



**Kühne Foundation Endowed Chair of Logistics Management  
Kühne Institute of Logistics Management**

**Activity Report 2014  
September 1, 2013 – August 31, 2014**



From left to right:  
Matthias Winkenbach, Linda Stein, Ingmar Ritzenhofen, Professor Spinler, Alexander König, Daniel Hach

**WHU – Otto Beisheim School of Management**  
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## Preface

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This report covers the period from September 2013 to August 2014. In this period, the chair's team continued to produce exciting research results which were published in a broad range of high-quality journals, to offer attractive lectures related to logistics and supply chain management and demonstrate impact in practice.

As far as teaching is concerned, the following lectures are offered in the Bachelor of Science Program at the WHU: a popular real options analysis class, a seminar on the quickly evolving



topic of multi-modal logistics as well as a literature seminar which introduces students to quantitative research in supply chain management. In the Master's program, this is followed by the logistics and supply chain management course; a real options class has been offered in the MBA curriculum, too. Last, a doctoral seminar on supply chain management is taught, again with an emphasis on quantitative methods in logistics research. Quite a number of international students groups visiting from, among other places, Pittsburgh and Michigan, were introduced to the specifics of European operations and supply chain management and the challenges as well as opportunities that come along with concerns about sustainability. A module consisting of courses on transportation and distribution management was well received at the Kühne Logistics University in Hamburg.

Publications in top-ranked journals indicate the quality of the research carried out at the chair. The topics range from technology choice in fleet replacement problems to manufacturer – supplier collaboration for CO<sub>2</sub> reduction. Matthias Winkenbach was re-invited to join for another four weeks to finalize his research at MIT's Mega-City Logistics Group headed by Dr. Edgar Blanco. Daniel Hach had a very fruitful research stay at Cambridge University where he collaborated with Kong Chiong, David Newbery and Danny Ralph. Various presentations in the seminar of the Energy Policy Group gave Daniel the opportunity to further develop and fine tune his model. Ingmar Ritzenhofen, in turn, had a very successful stay at the University of Chicago, where he closely worked together with John Birge and subsequently carried on this research with John leading to a very interesting extension of the initial paper. Eike Nohdurft will be visiting the UCLA in the beginning of next year, where he shall collaborate with Elisa Long. Undoubtedly, a highlight in terms of recognition for excellent research was Matthias Winkenbach being awarded the prestigious Science Award for SCM by the German Logistics Association (BVL) at their annual conference in Berlin. Congratulations, Matthias!

Two dissertations, submitted by Andreas Kretschmer and Matthias Winkenbach, were finished this past year with truly impactful results.

Furthermore, I was very delighted to witness the prototype of a 3D printer that two alumni of the chair, Dr. Robert Hein and Dr. Andrei Neboian, have developed and manufactured. During the Air Cargo Day in Zurich, they impressed participants with the capabilities of their newly developed printer.

I would like to thank the entire team at the chair for their dedication and energy they bring to their work and for the delightful atmosphere they help to create. This is the basis for the good work that is being done here. Linda Stein does an outstanding job to assure smooth operations at the chair.



The multitude of research and teaching activities would not have been possible without the ongoing and generous support of the Kühne Foundation. My wholehearted thanks go to Prof. Dr. h.c. Klaus-Michael Kühne and to the managing director of the foundation, Mr. Martin Willhaus. Not only is the financial support greatly appreciated, but also the tireless efforts which Mr. Willhaus makes to provide contacts with practitioners within the logistics industry. The Kühne Foundation's credo to make logistics research relevant to practice is thus supported in an excellent manner.

This report is meant to provide an overview of the chair's activities. We all look forward to new exciting logistics research and teaching.

Vallendar, November 2014

A handwritten signature in blue ink, which appears to read 'Stefan Spinler'.

Univ. Prof. Dr. Stefan Spinler

*Note: All activities related to the issue of sustainability have been marked by a symbol.*



## Team

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## Team

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### Alumni

Dr. Judith Berndroth  
Operations Manager  
Amazon  
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Dr. Doreen Diehl  
Project Manager  
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Dr. Daniel Girardet  
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Dr. Katharina Grobleben  
Executive Assistant  
KG BURSPED Sepditions-GmbH & Co.  
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Dr. Robert Hein  
CTO  
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Dr. Sebastian Huber  
Head of Business and Launch  
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Dr. Andreas Kretschmer  
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Dr. Andrei Neboian  
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Xioneer Systems (startup)  
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Dr. Sebastian Theißen  
Junior Executive SCM department  
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### Honorary Professor

Prof. Dr. Jürgen Ringbeck  
Senior Partner  
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## Team

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**Professor Dr. Stefan Spinler**  
Head of Chair

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Professor Stefan Spinler holds the Kühne Foundation Endowed Chair of Logistics Management at WHU - Otto Beisheim School of Management. He received a master's degree in electrical engineering from Friedrich-Alexander University in Erlangen, with research stays at University College London and Bell Labs (USA). In 1997, he was awarded the diploma in electrical engineering. Subsequently, he joined Infineon Technologies with responsibilities in process integration, quality, and supply chain management. From October 1999 to August 2002, Prof. Spinler was a doctoral student in the department of Production Management and taught at WHU and Leipzig Graduate School of Management (HHL). His research on options on capacity has been presented at international conferences and leading US business schools. Moreover, his research was awarded a number of prizes, most notably the Management Science Strategic Innovation Award (from EURO) as well as the GOR dissertation award. Upon the completion of his doctoral studies, Prof. Spinler spent a year as a lecturer at the Wharton School, where he taught classes in the MBA and PhD programs and developed a real options class for executives. He continues teaching as a guest professor this latter class in Wharton's Executive Masters of Technology Management. He has been invited to teach the real options class at MIT as a guest professor in their Leaders for Manufacturing Program. He was awarded the best guest lecturer award twice at HHL. His postdoctoral degree (Habilitation) covered aspects of market-based supply chain coordination and was completed in September 2008. In January 2009, Prof. Spinler was appointed to the Chair of Logistics Management at WHU, which is sponsored by the Kühne Foundation. In 2011, a research team consisting of Paul Kleindorfer, Andrei Neboian, Alain Roset and Stefan Spinler was a finalist in the Daniel H. Wagner Prize for Excellence in Operations Research.

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**Linda Stein**  
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Since the appointment of the Chair of Logistics Management by Prof. Spinler in 2009, Linda Stein has been the chair's secretary. She is returning to the WHU after a two years of maternity leave, where she was previously employed as Personal Assistant to Prof. Frenkel at the Chair of Macroeconomics and International Economics.



## Team

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**Daniel Hach, M.Sc.**  
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Daniel Hach (born 1985) is a doctoral student and research assistant at the Chair of Logistics Management (Otto Beisheim School of Management) since October 2010. His research is focused on integrating renewable energies in the electricity market using quantitative models. Daniel Hach studied Information Systems at the University of Mannheim. During his studies he spent one semester abroad at the University of Sydney (Australia) and did parts of his diploma thesis at the University of California, Berkeley (USA). In terms of work experience he did several internships including McKinsey & Company, the Center for Strategic Projects (formerly Inhouse Consulting) of Deutsche Telekom AG, and the sales department of T-Systems GmbH. Prior to his studies he completed a vocational education as an IT-specialist. After his studies Daniel Hach worked as a consultant for McKinsey & Company in the Frankfurt Office where he belonged to the Business Technology Office. He worked with clients in the Energy and Public Sector as well as in the High-Tech and Financial Institutions area. He focused on strategy, process and organization topics.

**Eike Nohdurft, M.Sc.**  
Research Assistant

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Eike Nohdurft (born 1985) graduated from RWTH Aachen University in 2011 being part of a joint Diploma-Master program in Industrial Engineering with the Tsinghua University in Beijing (China). His research is focused on optimizing supply chains through advanced collaboration with a focus on the health-care sector. During his studies, Eike Nohdurft worked as an intern for several companies including arvato services (Bertelsmann), Lufthansa Technik and Lufthansa German Airlines where he wrote his Diploma thesis about improving airline ground operations processes with Lean Management. After his graduation Eike Nohdurft works as a consultant for McKinsey & Company in the Hamburg Office where he was part of the operations practice. He worked with clients from the Airline, Automotive and Pharmaceutical industry mainly on process improvement and strategic organization topics.

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Ingmar Ritzenhofen (born 1985) graduated as Master of Science in International Business from HEC Paris and Master in International Management from the CEMS program in 2010. In 2009 he earned a Bachelor of Science from WHU with specializations in Finance, Supply Chain Management and Strategy. In his Bachelor thesis, Ingmar Ritzenhofen studied the real options value of flexibility in supply chains at the example of a major international automotive supplier. In his Master thesis at the chair of Finance & Energy at HEC he analyzed the relationship between power forward sales and the price of carbon emission certificates. In the course of his studies Ingmar Ritzenhofen spent two semesters at Universidad Adolfo Ibañez in Viña del Mar in Chile and ESADE Barcelona. After his studies Ingmar Ritzenhofen worked as a consultant for McKinsey & Company from 2010 to 2012. He was primarily involved in projects in the automotive and logistics industry in Germany and China. Already during his studies he gained significant work experience during internships: 2009 for McKinsey & Company in Cologne in the automotive and logistics industry, 2008 for Morgan Stanley in Frankfurt in the area of Mergers and Acquisitions and 2007 at CNC-Communications and Network Consulting in the area of strategy and communications in New York City.

**Matthias Winkenbach, M.Sc.**  
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Matthias Winkenbach (born 1986) studied Business at WHU – Otto Beisheim School of Management in Vallendar, Germany, from 2006 to 2011 when he received his Master's degree. He graduated with majors in Finance and Economics. The main focus of his Bachelor Thesis written at the Chair of Production Management at WHU was the evaluation of supply chain flexibility using a real options approach. In his Master Thesis written at the Chair of Monetary Economics at WHU, Mr. Winkenbach focused on the relation between monetary policy and asset prices. During his studies, Mr. Winkenbach spent two semesters abroad at HEC Montréal, Canada, and NYU Leonard N. Stern School of Business, New York City, USA. In the course of his studies, Mr. Winkenbach worked as an intern for several large and medium-sized companies both in Germany and abroad. For example, he worked on a consulting project for a leading global automotive group with McKinsey & Company in the United States, with Deutsche Telekom AG in the field of strategy development in Bonn, Germany, and with Volkswagen AG in the field of product development and component localization in Port Elizabeth, South Africa.

## Team

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In July 2011, Mr. Winkenbach joined the Chair of Logistics Management at WHU as a research assistant and Ph.D. student. He was involved in a cooperation project with INSEAD and La Poste in the field of specialized Urban Logistics Services. In 2013, Mr. Winkenbach has been a visiting Ph.D. Candidate at the Center for Transportation & Logistics (CTL) at the Massachusetts Institute of Technology (MIT), Cambridge, USA, where he conducted a research project on macroscopic traffic flow modelling for emerging market mega-cities. In May 2014, Mr. Winkenbach successfully completed his Ph.D. and left the Chair of Logistics Management.

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**Dipl.-Wirt.-Ing. Benjamin Gürtler**  
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Mr. Benjamin Guertler (born 1985) studied industrial engineering and management at the university of applied sciences in Esslingen. He finished his studies in August 2008, specializing in production management. His diploma thesis provides an approach for holistic performance monitoring of suppliers and was written in cooperation with the MBtech Consulting GmbH. Among others, Mr. Guertler has worked at Behr Industry GmbH & Co. KG within development and at Robert Bosch GmbH within sales.

Between October 2008 and June 2011, Mr. Guertler worked as Consultant at the MBtech Consulting GmbH within Purchasing and Supply Chain Management. He supported the implementation of supplier management and supplier risk management at major companies in automotive industry and engineering. Furthermore, Mr. Guertler was responsible for the consulting approaches within supply risk management. In July 2011, Mr. Guertler took over a new responsibility at the parent company, MBtech Group GmbH Co. KGaA as Representative of the President and CFO and since January 2013 as Head of Corporate Risk Management.

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### **Dipl.-Kfm. Alexander König**

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Alexander König (born 1984) studied from 2004 until 2008 Business Administration at the WHU - Otto Beisheim School of Management in Vallendar, Germany. He spent his semesters abroad at Queen's University in Kingston, Canada and at Universidad Adolfo Ibáñez in Viña del Mar, Chile. His advanced studies were focused on Production Management, Controlling, as well as Technology and Innovation Management. He wrote his master thesis about Six Sigma in the German healthcare sector at the chair of production management at WHU. During his studies Mr. König pursued several internships, amongst others with Porsche Consulting and Booz & Company. After his studies he joined Booz & Company and worked for clients in the fields of financial services, pharma, IT Services and the manufacturing industry. His main project activities were around strategy development, supply chain management, sourcing, as well as risk and project management. In January 2012, Mr. König joined the chair of Logistics Management at WHU as external doctoral student. His research topic is Supply Chain Risk Management of Logistics Service Providers.

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### **Silke Malina, MBA**

Doctoral Student

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Silke Malina (born 1972) studied economics at the European-Business-College in Wuerzburg and finished with a Bachelor of Commerce at the Hogeschool van Utrecht (NL). In 2007 she obtained her Master of Business Administration (MBA) from the University of Surrey (UK). Her master thesis was about "Lean Management and its Effectiveness in Organizations". During her studies she made several traineeships in the consumer and investment goods industry, e. g. at the subsidiary of Michael Weing AG in Singapore. Mrs. Malina works for Bosch Rexroth AG. Initially, she worked several years in controlling and currently she is responsible for various international projects in logistics. In January 2011, Mrs. Malina joined the chair of Logistics Management at the WHU in Vallendar as an external doctoral student. Her research topic is the management of supply chain complexity.

## Team

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**Dipl.-Ing. oec. Benjamin Punge**

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Benjamin Punge (born 1983) studied Industrial Engineering and Management at the University of Technology Hamburg-Harburg and the University of Hamburg with majors in logistics and chemical engineering. In his diploma thesis, which he conducted in cooperation with Airbus Germany, he analyzed the supplier risk management in the Supply Chain for the cabin interior of the wide body aircraft A380. During his studies, Mr. Punge completed internships in the automotive industry and in the finance controlling department of Bayer Materialscience in Shanghai, China. He also worked as assistant to the CEO of a trading company in Hamburg. After the completion of his studies in 2009, Benjamin was hired by EADS for the groups' management development program and worked as a project manager for Airbus España in Madrid, Spain and Eurocopter Deutschland in Donauwoerth, Germany before starting in the role of a strategic buyer in the Aerostructure Procurement for Airbus Operations in Toulouse, France where he was responsible for different international sourcing projects. Benjamin is currently working for Airbus DS-RST in Rostock where he is leading the new business development activities of the internal engineering service provider of the Airbus Group. In January 2012, Mr. Punge joined the chair of Logistics management at the WHU in Vallendar as an external Ph.D. Student. His research topic is Supply Chain Risk Management and Supplier Selection in the aerospace industry.

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**Philipp Rau, M.Sc.**

Doctoral Student

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Philipp Rau (born 1986) joined the chair of Logistics Management at WHU as an external doctoral student in September 2013. In his research, he is working on capacity investments in the ocean freight industry. Philipp Rau graduated as Master of Science in Business Administration from WHU in 2011 with specializations in Finance and Supply Chain Management. In his Master thesis he assessed the question whether a world currency would lead to sustainable monetary stability. He earned a Bachelor of Science from WHU with specializations in Finance and Accounting in 2009. In his Bachelor thesis, Philipp Rau worked on risk management in the air cargo industry by studying revenue management approaches, capacity options and financial intermediation. During his studies, he spent one semester at University of Hawai'i at Manoa and one semester at Sasin Graduate Institute at Chulalongkorn University in Thailand. After his studies, Philipp Rau worked as a consultant for McKinsey & Company from 2011 to 2013. He worked on projects in the logistics and consumer industry in Germany,

## Team

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Belgium and France. During his studies, he gained further work experience during several internships: 2011 for Arthur D. Little in Beijing in the automotive industry, 2010 for McKinsey & Company in Frankfurt in the logistics industry, 2009 for Rocket Internet in Berlin in online retailing, 2008 for Goldman Sachs in Frankfurt in investment banking and 2007 at GameGoods International in Cologne and Bucharest in online marketing.

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**Christian Rudolf, MBA**  
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Christian Rudolf (born 1982) joined the chair of Logistics Management at WHU as external doctoral student in March 2014. His research is focused on Supply Chain Risk Management in large scale projects. Christian graduated as Master of Business Administration from the Graduate School Rhein-Neckar, University of Applied Science Mannheim 2012. In his master thesis, he analyzed methods of Supply Chain Performance Management and provided a holistic Performance Measurement Framework for the Strategic Management of Procurement and Supply Chain Management Organizations. He earned a diploma of Business Administration (DH) from the Baden-Wuerttemberg Cooperative State University with majors in Finance and Supply Chain Management 2007. In his diploma thesis, Christian worked on an approach for Key Supplier Management within a European Supply Chain Management Organization and evaluated the potentials of a harmonized European Sourcing and Logistics Group. During his studies, he spent 2006 an internship in Helsinki, Finland and 2007 in Swansea, Wales. 2011 he attended a summer school at the University of Warwick, UK to study Intercultural Management. Christian works for the Westinghouse Electric Company, a group company of the Toshiba Corporation. He held several positions within the Global Supply Chain Organization, mostly in the areas of Strategic Sourcing, Category Management, Outsourcing and Business Transformation Projects. Currently he is responsible for an international Strategic Sourcing team, supporting large scale projects.

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### **Dipl.-Wirt.-Ing. Johannes Teutsch**

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Mr. Johannes Teutsch (born 1982) studied business and engineering at the University of Karlsruhe focused on production and logistics. His diploma thesis (“Economic analysis of an intermodal transportation network”) was developed in the context of the research project “LogoTakt”. He gained practical experience in the automotive industry and in the consultant sector. Currently, Mr. Teutsch is working as Senior Consultant at CBS Corporate Business Solution Unternehmensberatungs GmbH. Since April 2010 Mr. Teutsch has been an external doctoral student at the Chair of Logistics Management at WHU Vallendar. He is examining the interaction of Supply Chain Risks and Lean Production.

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### **Martin Vu, M.Sc.**

Doctoral Student

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Martin Vu (born 1985) joined the chair of Logistics Management at WHU as an external doctoral student in July 2014. In his research, he is working on effective risk management within product creation and focus on the automotive industry perspective. Martin Vu graduated as Master of Science in International Business and Management from Manchester Business School at The University of Manchester (UK) with specialization in Finance in 2011. In his Master thesis, he assessed value creation from mergers and acquisitions in the European automotive industry under the application of an event study. During his Master studies, Mr. Vu spent one semester abroad at Copenhagen Business School in Denmark. He earned a Bachelor of Arts degree from HFU Business School at Hochschule Furtwangen University in Germany with specialization in Finance in 2010. In his Bachelor thesis in cooperation with the Strategy and Organizational Development department at Volkswagen AG, Mr. Vu worked on the measurement of the internationalization degree and the derivation of an internationalization strategy under the consideration of the strategic goals from the ‘Strategy 2018’. During his Bachelor studies, Mr. Vu spent one semester at the University of California at Santa Barbara in the USA. After his studies, Mr. Vu started working as a consultant at Porsche Consulting in 2011. He works at projects in the automotive industry with focus on product creation and innovation management in the national and international context. During his studies, he gained first work experience through internships in the automotive industry: BMW Group Inhouse Consulting in 2009, International Business Consulting in 2008 and Marquardt Group in 2006.

## Alumni

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Senior Operations Manager Inbound  
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Germany, Koblenz

### Dr. Judith Berndroth



Responsible for the overall management, control and direction of inbound operations in Amazon Koblenz. Leading a team of 600 employees with managerial responsibility of operations and area managers. Reporting to the general manager. Weekly throughput of above 1 million units.

---

Project Manager  
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### Dr. Doreen Diehl



Doreen leads the Supply Chain Controlling & Projects group at the Supply Chain Center EMEA at Bayer MaterialScience (BMS). She and her team are responsible for developing and implementing key performance indicators which measure and steer the supply chain process performance at BMS as well as for improvement projects using Lean Six Sigma tools.

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Engagement Manager  
McKinsey&Co., Inc  
Germany, Munich

### Dr. Daniel Girardet



After finishing his PhD, Dr. Daniel Girardet continued working for McKinsey&Co, Inc. Currently he works as a project manager in the Munich Office for clients in the transportation industry. He recently co-authored several articles on growth perspectives for European railway operators.



## Alumni

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Executive Assistant  
KG BURSPED Speditions-GmbH & Co.  
Germany, Hamburg

### Dr. Katharina Grobleben



After finishing her PhD, Dr. Katharina Grobleben moved to London to work as a sales analyst for an international software company. In April 2014 she joined her family business headquartered in Hamburg, Germany as assistant to the CEO. In her spare time, Dr. Grobleben continues her research in sustainable transportation.

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Xioneer Systems (startup)  
Austria, Vienna

### Dr. Andrei Neboian



CEO

### Dr. Robert Hein



CTO

Dr. Andrei Neboian and Dr. Robert Hein, who graduated from the PhD program at the WHU – Otto Beisheim School of Management in 2012, founded a startup in Vienna (Austria) that develops, manufactures, and sells innovative 3D printers for professional users from the creative sector like engineers, designers, or architects. Thanks to a considerable public funding, the startup includes over six qualified team members. They are currently working on the pre-series prototype, which is already being tested together with final users before entering the market in 2015. Andrei and Robert are still benefitting from their PhD studies at the chair of logistics management and are thankful for the outstanding support and the great WHU spirit.

## Alumni

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Head of Business and Launch Management  
CREAVIS, Evonik Industries  
Germany, Marl

### **Dr. Sebastian Huber**



Sebastian leads the department Business & Launch Management within CREAVIS, the central strategic research unit of Evonik Industries. With his team he enables the research project managers with business know-how and experience to successfully develop and market transformative innovations for the Evonik corporation. Together with his colleagues of CREAVIS, he strives to fulfill the organizations goals to develop sustainable innovations not only with positive impact on profits but also with quantifiable benefits for ecology and society.

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Consultant  
The Boston Consulting Group  
Germany, Berlin

### **Dr. Andreas Kretschmer**



After finishing his PhD, Dr. Andreas Kretschmer continued working for The Boston Consulting Group. Currently he works as a project leader for the new Berlin office project. In his spare time, Dr. Kretschmer continues his research on supply chain management at humanitarian organizations.

## Alumni

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Junior Executive SCM department  
L'Oréal Group  
Germany, Düsseldorf

### **Dr. Sebastian Theißen**



After finishing the Ph.D. studies with distinction in the area of Supply Chain Management (SCM) strategies, Dr. Sebastian Theißen continued his career at the L'Oréal Group. In the position as Junior Executive in the SCM department, Dr. Sebastian Theißen is responsible for projects on international level for one of the four divisions; for instance the optimization of transportation costs by improving carrier selection logics. Currently, he is working together with the L'Oréal headquarter in Paris on a new project called "Keys for integrated supply chain solutions". The project rolled out all over the world counts to the biggest projects ever that have been launched at the L'Oréal Group. The goal is to improve information flows by applying new systems thus making manufacturing processes more efficient.

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## Honorary Professor

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Senior Partner  
Booz & Company Inc.  
Germany, Düsseldorf

### **Prof. Dr. Jürgen Ringbeck**



Dr. Ringbeck is a renowned senior advisor and consultant to leading global commercial and government clients, focusing on strategic transformations mainly in the travel and transport sector around the world. Over the past 20+ years, he made major contributions on the (de-)regulation and strategic development in the aviation, rail and tourism sectors for governments in the European, Middle East and Asian region. Professor Ringbeck has a lasting record as a senior advisor to leading global institutions, e.g. the WEF, the UN World Tourism Organization and advisory board member of the Aviation Initiative for Renewable Energy in Germany. He is a sought-after international speaker and publisher on business and industry strategy as well as public policy.

Inaugural Lecture as honorary professor at WHU in March 2014:  
Management Science and Strategy Consulting – Individual Experiences  
and Insights

## Kühne Institute of Logistics Management

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Logistics has become a key enabler in today's global trade. And while today's value creation networks exploit to the extent possible local business advantages, the challenges that come with these dispersed structures have grown substantially over the last ten years. Recognizing this trend, the WHU - Otto Beisheim School of Management founded the Kuehne Institute for Logistics Management, which comprises two endowed Chairs (Prof. Dr. Stefan Spinler and Prof. Dr. Carl Marcus Wallenburg) and currently about 20 PhD students. The institute was inaugurated in March 2012.

Our objectives are to generate new insights for the management of logistics and to disseminate this state-of-the-art knowledge into the research and business community.

To this end, we conduct high quality and internationally visible research, which is analytical, conceptual, or empirical in nature. Further, we provide specialized courses and lectures at various educational levels (BSc, MSc, MBA, Executive Education) and organize conferences for the business community and students in the area of logistics and supply chain management.

Current research projects are dedicated to the following areas:

- Management of logistics services
- Management of vertical and horizontal cooperation
- Logistics and supply chain controlling
- Sustainability in supply chains
- Risk management in supply chains
- Real options based supply chain modeling



## Teaching

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Lectures in the context of Logistics- and Supply Chain Management were offered in the Bachelor-, Master-, FTMBA- and Doctoral-Program.

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### Courses BSc-Program

#### Real Options Analysis

This course deals with investment decisions as they arise in the context of international production and logistics networks, R&D projects and raw materials exploitation. The traditional discounted cash flow method is unable to account for the value of managerial flexibility. Real options, which aims at translating much of the methodology established for financial options valuation to real investment projects, allows to properly capture the value of flexibility. Several case studies exemplify the steps that need to be undertaken to perform a full-fledged real options valuation.

#### Seminar Multi-Modal Logistics Platforms

This seminar is meant to familiarize students with multi-modal logistics platforms. Among the objectives of this course is getting acquainted with the different modes of transportation and their proper coordination. Furthermore, students will learn why many of the EU funded projects related to multi-modal logistics have been blessed with mixed success thus far.



#### Real Options (4 + 6 Semester)

This course deals with investment decisions as they arise in the context of international production and logistics networks, R&D projects and raw materials exploitation. The traditional discounted cash flow method is unable to account for the value of managerial flexibility. Real options, which aims at translating much of the methodology established for financial options valuation to real investment projects, allows to properly capture the value of flexibility. Several case studies exemplify the steps that need to be undertaken to perform a full-fledged real options valuation. In the MBA program this type of course is particularly meaningful as most participants have already project management experience and thus have been exposed to the shortcomings of traditional NPV analysis.

#### Sustainability Lab

In the introductory session to this lecture, students were made familiar with the urgent need to incorporate sustainability considerations in business and with a quantitative tool (Lifecycle Analysis) to assess energy consumption across the lifecycle of a product to enable comparison among, e.g., multiple packaging options.



#### Introduction to Business Administration (Course A + B)

This class introduces first year students to the key components of a value chain, i.e., procurement, production and distribution. On a basic level, these activities are illustrated via case examples and mathematical models.

## Teaching

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### Courses MSc-Program

#### **Designing and managing the global supply chain**

Logistics has grown from a purely functional orientation to become a key enabler of global supply chains. To achieve this, logistics needs to be integrated within the firm as well as across boundaries from suppliers to manufacturers to customers. As companies tend to focus on their core competencies, deverticalization of the value chain entails which necessitates coordination of logistics activities. Logistics is not only concerned with flows of goods and cash, but also – to an ever increasing degree – with the flow of information. Hence it is natural that IT systems play a crucial role to achieve what has been called the 4Rs – that is, the right product at the right place and the right time at the right price.

#### **Sustainability Lab 1 – Inspire & Explore**

In the introductory session to this lecture, students were made familiar with the urgent need to incorporate sustainability considerations in business and with a quantitative tool (Lifecycle Analysis) to assess energy consumption across the lifecycle of a product to enable comparison among, e.g., multiple packaging options.



#### **Transportation Management** – held by Honorary Professor Jürgen Ringbeck

Transportation is one of the fastest growing global industries. Travel and logistics are the major backbone of our global business and a core element of private life. The objective of this course is to give a comprehensive introduction into the challenges and best-practices of management and principles of global industry players like passenger airlines or logistics companies. Such management best-practice includes a deeper understanding of the underlying industry dynamics, and the outline of superior strategies as well as commercial and operational management methods of selected industry segments. The course will also highlight some specific management approaches which illustrate a way to a long-term sustainable industry.

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### Course FTMBA-Program

#### **Real Options Analysis**

This course deals with investment decisions as they arise in the context of international production and logistics networks, R&D projects and raw materials exploitation. The traditional discounted cash flow method is unable to account for the value of managerial flexibility. Real options, which aims at translating much of the methodology established for financial options valuation to real investment projects, allows to properly capture the value of flexibility. Several case studies exemplify the steps that need to be undertaken to perform a full-fledged real options valuation. In the MBA program this type of course is particularly meaningful as most participants have already project management experience and thus have been exposed to the shortcomings of traditional NPV analysis.

## Teaching

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### Course Doctoral-Program

#### Quantitative Supply Chain Models

The purpose of this seminar is to expose students to the most recent advances in management science and operations research. The methods presented are key building blocks of the participants' dissertations.

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### Guest Lectures

The close contact with decision makers in the industry ensures the practical relevance and the relevance of management research and teaching. For this reason, regular guest speakers are involved in the different lectures.

#### MSc-Lecture "Transportation Management"

Karl Ulrich Garnadt, CEO Lufthansa Passage (former CEO Lufthansa Cargo AG):  
Air Cargo 2.0, Speed, efficiency and transparency

#### MSc-Lecture "Designing and managing the global supply chain"

Hans Juergen Koot, Director of SCM, L'Oréal:  
The stakes in today's FMCG supply chain and how L'Oréal reponds

#### BSc-Lecture "Operations Management – Finance Interface"

Benjamin Punge, Head of Sales and Marketing at Airbus DS RST, Rostock System Technik  
Supply Chain Risk Management at Airbus: From Market Forecast to Supply Chain Mapping

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### NetloP-Seminar of the Kühne-Foundation

For the NetloP-Seminar, which is very successfully run by Mr. Martin Willhaus, we provide content for the introductory week in Schindellegi and the final part of this seminar in Vallendar. This year, Prof. Spinler ran the basic seminar in Schindellegi devoted to the topic of sustainable logistics.



### Kühne Logistics University, Hamburg

#### MSc in Global Logistics Management / "Transportation and Distribution Management"

The objectives of this course are twofold: first, to familiarize students with concepts of transportation planning, management and deployment. Second, to provide students with insights H combination of case studies, theoretical concepts from business and economics and guest lectures by experienced industrial managers. A number of case studies and guest speakers provided additional insights into the intricacies of transportation and distribution management.

## Research

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Our research activities focus on the topics sustainable logistics, risk management and humanitarian logistics.

Sustainability is a key concern for today's and even more so for tomorrow's businesses. Together with INSEAD and La Poste we continued our joint research on sustainability matters related to postal delivery. Matthias Winkenbach has developed a quantitative model for the optimal deployment of different types of vehicles (bikes, vans, pedestrians) for urban deliveries. The model results help to understand what the impact of time windows on the optimal network structure is. A key requirement during the model development, which was performed in close collaboration with Alain Roset and Bernard Lemarié (both of La Poste), was the need to be able to apply the model to practical circumstances. Another aspect that is relevant to sustainability is power generation as electric energy fuels electric vehicles, buses and (via overhead contact wire) trucks as well as warehouses and other logistics assets. Thus, a thorough understanding of current and future electricity markets and an estimate of future energy prices and volatility is of crucial importance. This is what the research of Daniel Hach (related to issues of capacity mechanisms) and Ingmar Ritzenhofen (concerned with renewable energy support schemes) is aimed at.



A holistic view on supply chain risk management to date does not exist in either the academic literature or business practice. To close this gap, a number of research projects have been defined to develop quantitative models for supply chain risk and thus provide optimal hedging opportunities for firms.



## Research

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### Main Focus - Sustainability

**“Quantitative Models for Optimization and Simulation in Urban Logistics”,  
Matthias Winkenbach (from 01-2011 to 05-2014, co-sponsored by La Poste)**

Due to trends and developments such as the ongoing urbanization and the sustained boom in e-commerce, we can observe a continuous increase in the amount and fragmentation of demand for urban goods transportation. Thus, tighter coordination and consolidation of individual consignments is a requirement for a sustainable development of urban transport. At the same time, postal operators (POs) are currently facing significant threats to their long-term profitability. Given the deterioration of their revenue base from established business models e.g. due to electronic substitution, they have to find ways to broaden their product and customer. Moving into the field of urban logistics services (ULS) as an overarching consolidator of item flows may be an attractive strategic option for them, offering both additional revenues for the company and welfare improvements for the society as a whole.



This dissertation project aimed at developing optimization and simulation tools to quantitatively evaluate the potential strategic moves of postal operators when moving into the domain ULS. It shall support their decision making in designing an optimal facility infrastructure and fleet for the centralized consolidation of urban freight flows. Further, we determined optimal quality positioning and pricing policies for POs in a competitive market for ULS. Also, the impact of ULS on traffic, congestion rates, emissions and fuel consumption were assessed quantitatively.

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**“Integrating renewables into the electricity market - a quantitative approach”,  
Daniel Hach (started in 10-2012, ongoing)**

We assess the effect of capacity mechanisms on investments in gas-fired power plants in the presence of different degrees of renewable energy technology (RET) penetration. Low variable cost renewables increasingly make investments in gas-fired generation unprofitable. At the same time, growing feed-in from intermittent RETs amplifies fluctuations in power generation, thus entailing the need for flexible buffer capacity---currently mostly gas-fired power plants. A real options approach is applied to evaluate investment decisions and timing of a single investor in gas-fired power generation. We investigate the necessity and effectiveness of different capacity mechanisms. Our model incorporates multiple uncertainties and assesses the effect of capacity mechanisms under different degrees of RET penetration. In a numerical study, we implement stochastic processes for peak-load electricity prices and natural gas prices. We find that capacity mechanisms are an effective measure to promote new gas-fired generation projects. Especially in times of high renewable feed-in, capacity mechanisms are required to incentivize peak-load investments.



## Research

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### **“Investments in renewable energy sources under renewable energy support schemes as well as market and regulatory uncertainty”, Ingmar Ritzenhofen (started in 10-2012, ongoing)**

Renewable portfolio standards and feed-in-tariffs are widely used policy instruments to promote investments in renewable energy sources. Regulators continuously evaluate these instruments along the main electricity policy objectives – affordability, reliability, and sustainability. We develop a quantitative approach to investigate the structural impact of renewable energy support schemes such as renewable portfolio standards, market premia and feed-in-tariffs on electricity markets along these dimensions using a long-term electricity capacity expansion model. We assess the robustness of these schemes in the face of uncertainty and ambiguity as induced by the annual variability of intermittent renewable feed-in and unknown future regulation. The robustness analysis is implemented employing a value-at-risk constraint. Scenarios are generated through Monte Carlo simulation and subsequently reduced by a scheme based on Kantorovich distances to lower the computational cost. This approach has been developed in collaboration with Prof. John R. Birge from the University of Chicago and the Energy Policy Institute at Chicago (EPIC).



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## Main Focus – Risk Management

### **“Supply Risk Management – New directions to Supply Risk Identification and Monitoring”, Benjamin Gürtler (started in 07-2009, ongoing)**

Increasing product and service complexity, outsourcing and globalization lead to complex and dynamic supply networks. Within supply networks, interrelationships and mutual connections of supply risks often create additional challenges for risk monitoring. During normal operation, interrelationships of risks largely remain hidden until the occurrence of a specific risk. To increase the effectiveness of risk monitoring, their understanding is important.

In the first step of this research, the interrelationships between supply risks are quantified and supply risks are categorized according to their role within the system. We follow a network oriented approach as defined by system theory. Empirical data gained from expert interviews show the relevance of our framework as early indicator for supply risks. This is particularly relevant for companies that exhibit a high degree of interconnectedness with their suppliers caused by high product complexity as is the case in the automotive industry. In the second step, the sensitivity of supply risks is analyzed based on their frequency distributions, in order to investigate the reliability of supplier ranking methods.

Finally, we link interrelationships and probability distribution functions and derive recommendations and levers to improve early identification of supply risk and to increase the efficiency of monitoring and ranking methods.

## Research

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### **“Supply Chain Risk Management and Lean Production“, Johannes Teutsch (started in 04-2010, ongoing)**

In the context of the arising globalization, there are two essential trends for the industrial production sector existing: First, the supply chains and, as a result, the links between customers and suppliers become more and more complex and difficult to manage. As a consequence, the risks of the supply chain and the risk management process are important influence factors for the success of a company. Second, the production systems are optimized by Lean tools and the waste in production systems is eliminated. These trends influence the supplier-customer relationship: There are dependencies between production systems, the risks in supply chains and the consequences of incidents. The dependency is more and more important for the success of a company. So there are fundamental questions which have to be answered: How do Supply Chain Risks and Lean Production Systems interact? What types of links between Lean Production elements and Supply Chain Risks are existing and essential? What implies the decision for a Lean Production System for Supply Chain Risks? The goal of the dissertation project is to find answers for the questions above.

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### **“Management of Supply Chain Complexity: A Study in the Drive and Control Industry“, Silke Malina (started in 01-2011, ongoing)**

Supply chains are more and more challenged by increasing complexity caused through product variety, processes and structures. This raises the question how firms manage supply chain complexity and remain competitive. To answer this question it is essential to research the drivers of complexity and to develop a framework of how to control and manage structural as well as dynamic impacts. Firms may use complexity to differentiate from others, if they apply appropriate measures to control the supply chain. A case study is provided to conduct the analysis qualitatively and quantitatively. The contribution to academic literature is the limited research of supply chain complexity to date. Based on the results practical recommendations for managerial decisions are developed.

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### **“Supply Chain Risk Management of Logistics Service Providers“, Alexander König (started in 01-2012, ongoing)**

The increased risk for disruptions of supply chains (e.g. by natural disasters, terrorist attack) has been further intensified by trends in supply chain management (SCM) including outsourcing and partnering, globalization, single sourcing and inventory reduction. However, this traditional focus of SCM to optimize cost, time and quality has been extended by the task to make the supply chain resilient, resulting in the new domain of supply chain risk management (SCRM). SCRM is relatively new and still in its infancy. With the before described trend of outsourcing, logistics service providers (LSPs) have an increasingly important role in most supply chains, providing not only transportation and warehousing, but also other services such packaging and reverse logistics. Thus the question arises how LSPs and shippers are managing risks and use SCRM to avoid or minimize disruptions in today's supply chains. We will investigate the role of LSPs in supply chains and risk management by using different methodologies such as literature review, case studies and application of other relevant business theories to this question.

## Research

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### **“Investment into ocean freight capacity - Development of a real options investment model in oligopolistic competition to evaluate investment decisions in shipping”, Philipp Rau (started in 09-2013, ongoing)**

Philipp Rau's dissertation project is about investment into ocean freight capacity. Even though fundamental supply-demand data would project otherwise, global container shipping capacity has steadily increased over time - both in size per vessel and in total installed capacity. This, in part, is caused to highly cyclical industry development and somewhat irrational ordering behavior of players.

Since there is a lack of perfect competition and complex factors (fuel efficiency, network constraints, financing, regulation, vessel size dynamics and asset prices) influencing investment, Philipp Rau develops an industry-specific investment model with use of real options theory and game-theoretic oligopoly in his first paper.

In his second paper, Philipp Rau evaluates alliance behaviour in the shipping market and especially its potential impact on investment decisions as well as its effect on optimal capacity. The idea is to set up an investment model, introduce real options and solve it using cooperative game theory concepts to derive relevant insights on investment strategy in the current market setting.

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### **“Supply Chain Risk Management in the Aerospace Industry”, Benjamin Punge (started in 01-2012, ongoing)**

Modern aircraft manufacturing relies on a global web of suppliers whose number can be more than 10,000. To assure timely delivery of new airplanes, supply chain risk management is of primary importance for OEMs. Two developments have further increased the already existing vulnerability in the aerospace supply network in recent years. Firstly the simultaneous ramp up in many of the main aircraft programs such as Boeings` 777, 737 and the Airbus A320, A380 and A330 since 2009 together with the delayed start of production and ramp up of Boeings` 787 Dreamliner in 2010 and the intensified development efforts and production setup of the Airbus A350XWB in 2012 have put the supply chain for materials and standard parts under immense stress of capacity and brought many aerospace suppliers to the edge of their management capabilities. Secondly have many smaller and medium sized companies suffered from the circumstances on international financial markets that significantly reduced the availability of capital.

Consequently large OEMs have started mapping their supply chains to increase transparency among their various suppliers and to be able to proactively manage risks in their supply chain. This research project shall therefore aim at analyzing which different theoretical supply chain mapping techniques and processes exist and which factors and characteristics can be used to classify and distinguish the different approaches.

The goal of this dissertation is to build a model relying on the notion of complex adaptive systems to represent the interdependencies among the various tiers of suppliers and to simulate appropriate hedging strategies.

## Research

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### **"Managing Risks Effectively in Product Creation Projects: The Automotive Industry Perspective", Martin Vu (started in 07-2014, ongoing)**

The automotive industry is under pressure to face multiple challenges at the same time. The dynamics of the external market conditions has picked up pace. Fierce competition, increasing requirements and complex value chains are at the core of this development. This reflects on established processes and structures in the automotive industry – the results are ambitious growth targets and increasingly more new products in shorter periods of time. In this uncertain environment, automotive manufacturers are forced to continuously increase their efforts to not fall behind in the race for market share. The framework that allows automotive manufacturers to address this development is a mixture of more efficient functional area processes and the ability to steer and control these processes effectively to design, develop and ramp-up new products. The latter is accomplished through product creation projects (PCP). Here, the project management function is increasingly challenged by the complexity and uncertainty that these projects unveil. Effective risk management has a significant value for the conduction of PCP in the light of this development. The purpose of the proposed research work is to deal with the effectiveness increase of risk management in PCP in the automotive industry. This will close the literature gap and add to the dominant literature focus on supply chain and financial risk management in the automotive industry. Current risk management challenges in PCP will be assessed and limitations of risk management practices derived. The application of unstructured interviews allows a broad access to the topic over selected industry experts. This research work will then illustrate the current risk management effectiveness with the application of a case study and evaluate potential improvements. The main focus will lay on the process and organizational dimension of risk management. Considering a real world situation in a 'natural' environment will develop an in-depth understanding of the research topic. Further, this research work will result in a concept that can be applied to quantify and manage identified risk portfolios in PCP.

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### **"Supply Chain Risk Management in Large Scale Projects", Christian Rudolf (from 03-2014, ongoing)**

Large scale projects became a typical delivery model in the infrastructure construction industry. Even so this delivery model is well established, only one in one thousand projects can be defined as success. Ineffective Risk Management (RM), especially in the Supply Chain Management area was repeatedly identified as one of the key drivers for past project failure. Yet the Risk- and Supply Chain Risk Management (SCRM) body of knowledge seems well established, a lack of SCRM tailored to the specific requirements of LSCP can still be observed. The proposed research project shall close this gap by developing a model for SCRM in the specific context of LSCP. This shall be based on an explorative case study, conducted at company operating in the Nuclear Power Plant new build & major refit project business. The LSCP executed in this field show a historical track record for significant delays, claims, cost overruns and investor disappointment. Therefore they offer an ideal field of research and a key case with a high potential for broader generalization. The expected results shall contribute to a higher success-rate of LSCP thru enhanced and more effective SCRM, leading ultimately to lower cost of infrastructure projects. Moreover they shall contribute to an emergent literature on SCRM and project management practice based on an inductive empirical perspective.

## Research

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### Main Focus – Pharma Supply Chain

**“Coordinating the Health Care Supply Chain - Saving costs and improving service level through joint Forecasting and Planning”, Eike Nohdurft (from 01-2014 ongoing)**

We assess the efficiency and effectiveness of advance collaboration between the partners in a health care supply chain through applying a simulative modeling approach using real demand data from the German healthcare market.

The health care supply chain, especially in developed countries, is facing 2 major challenges: First, it is a substantial cost driver in an industry under permanent cost-pressure. Second, successful supply chain practices from other industries, like retail, have not been broadly applied in health care leading to a gap in operational performance.

The application of supply chain management methods like collaborative forecasting and planning could overcome both challenges. A comprehensive model quantifying the impact of such an application is missing for the health care sector with its specific characteristics, like very high service level requirements and perishable products with limited lifetime. This paper therefore aims to quantify the impact of the application of collaborative forecasting and planning on supply chain performance in health care and to provide guidelines for a successful application in this multi-stakeholder environment. The study is based on a model simulating a 3-tier supply chain from pharmaceutical manufacturers to hospital patients. The model is fed with real-world patient demand data for multiple pharmaceuticals with different demand patterns.

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### Main Focus – Humanitarian Logistics

**“Supply Chain Management at Humanitarian Organizations – The Case of School Feeding”, Andreas Kretschmer (from 01-2010 to 01-2014)**

Supply chains are central for the success of humanitarian interventions run by international organizations such as the World Food Programme (WFP). In the area of development aid logistics school feeding is an established intervention with multiple objectives including education, nutrition, and value transfer. Recently the focus shifted to develop sustainable local programs and supply chains. In this research the critical factors of school feeding supply chains that are relevant for program sustainability are examined. A framework of critical factors based on multiple sources of input is proposed. Furthermore, case study research is used to gain more insights on the proposed critical factors

## Research

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### Research Seminar

A number of professors were invited to talk about their latest research, among them:

- 11-2013  
Professor Sebastian Heese, EBS Business School, Wiesbaden/Germany  
“Bargaining between retailers and manufacturers in assortment planning”
- 03-2014  
Francis de Véricourt, Professor of Management Science  
ESMT European School of Management and Technology, Berlin/Germany  
“Efficient Feed-In-Tariff Policies for Renewable Energy Technologies”
- 06-2014  
Professor Anders Levermann, Professor of Dynamics of the Climate System,  
Potsdam Institute for Climate Impact Research, Potsdam/Germany  
“How can we make the global supply network more resilient to climate change?”
- 07-2014  
Professor Werner Römisch, Institut für Mathematik - Bereich Angewandte Mathematik,  
Humboldt-Universität zu Berlin/Germany  
„ Dynamic risk management in electricity portfolio optimization“

## Research

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### Research stays abroad – Part I



Daniel Hach on a bridge crossing the river Cam with punters in the background

#### Research Collaboration with the University of Cambridge – Energy Policy Research Group (EPRG) at Judge Business School

From September 15 to December 07, 2013, Daniel Hach, Ph.D. student and Research Assistant at the Chair of Logistics Management at WHU, stayed as a visiting Ph.D. student at the Energy Policy Research Group at Cambridge University, Cambridge, U.K.

At Cambridge University, Daniel Hach collaborated with Dr. Chi-Kong Chyong, Research Associate and Director of Energy Policy Forum on a joint research

initiative on capacity market design options. The goals of this collaboration are twofold: First, the collaborators aim to develop a model to quantitatively assess the impact of the introduction of different capacity market design options on an energy-only market. The second goal is to apply this model to the Great Britain market and derive realistic and relevant results from this case study. Daniel Hach had the chance to have many in-depth discussions with high profile researchers in the field of Operations and Energy, such as Prof. David Newbery and Prof. Danny Ralph. He also presented and discussed his research multiple times in the Energy and Environment Seminar at Cambridge University.

#### About EPRG

The Energy Policy Research Group (EPRG) is based at the Judge Business School, University of Cambridge.

In 2005 the EPRG was awarded £2.38m from the UK Research Councils under their programme Towards a Sustainable Energy Economy (TSEC) (2005 – 2010). The research programme commenced in October 2005.

The research team has broad expertise in economics, technology policy and political science. The core research discipline is economics, within a framework that encourages collaboration between experts from different academic traditions, drawing on insights from engineering, political science and law.

Through the publications and via our Energy Policy Forum (EPF), the group offers rigorous independent research output that informs public and private sector decision making in the electricity and energy industry.

The Energy Policy Forum is supported by stakeholder membership (business and policy associates), leveraging our research funding, extending our international sphere of influence and enhancing our ability to respond to important research questions as they arise.



## Research

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### Research stays abroad – Part II

#### Research collaboration with Prof. John R. Birge of the University of Chicago Booth School of Business and the Energy Policy Institute at Chicago (EPIC)

From September 27, 2014 to December 18, 2014, Mr. Ingmar Ritzenhofen, Ph.D. and research assistant at the Chair of Logistics Management at WHU, stayed as a visiting researcher at the University of Chicago Booth School of Business and the Energy Policy Institute at Chicago (EPIC). During his stay in Chicago he collaborated with Prof. John R. Birge, Jerry W. and Carol Lee Levin Professor of Operations Management, to advance a joint research project on "The structural impact of renewable energy support schemes on electricity markets". Mr. Ritzenhofen had the opportunity to present this research, which is also part of his dissertation project, both at the Booth School of Business and at EPIC. Besides his own research, Mr. Ritzenhofen had the opportunity to attend research activities at the University of Chicago and EPIC and exchange ideas with numerous renowned researchers in the field of electricity markets and regulation as well as mathematical programming and optimization.



#### About the University of Chicago Booth School of Business

As part of The University of Chicago, Chicago Booth shares this world-renowned university's core values, which shape its distinctive intellectual culture. At Chicago Booth, ideas are constantly questioned and tested, seeking proof. This extraordinarily effective approach to business leads to new ideas and innovative solutions. In fact, seven of Chicago Booth's faculty members have won Nobel Prizes for these ideas. Since 1898, Chicago Booth has produced ideas and leaders that shape the world of business. Its rigorous, discipline-based approach to business education transforms its students into confident, effective, respected business leaders prepared to face the toughest challenges. Chicago Booth is the University of Chicago's business school.

#### About EPIC

The Energy Policy Institute at Chicago (EPIC) is an interdisciplinary research and training institute focused on the economic and social consequences of energy policies. Established in June 2011, the Energy Policy Institute at Chicago (EPIC) is a broadly encompassing joint energy institute of the Booth School of Business and the Harris School of Public Policy Studies. Recognizing that policy issues present some of the greatest obstacles to meeting this need, Professor Robert Rosner and Professor Robert Topel agreed to co-direct the Institute which brings the University of Chicago's data-driven, market-based approach to research, training, and outreach related to energy and environmental economics and policy.

## Research


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### Working papers

- Hach D., Chyong C.-K., Spinler S. (2014): Capacity market design options: A capacity expansion model and a GB case study. Submitted to *European Journal of Operational Research (EJOR)*
- Hach D., Spinler S. (2014): Robustness of capacity markets – a stochastic capacity expansion model applied to the GB case. Submitted to *Operations Research (OR)*
- Ritzenhofen, I., Birge, John R. and S. Spinler: The Structural Impact of Renewable Portfolio Standards and Feed-in-Tariffs on Electricity Markets. Submitted to *European Journal of Operational Research (EJOR)*
- Ritzenhofen, I. and S. Spinler: Optimal design of feed-in-tariffs to stimulate renewable energy investments under regulatory uncertainty – a real options analysis. Under review at *Energy Economics*
- Winkenbach, M., E.E. Blanco and S. Spinler: A Queuing-Theory-Based Framework for Macroscopic Traffic Flow Modeling. Submitted to *Transportation Science* (under review)
- Winkenbach, M., P. R. Kleindorfer and S. Spinler: Enabling Urban Logistics Operations at La Poste through Integrated Location-Routing. Submitted to *Transportation Science, R & R* (under review)
- Winkenbach, M., S. Spinler and A. Roset: Optimal Quality Positioning and Pricing of Urban Logistics Services. Submitted to *OMEGA* (under review)

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### Publications

- Gürtler, B. and Spinler, S. (2014): Supply risk interrelationships and the derivation of key supply risk indicators. *Technological Forecasting and Social Change*, forthcoming
- Neboian, A. and Spinler, S. (2014): Fleet replacement – technology choice and the option to breach a leasing contract. *Decision sciences*, forthcoming
- Tabatabai, S., De La Cruz, M. and Vu, M. (2014): Produkte systematisch entwickeln. *Controlling & Management Review*, 58 (4), 24-31
- Theißen, S., Spinler, S. and Huchzermeier, A. (2014): Reducing the carbon footprint within fast moving consumer goods supply chains through collaboration: A manufacturer's perspective. *Journal of Supply Chain Management*, 50 (4), 44-61 
- Hach, D. and Spinler, S. (2014): Capacity Payment Impact on Gas-Fired Generation Investments under Rising Renewable Feed-In – A Real Options Analysis. *Energy Economics*, forthcoming

## Research

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### Publications

- Huber, S., S. Spinler (2014): Pricing of full-service repair contracts with learning, preventive maintenance, and information asymmetry. *Decision Sciences Journal*, 45 (4), 791-815
- Kretschmer, S. Spinler and L.N. van Wassenhove (2014): A School Feeding Supply Chain Framework: Critical Factors for Sustainable Program Design. *Production and Operations Management (POMS)* 23 (6), 990-1001 
- Theißen, S. and S. Spinler (2013): Strategic analysis of manufacturer-supplier partnerships: An ANP model for collaborative CO<sub>2</sub> reduction management. *European Journal of Operational Research*, 233 (2), 383-397 
- Van Zee, R. and S. Spinler (2014): Real option valuation of public sector R&D investments with a down-and-out barrier option. *Technovation*, 34 (8), 477-484

## Excursion

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### European Summer Institute – Bachelor Michigan Program



Company Visit to ThyssenKrupp Rasselstein in Andernach with the students of the Bachelor Michigan Program

Innovation, quality and customer service are the three factors which have always determined the success of ThyssenKrupp Rasselstein. ThyssenKrupp Rasselstein is Germany's only tinplate manufacturer. At the world's largest production facility for packaging steel, ThyssenKrupp produces tinned and special chromium coated steel for a variety of packaging solutions, for example food and aerosol cans. Fulfilling the highest quality standards has our topmost priority just like the professional support of our customers in all application questions.

## Examinations

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### Co-advisor for dissertations

- Bernhard, Rainer - Advisor: Prof. Huchzermeier  
“Hybridisierung kommunaler Fuhrparks“
- Braun, Simon - Advisor: Prof. Wallenburg  
“Information technology capabilities of logistics service providers: Concept development and analysis of antecedents and consequences“
- Diermann, Christoph - Advisor: Prof. Huchzermeier  
“Judgmental Demand Forecasting for Online Sales by a Manufacturer of Heterogeneous Product Categories“
- Difrancesco, Rita Maria - Advisor: Prof. Huchzermeier  
“Quality of Returned Products in Closed-Loop Supply Chains with Secondary Markets“
- Dr. Gausepohl, Arne - Advisor: Prof. Dr. Ove Jensen  
“Die Adaption quantitativer Methoden zur Ressourcenoptimierung im Vertrieb: Theoretische Grundlagen und Fallstudien“ – Disputation 09-2014
- Dipl.-Kfm. Georg, Johannes - Advisor: Prof. Dr. Dr. h.c. Jürgen Weber  
“The Social Construction of Sustainability and the Role of Management Accounting Practices: Insights from a Neoinstitutional Perspective“
- Häntsch, Marius - Advisor: Prof. Huchzermeier  
“Strategic Capacity Planning under Risk in the Automotive Industry“
- Heilmann, Lucas - Advisor: Prof. Jensen  
“Einsatz von ökonomischen Nutzenrechnungen im technischen Vertrieb und Marketing“
- Jankowski, Kathrin - Advisor: Prof. Wallenburg  
“Identifying impacts on buyer's risk identification and perception: Bridging micro and macro approaches“
- Singh, Maurizio - Advisor: Prof. Wallenburg  
“The logistics organization of young Internet retailers – an examination of its development in the early stages of the company“
- Dr. Zhao, Lima - Advisor: Prof. Huchzermeier  
“The Interface of Operations and Finance in Global Supply Chains“ – Disputation 06-2014

## Examinations

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### Bachelor-Theses

- Giesecke, Laura Andrea  
Ensuring Measurability and Sustainability of Strategic Procurement Activities through an e-Procurement Concept
- Kaps, Christian  
Real Options Valuation of a Family Owned Farm in Germany
- Klemm, Robin  
Supplier Integration — An Overview and Assessment of Contemporary Strategies Using the Delphi Method
- Martin, Kilian Lukas  
Supply Chain Risk Mitigation Strategies of Western Companies Operating in China
- Mohr, Franziska  
3D-Printing – Threat, Complement or Substitute for the CEP Industry
- Roos, Michael Carsten  
Innovative Solutions in Urban Logistics
- Straubinger, Marc-Alexander and von der Burg, Lars  
Demand Response - An evaluation of the economic potential of demand-response solutions in the German electricity market applying a real options valuation approach

## Examinations

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### Master-Theses

- Hess, Alexander  
Analysis and Optimization of the German Timber Logistics Market: A Quantitative Approach
- Opitz, Marco  
The effects of 3D-Printing on supply chains
- Rohrbeck, Dominik (Professor Ringbeck)  
Future strategies for european low cost carriers
- Schöne, Max Friedrich  
Modelling the stochastic behaviour of commodity prices in capital investment valuation
- Weigert, Lothar (Professor Ringbeck)  
New approaches for operational optimization of air traffic" (in collaboration with Prof. Stefan Nickel, Karlsruhe Institute of Technology)
- Winkler, Daniel  
Valuation of used and end of life products under uncertain market conditions

## Activities for WHU

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### Group Speaker of the Supply Chain Management-Group

The group includes professors Arnd Huchzermeier, Lutz Kaufmann, Carl Marcus Wallenburg, Stefan Spinler and Assistant Professors Matthias Ehrgott and Felix Reimann. The Speaker of the Group has a coordinating role with respect to teaching and to extend the faculty in the group.



(from left to right: Professors S. Spinler, A. Huchzermeier, L. Kaufmann, C.M. Wallenburg)

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### Campus for Supply Chain Management

The 2014 Campus for Supply Chain Management was dedicated to the interesting topic of “Velocity - Accelerating Supply Chains at any Price”. The students’ team that organized the event, headed by Lennart Weber, did an excellent job in getting aboard relevant companies, practitioners and academics. Guest speakers such as Karl Gernandt (Kühne + Nagel), Erich Staake (Duisport AG), Frank Sportolari (UPS) and Franz-Josef Miller (time:matters) contributed their view on the necessity and value of speed in the supply chain. Prof. Alan McKinnon of the KLU contributed some provocative thoughts on the need to *slow down* the supply chain, in particular in light of CO<sub>2</sub> reduction efforts.

The next issue of the Campus is currently being planned. The discussions next year will focus on the topic “Supply Chain 2025 - Expect the unexpected?”

I would like to take the opportunity to thank Mr. Martin Willhaus, Managing Director of the Kühne Foundation, for his efforts to make this event a success. He continues to provide invaluable support for the students organizing the event to get in touch with industry leaders and thus fosters the exchange between academia and (logistics) industry.



## **Activities for WHU**

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### **Member of the Senate**

The school's senate is comprised of eleven faculty members who are elected by the faculty. Prof. Spinler is one of them, with Prof. Wallenburg being the replacement.

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### **Member of the search committee Professorship in Operations Management**

Due to rising demand for Operations Management (OM) and Logistics in all of WHU's programs, a search for an additional faculty member in the area of OM was initiated. A total of 19 applications were received, from which four high-caliber candidates were invited for talks on campus.

## Activities for the scientific community

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### Conference papers

- 17<sup>th</sup> Cambridge Symposium on International Manufacturing  
Cambridge/UK, September 20, 2013  
“Importance of supply chain risk management at outsourced logistics”  
König, Alexander and Spinler, Stefan
- BVL 17<sup>th</sup> International PhD Candidates Workshop  
Berlin/Germany, October 22, 2013  
“Supply Chain Risk Management of Logistics Service Providers”  
König, Alexander and Spinler, Stefan
- Campus for Supply Chain Management  
Vallendar/Germany, January 16-17, 2014  
“Supply Chain Risk Management”  
König, Alexander and Spinler, Stefan
- YEEES Conference  
Dresden/Germany, April 09-10, 2014  
“The structural impact of renewable energy support schemes on electricity markets”  
Ritzenhofen, Ingmar, Birge, John R. and Spinler, Stefan
- CCSCMP European Research Seminar on Logistics and SCM  
Düsseldorf/Germany, April 28-29, 2014  
“Does Logistics Outsourcing affect the Supply Chain Vulnerability of Shippers?”  
König, Alexander and Spinler, Stefan
- 25<sup>th</sup> Annual POMS Conference  
Atlanta-Georgia/USA, May 09-12, 2014  
“Sustainability for School Feeding Supply Chains: Cases of Critical Factors” – Humanitarian  
Operations and Crises Management track  
Kretschmer, Andreas and Spinler, Stefan
- 25<sup>th</sup> Annual POMS Conference  
Atlanta-Georgia/USA, May 09-12, 2014  
“Capacity market design options: A capacity expansion model and a GB case study”  
Hach, Daniel, Kong, Chyong and Spinler, Stefan

## **Activities for the scientific community**

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### **Conference papers**

- 25<sup>th</sup> Annual POMS Conference  
Atlanta-Georgia/USA, May 09-12, 2014  
“The Structural Impact of Renewable Portfolio Standards and Feed-in-Tariffs on Electricity Markets”  
Ritzenhofen, Ingmar, Birge, John R. and Spinler, Stefan
- Annual Meeting of the Academic Partnership, GS1 Germany  
Cologne/Germany, June 26, 2014  
“Distribution Network Planning for Consolidated Urban Deliveries at La Poste”  
Winkenbach, Matthias and Spinler, Stefan
- IFORS Conference  
Barcelona/Spain, July 14-18, 2014  
“The structural impact of renewable energy support schemes on electricity markets – a generation capacity expansion model with ramping and strategic bidding”  
Ritzenhofen, Ingmar, Birge, John R. and Spinler, Stefan

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### **Conference participations**

- 30<sup>th</sup> International Supply Chain Conference  
Berlin/Germany, October 23-25, 2013  
König, Alexander

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### **Award**

- Science Award 2014 (Wissenschaftspreis Logistik 2014) of the Bundesvereinigung Logistik (BVL)  
Dr. Matthias Winkenbach – Winner

## **Activities for the scientific community**

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### **Memberships**

- BVL, Bundesverband für Logistik (German Logistics Association)
  - DHV, Deutscher Hochschulverband (Association of German Universities)
  - GOR, Gesellschaft für Operations Research (German Operational Research Society)
  - INFORMS, Institute for Operations Research and Management Science (USA)
  - POMS, Production and Operations Management Society
  - VHB, Verband der Hochschullehrer für Betriebswirtschaft (German Association of Business Professors)
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### **Referee activities**

Professor Spinler is Senior editor for focused issue of Decision Sciences Journal (Modularity and Supply Chain Management)

He regularly acts as a reviewer for the following journals:

- Decision Sciences
- European Journal of Operational Research (EJOR)
- Management Science
- Operations Research (OR)
- Production and Operations Management Journal

## Appendix

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### List of acronyms and abbreviations

ANP	Analytic Network Process
BUGA	Bundesgartenschau
CCRM	Collaborative CO <sub>2</sub> Reduction Management
BVL	Bundesverband für Logistik
DHV	Deutscher Hochschulverband
EJOR	European Journal of Operational Research
ETS	Emission Trading System
EV	Electric Vehicles
EWGCFM	Euro Working Group on commodities and Financial Modelling
FMCG	Fast Moving Consumer Goods Industry
FTMBA	Full-Time Master of Business Administration
GOR	Gesellschaft für Operations Research
ICV	Internal Combustion Vehicle
IFT	Intermodal Freight Transport
INFORMS	Institute for Operations Research and Management Science
LSP	Logistics Service Provider
NetloP	Netzwerkmanagement für logistische Prozesse
NGO	Non-Governmental Organization
OEM	Original Equipment Manufacturer
OR	Operations Research
PCD	Partnership for Child Development
POMS	Production and Operations Management Society
PTMBA	Part-Time Master of Business Administration
SCM	Supply Chain Management
SCRM	Supply Chain Risk Management
VHB	Verband der Hochschullehrer für Betriebswirtschaft
WFP	World Food Program