin is 47.2 per cent. By comparison, shared practices do much better: remaining profits are 53.6 per cent.

Dr. Huber's decision is affected closely by average investment and financing costs. In 1990, taking over a solo practice (independent of the specialist field), required average financing of 143,991 euros, below the cost for a new practice which stood at 149,305 euros. This reversed when the Health Care Structure Act came into effect such that by 2004 it cost 203,402 euros to take over a practice in the former West German states (vs. 133,169 euros in the former East); a new practice in the West cost 136,512 euros (vs. 115,098 euros in the East).

Central to every doctor's practice is how workflows are organized. Reinhold R. Wolff is an architect, planner and management consultant in the team of specialists working at the Steinbeis Consulting Center. He concludes that the biggest expense for doctors is its premises. A location can slow down workflows, it can also add personnel costs. With standard layouts, doctors spend an average of two hours a day moving around the practice. In the average solo practice there are three workers for every doctor and they also spend an average of two hours a day moving around. With carefully thought through layouts, the amount of time moving around can be cut by up to eight hours – the equivalent to one full-time employee. Clever layouts can slash costs by around 10 per cent per year. The Steinbeis experts check practice layouts and advise doctors on start-ups or conversions.

The Berlin-based Steinbeis Consulting Center does not just advise doctors like Dr. Huber. The center also analyzes hospitals and conducts business evaluations on hospitals, doctors' and dentists' practices, the emergency services and aid organizations. The center's scope of services also encompasses comprehensive business consulting and project planning in the field of doctor's premises, medical centers and buildings for the emergency services. Banks and consulting companies can also refer to the research database.

With future-oriented, ground-breaking projects, experience shows that it is often not only cheaper, but also much more efficient for practices and hospitals to carry out the work in-house, with the more scientific support of experts – rather than simply call in external advice. The Steinbeis Consulting Center works closely with the Institute for Healthcare Management at the Steinbeis University Berlin and the Steinbeis Business Academy in this field. The degree in Healthcare and Social Services Management (Bachelor of Business Administration) is tailored to the specific needs of healthcare.

In Germany, around 4.26 million people work in the healthcare industry, covering around 800 vocations. The total turnover of the healthcare market now tops 240 billion euros.

The share of turnover accounted for by statutory or government run healthcare is around 148 billion euros (61.67 per cent). Private care accounts for around 17.3 billion euros (7.2 per cent), then around 74.7 billion euros (or 31.12 per cent) of turnover comes from contributions made by users – i.e. the patients themselves. The volume of turnover accounted for by general practice has risen since 2000 by around 7.67 per cent.

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New Steinbeis Enterprises

Abbreviations:

SCC: Steinbeis Consulting Center

SRC: Steinbeis Research Center

SIC: Steinbeis Innovation Center

STI: Steinbeis Transfer Institute

STC: Steinbeis Transfer Center

The following Steinbeis Enterprises have been founded as of October 2007:

SRC In-Vitro Assay Systems, Krauchenwies

Director: Prof. Dr. Jörg Bergemann

SCC Strategy & Innovation, Lindau

Director: Dr. Michael Wannke

SRC Medical Physics and Information, Pöppelhausen

Director: Prof. Dr. Walter Kullmann

SCC Dreiländereck Neiße, Zittau

Director: Dipl.-Kfm. Volker Thomas, MScIB

STI Institute of Management and Accreditation procedures for Products and Service (IMAPS), Berlin

Directors: Dipl.-Ing. (FH) Joachim Lang

Dipl.-Ing. (FH) Helmut Bayer

Reiner Piorkowski

SFL Steinbeis Flugzeug- und Leichtbau GmbH, Stuttgart

Director: Prof. Dr. Rudolf Voit-Nitschmann

STC Communication Safety & Security, Berlin

Directors: Stephan Schlenrich

Wolfgang Kast

STC Industrial Service Management (ISM), Stuttgart

Directors: Prof. Dr. Marc Kuhn

Prof. Dr. Matthias Rehme

Prof. Dr. Uwe Schmid

STC Economical psychology, Stuttgart

Director: Prof. Dipl.-Psych. Marieluise Salman

SCC Electronic Business (EB), Heilbronn

Directors: Prof. Dr. Helmut Beckmann

Prof. Dr. Sonja Salmen

SCC Communal Development, Mosbach

Director: Dipl.-Verwaltungswirt Gerhard Lauth

SCC Strategic Communal Development, Schlangenbad

Director: Dipl.-Ing. Detlev Sieber

STI Systems Science, Management and Consulting Services, Berlin

Directors: Karola Jamnig-Stellmach

Prof. Dr.-Ing. Franz-Josef Heeg

A Steinbeis student and her concept for the global field sales force

Modern homeopathy: today Baden-Baden, tomorrow the world

Biologische Heilmittel Heel GmbH is the world's largest manufacturer of homeopathic combination drugs for human and veterinary medicine. The product range spans nearly 900 pharmaceuticals and is attracting a growing fan base. Amelie Riedle, sales excellence management assistant at Heel, focuses on distribution through the subsidiaries and the field sales force in particular. After completing her Bachelor of Business Administration she's now enrolled in a two-year, part-time General MBA program at the School of International Business and Entrepreneurship at Steinbeis University Berlin.



Heel is headquartered in Baden-Baden, a German city known for its spas and health resorts. This is where the company manufactures the lion's share of its compounds for use in colds, sports injuries, sleep disorders and many other applications. They're also exported to over 50 countries. The sales force – both in the field and the office – play a special role in the company: they inform and advise physicians and pharmacists on the way Heel compounds work and in which situations they can be applied. As a result, the sales force is in direct contact with their company's customers who, after all, are the

most important link to patients and users of homeopathic pharmaceuticals.

To cope with the increasing complexity that accompanies a growing company, one strategic initiative at Heel aims to develop and launch a 'sales excellence' scheme for its subsidiaries. A uniform approach will be designed to ensure that Heel customers receive the very best from their sales representatives – no matter where they are in the world. This includes all relevant tools, such as a Customer Relationship Management (CRM) system.

Defining these issues and launching the means to address them is the core of Riedle's work for her master's degree at Steinbeis University Berlin. Not only has she developed the scheme itself, she also rolls out activities directly in the subsidiaries. As well as working closely with them in Europe, North and Latin America and South Africa, Riedle also interfaces with several divisions at the head office, such as IT, HR and Accounting. She is also responsible for selecting customers based on a 'targeting analysis', putting a CRM system into practice, and running assessment centers and professional development workshops for sales employees. Riedle's biggest challenge: balancing the need for a worldwide approach which works across the board but also takes the specifics of local market conditions into consideration, à la 'think global, act local'.

Riedle has found blending theory and practice incredibly useful since she sees her seminar discussions transferring directly to her work at Heel. For instance, she applied her classroom insights to launching a CRM system for the Belgian subsidiary and developing a system for key performance figures in sales destined for international reporting.

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Self-managing 'clusters' in Oracle

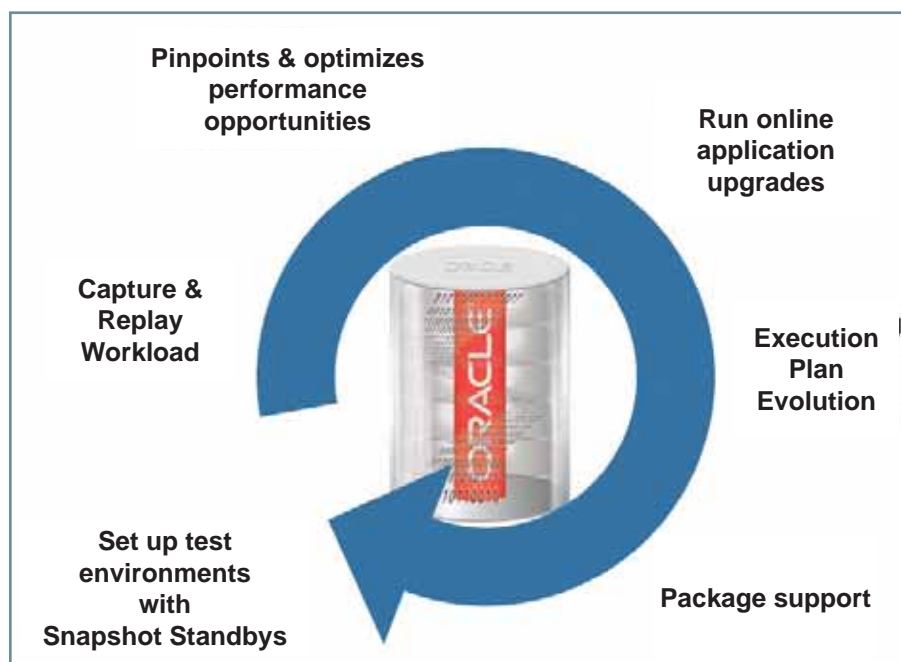
Using resources intelligently with grid computing

Businesses which depend on high database availability often turn to Oracle databases, one of today's standards. Major corporations in banking and the automotive industry, for instance, benefit in particular thanks to end-to-end functions and the ability to support large numbers of users at any given time. And for the last few years, Oracle has been advocating 'Grid Computing', using diverse resources for one or more tasks as well as distributing the load to all available resources. The Steinbeis Transfer Center Innovative Systems and Services will train the Lower Saxony Regional Computing Center in how to use the new Oracle 11g.

Oracle 11g features self-managing 'clusters' which consist of automation algorithms and 14 new database processes. These come into play during data management, data queries and backing up enterprise grid data.

Oracle 11g stores and reads large binary files within the database as fast as the server's underlying file system does. Grid Computing also supports new files types such as RFID tags, DICOM standard (Digital Imaging and Communications in Medicine) medical images and 3D geometry data (spatial) – all saved in compact, binary form. For 11g, Oracle also developed a unique storage process which compresses sizeable database files by two-thirds, ultimately boosting performance and availability.

Oracle 11g also features an SQL module which first checks and optimizes database queries before they are executed. For audits and oversight, users can also record and replay SQL queries (Total Recall). As a result, information stays readily available. Or take the Real Application Testing Cluster – thanks to online upgrades, it helps accelerate the launch of new applications in the production database, thus saving time, slashing costs and decreasing risk. The Capture & Replay Workload Cluster automates processes to transfer a production database to a test environment under the exact same conditions. As well as adopting database structures and files, this procedure generates a



like-for-like test environment based on stored information (also known as Snapshot Standby).

By automating work processes, the new self-managing clusters significantly simplify Enterprise Grid Computing for database administrators and developers – something which will truly benefit the Lower Saxony Regional Computing Center at Leibniz University, according to experts at the Steinbeis Transfer Center Innovative Systems and Services. With good reason: they'll be leading introductory courses in Oracle 11 for Center employees, university staff and faculty as well as the student body.

Female entrepreneurs and scientists cooperate with Europe

Innovation and business development through the gender lens

Europe is striving to become "the world's most competitive and dynamic knowledge-based economy" by 2010. This has already been on the political agenda of the European heads of government and states since the Lisbon strategy was adopted at the turn of the millennium. In order to achieve these ambitious aims, it is essential that the potential offered by women in science and business is utilised to help fill the 700,000 vacant research posts in Europe. As a result, the European Union actively supports projects aimed at ensuring equal opportunities for both women and men regarding access to research and innovation. Steinbeis-Europa-Zentrum currently coordinates a number of European projects focussed on female entrepreneurs and researchers and women start-ups.

Whether in industry or research, European women are still coming off worse in terms of the employment comparison with male counterparts. The higher the scientific position, the higher the deficit in the number of positions held by women. According to European Commission statistics, the number of female and male undergraduate and PhD students are similar, however differences are already visible on completion of doctorate studies: in Europe, 57% of PhD researchers are male and only 43% are women. Looking at the middle sector of the employment scale, the difference becomes more evident: only 32% of positions are held by women as opposed to 68% by men. At the top of the scale, statistics published by the German Federal Ministry of Education and Research (BMBF) show that only 15% of high-level research positions are occupied by women. Germany shows a lower number of female researchers in these categories than the European average. High-ranking positions in research are mostly occupied by men. Only 13.6% of German professors in universities are female. This number is even lower when regarding independent research institutions, where the number of women accounts for only 6.5%.

In Europe, about 30% of small and medium sized enterprises (SME) are managed or owned by a woman. Yet hardly any of these companies take part in technology and innovation support programmes. A series of

discussion sessions organised by Steinbeis-Europa-Zentrum which was supported by the BMBF and was attended by European experts showed that the scenario is essentially the same all over Europe: technology and innovation are considered stereotypical masculine attributes which women often fail to relate to their own situation or their area of competence. A key to tackling this situation is in the wording. A micro-financing programme for innovative SMEs in general that hadn't previously attracted women-owned SMEs suddenly became appealing when it was addressed to female entrepreneurs although the content had not changed. Research and development information days have been highly frequented but only when women have been specifically targeted as the core participant group. By setting up a department specifically aimed at dealing with business women, a bank could find new ways to approach half the population. Business development agencies also need to learn to take into account and understand the differences between men and women regarding their dissimilar approach towards risk, finances and terms such as technology or innovation and adapt its services accordingly.

The European funding policy has taken such discrepancies as occasion to kick-start "gender mainstreaming" activities. In 2001, Steinbeis-Europa-Zentrum implemented its first EU gender-specific project and has not

looked back. Since that time a number of concerted actions have successfully supported women in business and science, European projects have been initiated and an international network created.

The European project WomEn2FP6 coordinated by Steinbeis-Europa-Zentrum aimed to increase the number of female entrepreneurs participating in European research projects. The project partners acted on the assumption that women do not profit adequately from mainstream business support actions. Only 6% of R&D projects in Europe are coordinated by women. WomEn2FP6 therefore informed women about European funding programmes, helped them to find partners for their own projects or become partners in 6th Framework Programme projects (2002-2006). Fifteen partners from ten countries carried out information events and specific training sessions in ten European countries. In the space of 18 months, nearly 800 women participated at the events. As a result, participants were subsequently involved in over 50 European projects.

The experience gained during this project is now being transferred to other countries: within the WE-Mentor project, business development agencies in Romania, Turkey, Israel and India are supported by four mentor countries – Germany, Great Britain, Belgium and Italy – in developing specific services to



help more female entrepreneurs get involved in European research projects. After the mentoring period ("train the trainer") the training sessions for women entrepreneurs began in each region in autumn 2007.

Another initiative, WENETT, raises awareness among female entrepreneurs and researchers about the benefits of going international. Thematically focused seminars organised by Steinbeis-Europa-Zentrum and the European partners in Scotland, Sweden, Poland and Bulgaria allow female entrepreneurs, researchers and business support agencies to come together. During these events participants present their activities and research ambitions and take the opportunity to meet potential clients or partners. Video clips presenting female entrepreneurs and researchers who already cooperate in trans-national pro-

jects or activities provide inspiration and encouragement for others to take the plunge to instigate trans-national co-operations. Information about current events is available from the internet, including the final event in Glasgow in April 2008 where women entrepreneurs and research from the five countries involved in the initiative will meet to exchange ideas for bilateral cooperation projects.

The gender typical behaviour regarding the planning, start-up and management of a company as shown in numerous studies, means that business start-up advisors also need to take note. Until now, not much thought has been given to this issue by the relevant departments at European universities. FemStart, an initiative funded by DG Research: Women and Science and coordi-

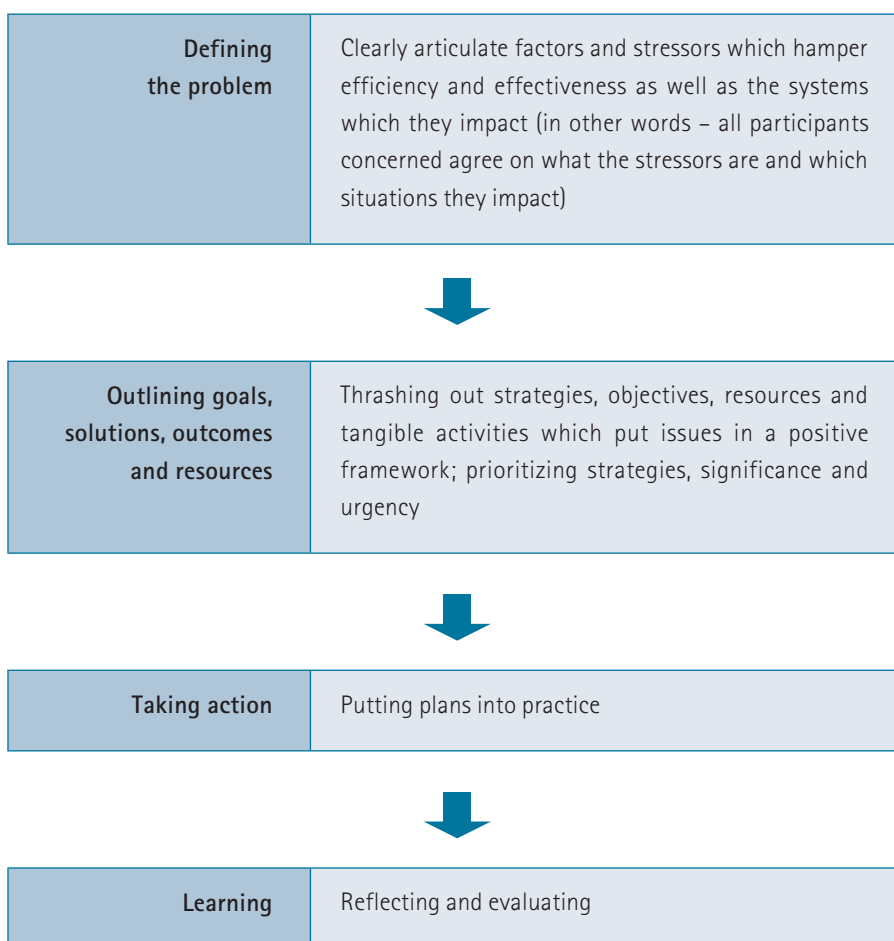
nated by Steinbeis-Europa-Zentrum, is carrying out a series of public debates at selected universities throughout Europe which will raise awareness as a first step to finding out why so few women start a high-tech business after university. Experts introduce national and international gender specific support programmes and female scientists talk about their own experiences and why they have started a business or not considered it as a viable alternative to a career in research. After public debates at universities in Stuttgart, Valencia and Wroclaw in 2007, a further 3 debates will take place in Riga, Bucharest and Twente in 2008.

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Neuroenergetic Leadership and Organizational Development

Rethinking organizational consulting

Approaches in organizational consulting fall into three main categories. One group – which focuses on optimizing processes and structures – grew out of conventional task analysis. Another group consists of approaches which put one or more areas in the spotlight, such as Lean or Total Quality Management. The last group's approaches have one central element in common: employees' work relationships and their dynamics within the onset of organizational change processes.



To leverage the benefits of all three groups together, the Steinbeis Transfer Center Innovative System Design and Development of Staff Skill developed Neuroenergetic Leadership and Organisational Development (NELOD), a new approach to consulting which reflects both the purely organizational tack (laying out tasks, processes and structures) and the leadership system tack while drawing on technical and methodical tools.

NELOD also looks at employees' ever-increasing stress levels right from the start – a factor which continues to gain in importance. This balances the organization's objectives with the needs and wants of everyone involved, e.g. customers, principals, employees and suppliers. The outcome should be efficient (cost-efficient), effective (innovative) and accommodating, with people-oriented structures, processes and relationships – and

it should come about in ways specific and tailored to each consulting environment.

Leadership and organizational consulting spans five stages and moves forward in 12 steps (each is assigned to a different stage). The procedures and methods used for each step, how principals and employees become involved, getting and presenting results – all of these are based on neuroscientific findings. Why is this important? Participants' existing energy levels are considered and give an indication as to their emotions and how 'driven' they feel.

One barometer of progress used in the procedure looks at the extent to which this approach raises energy levels – in other words, meeting more of the participants' needs. The procedure and methods were put forth by the Steinbeis Transfer Center Innovative System Design and Development of Staff Skill as part of a skills development program over several stages and were also included in selected degree programs at Steinbeis University Berlin.

Steinbeis program of study for T-Punkt Vertriebsgesellschaft mbH Service studies

The School of Management and Innovation (SMI) at Steinbeis University Berlin has announced a new partner for employee development: T-Punkt Vertriebsgesellschaft mbH (TPG), Deutsche Telekom's proprietary and anchored distribution channel. Working closely together, the two have designed the Sales and Service BBA, a bachelor's degree program exclusively for TPG employees. The program launched in October with 25 students.



ensure relevance. Before the degree is granted, students complete a project in partnership with T-Punkt Vertriebsgesellschaft which demonstrates that they can apply what they've learned in their own companies. "Besides our comprehensive training programs which help our Telekom shop employees build on their practical knowledge and experience," reports Bernhard Hogenschurz, Managing Director of HR and Organisation at TPG. "They can also receive an academic education – even without taking final secondary school exams if they have the right professional experience. It's a win-win situation for our employees and our company." Upon completion, students earn the Bachelor of Business Administration

(BBA), a university-level academic degree recognized by the state. The partnership also founded the Hamburg-based Sales and Service Research Center. Directed by Prof. Dr. habil. Frank Keuper, Professor for Business Studies at the SMI, the Center publishes work, carries out research and is involved in promotions related to corporate as well as sales and service management.

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"Adding skills to one's repertoire has become a key factor for success to employees in nearly every profession and industry," explains Carsten Rasner, Director of the SMI. "The Sales and Service bachelor's degree offers candidates a made-to-measure course of study that addresses the employee's professional development needs and the company's objectives, bringing them together perfectly," he outlines. At the moment, this degree program focusing on sales and service is the only one of its kind at a German institution of higher education.

The three-year program offers comprehensive business training and imparts service and sales expertise to employees in telecommunications and the media. It also aims to prepare them for challenges in marketing, distribution and service management – in a real industry setting and directly tied to the employees' profession. Steinbeis degree programs feature an in-built safeguard to

German Ministry of Economic Affairs funds Steinbeis research plans

The Baden-Württemberg Ministry of Economic Affairs is giving financial backing to the Steinbeis Research Center Solites for a research project in Crailsheim. The aim: to develop tools to ensure quality in building and operating geothermal borehole heat exchangers and entire arrays of them. "This initiative will allow us to study the interplay of solar thermal systems and geothermal borehole heat exchangers much more closely," explains Richard Drautz, Secretary of State for the Baden-Württemberg Ministry of Economic Affairs.

The use of solar thermal energy is on the brink of newfound significance. A number of synergies could be leveraged when this kind of energy is coupled with geothermal borehole heat exchangers. What's missing are thorough studies on several issues – quality control and quality management key among them. Simply too little is known at the moment about many procedures using geothermal borehole heat exchangers and the impacts they have

on each other. "This project aims to slash these deficits and give this highly promising technology just the push it needs," explains Mr. Drautz. The project will run until August 2010 and receive € 450,000 in state grants.

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Steinbeis in the 'Land of Ideas' 2008

Steinbeis has captured two 'landmarks' in the '365 Landmarks in the Land of Ideas' event series, a joint initiative of the German government and the Federation of German Industries to showcase Germany as a great place to live and work. In July, the Steinbeis Transfer Center Business Development in Pforzheim with its 'Young Founders' project will take center stage for a day, and in October, the Steinbeis Transfer Center i/i/d – Institute for Integrated Design in Bremen will receive its award.

Now in its third year, this initiative awards associations, organizations, private institutions, companies, research establishments and universities which reflect Germany's position as an excellent place to live and work. According to the initiators, winners share "inventiveness, a passion for making things and visionary thinking." The Pforzheim-based Transfer Center uses its online 'Young Founders' competition to reach out to young people who would like to bring their innovative ideas to the marketplace and see their 'company' experience the highs and lows a fiscal year brings. The Transfer Center i/i/d will also be recognized for successful transfer between research, teaching, and trade and industry. And just in 2007, Steinbeis was part of another landmark – employees of the Steinbeis Transfer Center Geographic Information and Land Management in Weikersheim balance family life with a career, embodying the drive that is needed for real, lasting change now and down the road.

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MST BW steps up to the mark

MicroTEC Südwest in competition for research bonus

In August 2007, the German Federal Ministry for Education and Research announced a contest for 'clusters of excellence'. Apart from promoting the best clusters, the campaign's strategic aim is to develop and strengthen positions in global competition.

The competition is divided into three rounds. In each, up to five 'clusters of excellence' will be selected to receive grants totaling 200 million for up to five years. The Baden-Württemberg Ministry of Economic Affairs has appointed the Microsystems Technology Association of Baden-Württemberg (MST BW) to manage the microsystem technology cluster in the state. With close ties to industry, the MicroTEC Südwest technology cluster has entered the competition by way of MST BW. The Karlsruhe, Stuttgart and Freiburg/Black Forest regions form the core of the cluster.

Microsystems technology is one of the most important miniaturization technologies. As a recognized crossover and key technology, it boasts global growth rate predictions of 16 per cent year after year. In terms of microsystems technology, Baden-Württemberg is well-positioned: global frontrunners in the most pivotal target sectors of this technology are located in the state. And at university level, the cluster boasts two top-tier schools: Karlsruhe University and the Albert-Ludwigs-University Freiburg.

The overarching aim of the MicroTEC Südwest technology cluster is to create new markets, products and jobs in the knowledge economy. Closely aligning business, science and academia as well as embarking on major projects of joint interest will do more than galvanize the competitive conditions of industries which already capitalize on the interdisciplinary nature

of microsystems technology. Industries which – until now – have made little use of microtechnology will experience a completely new competitive environment. One of the mid-term goals of the cluster is to hone the competitive ability of regional heavyweights – and make it last – through more concentrated use of microtechnology. Industries within Germany which have not yet advanced to the technical vanguard will also benefit from the preparation the cluster will provide to make that leap in technology possible. The outcome: the emergence of new, more competitive sectors of industry. And in terms of human resources, the cluster also aims to safeguard and expand the talent pool with training and employee development as well as a broad spectrum of scholarly opportunities.

The Microsystems Technology Association of Baden-Württemberg was founded in 2005 in cooperation with the Baden-Württemberg Ministry of Economic Affairs and represents microtechnology-related interests of industry, research establishments, universities, and other institutions throughout the state. Steinbeis is a founding member of MST BW.

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“Electronics in automobiles” Steinbeis Symposium

Between 8-10 April 2008 the Haus der Wirtschaft in Stuttgart will host the “Electronics in automobiles” Steinbeis Symposium which will explore electrical systems, electronics, and mechatronics as one of the pivotal factors in adding value to innovative cars. Now in its twentieth year, the symposium has always been firmly rooted in practice and a place for experts to share ideas. Steinbeis hosted the event in 2006 and partners this year with the vieweg technology forum, MBtechnology, and the Steinbeis Transfer Center Automotive Engineering.

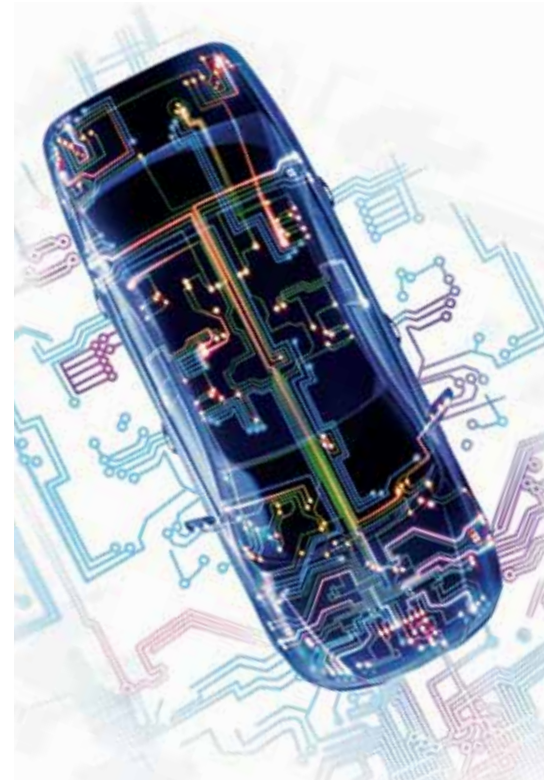
With the symposium spanning three days, Day 1 will address the technical state of affairs of the automotive industry and the technical perspectives it offers. Day 2 will investigate networked vehicles and energy-efficient systems, while Day 3 will focus on mechatronic systems. A panel featuring representatives from businesses and associations will examine to what extent complex, energy-efficient electronic systems and low-cost electronics are at loggerheads. The symposium will also feature an on-going technical exhibit showcasing the research and production of industrial companies and centers in the Steinbeis Network. And the final touch: trips to leading automotive companies. A high-caliber program committee will ensure – along with overall quality – that topics reflect the times and are highly relevant to transfer. Members of the program's

advisory board: Dr. Elmar Frickenstein/BMW Group, Dr. Rainer Kallenbach/Robert Bosch GmbH, Prof. Dr. h.c. mult. Johann Löhn/Steinbeis University Berlin, Uwe Michael/Porsche AG, Dr. Willibert Schleuter/Audi AG, Prof. Dr. Gernot Spiegelberg/Siemens VDO Automotive AG, Dr. Dirk Walliser/MBtechnology GmbH, Prof. Dipl.-Ing. Prof. h.c. Gerhard Walliser/Steinbeis Transfer Center Automotive Engineering and Stephan Wolfsried/Daimler AG.

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Cost: € 950,00 + VAT
Student discount on request

Further information and registration:
www.steinbeis-symposium.de
www.viewegtechnologyforum.de



Graphic: Delphi

Gründler wins the Dr. Rudolf Eberle award

An accomplishment for a young company with Steinbeis support: Gründler GmbH in Freudenstadt, Germany is one of several winners of the 2007 Dr. Rudolf Eberle award, celebrating innovation in Baden-Württemberg.

The Dr. Rudolf Eberle award recognizes medium-sized businesses in industry, crafts and technical service providers who have succeeded in putting outstanding technical innovations into practice. Winners were honored at an awards ceremony held at the Haus der Wirtschaft in Stuttgart in November 2007. With an award of 16,000 euros, first place went to Herzog Intertec in Mahlstetten. Gründler GmbH took fourth place

(and 8,000 euros) for a medical innovation, the HumiCare® 200 patient gas humidifier (please see Transfer Magazine 3/07). HumiCare allows hospital staff to heat and humidify patient gas fed in during artificial respiration, thereby matching the gas to the patient's actual physiological state. Key to the system's outstanding performance: leveraging counter currents and actively recirculating liquid in an innovative way.

About the company: founded in 2000, Gründler employs 15 people in development, production and international distribution of intensive care systems at its head office. The company is located in Freudenstadt, Germany, on the edge of the Black Forest.

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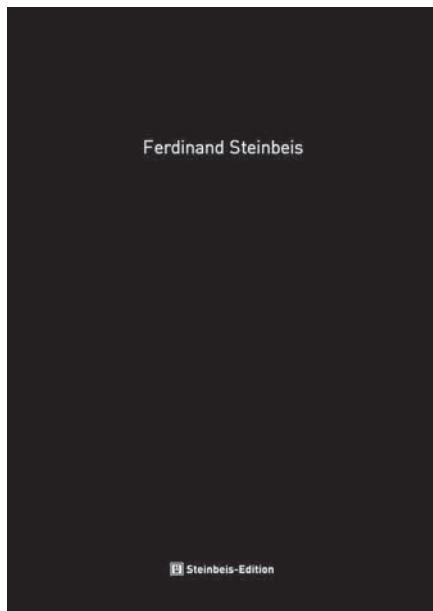
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A history of the Steinbeis Foundation namesake: Ferdinand Steinbeis, founder of our two-track educational system and initial advocate of technology and knowledge transfer.



Scientific and Academic Work TDR (Transfer Documentation Report)

Renate Vochezer and Simon Beck
ISBN 978-3-938062-56-2

Scientific and Academic Work, part of the TDR series published by Steinbeis University Berlin aims to ease readers into scientific and academic work and aid in drawing up these kinds of projects. Select chapters will highlight the situation surrounding employed students pursuing a degree. (Available in German only)

Strategic Marketing TDR (Transfer Documentation Report)

Ahron J. Schwerdt
ISBN 978-3-938062-55-5

This book outlines the fundamentals of strategic marketing as well as relevant concepts and analyses. Strategic marketing focuses on possible developments and courses of action needed to safely steer the company now and in the future. Structured like a textbook, the work is aimed at newcomers to the topic. (Available in German only)



An Introduction to Simulating Processes with iGrafx

Author: Mark Bednarski;
Publisher: Uwe Dittmann and Alfred Schätter
DVD with iGrafx®Process software 2007,
DVD in German and English
ISBN 978-3-938062-48-7

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