

Professor Dr. Arne K. Strauss

PERSONAL DETAILS

Full Name and Title: Prof. Dr. Arne Karsten Strauss
Current appointment: Professor, Chair Holder
Mercator Endowed Chair of Demand Management & Sustainable Transport
WHU – Otto Beisheim School of Management, Germany

Nationality: British, German

Education/Qualifications: **Postgraduate Certificate in Academic and Professional Practice**
Nov. 2011 – June 2013, University of Warwick, UK
Ph.D. in Management Science Sept. 2006 – 14 Dec. 2009 (Viva)
Lancaster University Management School, UK
Examined by Prof D. Romero Morales, University of Oxford
M.Sc. in Mathematics Aug. 2005 – Aug. 2006
Overall grade A-
Virginia Polytechnic Institute and State University, USA
Master's degree (Dipl.-Wirt.-Math.) in Business Mathematics
Oct. 2000 – Aug. 2006
M.Sc. equivalent, overall grade 1.18 (scale 1-5 best-worst)
University of Trier, Germany

EMPLOYMENT HISTORY

- **Full Professor** Jan. 2020 – current
WHU – Otto Beisheim School of Management, Germany
- **Offer - Chair** (declined) July 2021
Faculty of Business, Economics and Informatics, University of Zurich, Switzerland
- **Associate Professor of Operational Research** Jan. 2014 – Dec 2019
Warwick Business School, University of Warwick, UK
- **Assistant Professor of Operational Research** Oct. 2011 – Dec. 2013
Warwick Business School, University of Warwick, UK
- **Senior Postdoctoral Research Associate** Oct. 2010 – Sept. 2011
LANCS Initiative, Lancaster University Management School, UK
- **Research Associate** Oct. 2009 – Sept. 2010
EPSRC PhD Plus Fellow, Lancaster University Management School, UK
- **Doctoral Researcher** Sept. 2006 – Sept. 2009
Lancaster University Management School, UK
- **Graduate Assistant** Aug. 2005 – May 2006
Dept. of Mathematics, Virginia Tech, USA
- **Graduate Assistant** Nov. 2001 – June 2005
Dept. of Mathematics, University of Trier, Germany

RESEARCH

Research Funding

- European Commission (Horizon 2020) and Eurocontrol: Advanced Capacity and Demand Management for European Network Performance Optimization (CADENZA). € 2 million, responsible for €360,000. June 2020 – August 2022. Principal Co-I, team leader at WHU.
- Isaac Newton Institute, University of Cambridge. Co-I on 5-days workshop on the circular economy (Feb 2020)
- Turing Fellowship, The Alan Turing Institute, London. Oct 2018–Dec 2019.
- Innovate UK and Slicker Recycling, Knowledge Transfer Partnership, £211,000, June 2018– Dec 2020. Co-I
- European Commission (Horizon 2020): Responsible for € 220,656. Coordinated capacity ordering and trajectory pricing for Air Traffic Management (COCTA). April 2016 – September 2018, including a 5 months extension. Principal Co-I, team leader at Warwick.
- EPSRC Workshop on Personification & Choice Modelling for Demand Management with Restricted Data, The Shard, London. EP/P026117/1. April 2017 – December 2017. Value: £19,160. Role: PI.
- EPSRC PhD Plus Fellowship: £30,000. Oct. 2009–Sept. 2010. PI.
- Lancaster University: £36,000. PhD Maintenance Grant. Oct. 2006 – Sept. 2009.
- EPSRC PhD Full Tuition Scholarship. Oct. 2006 – Sept. 2009.

Research Supervision

- *WHU*
 - Doctoral student (1st supervisor): Jens Frische (Oct 2021 – current)
 - Doctoral student (1st supervisor): Jan-Rasmus Kuennen (May 2020 – current)
 - Doctoral student (external co-supervisor): Jonas Schwamberger, University of Mannheim (Apr 2019 – current)
- *Warwick Business School*
 - Postdoctoral research assistant: Dr Merve Keskin (Jan 2019 – current), jointly with Prof Jürgen Branke and Dr Vladimir Deineko
 - Postdoctoral research assistant: Dr Stefano Starita (April 2016–December 2017), currently Lecturer at Sasin School of Management, Bangkok, Thailand.
 - Ph.D. student: Yijun Zheng (graduated 2020)
 - Ph.D. student: Mustafa Demirbilek (graduated 2018)

NATIONAL AND INTERNATIONAL RECOGNITION

- Selected Invited Talks
 - Keynote speaker. 'Urban Logistics', dinner event at the House of Commons, 20 May 2019
 - Semi-plenary speaker. 'Last mile logistics', International Conference on Operations Research 2017, Berlin, Germany. Over 900 participants.
 - Plenary speaker: 'Nudge the customer and delivery cheaper'. 4th INFORMS Transportation Science and Logistics Society Workshop 2015, Berlin, Germany. Around 300 participants.

- Plenary speaker and panelist: Operational Research Society event 'Developments in Analytics and Big Data 2014'. Around 200 participants.
- External Committee Memberships
 - *Engineering & Physical Science Research Council (EPSRC) Strategic Advisory Panel (Mathematical Sciences)* (January 2020 – current). Advise on research and training funding strategy for the British Engineering & Physical Sciences Research Council. EPSRC invest £1bn a year in research and postgraduate training. The appointment is for 3 years.
 - *Operational Research Society Research Panel* (June 2016 – current). Panel offers strategic guidance to the OR Society on the landscape of research and relevant opportunities and threats. It strives to enable the OR community to access research funding and achieve impact.
 - Council for the Mathematical Sciences' "BIG Mathematics Review Panel" (2019 – June 2020). Contribute to national report to improve knowledge exchange for the mathematical sciences under leadership of the former Chief Scientific Advisor to the Home Office, Sir Bernard Silverman
 - *AACSB Analytics Curriculum Advisory Group* (March 2016 – Dec 2019). Invited speaker and facilitator of AACSB seminars in Amsterdam (2016), Tempe, Arizona (2018) and Atlanta, Georgia (2019) on best practice for design of Analytics programmes (aimed at course directors and deans)
 - *EPSRC Prioritisation Panel Mathematics May 2019*. EPSRC Peer Review College member.
- Other External Roles
 - External Ph.D. examinations at Aarhus, Denmark (2018); Southampton (2017, 2015); Lancaster (2014); Manchester (2013)
 - Grant application reviewer for various funders: British EPSRC, German DFG, Dutch NWO, Alan Turing Institute
 - External examiner, MSc Business Analytics, Manchester Metropolitan University, 2018–2019
 - External examiner, MSc Business Analytics & Management Science, University of Southampton, 2017–2019
 - External examiner, MSc Business Analytics, Imperial College London, 2015–2019
 - External reviewer, MSc Business Analytics, Xi'an Jiaotong-Liverpool University, 2015
- Editorial
 - Editorial board member of *Journal of Revenue & Pricing Management* (May 2015–ongoing)
 - Guest Editor of Special Issues of *Annals of OR* and *Journal of Revenue & Pricing Management*
 - Outstanding reviewer certificate, *European Journal of Operational Research*, Feb 2017
- Awards
 - International industry prize *Jane's Air Traffic Control Innovation Award* for Horizon 2020 project COCTA, 2019
 - *University of Warwick*: Teaching Award for Outstanding Contribution to Pre-Experience Masters Programmes 2018-19
 - *University of Warwick*: Merit Pay Awards (2013, 2015, 2016, 2017, 2018)
 - The Operational Research Society: Supervised MSc student winning runner-up award for the national May Hicks Prize for the best industry-based dissertation in 2018 (£250)
 - *Warwick Business School*: Teaching Award for Outstanding Contribution to the Pre-Experience Masters Programmes 2016-2017, in recognition of excellent teaching on Pricing & Revenue Management
 - *Warwick Business School*: WBS Research Award for Outstanding Contribution to Generating Research Income 2017

- *Consumer Data Research Centre*: Supervised MSc student winning the national First Prize for the best industry-based dissertation in 2017 (£500)
- *The Operational Research Society*: Supervised MSc student winning the national May Hicks Prize for the best industry-based dissertation in 2016 (£1,000)
- *IBM Faculty Award 2015*: Joint winner of world-wide competition for innovative teaching developments in analytics (US\$ 20,000)
- *The Operational Research Society*: Goodeve Medal for best paper in 2012 in *Journal of the Operational Research Society*
- *The Operational Research Society*: Annual Prize For Best Doctoral Dissertation in 2009 (£1,500)
- *Department of Management Science, Lancaster University*: Best Doctoral Researcher Prize (£500)
- *Airline Group of the International Federation of Operational Research Societies (AGIFORS)*: Anna Valicek Award 2009: Honourable Mention
- *International Association for Mathematics and Computers in Simulation (IMACS)*: Most Successful 2008 IMACS Paper Award in *Applied Numerical Mathematics*

ADMINISTRATION

- Referee for various journals including *Production & Operations Management*, *Transportation Science*, *European Journal of Operational Research*, *Management Science*, *Transportation Research Part B*, *Operations Research*.
- *Warwick Business School*
 - Academic Director for MSc Business Analytics 'MSBA', Warwick Business School (2012 – 2019).
Student satisfaction in the Postgraduate Taught Experience Survey (PTES) 2019 at record-high: 89% on overall score, 81% response rate.
MSBA programme consistently ranked in global top 10 by QS Business Analytics Ranking since first ranking released in 2017.
 - Conference organising committee member: 11th International Conference on Applied Mathematical Optimization and Modelling, University of Warwick, 9-11 April 2014

Publications

Journal Papers: Refereed

- Künnen, J.-R. and Strauss, A.K. The value of flexible flight-to-route assignments in pre-tactical air traffic management. Forthcoming in *Transportation Research Part B: Methodological*.
- Schwamberger, J., Fleischmann, M. and Strauss, A.K. Feeding the Nation - Dynamic Customer Contacting for E-Fulfillment in Times of Crisis. Forthcoming in *Service Science*.
- Strauss, A.K., Gulpinar, N. and Zheng, Y. 'Dynamic Pricing of Flexible Time Slots for Attended Home Delivery Services'. *European Journal of Operational Research* 294(3) (2021): 1022–1041
- Demirbilek, M, Branke, J and Strauss, A. Home Healthcare Routing and Scheduling of Multiple Nurses in a Dynamic Environment. *Flexible Services and Manufacturing Journal* 33(1) (2021): 253–280
- Starita, S., Strauss, A.K., Fei, X. Jovanovic, R. Ivanov, N.; Pavlovic, G.; Fichert, F. Air Traffic Control Capacity Planning under Demand and Capacity Provision Uncertainty. *Transportation Science* 54(4), 882–896 (2020)

- Klein, R, Koch, S, Steinhardt, C., Strauss, A.K. A Review of Revenue Management: Recent Generalizations and Advances in Industry Applications. *European Journal of Operational Research* **284**(2) (2020): 397–412
 - Jovanovic, R, Fichert, F. Ivanov, N. Pavlovic, G. Strauss, A. Starita, S., Babic, O. Coordinated capacity and demand management in a redesigned Air Traffic Management value-chain. *Journal of Air Transport Management* **75** 139-152 (2019)
 - Demirbilek, M., Branke, J. and Strauss, A. Dynamically Accepting and Scheduling Patients for Home Healthcare. *Health Care Management Science* **22** (2019): 140-155
 - Kourentzes, N., Li, D. and Strauss, A.K. Unconstraining methods for revenue management systems under small demand. *Journal of Revenue and Pricing Management* **18** Issue 1 (2019), pp 27–41
 - Currie, C.S.M.; Dokka, T.; Harvey, J.; Strauss, A.K. Future Research Directions in Demand Management. *Journal of Revenue and Pricing Management* 17 Issue 6: 459-462 (2018)
 - Strauss, A.K.; Klein, R. and Steinhardt, C. A Review of Choice-based Revenue Management: Theory and Methods. *European Journal of Operational Research*, **271**, Issue 2: 375-387 (2018).
 - Strauss, A.K. and Talluri, K. 'Tractable consideration set structures for assortment optimization and network revenue management'. *Production and Operations Management* **26** (2017): 1359–1368 .
 - Yang, X. and Strauss, A.K. 'An approximate dynamic programming approach to attended home delivery management'. *European Journal of Operational Research*. **263** (2017): 935-945.
 - Ivanov, N., Netjasov, F., Jovanovic, R., Starita, S., and Strauss, A. 'Air traffic flow management slot allocation to minimize propagated delay'. *Transportation Research Part A: Policy and Practice* **95** (2017):183–197.
 - Yang, X., Strauss, A.K., Currie, C. and Eglese, R. 'Choice-based demand management and vehicle routing in e-fulfilment'. *Transportation Science* **50** (2016):473–488.
 - Meissner, J. Strauss, A. and Talluri, K. 'An enhanced concave program relaxation for choice network revenue management.' *Production and Operations Management* **22** (2013): 71-87.
 - Meissner, J. and Strauss, A.K. 'Network revenue management with inventory-sensitive bid prices and customer choice.' *European Journal of Operational Research* **216** (2012): 459-468.
 - Meissner, J. and Strauss, A.K. 'Improved bid prices for choice-based network revenue management.' *European Journal of Operational Research* **217** (2012): 417-427
 - Kemmer, P., Strauss, A.K. and Winter T. 'Dynamic simultaneous fare proration for large-scale network revenue management.' *Journal of the Operational Research Society* **63** (2012): 1336-1350.
- Goodeve Medal for best paper in JORS in 2012**
- Meissner, J. and Strauss, A.K. 'Pricing structure optimization in mixed restricted/unrestricted fare environments.' *Journal of Revenue and Pricing Management* **9** (2010): 399–418.
 - Sachs, E.W. and Strauss, A.K. 'Efficient solution of a partial integro-differential equation in finance.' *Applied Numerical Mathematics* **58** (2008): 1687–1703.
- 2008 IMACS Paper Award**

Conference Papers: Refereed

- Starita, S.; Strauss, A.K., et al. 'Coordinated capacity and demand management in a re-designed ATM value chain'. *7th H2020 SESAR Innovation Days 2017*, Belgrade (44% acceptance rate)
- Strauss, A.K., Starita, et al. 'Maximizing ATM Cost-Efficiency by Flexible Provision of Airspace Capacity'. *Proceedings of the 6th H2020 SESAR Innovation Days 2016* conference, Delft

Book Chapter: Not refereed

- Meissner, J. and Strauss, A.K. Demand pricing and revenue management. *Service Chain Management: Technology Innovation for the Service Business*. Ed. Voudouris, C., Owusu, G., Dorne, R. and Lesaint, D. Berlin: Springer-Verlag, 2007

TEACHING

Training & Experience

Postgraduate Certificate in Academic and Professional Practice, June 2013

Taught Courses at Warwick Business School:

I introduced and developed three new modules, namely Analytics in Practice (in collaboration with IBM), Text Analytics (accredited by SAS) and Pricing & Revenue Management. I drove the inclusion of important software tools into the programme, including SAS, R, Python, Tableau.

- Analytics in Practice (MSc Business Analytics): The module introduced the students to the basics of data mining and business intelligence, along skills in visualisation, dashboard building and presentation of analytic results to non-technical audiences. We teach them to use R and the visualisation software Tableau. Most examples as well as a group assignment focus on marketing analytics.
- Pricing Analytics (MSc Business Analytics): The module teaches mostly techniques of price optimisation, as well as segmentation via price differentiation, behavioural pricing and demand unconstraining techniques. Forecasting has been excluded because there is a separate module devoted to this topic. I developed this module myself.
- Text Analytics (MSc Business Analytics): The first half of the module focusses on predictive modelling using SAS Enterprise Miner, the second on data preparation for text mining, pattern discovery and predictive modeling for text mining. The content is based on teaching materials from SAS.
- Recent Advances in Operational Research (Ph.D. programme): Ph.D. candidates take this module in their first year to gain exposure to a wide range of OR techniques and applications.
- Modeling and Analysis for Management (MBA/Exec MBA): Compact one week course on basic statistics, simulation, regression and linear programming for managers using Excel. Teaching makes heavy use of case studies and syndicate group work. I teach the linear programming part and support the syndicate groups in all other subjects.
- Mathematical Programming I/II (BSc): These undergraduate modules introduce linear and dynamic programming, duality, sensitivity analysis and applications. Students use Excel Solver in their assignments. I contributed lectures and tutorials on various of these topics.

Date Curriculum Vitae Prepared: April 2022