

TRANSFER

Das Steinbeis Magazin

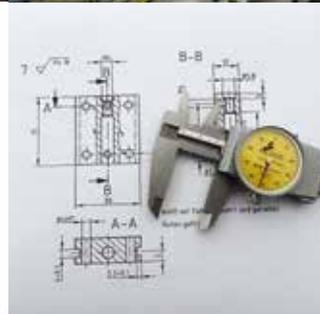
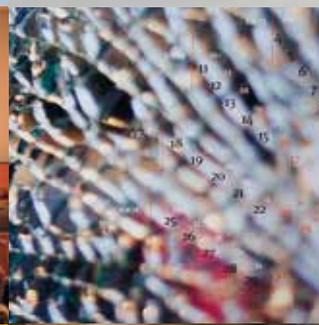
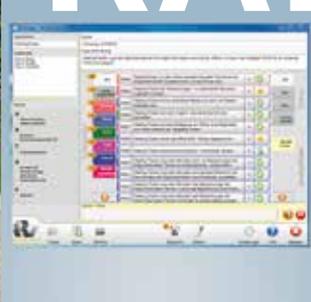
Competence in transfer

The Steinbeis Foundation Transfer Prize
2013 Lohn Award bestowed

Surgeons start using navigation systems
Steinbeis expertise in eye surgery

Planning and managing capacities at credit cooperatives
Research carried out by SHB

A car with a sixth sense
Cooperative sensor technology



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Find an overview of all Steinbeis Enterprises and their services on www.steinbeis.de → our experts

Dear readers,



Dr.-Ing. Leonhard Vilser is Chairman of the Steinbeis Foundation Board of Trustees.

Politicians and business leaders have been discussing the best way to achieve successful knowledge and technology transfer for many years. At first the debate revolved around the transfer of knowledge away from public 'sources' – such as traditional universities, universities of applied science and research institutions – and into the private economy. But as things developed, knowledge-based technology gained in importance, the competition for technology intensified and product life cycles shortened. It became necessary to consciously use knowledge and technology in commercial applications and to do this more flexibly, more efficiently and more effectively. No longer do knowledge and technology flow solely from public sources of science into the business environment. The reverse also takes place, with know-how funneling back to the universities, or companies sharing with one another on a project basis.

Steinbeis Centers have now been successfully promoting transfer in this modern form for 30 years. With their support, companies can complete projects for which they lack either the capacity or the specialist knowledge. Steinbeis clients gain access to know-how according to market rules they are familiar with and trust. Research and education receive a fillip fuelled by business practice. This comes from the party which originally 'owns' the knowledge and is involved in the Steinbeis transfer process. The Steinbeis partnerships that subsequently emerge with the 'knowledge owners' work in unison with the transfer linked to Steinbeis, which is entrepreneurial by nature and enduring. This becomes just one element of a manifold array of instruments.

The Steinbeis Network is continuing the work carried out at a fundamental level in the 19th century by Ferdinand von Steinbeis, the patron of commerce to whom the Steinbeis Foundation owes its name. What started out in 1983 with the first Steinbeis Transfer Center, is now being practiced by around 1,000 Steinbeis Enterprises: the provision of access to knowledge and technology, based on entrepreneurial transfer, and resulting in know-how being put consistently to good commercial use by the customer.

The Steinbeis Transfer magazine gives insights into technology transfer à la Steinbeis, and this edition is no exception. I hope you enjoy reading it!

A handwritten signature in blue ink, appearing to read 'L. Vilser'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Dr.-Ing. Leonhard Vilser

The 2013 Steinbeis Day

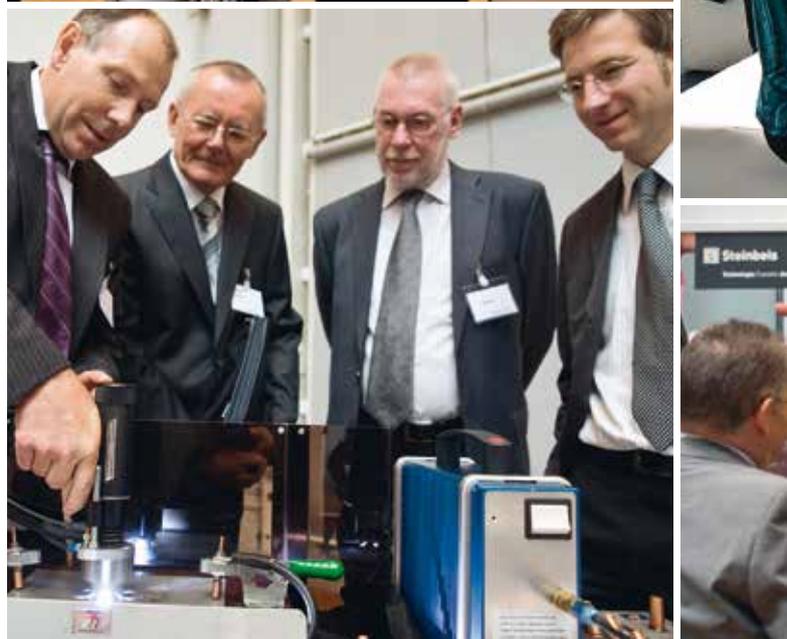
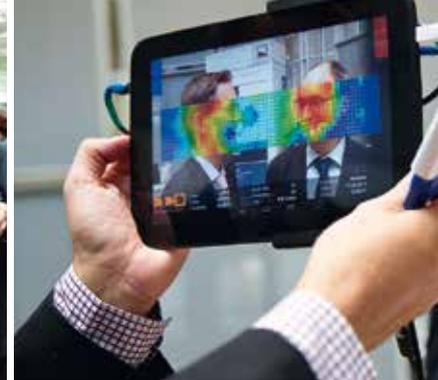
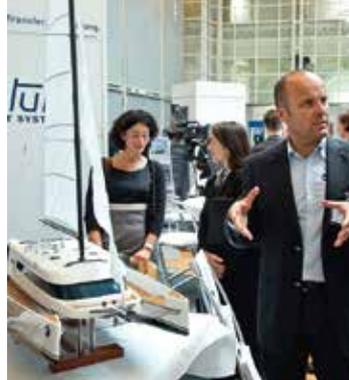
Numerous exhibitors provide insights into the Steinbeis portfolio

Startups, logistics, mechatronics, sustainability strategies, interactive systems, project funding, automotive solutions, competence measurement – the 2013 Steinbeis Day once again provided insights into the broad spectrum of topics covered by the Steinbeis Network. Over 700 visitors descended on the Stuttgart Haus der Wirtschaft (House of Commerce) and joined the Steinbeis experts to discuss specialist topics, explore possible projects and partnerships, or find out more about the options for setting up a center of their own.

The day was an impressive demonstration of the change the Steinbeis Network has undergone since its inception in 1983. What started out as 16 Technical Consulting Services (TCSs) at universities of applied science in Baden-Württemberg, has become around 1,000 centers worldwide, at universities and research institutions but also elsewhere. During the Steinbeis Day in Stuttgart, many centers demonstrated what technology transfer actually looks like in practice at Steinbeis. In the afternoon, actual projects were showcased in a series of short presentations, which are now available to download on the Steinbeis website.

As has become an established tradition for the Steinbeis Day, the event opened this year again with the bestowal of the Seifriz Award in collaboration with science and industry. The award is bestowed each year by the Baden-Württemberg Trades Association and German Confederation of Skilled Crafts together with the business magazine *handwerk magazin*, the Signal Iduna Insurance and Finance Group, the Association for Technology Transfer in Trades, the Ministry for Finance and Economics in Baden-Württemberg, and Steinbeis.

Skilled workmanship of a more artistic nature was also on display during the event in Steinbeis rooms at the House of Commerce. Gudrun Jürß, director of stw unisono training+consulting, was there to attend the opening of her own exhibition, which will feature a selection of her paintings until the summer of 2014.



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Short presentations at the 2013 Steinbeis Day



Steinbeis Wertstrom-Tool – Prozesse in Unternehmen visualisieren, optimieren und dokumentieren



Neue Produkte am Ende der Hochkonjunktur



TransNetAero – Europa's Luft- und Raumfahrtregionen starten gemeinsam durch!



Mechatronik sichert unsere Zukunft



Mit Design for Six Sigma zur nutzerorientierten App für Parkinson Patienten



Aktiv im Alter – neue Märkte für Schlüsseltechnologien



Simulation mit MATLAB/Simulink in LAR. Einsatz der Simulationssoftware MATLAB/Simulink von Lehre über Automotive bis zu Raumfahrt



Gesunde Mitarbeiter sind das Ziel – Elsässer Filtertechnik holt die neue DIN Spezifikation 91020



Hightech-Strategie der Bundesregierung – Wie Unternehmen die Förderchancen nutzen



Energiemarkt Donauraum



FMEA für Handwerk, Dienstleister und KMU



TranSAFE-Alp – Gefahreninformationen für den Alpenraum in Echtzeit



Externe Personalentwicklung als strategischer Erfolgsfaktor



Schnelle Löser für Optimale Formen



Multitalent Stadtwerke – Kommunale Energieversorgung und Daseinsvorsorge dauerhaft sichern



Mit Online Career Days und Online Assessment Centern effizient und zielgruppengerecht Mitarbeiter rekrutieren und auswählen



Prozesssicherheit beim Fertigen erhöhen und dabei Kosten sparen. STASA QC – die branchenübergreifende Optimierungslösung



Gestensteuerung in der industriellen Anwendung



Processes in Motion: Geschäftsprozesse werden smart und mobil



Personalentwicklung in einer Gemeinde – Ein Praxisbeispiel anhand der Gemeinde Friedenweiler



Das passende Angebot – wie Sie Ihre Idee erfolgreich umsetzen



To watch a video of the short presentation in German, simply scan the QR code.



Transfer excellence: The 2013 Steinbeis Foundation Transfer

Three transfer projects and a special award winner honored with the Löhn Award

Three transfer projects and a special award winner were honored with the 2013 Löhn Award at an evening event as part of the Steinbeis Day at the Culture and Convention Center in Stuttgart's Liederhalle on September 27. Around 600 guests witnessed the winners receiving their awards – a sculpture – and their prize money. The Löhn Award has been bestowed since 2004 to honor outstanding examples of entrepreneurial knowledge and technology transfer.

In addition to transfer projects, other notable projects, services and merits can also be recognized through another special award. This year, the Löhn Award jury selected a special award winner who has been working with the Network since its early days at the beginning of the 1980s. To rapturous applause, Prof. Dr. h. c. Lothar Späth received the 2013 Special Award from Prof. Dr. h. c. mult. Johann Löhn, who lent his name to the award and is also a jury member. Lothar Späth, who is the former Minister-President of Baden-Württemberg, worked with Johann Löhn in 1983 to lay the foundations of the Steinbeis Network and the very concept of project-based knowledge and technology transfer through Steinbeis Enterprises.

The degree of project success is based on two central criteria: the quality of the transfer process and recognizable transfer potential. The jury conferred the 2013 Löhn Award to three transfer projects carried out jointly between Steinbeis Enterprises and their business partners. The Corrosion and Corrosion Prevention Steinbeis Transfer Center (Friedrichshafen) received the award with Daimler AG (Stuttgart), with the surface technology expert Holder GmbH (Kirchheim/Teck) and with the Münster-based engineering firm IPS. All were honored for developing an innovative approach to shortening the time taken to test zinc coating systems. The Heat Management in Electronics Steinbeis Transfer Center (Waldorfhäslach) was honored alongside Behr GmbH & Co. KG (from Stuttgart, now known as MAHLE Behr GmbH & Co. KG) for a groundbreaking measuring system for characterizing thermal interface materials. And finally the 2013 Löhn Award was bestowed for the many years of collaborative research on the optimization of acoustics in traditional organ-building between the Steinbeis-Europa-Zentrum (Karlsruhe), the Steinbeis Transfer Center for Applied Acoustics (Stuttgart), the Fraunhofer Institute of Building Physics (IBP Stuttgart) and craftsmen at the organ builder, Mühleisen GmbH (Leonberg).

The Löhn Award is bestowed for cutting-edge, innovative and transfer-oriented projects, and the prize money is worth up to 60,000 euros. All Steinbeis companies and their customers can apply for the award, provided they took part in a transfer project. Winners are selected by a jury of Steinbeis Foundation board members together with the chairman and the honorary members of the board of trustees. The Löhn award is bestowed every year at the Steinbeis Day.



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Dr.-Ing. Leonhard Vilser (Steinbeis), Peter Schrems (IPS), Reinhold Schwilk (Daimler), Prof. Dr. Michael Auer (Steinbeis), Jochen Holder (Holder), Ute Pfeffer (Steinbeis), Prof. Dr. Reinhold Holbein (Steinbeis), Manfred Mattulat (Steinbeis), Dr.-Ing. Stephan G. Klose (Daimler), Dr. Markus Schütz (Holder), Benjamin Kröger (Steinbeis) (left to right)

Innovative techniques cut the time taken to test zinc coating systems

Zinc flake coatings protect metal components used in the automotive industry from corrosion. During series production, time-consuming corrosion testing is necessary to assure coating quality, and this can take up to three months. This leads to costly delays in recognizing changes in coating quality and identifying the necessary corrective measures. The Steinbeis Transfer Center for Corrosion and Corrosion Prevention, located in Friedrichshafen and at the Ravensburg–Weingarten University of Applied Sciences, teamed up with Daimler AG, Holder GmbH Oberflächentechnik and Ingenieurbüro Peter Schrems (IPS) to develop an innovative testing method for accelerating the assessment of zinc flake coatings and their capacity to prevent corrosion.

Short-term testing involves subjecting a component to voltage in a measuring cell to simulate corrosion stress during operation. The course of the test signal is quality-specific and can be supplemented with other analytical methods of evaluation as needed. Thanks to a new, stand-alone potentiostat developed by IPS and the Steinbeis team, featuring software that automatically analyzes measurement results, companies will no longer require specialist staff to interpret data. The method was proven effective under laboratory conditions set up in cooperation between the coating specialists at Holder and Daimler, which tested a standard zinc flake coating. Reliable and reproducible results were available just four hours after testing began. These results will make it possible to react much more quickly to changes in quality, as well as initiate necessary corrective measures. Due to a higher measurement rate, processes can be executed in a smaller window of time, reducing costs for time-intensive testing during series production.

The most recent challenge is to implement this method in running production processes using a measuring cell attached directly to the component. The method, awarded with the Steinbeis Foundation's Transfer Award – Lohn Award, is sure to unleash tremendous potential for application in quality management for other coating processes and surface technologies once the necessary modifications have been made.



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www.loehn-preis.de > Award '13 > Innovative Method Reduces Testing [...]



Dr.-Ing. Leonhard Vilsner (Steinbeis), Hubert Gubick (Steinbeis), Klaus Herbst (Steinbeis), Prof. Dr. Michael Auer (Steinbeis), Andreas Rottenhofer (Steinbeis), Robert Liebchen (Steinbeis), Manfred Mattulat (Steinbeis), Prof. Dr. Andreas Griesinger (Steinbeis), Dr. Achim Wiebelt (MAHLE Behr), Peter Fink (Steinbeis), Dr. Oliver Heeg (MAHLE Behr), Volker Schall (MAHLE Behr), Nikolaus Daubitzer (MAHLE Behr) (left to right)

Groundbreaking measurement system for characterizing thermal interface materials

Thermal stresses have a significant effect on the service life of electronic systems. Optimized heat management can go a long way in regulating the temperatures of components where thermal effects are critical, thereby lengthening the lifespan of the overall electronic device. New technologies, such as the electric drive in motor vehicles, are changing the demands for heat management. As a result, the heat paths in complex systems must be analyzed and optimized. This includes everything from the heat source to its environment. Frequently the contact surface between tangent solid objects forms a thermal bottleneck. The Steinbeis Transfer Center for Heat Management in Electronics, based at the Baden-Württemberg Cooperative State University (DHBW) in Stuttgart, and Behr GmbH & Co. KG, worked together to develop an innovative, highly precise system for measuring interface materials. Using the system, materials of a defined contact pressure or test thickness can be classified in terms of their thermal characteristics.

The battery in an electric vehicle is a practical example of this. In many cases, the temperature of the battery is regulated with a cooling plate. Here, it is crucial that the individual battery cells are thermally coupled well with the cooling plate. This can be achieved with a suitable thermal interface material placed between the battery and the cooling plate. The newly developed device allows researchers to precisely analyze both the thermal characteristics as well as the flow properties of the samples under exposure to thermal and mechanical stresses – a first for the industry. The innovative measuring system thus serves as a sound basis for the development and optimization of new materials for the heat management of electronic systems.

Since its founding in 2002, the Steinbeis Transfer Center for Heat Management in Electronics has amassed an extensive pool of expertise in the area of heat management in electronics and Behr GmbH & Co. KG is a systems partner to the international automobile industry. As a leading equipment manufacturer for personal automobiles and commercial vehicles, the company is considered a global specialist and pioneer of vehicle air conditioning and engine cooling. This project gave both project partners a chance to demonstrate how innovative technologies, and consequently a competitive edge, can emerge from the ideal dovetailing of science and industry. In special recognition of its exemplary transfer

work, this partnership received the Steinbeis Foundation's Transfer Award – Lohn Award.



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www.loehn-preis.de > Award '13 > Pioneering Measuring System for Characterizing [...]



Dr.-Ing. Leonhard Vilsner (Steinbeis), Antje Seyd-Mundhenke (Steinbeis), Karl-Martin Haap (Mühleisen Organ Building Workshops), Konrad Mühleisen (Mühleisen Mühleisen Organ Building), Manfred Mattulat (Steinbeis), Dr. Judit Angster (Fraunhofer), Prof. Dr. Philip Leistner (Fraunhofer), Dr. Jonathan Loeffler (Steinbeis), Prof. Dr. Dr. h. c. mult. Johann Löhn (Steinbeis), Prof. Dr.-Ing. Norbert Höptner (Steinbeis), Prof. Dr. Michael Auer (Steinbeis), Zlatko Dubovski (Fraunhofer) (left to right)

The world of a traditional organ builder converges with modern science

The fascinating combination of sound, architecture and technology defines the organ with all of its facets. Traditional craftsmanship meets science with the organ as one of the most versatile musical instruments worldwide. The organ research faces the challenge to bring this craftsmanship in the high-price segment together with cutting edge science and new technologies. In eight European research projects, coordinated by the Steinbeis-Europa-Zentrum (SEZ), Werkstätte für Orgelbau Mühleisen GmbH, Steinbeis Transfer Center Applied Acoustics, Fraunhofer-Institut für Bauphysik (IBP) and SEZ collaborated successfully. It was intended to improve planning and dimensioning the traditional wind system, the part of the organ which crucially affects its sound.

An organ is not a mass product but a unique instrument with a unique sound and should be specially optimized for its later location. Scientific methods help the acoustic research to build the organ in a way that its sound is optimally tuned to the particular room acoustics thus showing its fullest advantage.

Besides optimizing the existing wind system, the project partners aimed to create new wind systems either by improving the mechanical control mechanism or by developing an electronic control system in order to ensure failure-free operation. Together with the Steinbeis Transfer Center Applied Acoustics, Fraunhofer IBP examined the mechanical and acoustic characteristics of the most important elements of the wind system in their laboratory.

With the construction of mechanical and electronically controlled outlet valves, organ builders now are able to control the behavior of the wind pressure more precisely. Newly developed software makes it possible to design and optimize traditional as well as new wind systems. Moreover, it helps to improve the sound quality and reduces the production costs by 15 to 20%. A physical model forms the heart of the software by describing the fluid mechanical processes in the wind system and the interaction of the individual components. Organ-building companies have already applied the newly developed system successfully. The combined results of all research projects have had remarkable in-

fluence on the research organ at Fraunhofer IBP. Orgelbau Mühleisen, Fraunhofer and Steinbeis have created a glass instrument serving scientific research – globally unique. For this long-term development cooperation they are awarded the Steinbeis Foundation's Transfer Award – Lohn Award.



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www.loehn-preis.de > Award '13 > Traditional Organ Building Meets Modern Science

An entrepreneurial visionary and pioneer for Steinbeis

The Löhn Award jury honors the outstanding achievements and merits of Prof. Dr. h. c. Lothar Späth as a cofounder and pioneer of Steinbeis with a special award. Together with Johann Löhn he developed the Steinbeis model 30 years ago and he did it with enthusiasm and a political and entrepreneurial vision.

After having finished his apprenticeship in public administration, Lothar Späth was councilor for finance and mayor in Bietigheim-Bissingen. For many years he was active as a board member and managing director of companies in the property developer and construction industry, also he was a member of different supervisory boards and advisory councils. From 1972 until 1987, Lothar Späth was chairman of the CDU party in the state parliament of Baden-Württemberg and from 1979 until 1991 he held the CDU Baden-Württemberg chairmanship followed by his appointment to honorary chairman. In 1978, Lothar Späth was elected Minister of the Interior and shortly after Prime Minister of Baden-Württemberg. He was in office until 1991. Afterwards, Lothar Späth went back to the private sector where he firstly became managing director, then chairman of the executive board and lastly chairman of the supervisory board of today's Jenoptik AG. As from 2005 he was chairman of the managing board of the investment bank Merrill Lynch for Germany and Austria. Until today he contributes his expertise to several supervisory boards and advisory councils and especially to non-profit institutions.

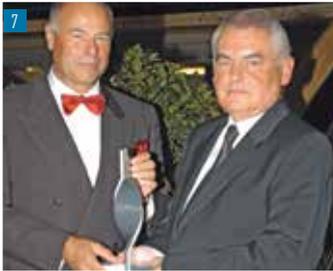
During his time as Prime Minister, Lothar Späth felt the time is ripe for political action to cope with the state's changing business landscape, much of it shaped by mid-sized companies. Though it seems self-explanatory today, his technological foresight met with skepticism and criticism. Yet Späth was not deterred, commissioning Johann Löhn – then-principal and head of the Technology Consulting Service Centers at the Furtwangen University of Applied Sciences – to head up a committee on "technology transfer". The committee's findings laid the groundwork for establishing a new position: a Government Commissioner for Technology Transfer (GCTT). Johann Löhn quickly started pinpointing what the GCTT should accomplish. Lothar Späth appointed him GCTT and chairman of the Steinbeis Foundation. Thus the Steinbeis model was born. Lothar Späth confirms, „Instead of getting bogged down with overcomplicated ideas, we wanted to get people excited about our ideas and put them into practice – that was something we both firmly believed in. Even after my term as Minister President of Baden-Württemberg, I still stayed in touch with Steinbeis. These days, Steinbeis runs successfully of its own steam and is the gold standard of technology transfer." Lothar Späth's strategic farsightedness, his concrete actions and his personal support laid the foundation for the Steinbeis model. Therefore Steinbeis would like to thank Lothar Späth with the Löhn Award 2013 as a special award, ensuring that we will continue building upon these keystones.



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www.loehn-preis.de > Award '13 > Entrepreneurial Visionary and Pioneer of Steinbeis





Award winners in review

Löhn Award bestowed for 10th time since 2004

In total, 40 transfer projects and special prize winners have been honored with the Löhn award since 2004. For more information on the winning projects and prize winners, go to www.loehn-preis.de

2004:

- 1 dm drugstore puts POS data online**
dm-drogerie markt GmbH & Co. KG/Karlsruhe | STC Innovation > Development > Application (IDA)/Karlsruhe
- 2 Valves improve engine performance and environmental friendliness**
MAHLE International GmbH/Stuttgart | STC Mechatronics/Ilmenau
- 3 ViSCAN: light-based precision measurement**
Carl Zeiss Industrielle Messtechnik GmbH/Oberkochen | STC Quality and Image Processing/Ilmenau
- 4 Special honor for pioneering work on technology transfer**
Prof. Dr.-Ing. Walter Kuntz (1938–2008) | STC Microelectronics and Systems Engineering/Furtwangen | STC Medical Electronics/Freiburg
- 5 In-vitro pyrogen tests to replace animal testing**
Charles River GmbH/Sulzfeld | STC In-Vitro Pharmacology and Toxicology/Constance
- 6 Intelligent simulation of passenger bus transmissions**
Voith Turbo GmbH & Co. KG/Crailsheim | STC New Technologies in Traffic Engineering/Ulm

2005:

- 7 Systematic streamlining of factory operations (analysis, evaluation and planning of complex products, technologies, factories)**
Koenig & Bauer AG/Radebeul | STC Productions Technology and Waste Handling Logistics/Dresden
- 8 Confocal laser scanning microscopy of the anterior eye segment with the Rostock Cornea Module and the Heidelberg Retina Tomograph**
Heidelberg Engineering GmbH/Heidelberg | STC Biomedical Engineering and Applied Pharmacology in Ophthalmology/Rostock

2006:

- 9 Miniaturized fluorescence imaging module for medical diagnostics**
Sensovation AG/Radolfzell | STC Medicinal Biophysics/Heidelberg
- 10 Pioneering achievements in the Technical Consultancy Service**
Prof. Dr.-Ing. Eberhard Birkel | STC Technical Consultancy Service at Esslingen University of Applied Sciences/Esslingen

2007:

- 11 Innovative projects promote sustainable practical application**
Prof. Dr.-Ing. Jürgen van der List and the STC Microelectronics/Göppingen
- 12 Recognition of personal contributions made to Steinbeis**
Senator e. h. Dr.-Ing. Wilhelm Schmitt

2008:

- 13 A pioneering bridge-builder**
Prof. Dr.-Ing. habil. Prof. h. c. Eberhard Kallenbach | STC Mechatronics/Ilmenau
- 14 Mathematical optimization of satellite resource management systems**
OHB System AG/Bremen | SRC Optimization, Control and Adjustment Control/Grasberg
- 15 Graphite-modified gypsum plasterboard**
SGL Technologies GmbH/Meitingen | Saint-Gobain Rigips GmbH/Dusseldorf | STC Plastics and Composite Technology/Naila
- 16 Springing into action**
WAFIOS AG/Reutlingen | STC Quality Assurance and Image Processing/Ilmenau

2009:

- 17 Trailblazing research management**
Prof. Dr. rer. nat. Dr.-Ing. E. h. Max Syrbe (1929–2011) | Steinbeis Foundation, Member of Board of Trustees and Chairman of the Foundation Board of Trustees
- 18 Innovative computer networks in development and production**
Prof. Dr.-Ing. Nikolaus Kappen | STC Computer Applications/Esslingen
- 19 Miniature implant sensor for non-invasive testing of blood sugar in diabetes**
EyeSense GmbH/Großostheim | SRC International Vision Correction Research Centre (IVCRC)/Heidelberg
- 20 Local development concept for the municipality of Bad Peterstal-Griesbach**
Gemeinde Bad Peterstal-Griesbach | SCC Regional and Communal Development/Kaiserslautern
- 21 Improved success in communication at PSD Bank Berlin-Brandenburg eG**
PSD Bank Berlin-Brandenburg eG/Berlin | School of Management and Innovation (SMI) at Steinbeis University Berlin/Berlin

2010:

- 22 New laser welding technique for rotationally symmetric components**
Stadtmüller GmbH/Osterburken | STC Production and Organisation/Pforzheim
- 23 Innovative bending machine for induction conductors used in large-scale generators**
Siemens AG Generator Plant/Erfurt | STC for Drive and Handling Technology in Mechanical Engineering/Chemnitz
- 24 Enthusiastic problem-solver**
Prof. Dr.-Ing. Klaus Boelke | STC for Technical Consulting at the Heilbronn University of Applied Sciences/Heilbronn
- 25 Consummate engineer by conviction**
Prof. Dr.-Ing. Hermann Kull | STC Systems Technology/Automotive/Esslingen
- 26 Clinical diagnosis of Lysosomal storage diseases in central and eastern Europe**
Genzyme CEE GmbH/Constance | STC for Biopolymer Analysis/Protein Chemistry and Proteomics at the University Constance/Constance



2011:

- 11 Pioneer in aircraft and lightweight construction**
Prof. Rudolf Voit-Nitschmann | STC Aerodynamics, Aircraft and Lightweight Construction /Stuttgart | Steinbeis Flugzeug- und Leichtbau GmbH/Stuttgart
- 28 Passionate innovator**
Prof. Dr. Werner Bornholdt | Founder and Director of STC New Products from 1988 until 2010/Villingen-Schwenningen
- 29 DATA2LINE® – Automated process for the detection of unexploded bombs as part of the explosive ordnance disposal**
Institut Dr. Foerster GmbH & Co. KG/Reutlingen | STASA Steinbeis Angewandte Systemanalyse GmbH/Stuttgart
- 30 Intuitive software for a new optical tool presetter**
NT TOOL Corporation/Takahama City (Japan) | STC Quality Assurance and Image Processing/Ilmenau
- 31 High dynamic variotherm technology for the production of microfluidic components**
Sony DADC Austria AG/Anif (Austria) | Watlow Plasmatech GmbH/Kuchl (Austria) | STC Plastics Center/Bretzfeld

2012:

- 32 Controlled self-healing process for electrical, extremely stressed galvanic systems of high-end circuit board production**
Atotech Deutschland GmbH/Feucht | SRC Material Engineering Center Saarland (MECS)/Saarbrücken
- 33 BIOLOX® App and BIOLOX® motions: consulting and training of surgeons with interactive media for the handling of ceramic hip joints**
CeramTec GmbH/Plochingen | STC Technical Communication – Paracam/Salach
- 34 Wireless sensor linkage for didactical measurement technology**
PHYWE Systeme GmbH & Co. KG/Göttingen | STC Embedded Design and Networking/Heitersheim
- 35 Machines are his passion**
Prof. Dr.-Ing. habil. Eberhard Köhler | STC Drive and Handling Technology in Mechanical Engineering/Chemnitz
- 36 Steinbeis quality in the Japanese market**
Sachihiko Kobori | Steinbeis Japan Inc./Tokyo (Japan)

Information on winners of the 2013 Löhn Award can be found on pages 7 to 11.

1983: Johann Löhn starts to develop the Steinbeis Network

1989: The 100th transfer center in the network is founded



Steinbeis 1983-2013: a timeline

30 years ago, development work started on what is now the Steinbeis Network

Founded in 1971, the development of the Steinbeis Foundation into today's Steinbeis Network reached a major milestone in 1983. Professor Johann Löhn, president of the Furtwangen University of Applied Sciences at the time, and Lothar Späth, the Minister-President of Baden-Württemberg at the time, made a major step towards entrepreneurial knowledge and technology transfer with the complete restructuring of the Foundation. In its publication "Steinbeis 1983-2013", which was issued to coincide with the Steinbeis Day, Steinbeis takes a look back at the key milestones over the past three decades. We would like to use this TRANSFER article to highlight some of the signposts along the way.

As early as 1969, professors at five universities in Baden-Württemberg founded the first Technical Consulting Services (TCS), whose role was to support small and medium-sized enterprises. In 1971, the Steinbeis Foundation was established to provide an organizational umbrella for these Technical Consulting Services. Its founders were ten industry associations, research institutions and private individuals. By 1982, 16 TCSs acted as trusted technical partners to small and medium-sized businesses in Baden-Württemberg.

1983

What is the best way to help SMEs keep pace with structural change? This was the question Lothar Späth posed to a research commission. One of its key recommendations was to install Johann Löhn as a government commissioner for technology transfer, in a combined role as chair-

man of the Steinbeis Foundation. This paved the way for the Steinbeis Network.

1986

Backed by the state, in 1983 Steinbeis started offering SMEs free, short consulting sessions, and in 1984 "development management" was introduced. Both services aimed to help small SMEs in the state optimize internal processes. The Network expanded, a development clearly reflected by the move to the Haus der Wirtschaft in Stuttgart, which has been the headquarters of Steinbeis ever since. The state-run Communication Technology Coordination Center (CTCC) was affiliated with Steinbeis to advise companies on how to deal with the changing nature of communication technology.



**1998: Steinbeis GmbH & Co. KG für
Technologietransfer is set up**

1989

In the year the Berlin Wall came down, Steinbeis founded its 100th transfer center and started publishing the TRANSFER bulletin, the predecessor of today's TRANSFER magazine.

1990

Steinbeis became active in the newly formed German states, and in the years that followed transfer centers were set up at the Technical Universities in Saxony, Thuringia and Saxony-Anhalt. The Commissioner for Europe of the Minister for Economic Affairs in Baden-Württemberg started working within the remit of the Steinbeis Foundation and was given responsibility for running the recently founded Steinbeis-Europa-Zentrum.

1991

Aside from technology centers, management centers were introduced to offer management consulting and "management on demand." The first Steinbeis Transfer Center outside Germany was established in Austria.

1995

Steinbeis Transfer Centers were now being set up at other kinds of uni-

versities in Baden-Württemberg and universities of cooperative education. These "free" centers were mainly managed by experts who were not working at science and research establishments. Compared to 1989, the number of transfer centers had doubled.

1998

Since 1983, the Network had enjoyed continuous expansion and it was time to adapt its structure. Steinbeis GmbH & Co. KG für Technologietransfer (StC) was set up as the operative arm of the organization in broader business areas and for all transfer services. In the same year, Steinbeis founded its own state-approved private university, Steinbeis University Berlin (SHB). Based on a model known as the "Project Competence Concept," SHB started offering students and companies degree programs recognized by the state. It also engaged in research into business-related issues.

2000

To support spin-offs of Steinbeis enterprises and buy equity holdings in promising new companies, Steinbeis set up Steinbeis Beteiligungs-Holding (SBH).

2013: Around 1,000 enterprises belong to the Steinbeis Network



2003

Knowledge needs to be captured in writing: Steinbeis set up its own publishing arm, Steinbeis-Edition, to produce specialist publications issued by the Steinbeis Network. These included selected titles and series written by Steinbeis experts on management and technology topics, companion publications for conferences or special events, and dissertations.

2004

After 20 years of spearheading the development and expansion of Steinbeis, Johann Löhn was succeeded as chairman of the board. He is made honorary trustee of the Steinbeis Foundation and assumes his role as president of Steinbeis University Berlin, a role he still fulfills today. To honor the outstanding achievements of Johann Löhn, Steinbeis introduced the Steinbeis Foundation Transfer Award – the Löhn Award. The prize is still awarded annually at the Steinbeis Day for excellence in competitive knowledge and technology transfer.

2005

The Network continues to grow, making it increasingly important to differentiate more clearly the portfolio of services on offer at the

centers. With immediate effect, classic Steinbeis transfer centers and institutes were also supplemented by Steinbeis research and innovation centers, as well as Steinbeis consulting centers. Steinbeis started offering the short consulting sessions through its own funding. These had previously been backed by the Ministry for the Economy. To date, some 2,000 consulting sessions have been requested.

2008

Steinbeis stages the first Stuttgart Competence Day, setting up three central forums in the fields of competence, consulting and engineering, including specialist conventions. The recently founded Ferdinand Steinbeis Institute begins helping the Network with the coordination and conducting of studies. Close collaboration between Steinbeis and universities resulted in the first cooperative company, a kind of joint Transfer Enterprise set up at the Karlsruhe University of Applied Sciences.

2012

Steinbeis organizes the first Max Syrbe Symposium, focusing on the prerequisites of successful science and research management. The event is named after the long-standing chairman of the Steinbeis Foundation board, who passed away in 2011.

2013

What began as five Technical Consulting Services at Baden-Württemberg universities of applied science, has now grown into a network of around 1,000 Steinbeis Enterprises. This network encompasses over 6,000 people with a commitment and passion for entrepreneurial knowledge and technology transfer.



Steinbeis 1983-2013

Issued by Steinbeis-Edition, this publication provides an overview of the key stages of development of the Steinbeis Network over the last 30 years. The publication is free and can be ordered in German or English by going to www.steinbeis-edition.de.



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A micro-scanning mirror next to a matchstick

Ophthalmic surgeons start using navigation systems

Steinbeis experts carry out research on cataract and refractive eye surgery

Imaging diagnostics have been standard practice in orthopedic operations and interventional cardiology for years. These days, surgeons practicing oncology, ENT examinations and neurosurgery frequently use navigation systems to search for physical changes resulting from medical conditions. They also use them to precisely position implants. Experts at the International Vision Correction Research Centre, a Steinbeis Research Center at the University Eye Hospital in Heidelberg, are working in collaboration with Eyesight & Vision GmbH from Nuremberg on the possibilities and limitations of live "wavefront" defective vision measurements during operations. To this end, they are developing a navigation system for cataract and refractive surgery.

With more than 11 million operations carried out worldwide each year, the removal of aging and opacified lenses from the eye is the most common human surgical intervention. Over the past 60 years, the implantation of artificial interocular lenses (IOLs) has developed into a safe, minimally invasive procedure. Refractive lens surgery has made it possible to correct certain types of visual defects, allowing patients to once again see objects near and far without the need of glasses or contact lenses.

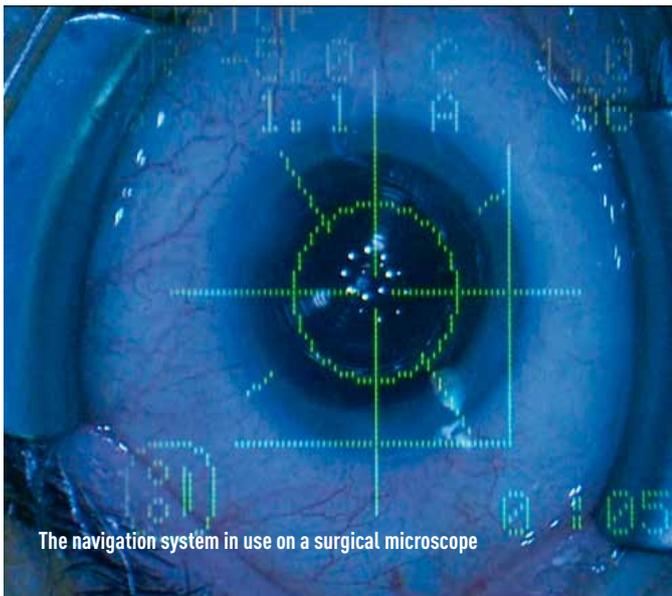
Research and development work in the field of refractive lens surgery revolves around two key areas. One is the ability to predict the refractive power of the eye more accurately by calculating IOL dimensions and selecting IOLs on a more individual basis. Researchers also want to find ways to correct more serious visual defects and thus make it possible to restore the correct perception of contrast and weak light.

The recent move toward wavefront aberrometry is making it possible for ophthalmic surgeons to not only measure faulty vision after the removal of a lens with opacification, but also to measure the refractive power after an intraocular lens has been positioned in the eye. Until now, wavefront analysis involved projecting patterns of dots into the eyeball which were then used to diagnose imaging problems. As a rule, this approach did not work in the O.R. because the dot patterns were so badly distorted by the defective vision that mapping the relative position of dots to one another was muddled or was sometimes actually impossible.

The technology recently put to use at the University Eye Hospital in Heidelberg and developed by the experts at the Steinbeis Research Center together with Eyesight & Vision GmbH solves this mapping problem

with a laser beam. The laser beam can be cast quickly across the cornea to map the area. At any point in time, it is possible to identify the original source of a beam that has been altered in terms of its wavefront by the defective vision of the eye. This technology was made possible by a newly developed micro-scanning mirror which deflects laser beams pointed at it to map an area on the cornea and thus also on the retina.

The project team has made an important step forward in ophthalmic surgery. This technology makes it possible to make intraoperative defective vision measurements in real time. It thus lays a foundation for the development of a navigation system for refractive lens surgery.



The navigation system in use on a surgical microscope

Steinbeis Research Center International Vision Correction Research Centre (IVCRC)

Services

- Development and function testing of ophthalmological refractive implants
- Development and function testing of ophthalmological operation systems
- Development and function testing of ophthalmological laser systems
- Planning and implementation of function testing of implants involving Miyake Apple eye simulation systems
- Planning and implementation of clinical GCP studies in the fields of cataract surgery, refractive surgery and general ophthalmology
- Clinical trials (FDA, BfArM, GCP, GLP) involving medical devices, medical products and pharmacology
- Evaluation and development of diagnostic equipment used in ophthalmology
- Organization and implementation of surgical training events
- Expert reports

Key Areas

- Causes of posterior capsule opacification
- Special lenses: accommodative lenses, toric IOLs, multifocal IOLs, filter IOLs, other implants
- Phaco-emulsification technology
- Diagnostic equipment: imaging, coherence tomography, wave front
- Laser systems: excimer and femtosecond lasers
- Ocular pharmacology: clinical trials, repeat clinical studies
- Ophthalmic pathology
- Training courses: wet labs, dry labs
- Operation course: live surgery, training with live surgery
- Refractive surgery, curative cornea surgery, experimental cornea surgery
- Corneal wound treatment, immunology with cornea transplantations



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Planning and managing capacities at credit cooperatives

Research carried out by Steinbeis University Berlin

The success and long-term profitability of client business at any regional savings bank or credit cooperative depends on its ability to create customer loyalty, penetrate the market, and attract new customers. Key drivers in this respect include the quality of service and advice, the continuity of ongoing business relationships, and availability. To ensure they make the grade, savings banks and credit cooperatives recruit overqualified employees for front and back office tasks and sometimes knowingly overstaff. One of the key tasks of management is therefore to carefully distribute cost-intensive staffing capacity according to the level of customer demand, not only to ensure customers are not kept waiting, but also to avoid idle capacity in personnel. As part of his doctoral project at Steinbeis University Berlin, Michael Steinmüller scrutinized operational data to examine the planning and control of capacity at a credit cooperative.

In his field work, PhD student Michael Steinmüller identified factors dictating external and internal customer demand. He did this by working out the frequency of customer processes. From this, he derived insights into repeated cycles of staff availability and inevitable influences on customer demand.

The profits generated by regional savings banks and credit cooperatives depend to a large extent on net income from interest payments. This is a function of contributions from "maturity transformation" and the level of interest rates. When yield curves are much flatter than in previous years, there are an increasingly limited number of ways to exploit gain from maturity transformation (short-term borrowing versus long-term lending at normal interest rates). Income from interest, which reflects the success of client business compared to interbank lending, is suffering more and more from the increasingly transparent price of banking services and an increasingly disloyal customer base. Bank services such as conventional mortgages are turning into commodities and are usually only worth the effort if an investment is made to cross-sell products.

To safeguard financial success, the focus at savings banks and credit cooperatives has shifted in recent years to reducing material resources not immediately obvious to the customers. The banks are now increasingly striving to optimize business processes and related staffing levels. The

recent tightening of supervisory guidelines, and an expectation among customers that banks operating at a regional level should offer individual services and solutions, have resulted in a soberingly small number of opportunities to optimize business processes. Additionally, optimizing consulting and processing times rarely has the desired effect in terms of lightening the burden on personnel. This is because many business processes are seasonal and staff capacity cannot be simply turned on or off like a faucet. Instead, banks have to optimize the distribution of staff capacity at different times. By identifying the influences on the frequency of certain processes – in terms of timing and cause – it becomes possible to derive key steps to be taken.

Steinmüller's empirical field work revolved around three research questions. 1) Which processes are relevant when it comes to periodic fluctuations in staff capacity and are thus pertinent to strategic capacity planning and control? 2) Which key influencers – in terms of timing and cause – account for regular patterns in the frequency of certain processes, on a daily or monthly basis? 3) What possibilities are there to plan operations, according to the need to cope with peaks in demand and avoid gaps in capacity at the banks? To answer these questions, a preliminary study was conducted as part of Steinmüller's PhD to translate 288 business processes at a regional credit cooperative into the processes used by a turnkey software solution called agree®. Over a two-



year period, a process database was filled with data on process frequency and duration.

Even during this preliminary "business process modeling" project and a resulting period in which the times to carry out certain processes began to settle down, a number of important insights were gained. These are best exemplified by what happens when a customer submits a new application for a mortgage: Staff capacities relating to a certain process are determined by the designated approval hierarchies. In recent years, credit advice activities have been separated from administrative tasks, meaning that many decision-making responsibilities have been delegated to administrative areas. This has frequently led to customer advisors no longer developing a personal sensitivity to risk and simply delegating responsibility to administrators. As a result, through-put and processing times have lengthened. Reversing the delegation of responsibility and returning decisions to sales departments in non-risk related areas could therefore produce major advantages in terms of the time taken to process customers, as well as benefits to staffing requirements. Staff capacity requirements are closely linked to the quality of requests submitted by the people in sales. By stringently defining and monitoring internal service levels, many repeated processes could be avoided.

After completion of his preliminary project, Steinmüller used a cluster analysis to identify processes pertinent to the analysis of short and medium-term capacity planning and controls. One important realization was that not all processes fluctuate periodically, or they only tie up low levels of resources. As a result, available personnel should be distributed so that staffing levels can be used flexibly, especially for processes that do fluctuate periodically. If processes only tie up small amounts of staff capacity, but they occur very frequently, employees need the right qualifications to be shifted around as required.

A subsequent univariate time series analysis of daily and monthly patterns allowed Steinmüller to identify significant correlations between the frequencies of past processes. Based on this, it was possible to map the historical distribution of process frequencies using conventional time series models and to provide good predictive values for future scenarios. For monthly predictions, the most favored approach was an exponentially smoothed curve. For daily predictions, attention was given to an autoregressive integrated moving average for the best fit. Overall, the more data available, the better the reliability of the time series models. As a result it has recommended that banks store process data over extended periods. A subsequent causal analysis provided some important pointers on controlling customer demand. For example, the frequency of processes related to mortgage requests follows a significant quarterly pattern and is dictated to a large extent by trends in the interest charged on lending and the gross domestic product.

The theoretical preparation undertaken as part of the preliminary PhD work and the modeling of business processes can be immediately adapted for use at other credit cooperatives, since in technical terms many processes are substitutable. The process databases can be accessed by all banks. The capacity planning and control model developed as part of the PhD project offers significant potential to be applied at other companies providing customer services. A simple comparison between mortgage request processes and leasing applications at a car dealership shows that both involve sub-processes in the front and back office. By storing the process data from a leasing application, a carmaker can thus plan staffing capacities according to uniform procedures. The bank looked at in the study had a strong thirst for more empirical process data. If there is a similar thirst for knowledge at other banks, in the future there should be more interesting research findings for banks, as well as special models on production planning and control mechanisms.

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How staff can stay healthy and innovative

Steinbeis prevention program for SMEs

One in every eight sick days is the result of a psychological disorder. The Steinbeis Transfer Institute of Stressmanagement, Holistic Health Care and Preventive has developed a special program for small and medium-sized enterprises to significantly improve staff attendance levels and thus reduce sickness costs while simultaneously safeguarding performance.

The prevention program spans a number of modules and targets older employees and managers. The aim is to draft a management manual on how to ensure all generations within a business remain in a position to work, and to install a sustainable health management program for healthy, motivated workers. To this end, the experts from the Constance-based Steinbeis Transfer Institute visit the business and, as a first step, capture all necessary structural information. Based on this, next steps are planned. As a rule, managers need further training, as the attitude of business leaders toward older employees is pivotal to the working atmosphere.

Next, other employees are involved in the process to ensure smooth communication. It is then decided which program elements the business

should offer. Questionnaires, group work and one-on-one interviews are then used to capture and assess in detail the scope of potential psychological flashpoints. Afterwards, the Steinbeis experts pull together a stress management program matched specifically to the business and help with the launch and ongoing development of a company health management program.

The benefit of all these measures is significant. According to studies, every euro invested in innovative, sustainable, preventative programs pays for itself sixteen times over. Aside from savings, there are also immaterial gains, with significant improvements in working atmosphere and worker motivation.



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Practitioner in Body Therapy

Certification course at Steinbeis University Berlin (SHB)

The competence institute unisono Steinbeis Transfer Institute is offering certification as a "Practitioner in Body Therapy" (SHB). Provided in collaboration with the Ayus® Institute in Pfaffenhäusen, the 18-month training course lays the foundations for a successful career as a health practitioner.

Course participants receive training in 13 modules, enabling them to establish cause-and-effect relationships between the body, mind and spirit, to work with centers of energy in the body, and to recognize and deal with symptoms. They learn to view health as a personal experience, to consciously channel positive thoughts into therapeutic methods, to appreciate spontaneity, and to strategically use problem-solving techniques.

People taking the course also benefit from holistic personal development techniques that heighten self-perception by promoting posture, observation and therapeutic techniques, and by overcoming barriers to development. The result is a deepening of different abilities, thus forming therapeutic approaches to the development of personality, in-depth psychoanalysis and gestalt therapy, such as spiritual constituents and stress reduction.



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Online Business Trainer

Certification course at Steinbeis University Berlin

It is difficult to imagine what life would be like these days without the Internet and the myriad of uses it can be put to. It has become an established part of training and continuing professional development, and offers many web-based knowledge-sharing options. The Steinbeis Business Academy (SBA) at Steinbeis University Berlin (SHB) now offers training to become an Online Business Trainer.

Internet developments pose tremendous challenges not only to higher education institutions but also to lecturers and instructors, partly for organizational reasons but also in terms of content and teaching methods. During the 6-month certification course as a Online Business

Trainer, lecturers Alexander Ebinger and Bernd Schnücker meet this challenge with a mixture of classroom-based seminars and group webinar modules. They use these tools to convey the skills required to create, develop and run e-learning solutions and blended learning instruments, all specially tailored to group work. Upon successful completion of the course, the participants are awarded a university certificate and 30 credit points.



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Demographic Excellence Award in Baden-Württemberg

Steinbeis Transfer Institute among the prize winners

The Federal Association of German Business Consultants (BDU) and the demography network ddn have been bestowing the Baden-Württemberg Demographic Excellence Award (DEA) since 2010. The award highlights the exemplary achievements of companies that have found solutions to the demographic challenges faced by their business – solutions worthy of replication by others. Among the prize winners in 2013 was one Steinbeis Transfer Institute: the German Aerospace Academy from Böblingen, which received the prize at an awards ceremony on the island of Mainau in November.

The jury was impressed by a pilot project introduced by the German Aerospace Academy (ASA) to provide male and female engineers over the age of 50 with qualifications and a door back into the profession. The ASA offers executive master's degrees as well as certification courses and seminars at Steinbeis University Berlin, spanning different qualification levels and previous experience. The award-winning concept teaches the fundamentals and methods of virtual engineering as well as tailor-made coaching and training for people returning to work. The other prize winners were Grenzach Produktions GmbH and the not-for-profit company Wabe eGmbH. The award comes with a prize of 2,000 euros, which must go to a good cause or social beneficiary.

Günter Monjau, chairman of the Baden-Württemberg BDU Forum, says: "This year's projects again include some remarkable examples of demo-



Prof. Dr.-Ing. habil. Monika Auweter-Kurtz at the Baden-Württemberg Demographic Excellence Awards ceremony

graphic initiatives submitted to the business competition we initiated. Overall, we can confirm that many firms – even if it's not all companies, everywhere – are highly committed and take a highly creative approach to demographic change."



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New approaches to the future of nursing Bachelor degree for psychiatric care workers

To answer the growing demands of patient care, Vitos GmbH and the Steinbeis Business Academy (SBA) at Steinbeis University Berlin (SHB) have embarked on a new collaborative project. In the fall of 2013, the first psychiatric care workers and trainees started an executive bachelor's degree in Social Healthcare. The degree, offered through Steinbeis University Berlin, places emphasis on aspects relating to psychiatric nursing with studies running in parallel to company training and a special focus on advanced nursing practice.

The areas care workers now become involved in have changed due to developments in the economic, social and demographic environment, as well as changes in health policy. Given the new demands placed on nursing staff, academic qualifications are an important step forward in enhancing the professionalism of care workers.

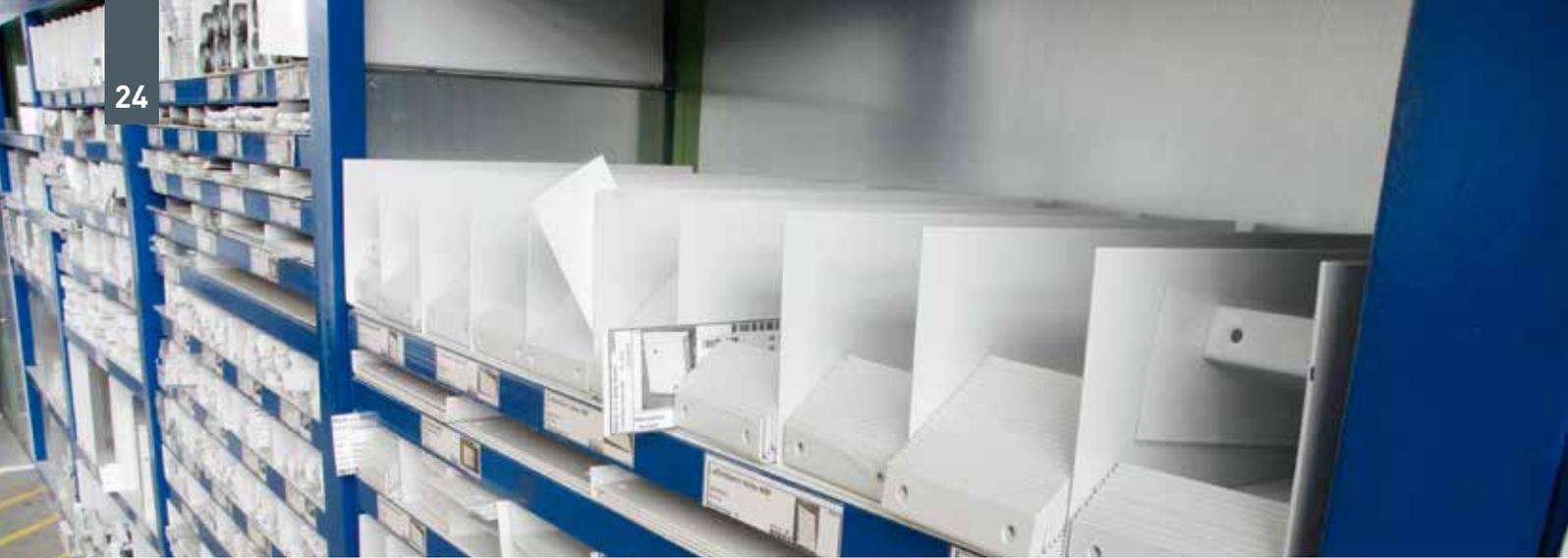
Until now, in Germany there were no continuing professional development nursing programs culminating in a bachelor's degree. The specialist content of courses now covers such a diverse spectrum of topics that – without the ability to reflect on scientific issues and corresponding working methods – it is impossible to relate content sufficiently to actual practice. The aim is to empower care workers to see eye-to-eye with other specialists in interdisciplinary teams.

The collaboration between the SBA and Vitos GmbH (the biggest provider of care to people with psychological disorders in the state of Hesse) allows students to receive nursing training and gain an academic qualification – to accompany training or as a specialist discipline. The degree, which lasts 36 months and is worth 180 credit points, fosters a fundamental understanding of scientific work and conveys the scientific and methodical knowledge required in (psychiatric) nursing.

The advanced degree modules look in detail at areas such as therapeutic skills, nursing science, health promotion and nursing as a profession. By the end of the degree program, students should be in a position to sit in on interdisciplinary specialist dialog and take a scientific approach to front-line work activities. The degree sensitizes students to the entire course of disorders and preventative approaches central to clinical decision-making.



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Lean Management in Mechanical and Plant Engineering

Steinbeis supports lean processes at E.W. Gohl GmbH

Singen-based E.W. Gohl GmbH produces industrial cooling towers – customized and small scale. When its executive board decided to introduce new lean management processes, it asked itself one fundamental question: How can lean management structures, which have been designed for mass production, work at E.W. Gohl? The company turned to the Technology – Organization – Human Resources Steinbeis Transfer Center for expertise on this matter.

When introducing lean management, it is important that the employees believe in the system. For this reason, it quickly became clear to E.W. Gohl that such an initiative could only be launched with the help of its employees. As a rule of thumb: It is the “we” feeling that leads to success. Even the tiniest deviations from the original target have to be totally transparent and adjusted. But this is only possible if the adopted structures have the backing of a majority of the workforce.

As such, the business processes were analyzed in a workshop by a team under the direction of Erwin Hartmannsberger, lean management expert at the Technology – Organization – Human Resources Steinbeis Transfer Center. The team collectively defined the desired process and worked out the appropriate changes to be made to shop floor layouts. Prior to implementation, the team presented the results of their analysis to the workforce.

During implementation, roughly 400 square meters of space were changed, including 5-ton machines, ventilation systems, a 10 cubic meter plunge pool, extraction systems and industrial shelving units. This created an additional 150 square meters of space for production expansion. A central point of the project was to introduce self-regulating control circuits for the materials flow. At the heart of the control system are approximately 600 kanban cards for controlling the unprocessed and semi-finished materials between individual processes. This obviates the need for manual intervention or goods preparation. The need for manufacturing stock and materials was halved. In the final assembly stage, a type of “supermarket” was set up to ensure there was a continuous supply of materials. Since warehouse stocks are now right next to the production area, availability is more transparent and levels are gradually being whittled down.

The complete implementation of the lean concept took place over 13 workshop sessions, including 6 days for the analysis. The 8-strong workshop team was put through basic lean management training. The detailed analysis of the manufacturing and control processes at the start enabled the workshop team to identify 100% with the results of the

analysis. On this basis, they worked out a target process matched to the actual machines in use, the system setup, and human factors. The approach ensured that the new structures would be accepted and used in practice – one key to successful lean management.

But the success or failure of this type of project also hinges on the cooperation between the workshop team and the moderator. And in those terms, everything ran smoothly at E.W. Gohl GmbH as company secretary and technical director Christoph Korinth confirms: “Mr. Hartmannsberger uses a pleasant combination of theory and hands-on ‘can-do’ techniques. With his help, the lean management principle ‘actions not words’ was truly lived out!”



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Certified: Occupational health management at Elsässer Filtertechnik
© Elsaesser Filter Technology

A focus on employee health First certificate based on DIN SPEC 91020 awarded

The Steinbeis Consulting Center for Occupational Health Management has successfully guided Elsässer Filtertechnik (Elsaesser Filter Technology) through the certification process for DIN SPEC 91020, a new standard for occupational health management. The company, based in Nufringen in southern Germany, is the first company to attain this certification.

DEKRA Certification Stuttgart confirmed that the company was exemplary in its development and implementation of company regulations, structures, and processes – to the extent that work systems and the business organization proved conducive to employee health and enhanced employee performance. In addition, employees are instructed in work behaviors which promote health.

The new specification surpasses mere legal obligations for workplace health and safety, as well as measures for occupational health promotion. The requirements laid out by DIN SPEC 91020 are based on an existing management system, like ISO 9001, ISO 14001, SCC or BS OHSAS 18001.

Strict adherence to a certified health management program helps companies to sustainably improve their own performance: These companies are more attractive as responsible employers and business partners. They increase profitability by preventing costly employee downtime, and they motivate their employees by providing a safe and performance-enhancing work environment.



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Brief Steinbeis Consulting Free consultations for SMEs

Through free, brief consultation sessions, Steinbeis gives small and medium-sized enterprises access to technology and knowledge sources. Companies can tap into a network of Steinbeis experts, receive comprehensive consultation services, and receive a wide variety of information on new products, technologies, and processes.

These brief consultation sessions can be requested by the companies themselves, or they can be brokered through chamber representatives, the L-Bank, institutions which promote trade and industry, or Steinbeis enterprise directors. Simply specify the desired consultation topic. Forms for this are available online.

To be eligible for a brief consultation, your company must:

- be headquartered in Baden-Württemberg
- have had an annual turnover of less than 100 million euro (in the previous year)
- have had no prior consulting session this year (only one session per year)
- have formally applied (proposal, approval, formal agreement from Steinbeis)



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Fit for Health

Steinbeis assists companies with EU research cooperations for public health

With the EU project "Fit for Health," the Steinbeis-Europa-Zentrum and 26 other European partners are helping to increase participation of research-intensive SMEs in the European Directorate General's research programme for health. The most notable services on offer are workshops, training courses and strategic coaching sessions for enterprises and clusters. The aim is to promote partnerships between industry and research, and generate successful EU projects. To achieve this and take advantage of synergies, the project partners are working closely with networks like the Enterprise Europe Network.

"Fit for Health" is designed to simplify admission into the European research program for businesses and research institutions. Partner organizations assist individual projects with everything from the initial idea and formulation of the research proposal, to project bidding, searching for suitable partners, and dealing with intellectual property matters. How do I find the right partner, what does cooperation look like within a consortium, how are responsibilities distributed? Who does what, exactly? Project partners are there to answer all of these questions. At the implementation stage, companies and researchers are then assisted during contract negotiations with the EU, with financial matters, and making use of research findings.

The project is being coordinated by the Austrian Research Promotion Agency. The Steinbeis-Europa-Zentrum is assisting with training on the topic of project implementation. So far, approximately 650 participants

have taken part in 25 SME forums held in six countries. In Budapest and Zagreb, the partners trained more than 200 participants who had no previous knowledge of the European Research Programme. 167 participants received training on the EU project bidding, 400 more on project management. Over 8,400 contacts were made and 160 partner searches were facilitated via the Fit for Health Database – a collection of roughly 3,000 expert profiles of SMEs and research institutes. 800 participants attended four events for face to face meetings.

Several of the project partners are also members of the Enterprise Europe Network. SMEs could take advantage of synergy opportunities with 600 economic development institutions in 52 countries and gain insights into all matters relating to competitiveness and innovation in Europe. The network's central objectives are to foster research and technological partnerships in Europe while also broadening pools of con-



tacts with market partners abroad. The "Fit for Health" project entered its second phase in November. The Steinbeis-Europa-Zentrum will stay on board as a partner. And during the next several years, it will collaborate with other project partners once again to help businesses and research institutes get the most out of "Horizon 2020," the EU's upcoming Framework Programme for research and technology.



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Active and Healthy Aging – "CluStrat" paves way for key technologies to enter new markets

Staying healthy for as long as possible and independently managing one's own home despite potential physical limitations – that's not just something many people wish to achieve; considering cost developments in public health, politicians also have an interest in these concerns. Elderly health services presents a huge market opportunity for the European economy since it requires complex product developments, modern services, and innovative business models.

As a part of the EU's "CluStrat" project, a pilot program is being carried out in the model region of Rhine-Neckar in order to raise awareness for this growth area and pool the region's existing competences. "CluStrat" should aid in tapping into growth industries through the middle European economy. One focus is the area of "Active and Healthy Ageing," which aims to develop strategies for encouraging innovation among business clusters by way of new partnerships across industries and technologies. "CluStrat" is being coordinated by the Steinbeis-Europa-Zentrum with the financial support of the Ministry of Finance and Economics in Baden-Württemberg.

"Horizon 2020" – the new EU Framework Programme for Research and Innovation

"Horizon 2020" begins in January of 2014 and will last through 2020. It pools previously separate funding activities relating to research and innovation and, with a planned budget of over 70 billion euros, has come to be the largest development program in this field. "Horizon 2020" brings previously separate initiatives together, like the Framework Programme for Research and Technological Development, the Competitiveness and Innovation Programme, and the European Institute of Innovation and Technology. The program is divided into three major areas:

1. Excellent Science
2. Industrial Leadership
3. Societal challenges, including:
 - Health, demographic change and well-being
 - Food security, sustainable agriculture and forestry, marine and maritime and inland water research and bioeconomy
 - Secure, clean and efficient energy
 - Smart, green and integrated transport
 - Climate protection, resource efficiency and raw materials
 - Europe in a changing world: inclusive, innovative and reflective societies
 - Secure societies – protection of freedom and security for Europe and its citizens

The Steinbeis-Europa-Zentrum is helping businesses, universities of applied science, and research institutions navigate the new research programme.

Metal sponge structure
Photo: Hollomet GmbH

hpc² high-performance cellular cooler

Cellular, metallic cooling elements for electronic cooling components

These days, the electronic components used in LED technology are packed more tightly together, and that means greater power dissipation in the housing, assembly groups and components. These factors decrease a product's robustness and shorten its service life. The Müllheim-based Steinbeis Transfer Center for Identification Media & Identification Management, together with the companies Hollomet in Dresden and Turck-Duotec in Halver, developed a method for counteracting these effects: the hpc², or high-performance cellular cooler.

When developing high-performance assemblies, some initial problems must be addressed: Where should the dissipated heat go? How are high environmental temperatures best tackled? How are thermal flows best conducted away from the source? How is the most homogeneity achieved in the temperature distribution across the individually placed consumer components (as in LEDs)? And is it even possible to develop a new material that possesses the right physical and chemical properties for these kinds of applications?

Since the efficiency of LEDs depends to a great extent on their energy charge levels, and, thus, on the operating temperature, it is important to attempt to keep the thermal transfer resistance between the diodes, the circuit board (where the electrical components are mounted), and the cooling elements (heat exchangers) low. At very high room temperatures of up to "measured" 80°C (e.g., environmental temperatures under the roofs of buildings like foundries, plants in galvanic industries, or gymna-

siums), there is little room for passive cooling. Yet most applications don't allow for large cooling elements due to product design and weight issues, so a medium is needed for the heat transfer, which couples the "hot" electronic components with the cooler external environment.

The service life of high-quality electronics is greatly impacted by component temperatures. To reduce these, the three project partners developed the following requirements profile for heat exchangers: highest possible heat conductivity, high permeability, coverage of the largest-possible specific surface area, and lowest-possible specific density. To achieve this, the thermal capacity generated in the assembly group was to be transferred to as large a surface area as possible, one which is exposed to airflow and a fluid coolant. Fluid materials would then be conducted to an external cooling element through piping or hoses. For the sake of service life, it is essential that the maximum temperature



limit of 105°C is not exceeded, and that the thermal distribution is evenly spread in the arrays of consumer components.

All attempts on behalf of the project partners to use metal foams for an even temperature distribution proved unsuccessful, so they looked for a different technological solution – and they found one: The group was able to stabilize the temperatures in a force-cooled 200 Watt LED lamp at 35°C. In doing so, they met the objective of ensuring the viability of their development. In theory and practice, the project partners cap the diode-array capacity of 600 watts, for example, at more than 70,000 lumen. The physical limit, however, is much greater.

To achieve a high coolant flow rate in universal heat distribution across the complete cross-section of the cell, Steinbeis, Hollomet, and Turck-Duotec developed manufacturing processes for metallic, spongy cellular structures, which combine several properties in one process: light-weight construction through minimal use of materials despite high mechanical strength, implementation of defined porosity in various materials, temperature-resistance, corrosion-resistance, high allowance for through-flow and thus unimpeded coolant transfer, and freely designed geometries due to easy molding in various component sizes.

They can be varied to a great extent thanks to the geometry, layer thickness, and material selection. This provides an extremely interesting technological approach to the scalability of cooling systems: The heat exchanger connected to the component mounting element can form the greatest possible heat transfer surface between the electronics and the coolant. This allows designers to vary the cooling performance for identical assemblies through the coolant medium and its flow. This, in turn, allows for open and/or closed cooling systems.

The manufacture of the hpc² heat exchanger is based on a powder metallurgic, patented molding process, in which an organic carrier material – similar to a bath sponge – is coated with a metal powder binding agent. The structure of the carrier material and the organic binding agent are then removed through pyrolysis, after which the metal powder particles are sintered with inert gas into the finished “metal sponge structure.” Various stainless steel materials are particularly suited to this for non-aggressive fluid coolants. By using the right materials, extremely corrosion- and oxidation-resistant structures can be created. The porosity of the hpc² sponges can be gauged for various applications (from 60–95%) though the selection of the carrier material. This porosity can be parameterized and reproduced in the production process without any limitations.

What makes the hpc² high-performance cellular cooler project so special is the coolant through-flow volume and its thermal coupling with the component mounting element. The coolant flow rate can be varied through the porosity of the exchange cell, and during operation it can be varied by adjusting the flow speed of the coolant. No other known manufacturing process can match this process in terms of the surface area that can be reached internally.

The manufacturing transition involved in this process resulted in a lighting program for applications with extreme demands in terms of luminosity (e.g., in manufacturing facilities with high ceilings or for exterior lighting) and temperature-resistance in extremely hot environments. A product of this kind must be 100% recyclable at the end of its service life. That’s a tall order typically, but not for the pure stainless steel used in the hpc² project.



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Spanish colleagues on a trip to Hohenzollern Castle

Search for skilled workers becomes crucial

For specialists from southern Europe, the German language poses a daunting challenge

The contrast is obvious: While companies in Germany are desperately searching for qualified employees, southern Europe is experiencing large-scale unemployment. As it turns out, immigrant workers from the countries hit hardest by the euro crisis encounter few problems in terms of skills needed on the job in Germany. Rather, they struggle first and foremost with learning the German language as quickly as possible. A new pilot project at the Steinbeis Transfer Center for Microelectronics (TZM) is helping foreign workers take language courses.

The number of immigrants from southern Europe entering Germany in the first half of 2012 grew by roughly 6.5% compared to the previous year, while the total employment rate only rose by 1.6%. "Word got out about the good employment situation here," explains Dr. Beate Raabe from the German Federal Employment Agency's Central Office for International and Specialist Recruitment (ZAV). "Since German is rarely taught as the first or second foreign language abroad, strong language skills become a very important requirement."

Many of these migrants offer qualifications that are in scarce supply in Germany. Southern Germany and the North Rhine-Westphalia region, for example, both suffer from shortages in skilled engineers. And due to shifts in demographics, the gap experienced in certain fields and regions is only expected to widen in the future. "This deficit is precisely what needs to be anchored in the German psyche," says Dr. Ina Kayser, career and labor market expert for the Association of German Engineers. "Our country is still very prejudiced in many respects. We have to make it clear that we need these people." Many larger companies are apparently becoming very progressive and have, for example, arranged for mentors to accompany new workers during the early stages of their employment in order to ease everyday tasks in the new foreign country. But many SMEs might have difficulties being this accommodating. According to Dr. Kayser, the language is one of the major barriers to integration. "I often hear from immigrant engineers that their applications have been rejected because they can't speak German. I think there's a way to get past that in the beginning. Companies should start seeing an investment in language training as an investment in the future."

This notion is central to a project at the Steinbeis Transfer Center for Microelectronics (TZM) in Göppingen. The specialist for engineering services for electronics, software, measurement and testing technology hires engineers with backgrounds in IT and electrical engineering, but the pool of applicants has almost dried up completely. So the TZM decided to start recruiting engineers from southern Europe. The center began its search for qualified employees from the region in the spring of 2012. "We tapped into skilled workers through job announcements and

contacts with universities abroad," explains Sandra Welter, director of Human Resources at TZM. She describes the results up to this point as very positive; applicants have almost always been highly qualified and completely motivated degree holders or engineers with work experience. Many had sought work in Spain, for example, only to be confronted by the dramatic reality of the situation: Their home country cannot offer them a future right now.

The majority of the new recruits, however, speak no German. Since they may be dealing with customers directly in the future, the TZM decided to help these new employees learn the language. In the fall of 2012, a pilot project was launched: A language instructor from the Inlingua language school in Stuttgart was brought in every morning to teach the Spanish-speaking engineers German. Work-related tasks were dealt with during the afternoon. In addition, the company organized group daytrips and other activities to make the new employees feel more at home in Germany. The TZM's conclusion: Taking risks in HR recruiting pays off. The center plans to continue recruiting beyond the borders of Germany in the future.



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Expanding research and innovation in Tunisia

Steinbeis Team North-East offers biotech industry support

The EU project Bioprotech, coordinated by the Tunisian research institute "Centre de Biotechnologie de Sfax – CBS," aims to expand the knowledge-based biotech industry in Tunisia. After three years, the project has come to a successful end: The number of technology transfer projects has risen, and new European research and development partnerships have emerged. The Steinbeis Team North-East initiated the project and served as a partner throughout its duration.

Next to Tunis, the Sfax region is the most economically booming region in Tunisia. It has a solid infrastructure and countless research facilities. The aim of the Bioprotech project at the CBS was to increase the amount of research and development in bioprocess technologies by supplementing the current mix with research in the areas of biosecurity, microarrays and fermentation. This opened up opportunities for cross-pollination between the agriculture, environment and health industries, as well as for new partnerships with neighboring countries and the EU.

To achieve this, Steinbeis worked with other European partners and the employees of the CBS management and technology teams to develop innovation projects such as a collective platform for disease screenings, modern process engineering, or diagnostics in veterinary medicine. The Steinbeis team was responsible for training and coaching CBS scientists on the ins and outs of the European Development Programme. As a result, two new EU projects have already been launched at CBS. This has strengthened employee growth numbers and given the CBS team experience with international collaboration. At the close of the project, Steinbeis Team North-East and the Steinbeis-Europa-Zentrum carried out an evaluation, which yielded positive results: Competences in the areas of bioprocesses and transfer improved significantly. As part of its strategy for the future, the CBS plans to anchor itself in a market-oriented technology transfer network in Tunisia – similar to the way Steinbeis began in Baden-Wuerttemberg 30 years ago.



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Tracing heavy metal ions

Necessary or toxic?

As a commodity, drinking water must meet high quality standards. This applies even when it is used for sparkling beverages or alcoholic drinks. Heavy metal content like copper, iron and nickel are crucial dietary minerals for the human body, and are necessary for daily functions. But excessive levels can have serious health consequences, which is why the appropriate authorities regulate these substances. The Steinbeis Innovation Center for System Solutions in Measuring and Automation Technology is developing measurement instruments to monitor these limit values.

As part of a cooperative project with the Central Innovation Program for SMEs, Steinfurth Electromechanical Measuring Systems, SABO Electronics GmbH, Institute Mabel at Heidelberg University and the Uni-

versity of Saarland, Steinbeis experts are working on the development of a measurement tool for the monitoring of heavy metal content in drinking water and drinks. The measurement principle is based on the change in photophysical attributes of a fluorophore through resonant energy transfer (FRET) using an optomechanical sensor system. Taking the latest research into consideration, a compact and innovative instrument is being designed which can be implemented in industry in order to control the concentration of heavy metal ions.



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Cooled to perfection

Mobile climate control

Heating and cooling of mobile spaces typically takes place via convective systems. Through constant air exchange with the environment, however, the produced heat or cold can quickly be lost. In a project by the Central Innovation Program for SMEs, the not-for-profit Steinbeis Transfer Center for Drive and Handling Technology in Mechanical Engineering in Chemnitz, in cooperation with the Saxon Textile Research Institute and an SME, developed a climate control component that significantly reduces losses.

The Steinbeis experts and the project partners created a mobile climate control system for use in event and emergency medical services tents, mobile hospitals and non-air conditioned rooms. The innovative system

is equipped to heat and cool the appropriate spaces. Energy transfer takes place mostly through radiation, so the heating system is directly integrated into the climate control component. Cooling elements are fed in from an external system. The modular construction enables a high degree of adaptability to the given conditions. The technology has been patent protected.



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Young logistics specialists knuckle down to business

Steinbeis student implements development strategy at a branch office

A full-time job, university degree and project all at the same time – is that even possible? Sure, at Steinbeis. The Steinbeis-Hochschule Berlin (SHB) Project Competence Degree merges a consistent focus on practical application with solid scientific foundation. Markus Bartelmess, a master's student at the SHB Steinbeis School of International Business and Entrepreneurship (SIBE), found this out first-hand.

When Markus Bartelmess began his program at the SIBE in 2009, he had no idea how challenging and weighty the projects waiting for him would be, not just in his master's program but in other areas, too. Markus Bartelmess, meanwhile the branch director and deputy manager at the Mannheim-based freight forwarding company H. Ristelhueber's Nachfolger Spedition GmbH, decided to examine the subsidiary strategy for his degree project, focusing on the development of a portfolio of services in the sales department.

The goal of his project was to drive new business and develop profitable services for Ristelhueber. The Mannheim office should be expanded in the mid-term due to its ideal location. Ristelhueber decided to switch to sustainable, more ecological logistical chains and to expand its road and rail network. Markus Bartelmess was able to implement this in sales at the Mannheim site from the very first project target to project management. Hand in hand with this came continuous expansion in contract logistics, warehousing, and goods picking for trade and industry. During the planning phase, Markus Bartelmess introduced a bimodal logistics platform that Ristelhueber invested in as a vehicle for expanding its rail infrastructure. New processes had to be planned, drafted, and set into action by the time Markus Bartelmess wanted to go live with the platform in the summer of 2010.

After the project was completed, Ristelhueber started thinking about an annex to its building. Using the Steinbeis project as a basis, a long-term outlook for the Mannheim branch office could be developed. Markus Bartelmess attributes this success above all to his program at the SHB: While students work full-time in a company on a practical business

project, the seminars don't just impart knowledge on current management methods. Students also receive helpful support with the implementation of their ideas thanks to direct interaction with experts and project instructors. "The Steinbeis program helped me find creative and innovative solutions by both demanding and cultivating these skills," says Markus Bartelmess. "These creative solutions are what drives logistics these days – not sticking to convention, but instead thinking outside of the box in order to become and remain innovative and competitive."

That the SHB program is no cakewalk is something Prof. Dirk Engelhardt knows well– Engelhardt is director of the logistics/fleet division at Raiffeisen Waren-Zentrale Rhein-Main eG in Hanau and an instructor at the SIBE: "The workload for the students, not just getting on with everyday business but also managing academic issues, is a huge time commitment. Our alumni surveys show, however, that despite the grueling pace, the Project Competence Degree pays off in terms of both personal and professional development!"



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The 2013 Youth Start Ups winners: Timo Kron, Andreas Maier, Matthias Scherr, Selia Fink, Timo Ohnhaus, Robin Jahn (back row, left to right) and their teacher supervisors Leo Hoffmann (Philipp-Holzmann-Schule) and Werner Kreuter (Robert Schumann-Gymnasium, Cham) (front row, left to right).

Silicon Valley Calling!

The winning Youth Start Ups teams visit Silicon Valley

Going to school and running a business at the same time – that's what the participants of the Youth Start Ups business contest learned to master. The contest is sponsored by the Ministry for Education and Research and organized by a not-for-profit unit at the Steinbeis Transfer Center for Business Development at Pforzheim University. The program has enjoyed unbroken success across the country for years: Students spend an entire school year developing an innovative business idea and setting up their own virtual company. During the process, they are challenged by all the highs and lows of running a startup. Steinbeis offered the competition its support by sponsoring the winning team's trip to the American innovation hotspot, Silicon Valley. Here is the 2013 winning team's report back:

On July 14, after a year of work, the results of the Youth Start Ups program were finally announced. The ten final teams (from a total of 3,500 participants) had presented their ideas, and it was time for the winners to be rewarded at the Volkswagen factory in Wolfsburg. And we were chosen! For us six prizewinners from the Robert Schumann grammar school in Cham and the Philipp-Holzmann School in Frankfurt, this meant one thing: Silicon Valley, here we come! It was 1938 when William Hewlett and David Packard founded their high-tech company in today's Silicon Valley, a region that has become the most significant location for IT and the computer industry in the world. Youth Start Ups enabled us to gain insights in the same place where new innovation and trends are born every day.

We landed in San Francisco on September 4 after a long flight. Prof. Nils Högsdal, who accompanied us on the entire trip, picked us up at the air-

port. Then, following a quick pit stop at our hotel, we headed right off to the Plug and Play Tech Center in Silicon Valley. Any feelings of jetlag immediately disappeared as Bernhard greeted us at the German Silicon Valley Accelerator. He explained to us that the center makes it possible for young startup companies to rent office space at a reasonable price, with access to all technical infrastructure and investor contacts. As a part of the German Silicon Valley Accelerator, an initiative sponsored by the Federal Ministry of Economics and Technology, innovative companies can apply for a three-month internship in Silicon Valley. A jury selects the most interesting ideas. At the beginning of the program, the fledgling companies take part in a workshop to introduce them to different skills and competences. In addition, the German Silicon Valley Accelerator lines up valuable contacts to investors and ties into an expansive mentoring program that includes several successful entrepreneurs.

To kick off our second day, we visited San Francisco. We caught "The Fog City" on one of its best days: There was almost no fog in sight, so we could enjoy a breathtaking view of the Golden Gate Bridge. The next destination on our itinerary was a garage – no joke! In fact, giants like Hewlett Packard, Apple and Google all cultivated their ideas in a garage. In a brief tour, Björn Herrmann, founder of the successful startup startup-compass.co and the 2005 Youth Start Ups winner, showed us his offices and demonstrated how even the most barren facilities can foster business success. At a delicious lunch in an interesting part of town which personified the alternative San Francisco lifestyle, we could sense Björn Herrmann's passion for his work.

We continued to Detecon, a consulting subsidiary of Deutsche Telekom. Here we gained interesting perspectives on new developments and trends in the IT world. A case study was used to test our entrepreneurial talent and analytical skills. The brief? To develop a model for increasing the turnover at a telecommunications company. It was quite a task since it challenged us to think about finances, partners, and the concrete implementation of ideas. At the end of the day, we bid farewell to San Francisco with a ride in the world-famous cable cars.

When you hear about a place with a stadium big enough to house 80,000 spectators, one of the best hospitals in the world, and a perfect public transportation network, you typically think of mega-cities like London, New York or Paris. How wrong! All this and a particle accelerator can be found on the campus of one of the world's best universities: Stanford. Believe it or not, the campus covers an area the size of 6,500 soccer fields. 38,000 of the top students in the US apply to Stanford every year, and only about 6.6% of them are accepted. During our tour of the campus, we could feel the exciting atmosphere. We found it especially interesting just how many companies have been founded by former Stanford students: Google, HP, Ebay, Yahoo, Cisco, Instagram, etc.

After our visit, we set out for a startup called Swipp. swipp.com gives companies the opportunity to interact with customers and generate information about what their likes and dislikes are in an intuitive way. Then, we left the realm of current startups and were sent on a journey through the history of Silicon Valley with a visit to the Intel Museum. There, Prof. Högsdal gave us in-depth information on the production of chips and their importance for technology companies. After all, Silicon Valley did borrow its name from the most sought-after metal in the semiconductor industry: silicon.

Our impression on the next day can be summed up in a single word: WOW! Yosemite National Park is one of the most beautiful places in the world. The gorgeous valley between magnificent mountains with waterfalls, rivers, and wide stretches of forest made our visit unforgettable. Our destination was the top of Nevada Falls at an elevation of 1,800 meters. After a few hours of hiking through steep terrain, we reached our lookout point. An impressive panorama and glimpse of the surrounding mountains and the Half Dome were our reward for the arduous climb. Three hours later (with half of the group wishing for an oxygen tent), we made our way in our van to the next hotel just as the sun went down.

On our drive along Highway One, we enjoyed a wonderful view of the ocean, stopped in Monterey, had a picnic at a lookout point on the edge of the highway, and took a look at Hearst Castle, which was built in the first

half of the 20th century by William Randolph Hearst. On our sixth day, we headed south via the picturesque wine town of Solvang to Malibu and directly on to Redondo Beach. At the Redondo Beach Brewery Company, we sat down for some mouth-watering food and football!

All of a sudden, our last day in California had crept up on us. In the morning, we rode to VW, one of the main sponsors of the Youth Start Ups initiative. In its Design Center California, Jae S. Min, one of the head designers, invested a lot of time to answer our questions. The rest of the day was spent in Santa Monica, where we just had to jump into the ice-cold water. To round out our amazingly interesting and educational week in Silicon Valley, we sat down at a burger restaurant to say goodbye to the typical food in this land of unlimited possibilities.



What did we take with us? Vivid experiences that will impact us in our future careers, probably around 2,000 photos, countless impressions of the culture, nature and business, a handful of good contacts to startups in Silicon Valley, and the realization that the lifestyle in Silicon Valley is so different from what we know in Germany: "Take a risk with a good idea. If you fail, learn from your mistakes and use that knowledge to venture into the next project!"



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The pedestrian is wearing a Ko-TAG transponder that not only exchanges data with a second transponder, but also enables highly precise, relative localization. If the system predicts any overlaps in the movement paths of the two road users, it immediately intervenes. In the scenario pictured here, the car's brakes have been activated.

A car with a sixth sense

Cooperative sensor technology for highly automated driving

To reduce the number of traffic accidents and their level of severity – that's the goal of the Research Initiative for Cooperative Vehicle Safety (Ko-FAS). The 15 million euro initiative, sponsored by the Federal Ministry of Economics and Technology, has developed four cutting-edge technologies, components and systems to this end over the past four years. Each provides road users with a comprehensive view of their surroundings using cooperative sensor and perception technology. On this basis, it is possible to anticipate critical traffic situations in order to take the appropriate precautionary measures and avoid accidents or reduce their level of severity. The Steinbeis Innovation Center for Embedded Design and Networking offered its expertise as a partner in the Cooperative Transponder Technology sub-project (Ko-TAG).

The developed technologies track interactions between sensors of various road users and use the latest methods of communications technology to exchange information. The project partners from business and scientific circles compiled tremendous amounts of data on cooperative systems to be used for safety in road traffic. With this initiative, the Ko-FAS has highlighted the impressive innovative flair and technological leadership not only of the German automotive industry but also of its research partners.

For the sub-project, Ko-TAG, the Steinbeis experts focused their research on sensor technology based on transponder systems, or miniaturized transmitter and receiver units. The technology is being examined for its potential to protect vulnerable road users and enhance car-to-car safety.

The networked project relies on location devices in the vehicle. These retrieve information from other transponders carried by other road users. The transponders respond to prompts from the location devices with specific data. Using this, the location device then pinpoints the relative positions and types of road users in the immediate environment and calculates collision risks.

The Steinbeis Innovation Center for Embedded Design and Networking, which is headed up by Prof. Dr.-Ing. Axel Sikora (Offenburg University of Applied Sciences), was closely involved in the concept, the system design and the programming of communication protocols for the new transponders. Their work resulted in the development of a sub-system for the IEEE802.11p protocol from the field of car-to-car communica-



tion. Next to integration into the car-to-car communication, it enables additional features such as fast data transfer and relative localization based on time of flight (ToF) and angle of arrival (AoA) measurements. The sub-system was successfully verified not only in a network simulator, but also in a dedicated emulator with actual hardware developed during the project. Then, countless field tests successfully confirmed the performance of the selected system. The Steinbeis experts were also responsible for the development and delivery of a data security concept. Once the Ko-FAS initiative comes to an end in 2013, further development will be carried out on the applications to integrate them into vehicle systems. Plans for adopting this scalable localization system for other areas, such as automation technology or patient monitoring, are also in the works.

The Steinbeis Innovation Center for Embedded Design and Networking

Portfolio of Services

- Consulting
- Training
- Planning
- Implementation

Key Areas

- Embedded systems
 - Systems design, firmware development, communications technologies for embedded systems
 - Micro-controllers/micro-processes
 - Circuit design and layout
 - Secure communications and gateway solutions
 - Embedded Linux, embedded Android
 - Main emphasis: embedded Internet, embedded Web
- Wireless communications
 - Development of algorithms and protocols for efficient, secure and convenient communications
 - Simulation and emulation of algorithms and protocols
 - Circuit development and HF design
 - Software localization solutions
 - Energy optimization
 - Main emphasis: systems development of wireless sensor/actuator networks
- Circuit development
 - Development of circuits aided by:
 - FPGAs/PLDs
 - Soft and hard IPs
 - Development of bus adapters and co-processors



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Each target criteria was supplemented with questions in order to simplify the subsequent evaluation for residents and employees. The questions for the "care" criteria, for example, were as follows: Do you receive adequate care from a care attendant? Does he/she have enough time for your physical care? Are your care activities discussed and scheduled with you? Is a care attendant available for you when you need one?

The residents and employees of various facilities were surveyed and the results fed into the scoring model. The result was a highly differentiated depiction of care home quality with not one of the homes analyzed receiving a "very good".

The new evaluation method includes a criteria catalog that enables a more realistic evaluation of a care home. As such, it offers another decision aid for the selection of care homes in Brandenburg, in addition to the MDK transparency report. The criteria catalog shows the quality of care homes from the user perspective and shows a comprehensible, realistic picture.

Linda Bänisch transferred the scoring model data into Excel for use by the seniors' council during trainings. Now, after a 12-week accustomization period, and with the support of social workers and supervision

from the LASV (the Brandenburg office of social work and elderly care), the volunteers of the seniors' council can interview residents and employees with prepared survey forms and enter the results into the cost-benefit analysis.



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Linda Bänisch

Honor for Prof. Dr.-Ing. Aleksandar Jovanovic

Steinbeis Award

In November, Steinbeis honored Prof. Dr.-Ing. Aleksandar Jovanovic for his outstanding contributions to the Steinbeis Network. Aleksandar Jovanovic is the director of the Steinbeis enterprise Advanced Risk Technologies in Stuttgart. This award, which was bestowed for the first time, honors members of the Steinbeis community who have excelled through exceptional project success, their unique personality, attitude or exemplary track record.

Aleksandar Jovanovic studied at the University of Belgrade, where he also went on to earn a doctoral degree. He has taught at the universities in Stuttgart, Zagreb, Novi Sad and Paris, and has worked for the EU in Brussels. His research in recent years has focused on risk management and sustainable technology development. Aleksandar Jovanovic has been actively involved with Steinbeis since 2001, directs multiple Steinbeis enterprises, one transfer institute at Steinbeis University Berlin as well as the European Virtual Institute for Integrated Risk Management. His profound expertise is in high demand for transfer projects dealing with business as well as for countless EU projects with partners all over Europe.

The Steinbeis Award honors individuals for outstanding achievements. Honorees receive a medal and prize money. The Steinbeis Executive Board determines the recipients. Applications are not accepted, but recommendations can be submitted.



Prof. Dr.-Ing. Aleksandar Jovanovic (center) was bestowed by Manfred Mattulat (left) and Prof. Dr. Michael Auer (right)



Prof. Dr.-Ing. Aleksandar Jovanovic
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An efficient breath of fresh air

EU project for enhancing energy efficiency in hospitals

It's always the same story: Buildings are planned, built, put into operation – and then, for years at a time, when they're all up and running, no one asks any questions. But adjustments like energy savings don't necessarily require a huge investment. In fact, for larger buildings with complex systems, there are cost-effective and affordable ways to save energy. These include technical and organizational improvements to system engineering, as well as energy-efficient user behavior. The Steinbeis Transfer Center for Energy, Building and Solar Engineering in Stuttgart is offering its support with these types of initiatives.

The European project "Re-Co" (Re-Commissioning – Raising Energy Performance in Existing Non-Residential Buildings) is focusing on the cost-effective optimization of energy consumption. It is working on energy-saving strategies for 11 complex building types (including hospitals and universities) in eight European countries using minimal investment. The goal is to develop approaches which can be applied to other buildings as well. The project was launched in 2011 and will end in 2014.

As a part of the project, Steinbeis experts in Stuttgart used the Ludwigshafen emergency clinic as a case study for a number of performance

optimizations. The clinic uses 25,000 MWh annually, which amounts to a total of 2.7 million euros a year. To date, roughly 8% of the energy costs for heating and electricity have been cut by optimizing the ventilation systems.

A rough analysis revealed that ventilation systems alone consume 45% of the total energy, and account for 54% of the clinic's total energy costs. For the detailed analysis, the project team gathered information on selected ventilation units in their current working condition and calculated their yearly energy consumption. Afterwards the energy saving potential was calculated through adapting the mode of operation to its current. According to these calculations, the energy consumption in the single units could be reduced by 35% in average.

The clinic was able to achieve these savings by implementing measures with no or low investment costs. The largest potential for savings was found in use-based strategies like automatic shut-off at night, volume flow reduction adapting the actual time profiles in the building management system to its actual use, adapting the conditions to new utilisation of the supplied rooms. Further cost-efficient measures included reducing of the set values of the supply air pressure, exchanging defective damper blades, and checking various volume flow control units.

With its findings at the Ludwigshafen emergency clinic, the Steinbeis Center's results demonstrated the enormous savings potential for optimizations in ventilation systems simply through adjustments to the building control system. Overall, energy costs were reduced by approximately 170,000 euros a year, with an investment of only 110,000. In ROI terms: the project paid itself off after less than one year.



Co-funded by the Intelligent Energy Europe Programme of the European Union



Ursula Rieger

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Live in 3D

The 3D Inspector carries out visual checks and assembles and solders parts

In many sectors of industry, it is essential in production and quality assurance to inspect or process often very small parts or products at extremely close range. There are two major drawbacks with conventional inspection devices: They are not ergonomic and they use 2D, so they provide no indication of depth. The Steinbeis Transfer Center for QA and image processing, Qualitätssicherung und Bildverarbeitung, worked together with the Quality Assurance and Industrial Image Processing department at the Ilmenau University of Technology to systematically investigate these disadvantages. As a result, they developed an ergonomic inspection and assembly workstation – the 3D Inspector.

The 3D Inspector is a table-top device with two color cameras, a ring light and a 3D monitor featuring polarization technology. It is positioned centrally in front of the operator making it much easier to mount or solder small assembly modules and inspect printed circuit boards, soldering joints or microscopic parts. The two color cameras project a 3D image of the viewing area six times the original size onto a monitor. An important feature when working with the 3D Inspector is the ability to view 3D images in real time, without any delay whatsoever. It includes polarization glasses to view images in 3D and thus gives an accurate

The 3D Inspector

Applications:

- Assembly of small modules
- Soldering
- Inspection of printed circuit boards, soldering joints, etc.
- Imaging for use in quality management
- Dental processes in dentists' laboratories

Features:

- Live 3D display
- Replaces microscopes (ocular) or magnifying lamps
- Open workspace
- Clear visual access to object
- Central position of camera and monitor for safe and ergonomic operation
- Almost equivalent working area between object and monitor
- Can be combined with extraction systems
- 6x magnification
- Viewing area 7.0 x 5.3 cm

Technical details:

- Fittings:
 - Circular light to eliminate shadows
 - 22" monitor in 3D with polarized glasses
 - Central positioning of monitor (mounted according to VESA standards)
 - 2 CCD color cameras
 - Optional retrofitting of extraction unit for soldering fumes
 - Optional interface to PC to store and document images
- Dimensions (gross): W x D x H = 520 mm x 530 mm x 700 mm
- Dimensions (table footprint): W x D = 510 mm x 455 mm
- Weight: approx. 32.5 kg
- Power supply: 230 V

reflection of depth as required. The unit provides the operator with sufficient space to work and the operating area between the object and the monitor is almost identical to reduce work fatigue.

The 3D Inspector can be used in the manufacture of PCBs, final assembly, maintenance and quality assurance, but also dentists' laboratories and jewelry production.



Steffen Lübbecke

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New centers in the Steinbeis Network

The Steinbeis Network comprises around 1,000 Steinbeis enterprises spanning all fields of technology and management. Depending on the nature of their work, these may be Transfer Centers, Consulting Centers, Innovation Centers, Research Centers, Transfer Institutes or separate legal entities. The following new Steinbeis enterprises have been founded since July 2013.

Aalen



Matworks GmbH

Dr. Alwin Nagel

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Services

This Steinbeis Enterprise focuses on applied research and customized development and consulting in the area of materials attributes and applications. This includes:

- Materials and component manufacturing methods
- Materials innovation and system integration
- Materials testing and calculations
- Training in the area of materials engineering
- Development and implementation of software applications in these areas

Bempflingen



Steinbeis Transfer Center Energy Storage

Prof. Dr.-Ing. Ulrich Nepustil

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“In general, renewable energy is problematic because, on the one hand, it is generated before it is not immediately needed and, on the other hand, the place it is generated is not always the place where it is consumed later on. That is why the storage of surplus energy will become increasingly important in the future in order to guarantee stability in public power networks. To help achieve this, we develop various energy storage concepts.”

Services

- Development of directly heated high-temperature PCM storage units
- Integration of energy storage units in regenerative energy concepts
- Development of mobile energy storage units based on PCM technology

Buckenhof



Steinbeis Research Center System Design and Testing

Prof. Dr.-Ing. Ulrich Heinkel

SU1734@stw.de | www.steinbeis.de/su/1734

Services

- Development, verification and testing of hardware and software for heterogeneous systems
- General digital and analog design
- Application of LTE test network

Dortmund



Steinbeis Research Center Modern Institute of Technology - Research and Education

Prof. Dr. Ali Reza Samanpour

SU1741@stw.de | www.steinbeis.de/su/1741

“IT infrastructures and their management, including the organization of large data volumes, are crucial in all areas of industry central to business success. We support you with everything from software architecture and design to implementation in the production system.”

Services

- IT project management
- IT consulting
- IT training
- Research and development

Freiburg



Steinbeis Research Center Surface Engineering

Prof. Dr.-Ing. Manfred Schlatter

SU1751@stw.de | www.steinbeis.de/su/1751

“We look below the surface – by examining your surfaces with our highly modern measurement and analysis tools. We can even customize your surfaces with the right features if required.”

Services

- Applied research projects
- Advice on all issues relating to surface technology
- Measuring (geometry, hardness incl. nano hardness; roughness testing incl. surface roughness; REM incl. EDX analysis)

- Expert reports on wear, surface and production technology, and materials technology
- Production of plastic parts using injection molding for prototyping, incl. simulation
- Seminars on above topics upon request
- Equipment:
 - Plasma CVD coating machine (plasma electronics)
 - Universal hardness testing machine (KB-Prüftechnik)
 - Nanoindenter and Calo tester (CSM)
 - Desktop scanning electron microscope (incl. EDX; Phenom)
 - Digital microscope (Keyence)
 - White light interferometer (FRT)
 - Roughness meter (Hommel)
 - Layer thickness gauge (Fischer)
 - Measuring device (Zeiss)
 - Tensile testing device (Test)
 - Notched impact bending measurement device
 - Modern CNC turning and milling machine (DMG)
 - Air blast equipment
 - Gas shielded welding device
 - Industrial robot (ABB)
 - Plastic injection molding machine (Arburg)
 - Simulation (MoldFlow)
 - All conventional CAD programs used in mechanical engineering
 - 3D printer (Dimension)
 - 3D scanner (Minolta)

Graz (Austria)



Steinbeis Transfer Institute Advanced Studies and Science

Dipl.-Ing. Gerald Friedrich, M.Sc.,
Stefan-Markus Friedrich, Mag.rer.soc.oec.
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“Business development by sharing skills. We see our on-site/remote system in conjunction with the tried-and-tested Steinbeis Project Competence Degree Model as a driving force of HR development and innovative flair for our company.”

Services

- Degree programs in parallel to full-time work
- Transfer into business practice
- Research transfer

Greifswald



Steinbeis Research Center Institute for Resource Development

Dipl.-Betriebsw. (FH) Katja Wolter
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“Recruiting and keeping specialists is becoming more and more of a challenge for SMEs. These companies have to develop strategies for overcoming the shortage of skilled workers in order to remain competitive. The Institute of Resource Development sees itself as a reliable partner for the implementation of strategies and measures for securing specialists, as well as the sustainable growth of a company.”

Services

- Consulting on employee retention at small and medium-sized enterprises (SMEs)
- Development of employee retention strategies
- Analysis of demographic change with a focus on the economy and labor market
- Empirical studies, business studies
- Regional economic development in the Baltic Sea region
- Intercultural conflict training and intercultural skills

Großbettlingen



Steinbeis Transfer Center Open Source Business Management

Dipl.-Wirt.-Ing. (FH) Günter Drews
SU1759@stw.de | www.steinbeis.de/su/1759

“The Steinbeis Transfer Center of Open Source Business Management deals with the analysis and management of projects and processes, and the organization of knowledge and learning processes with the help of open source software and open content.”

Services

- Project management consulting, training, and PM software support
- Consulting on business process analysis and business process optimization
- Inter-industry development of eLearning programs and blended learning courses
- Selection and assessment of open source solutions in the areas of project, process, and knowledge management

Heidelberg



Steinbeis Transfer Center Medical Systems Biology (MSB)

Dr.-Ing. Niels Grabe

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“The Steinbeis Transfer Center for Medical Systems Biology offers the diagnostic and pharmaceutical industries expertise in quantitative molecular biomarker analysis of tissues, as well as computer-aided modeling of complex human maladies.”

Services

Unique competence network of leading cancer scientists from the areas of systems biology, bioinformatics, imaging, pathology and oncology.

Illingen



Steinbeis Transfer Center Grid Dynamics and System Studies

Prof. Dr.-Ing. Thomas Ahndorf

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“The reliable operation and sustainable planning of transmission and distribution networks is central to the long-term welfare of our country. Our Transfer Center is a trusted partner to network operators in matters relating to system stability and network dynamics. It also offers them advice on introducing new technologies such as high-voltage direct current transmission systems.”

Services

- Grid calculations – stationary and dynamic
- Consulting and training
- Expert reports and studies
- Support with the integration of renewable energies (e.g., offshore wind farms)

Karlsruhe



Steinbeis Transfer Center Automotive and Embedded

Prof. Dr.-Ing. Reiner Kriesten

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“Mastering entire development chains as well as expertise in individual engineering fields is the key to the sustainable success of embedded automotive systems. We see ourselves as a reliable partner to companies offering products with a strong software bias, and offer customized service portfolios ranging from training and expert talks to consulting and engineering services.”

Services

- Workshops and seminars on standard topics and key areas
- Expert reports
- Consulting and concept development for automotive and/or embedded systems
- Research and development of prototype systems and support at individual development stages
- Industrial services in the area of research and development



Steinbeis Transfer Center Tribology Application and Practice

Prof. Dr.-Ing. Dietmar Schorr

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“Capturing functional correlations within tribological systems is paramount in order to minimize financial losses due to tribological wear. We see ourselves as a service provider to industrial enterprises. We pinpoint tribological system correlations with the aim of facilitating practical application.”

Services

- Experimental studies
- Consulting
- Talks, seminars and training on tribology topics
- Applied research and development
- Expert reports

Constance



Steinbeis Transfer Center Federated Information and Communication Security

Prof. Dr. Marcel Waldvogel, Sebastian Graf, M.Sc.

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“Important business documents should never leave the business. We offer you the attractiveness of cloud and Internet services without forcing you to compromise on this principle. You receive complete control over your data and information flows. We take care of the convenience and security.”

Services

- Consulting
- Training
- Turnkey handovers



Steinbeis Transfer Institute mediholos

Ass. iur Piroska Gavaller-Rothe
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“Within the field of healthcare, competition is evolving into cooperation with a focus on collectively developing products and services for the benefit of mankind. This is the central motive of every medical and medical technology development. It has been integrated into a holistic concept for ‘therapeutic space’ and is being coordinated and implemented in a manner that respects the individual. This therapeutic space connects complex systems that draw on robust information and communication structures to facilitate reliable and organic collaboration. All key players are open to adaptive learning and development. All can contribute with confidence and without inhibition, since mistakes are appreciated as valuable sources of learning. Patients, their relatives, and any other individuals involved in health care are assisted throughout a holistic process and supported during the development of their independent contribution to a health care system which benefits and values human life.”

Services

- Teaching, continuous professional development and project development in the fields of health care, medical physics, (bio)medicine and medical technology
- Project management, coordination and moderation
- Consulting and support
- (Certification) courses and training of soft skills, especially communication and conflict skills, effective teamwork and management

Köthen



Steinbeis Innovation Center Institute for Sustainable Manufacturing Technology

Prof. Dr.-Ing. Heiko Rudolf
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“For scientific and business undertakings, sustainability will mean safeguarding the future. As such, sustainability must be placed at the forefront in all fields and systems. That’s where we come in.”

Services

- Examination and analysis of procedures and processes in the field of manufacturing technology
- Procedure, process and machine development
- Know-how and results transfer in the area of manufacturing technology
- Expansion of competence areas within businesses

Linthe



Steinbeis Transfer Institute Consulting on Health Care

Dr. Bodo Antonic
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“In most companies operating in the health care industry, the greatest potential to improve lies in commercial areas and actual processes and procedures. We identify and exploit ways to enhance efficiency and reveal innovation potential with our partners and clients, in order to increase business viability. In doing so, we help hospitals, medical practices, sponsors, and businesses in the pharmaceutical and medical industries improve their sustainability.”

Services

- Studies
- Analysis
- Design
- Implementation

Neustadt am Rügenberge



Steinbeis Transfer Center Communications Technology and Digital Industrial Electronics

Prof. Dr.-Ing. Jörg Wehmeier
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“In communications technology, the development of next generation systems, or IP-based systems with ‘quality of service’, is unavoidable. We see ourselves as a partner offering support with the introduction, expansion or conversion of your systems. In the field of industrial electronics, another trend is coming full circle: Old telemetric machines are being increasingly replaced by modern ‘machine to machine’ communication systems. We specialize in fulfilling the individual needs of small and medium-sized enterprises.”

Services

- Training, also customized:
 - Internet protocols
 - Design of digital circuitry
 - Maritime and navigation radio systems
 - Telecommunication systems and networks
- Consulting:
 - Communication networks
 - Expert reports
 - Project management and/or support
 - Feasibility studies, preliminary studies

Oldenburg



Steinbeis Transfer Center Applied Production and Joining Technology / ARGOS

Prof. Dr.-Ing. Dieter Liebenow, Dipl.-Ing. Harald Musa
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“If we don’t pay close attention, important information could be lost. Whenever we observe something, we want to be able to recognize correlations. Only comprehensive awareness can guarantee our customers innovative know-how.”

Services

- Focus area: quality management
- Quality management system ARGOS (QM-System ARGOS – Product Development of the Steinbeis ARGOS Systems Engineering)
 - Innovative, cross-system online-quality management
 - Consulting – process analysis, production processes
 - Consulting – process optimization
 - Process diagnostics, control processes
- Focus area: joining technology
 - Consulting – process analysis for welding techniques
 - Consulting – process optimization in welding
 - Analysis of automated welding processes
- Focus area: service
 - Feasibility studies on automated welding using robotic systems
 - Feasibility studies on the application and implementation of control concepts in automated manufacturing
- Focus area: manufacturing/production
 - Consulting – welding techniques in apparatus and pipeline engineering
 - Consulting – welding techniques in shipbuilding
 - Consulting – technological questions related to the application of welding techniques in manufacturing
 - Support with component design suitable for manufacturing
 - Support during implementation of automated welding techniques/robotics
 - Analysis/support/consulting on the application of new production technologies based on analysis techniques (portfolio techniques, for example)
- Focus area: training
 - Training and seminars on implementation of the QM-System ARGOS

Punjab (India)

AAUTOSYNC – Steinbeis Centre for Automotive Technologies



Ankit Khurana

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“Autosync – Steinbeis Centre for Automotive Technologies (AS-CAT) aims to provide coherent automotive knowledge with a mixture of practical training in order to build bridges between the world of science, academia, and business. We offer well thought-out, theoretical demonstrations to explore the many unanswered, out-of-the-box queries which deplete the innovative mind.”

Services

- Research and Development in Automobile arena
- Training students and professionals
- Project Based Learning
- Hybrid Vehicles inception

Ravensburg



Steinbeis Transfer Center Ravensburg District

Dipl.-Wirt.-Ing. (FH) Hans-Joachim Hölz
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Services

The Steinbeis Transfer Center Oberschwaben-Allgäu Ravensburg supports companies and institutions in the region in accessing the complete spectrum of services offered by the Steinbeis Foundation. Our many Steinbeis experts look forward to providing you with key services.

- Support with:
 - structuring planned innovation and development
 - submitting applications for funding programs
 - implementing scientific and academic findings
 - succession planning for companies
- Recruitment of:
 - contacts for cooperative company projects
 - contacts to research and development centers
 - information regarding business and the economy
- Innovation consulting by our experts
- Problem analysis and recommendations in the following areas:
 - Complete range of technologies
 - Business administration (financing, succession planning)
 - Design
 - Regional structuring and marketing measures
 - Recruitment of specialists

Reutlingen



Steinbeis Transfer Center Material-Design-Function

Prof. Dr. Richard Schilling

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“Working at the nexus between material, design and function means using innovative materials in order to turn design ideas into functional, ergonomic, and convenient concepts. Then, the challenge is to make these concepts tangible and comprehensive, and to be able to measure the performance of the developed products in a clear manner.”

Services

- Technology transfer within the scope of R&D projects
- Development and conducting of application-related testing procedures – also to support claims
- Development of tabletop experiments
- Technical resolution of internal and external quality problems
- Technical translations, technical interpreting for improved transfer of technological know-how
- Development and application of didactic instruments (seminars, etc.) to impart technical content
- Structure and organization of physical and virtual collections of materials
- Development of systems for researching materials
- Working languages: German, English, Russian, Swedish – further languages upon request

Schonach



Steinbeis Transfer Center CRM in Digital Media

Prof. Dr. Matthias Schulten

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“We assist you with the optimization of your customer acquisition, retention, and churn management strategies in digital media. During this process, our work is marked by an analytical approach and a focus on results: from training and consulting to implementation.”

Services

- Consulting and coaching based on scientific research
- In-house training, workshops and seminars on customer relationship management
- Scientific studies and contractual research

Schönaich



Steinbeis Transfer Center TransferWorks BW

Dipl.-Geol. Beate Wittkopp

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“Pooling strengths in the transfer process.”

Services

- Network services
- Project management
- Consulting and recruiting (recruiting and outplacement)
- Facilitation
- Specialist field trips
- Workshops and seminars

Stuttgart



Transfer GmbH der Dualen Hochschule Baden-Württemberg

Dipl.-Wirt.-Ing. August Musch

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Services

This Steinbeis Enterprise focuses on the transfer of knowledge between science and business. To this end, the association establishes other Steinbeis Transfer Enterprises in order to offer research, development, consulting, training, and professional development services.

The association assists the Baden-Wuerttemberg Cooperative State University (DHBW) with the promotion of know-how transfer. By drawing on the transfer potential of the DHBW in addition to proven instruments and structures of competitive transfer, it aims to ensure the establishment of effective, efficient transfer in a form that benefits all involved parties.



Steinbeis Transfer Center Information Logistics

Prof. Dr.-Ing. Dieter Uckelmann

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“Logistics and information processing have been traditionally – in research and in practice – dealt with separately. Information logistics merges both of these worlds into one synergetic approach.”

Services

- Applied logistics research
- Consulting on the application of information technologies in logistics
- Consulting on the application of logistics principles for processing information
- Technology consulting for the application of auto-ID systems in logistics

Tübingen



Steinbeis Consulting Center Accentus

Mario Graff, M.A., Dipl.-Päd. Christian Wißmann

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“We transfer human resources and organizational development from the ivory tower and the concept paper into the daily business practice of our customers.”

Services

- Human resources development and management
- Strategy and organization

Ulm

**Steinbeis Transfer Center EKHO - Electromagnetic Compatibility, Communication Systems and High-Frequency**

Prof. Dr. Roland Münzner
 SU1732@stw.de | www.steinbeis.de/su/1732

“Technical products and machines indicate that there is a clear trend toward increasing networking with constantly growing communications volumes. With electronics growing increasingly complex, packing density intensifying and more and more interruptions caused by energy-efficient high-end electronics, businesses face a variety of challenges, but in particular they need to develop and operate communication and control units without malfunction. With its comprehensive understanding of electromagnetic compatibility (EMC), high-frequency technology and communications systems, the EKHO Steinbeis Transfer Center is an ideal partner for complex issues related to interference-free operation, as well as the fully functioning broadband networking of electronic control and communication equipment. One of the center’s areas of specialization is the EMC of bus systems in vehicles.”

Services

- Applied research and development
- EMC and HF measurement technology
- Feasibility studies and prototypes
- Simulations
- Consulting and expert reports
- Seminars

Villingen-Schwenningen

**Steinbeis Transfer Institute Villingen Institute of Public Health (VIPH)**

Dr. med. Lotte Habermann-Horstmeier
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“Promoting health instead of fighting illness: In light of shifts in demographics, this target is moving increasingly into the focus of businesses. We train your specialists for precisely this – with an extra-occupational, blended-learning program of study that is both adaptable and relevant to business practice.”

Services

- Development and implementation of study programs in the areas of public health, health promotion, and prevention; customized concepts for corporate health promotion through students at these companies/institutions
- Development and implementation of certification courses in the areas of public health, health promotion, and prevention
- Execution of scientific studies and evaluations in the areas of public health, health promotion, and prevention
- Consulting for businesses and institutions on corporate health promotion and prevention

Weingarten

**Steinbeis Transfer Center Automation Technology and Process Engineering**

Prof. Dr. Lothar Berger
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“Innovation through intelligent automation in manufacturing.”

Services

- Automation systems
- Process development
- Physical simulation and verification
- Embedded systems

Wismar

**Steinbeis Transfer Center Institute of Production, Logistics and Quality (iplq)**

Prof. Dr.-Ing. Roland Larek
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“The iplq STC in Wismar offers planning, consulting and research related to technological and organizational topics in factories and manufacturing. We draw on tried-and-tested methods such as time recording and data analysis, incorporating newer approaches like simulation and numerical optimization.”

Services

- Planning
- Evaluation and consulting
- Simulations
- Research and development

Innovation for SMEs

Steinbeis-Europa-Zentrum awarded prize by innovation network

The 600 international partners of the world's most extensive technology network, Enterprise Europe Network, have voted an innovation analysis of small and medium-sized enterprises, which was developed by Steinbeis-Europa-Zentrum (SEZ), the winner of the 2013 Best Practice Awards in the category for technology auditing. The SEZ received the award at the network's annual conference, which took place in Vilnius last October.

The SEZ innovation analysis is an opportunity for companies to collaborate with innovation consultants at the Steinbeis-Europa-Zentrum in order to gain a closer understanding of their own position, as well as to plan and extend their own strategic potential to innovate on the European stage. The service also goes beyond the initial analysis in a joint process to define goals and key actions. The customer receives important information on new technology and developments, which is not only useful for the company's competitiveness, but also for any technology or strategy partners inside or outside Europe.

"Our approach has proven itself over the years and has been updated regularly. It provides companies with a process for setting innovation in

motion with an eye on the ultimate goal," explains Dr. Petra Püchner, managing director of the Steinbeis-Europa-Zentrum in Stuttgart. The SEZ experts have carried out around 400 audits. The European Commission and the Baden-Württemberg Ministry of Finance and Economy make it possible for small and medium-sized enterprises in the state to make use of the innovation service at no extra cost.

During the innovation audit, the SEZ experts examine the research potential of the company with the client and identify strengths and weaknesses. Together, the two parties assess key technologies in the market and potential innovation projects. The underlying method is a combination of strategic planning, an analysis of requirements, goals and resources, a search for collaboration and funding partners, and support with project development and management.



Dr. Petra Püchner
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UNESCO award for sustainable education

Steinbeis project honored for sustainability

The German UNESCO Commission has honored the Energy Efficiency in Logistics plan developed by the Logistics and Sustainability Innovation Center in Sinsheim as part of a project under the UN Decade of Education for Sustainable Development. The award is bestowed to initiatives that exemplify the principles of the United Nations' worldwide education drive by imparting sustainable thought and action.



Thomas Schindler,
Jens-Jochen Roth,
Prof. Dr. Gerhard
de Haan (left to
right)

Jens-Jochen Roth, who is director of the Sinsheim-based Steinbeis Innovation Center, provides an impressive indication of the shape of education to come with his Energy Efficiency in Logistics concept. The jury of the UNESCO award praised the project for, "demonstrating in an understandable manner how people act sustainably," explains Prof. Dr. Gerhard de Haan, chairman of the German committee and the jury of the UN Decade in Germany.

The now award-winning project revolves primarily around measures that support trainees, instructors and teaching staff in their efforts to achieve sustainable development by improving energy efficiency in the transportation and logistics industry. Implementation plans should focus closely on the aspects of sustainability (economy, ecology, social factors). The aim should be to promote the concepts of sustainable thought and action in such a way that key players are put in a position to make decisions regarding the future and to understand the impact of personal actions on future generations. Key players thus discover the consequences of their actions – not just for themselves and things immediately around them, but also others. The German Federal Foundation for the Environment (DBU) in Osnabrück is backing the initiative, which runs until January 2015.



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About the editor

Prof. Dr. med. univ. et med. dent. Gregor Slavicek is a doctor of general medicine who specializes in dentistry, oral medicine and orthodontics. Professor Slavicek is director of the Steinbeis Transfer Institute (STI) of Biotechnology in Interdisciplinary Dentistry. He also heads up the following Steinbeis University programs: Bachelor of Science; Dental Technology and Management in Dentistry, Master of Science in Innovation, Dental Technology and Master of Science; Biotechnology in Interdisciplinary Dentistry and Management, as well as Innovation Management in Dental Technology.



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Steinbeis 1983–2013 Steinbeis Foundation (publ.)

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ISBN 978-3-943356-86-1



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About the publication

This publication provides an overview of the milestones during the last 30 years in the Steinbeis Network. The aim of the book is not to enter into the historical detail of the more thorough publication Steinbeis 1983–2008, but rather to explain the development of Steinbeis and provide an outline of the key thrusts.



Art – Communication – Resonance. With Art in Dialog Gudrun Jürß

2013 | paperback, color | 96 pages, German
ISBN 978-3-943356-69-4

About the artist

Gudrun Jürß is managing director, trainer and coach at the Steinbeis enterprise stw unisono training+consulting GmbH. She is also the co-founder and director of the Steinbeis Transfer Institute kompetenz institut unisono at Steinbeis University Berlin (SHB). Jürß is also a project manager for a Mannheim-based insurance company and is actively involved in training and continuing professional development projects at the Steinbeis Transfer Center for Quality and the Environment (TQU). During her four-year training as an art therapist, through the medium of art Jürß learned the fundamentals of art therapy, the physical influence of color, and the theory of composition and communication. She has expanded on this knowledge of prevention, ways to use these concepts with patients, conflict research, art history and cultural development.



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**The Steinbeis Foundation Transfer Prize –
The Lohn Award 2004–2013**
Steinbeis Foundation (publ.)

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ISBN 978-3-943356-68-7

About the publication

The transfer prize of the Steinbeis Foundation – The Lohn Award – recognizes excellence in competitive technology and knowledge transfer between science and academia on the one hand and business on the other. This publication is issued annually to coincide with the awards ceremony and introduce all prize winners and their projects since 2004. Winners of special awards are also introduced with an article about each individual.



More about the Lohn Award



The 2013 Steinbeis Day
Steinbeis Foundation (publ.)

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About the event

The Steinbeis Day, which enjoys a long tradition, is an annual event looking at new areas of technology and management represented by experts in the Steinbeis Network. At the Steinbeis Day, Steinbeis Enterprises showcase current and recent projects at the Haus der Wirtschaft in Stuttgart. They also make short speeches on insights gained from transfer projects and answer specialist questions. The documentation summarizes speeches and exhibitor information, providing a useful synopsis of the event and a post-event review of topics looked at.



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AUTOMED 2013 | Proceedings.
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Hagen Malberg, Marcelo Gama de Abreu,
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About the publisher

The AUTOMED 2013 proceedings have been published as the first volume in a series of "Reports on Biomedical Engineering" being issued by Prof. Dr.-Ing. habil. Hagen Malberg. Professor Malberg is director of the Steinbeis Research Center for Applied Medical Technology.



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The Black Book of HR Development.
Lunatics in Pinstripes
Viktor Lau

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About the author

Dr. Viktor Lau has studied philosophy, history, German studies and business administration, and for over 10 years he worked as a consultant for the Steinbeis Foundation and other international consulting organizations. For many years, he was also responsible for strategic human resources development in the core markets of a Top 30 company on the German stock exchange. Viktor Lau is currently head of HR and organizational development at a bank in north Germany. His work revolves around HR strategies and management, HR development and continuing professional development, HR and training monitoring. He is also a project manager at the Technology – Organization – Human Resources Steinbeis Transfer Center (TOP).



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**Smart Use of Excel. Excel Solutions in
Frontline Business Operations**
Andreas Kurz

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About the author

Andreas Kurz, B. Sc. (degree in business engineering at Pforzheim University), is a financial accountant at Daimler Financial Services AG and freelance consultant and project manager at the Steinbeis Transfer Center for Marketing, Logistics and Company Planning at Pforzheim University. In his role as a consultant and project manager at Steinbeis, Andreas Kurz develops made-to-measure, cost-efficient Excel solutions for use in frontline business application.



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