

# Michael Bruhn Barfod: Curriculum Vitae

## Current position

Assistant Professor at the Technical University of Denmark (DTU), Department of Transport (DTU Transport)

## Education

2008-2012: PhD degree with thesis entitled: *Optimising Transport Decision Making using Customised Decision Models and Decision Conferences*, DTU Transport, February 2012.

1997-2006: M.Sc. in Engineering, with master thesis entitled: *Assessment of Alternatives for a new Hornsherred Connection*, Centre for Traffic and Transport, DTU.

## Main Employments

2012-current: Assistant professor at DTU Transport within decision support systems, evaluation methodologies, decision analysis and economic assessments of infrastructure projects.

2008-2012: Part time PhD student and part time scientific assistant at DTU Transport – both positions within decision support systems, appraisal of transport projects and decision analysis.

2006-2008: Scientific assistant at the Centre for Traffic and Transport within the Decision Modelling Group, DTU.

## Key qualifications

My main activities lie within customised decision analysis, decision support systems, group decision making and applied risk assessments. I hold in-depth knowledge about appraisal methods and methodologies concerning transport infrastructure projects – both in respect to research and teaching. My research in particular applies theory in practice, and has often been carried out using real case data in various projects. These projects have besides articles (national as well as international) lead to the research results being applied both in industry and in the education provided by DTU Transport.

*My main competences are:*

- Applied research within decision analysis and customised decision support systems

- Software and model building from initiation to implementation of various methodological approaches and data treatment
- Broad knowledge in appraisal methods which I have received through interdisciplinary corporation with industry and other research environments
- Planning and teaching of several courses for both master and diploma students within appraisal methods, decision support, planning theory and GIS as well as supervisor for several master and bachelor students

In addition to the above I have completed all modules in the course series: Education in University Teaching at DTU, which is the highest education for teachers at DTU.

## Grants

- Recipient of Professor P.H. Bendtsen's Traffic Research Award 2012, awarded for traffic and transport researchers under the age of 40. The award was given for the article '*An MCDA Approach for the Selection of Bike Projects based on Structuring and Appraising Activities*' published in European Journal of Operational Research.

## Language skills

	Reading	Speaking	Writing
<b>Danish</b>	Native language	Native language	Native language
<b>English</b>	Perfect	Perfect	Perfect
<b>Swedish</b>	Perfect	Limited	Limited
<b>Spanish</b>	Fair	Limited	Limited
<b>German</b>	Good	Limited	Limited

## Experience record

An overview of selected projects in which I have played a major role:

- SELECT: Suitable electromobility for commercial transport, Danish Council of Strategic Research
- SUSTAIN: National Sustainable Transport Planning, Danish Council of Strategic Research
- UNITE: Uncertainties in transport project evaluation, Danish Council of Strategic Research
- EcoMobility: Green transport in the Oresund Region, EU Interreg.
- STMØ: Strategic Transport Management for the Øresund Region, EU Interreg.
- MOTOS: Transport Modelling: Towards Operational Standards in Europe, EU Commission

- TEN Connect: Extension of the major trans-European transport axes to the neighbouring countries, EU Commission
- Assessment of public transport projects in Sweden, VINNOVA
- CPPI, II & III: Prioritising bike projects in Denmark, the Danish Road Directorate
- ITP: Prioritising ITS projects in Denmark, the Danish Road Directorate

## Teaching

An overview of the courses in which I have played a major role is presented below. Besides this I have had several lectures on other courses related to traffic planning, and have been supervising several bachelor and master students in their thesis work.

Year	Course	ECTS	Role
2006	13235 Planning Theory	5	Teacher
2007	13231 Appraisal Methodology	5	Teacher
	13235 Planning Theory	5	Teacher
2008	13231 Appraisal Methodology	5	Course responsible and Teacher
	13235 Planning Theory	5	Teacher
2009	13231 Appraisal Methodology	5	Course responsible and Teacher
2010	13231 Appraisal Methodology	5	Course responsible and Teacher
	13235 Planning Theory	5	Teacher
2011	13231 Appraisal Methodology	5	Course responsible and Teacher
	13235 Planning Theory	5	Teacher
	13538 Project Appraisal	5	Teacher
2012	13006 GIS and Road Traffic Planning	10	Course responsible and Teacher
	13231 Appraisal Methodology	5	Course responsible and Teacher
	13235 Planning Theory	5	Teacher
	13506 GIS and Road Traffic Planning	15	Course responsible and Teacher
2013	13006 GIS and Road Traffic Planning	10	Course responsible and Teacher
	13231 Appraisal Methodology	5	Course responsible and Teacher
	13233 Decision support and risk analysis	5	Course responsible and Teacher
	13235 Planning Theory	5	Teacher
	13506 GIS and Road Traffic Planning	15	Course responsible and Teacher
	13538 Project Appraisal	5	Course responsible and Teacher
2014	13006 GIS and Road Traffic Planning	10	Course responsible and Teacher
	13233 Decision support and risk analysis	5	Course responsible and Teacher

	13235 Planning Theory	5	Teacher
	13506 GIS and Road Traffic Planning	15	Course responsible and Teacher
	13538 Project Appraisal	5	Course responsible and Teacher
<b>2015</b>	13235 Planning Theory	5	Teacher
	13548 ITS and Project Appraisal	10	Course responsible and Teacher

# List of publications

## Journal articles (Peer Reviewed, ISI-Indexed):

1. Barfod, M.B., van den Honert, R.C. & Salling, K.B. (forthcoming). Combining MCDA and risk analysis: dealing with scaling issues in the multiplicative AHP. Accepted for publication in *International Journal of Information Technology & Decision Making*, April 2015.
2. Barfod, M.B. & Salling, K.B. (2015). A new composite decision support framework for strategic and sustainable transport appraisals. *Transportation Research Part A: Policy and Practice*, Vol. 72, pp. 1-15, Elsevier.
3. Barfod, M.B. & Leleur, S. (2013). Scaling Transformation in the REMBRANDT Technique: Examination of the Progression Factors. *International Journal of Information Technology & Decision Making*, Vol. 12 (5), pp. 1-17, World Scientific.
4. Barfod, M.B. (2012). An MCDA Approach for the Selection of Bike Projects based on Structuring and Appraising Activities. *European Journal of Operational Research*, Vol. 218 (3), pp. 810-818, Elsevier.
5. Barfod, M.B., Salling, K.B. & Leleur, S. (2011). Composite Decision Support by combining Cost-Benefit and Multi-Criteria Decision Analysis. *Decision Support Systems*, Vol. 51 (1), pp. 167-175, Elsevier.
6. Ambrasaitė, I., Barfod, M.B. & Salling, K.B. (2011). MCDA and Risk Analysis in Transport Infrastructure Appraisals: the Rail Baltica Case. *Procedia Social and Behavioral Sciences*, Vol. 20, pp. 944-953, Elsevier.

## Forthcoming articles (in ISI-Indexed journals)

1. Barfod, M.B., Kaplan, S., Frenzel, I. & Klauenberg, J. (forthcoming). The market diffusion of electric vehicles in the commercial sector: a new MCDA approach. Submitted to *Research in Transport Economics*, April 2015.
2. Barfod, M.B. & Pryn, M.R. (forthcoming). Sustainable transport planning: involving stakeholders in the decision support process using planning workshops and MCDA. Submitted to *International Journal of Sustainable Transportation*, April 2015.
3. Salling, K.B. & Barfod, M.B. (forthcoming). Uncertainties in Transport Project Evaluation: Feasibility Risk Assessment and Pair-wise comparisons. Presented at the CITTA 7th Annual Conference, August 2014. Will be submitted to a journal in the summer of 2015.
4. Barfod, M.B. & Leleur, S. (forthcoming). Applying a MAMCA approach for sustainable transport decision making. Accepted for presentation at the MCDM 2015 biannual conference, August 2015. Will be submitted to a journal in the autumn of 2015.
5. Salling, K.B., Barfod, M.B., Pryn, M. & Leleur, S. (forthcoming). Flexible decision support for sustainable transport development: the SUSTAIN decision framework. Accepted for presentation at the WCTR 2016 conference. Will be submitted to *Transportation Research Part A: Policy and Practice*

## Publications (Peer Reviewed)

1. Jensen, A.V., Pilkauskienė, I., Salling, K.B., Barfod, M.B. & Leleur, S. (2013). Bæredygtig transportplanlægning. In: C.B. Hansen (ed.): *Transporthorisonter*. Technical University of Denmark, Transport, Aalborg.
2. Jensen, A.V., Ambrasaite, I., Salling, K.B., Barfod, M.B. & Leleur, S. (2012). The EcoMobility Modelling Framework for Sustainable Transport Planning. In: C-M Carlsson et al. (eds): *Rethinking Transport in the Øresund Region: Policies, Strategies and Behaviours*. Lund University, pp. 149-164.
3. Barfod, M. B. (2012). Optimising Transport Decision Making using Customised Decision Models and Decision Conferences. Proceedings of the 'Trafikdage i Aalborg', conference at Aalborg University, Denmark, Presentation as PH Bendtsen Prize recipient.
4. Barfod, M.B., Jensen, A.V. & Leleur, S. (2011). Examination of Decision Support Systems for Composite CBA & MCDA Assessments of Transport Infrastructure Projects. In: Y. Shi et al. (eds.): *New State of MCDM in the 21<sup>st</sup> Century – Selected papers of the 20<sup>th</sup> International Conference on Multiple Criteria Decision Making 2009. Lecture Notes in Economics and Mathematical Systems*, Vol. 648, Springer.
5. Jensen, A.V., Barfod, M.B. & Leleur, S. (2011). Estimating the Robustness of Composite CBA and MCDA Assessments by Variation of Criteria Importance Order. In: Y. Shi et al. (eds.): *New State of MCDM in the 21<sup>st</sup> Century – Selected papers of the 20<sup>th</sup> International Conference on Multiple Criteria Decision Making 2009. Lecture Notes in Economics and Mathematical Systems*, Vol. 648, Springer.
6. Barfod, M.B. & Leleur, S. (2009). Customised DSS and Decision Conferences. Paper in Proceedings and presented at the EWGT2009 – 13<sup>th</sup> Euro Working Group on Transportation Meeting, Padua, Italy, September 23-25 2009.
7. Jeppesen, S. L., Barfod, M. B. & Leleur, S. (2008). Strategic Location Planning: A Hard Approach Supported by Semi-Soft Methods. *Journal of Information Science and Technology*, 5 (3), Emerald.
8. Jensen, A. V., Barfod, M. B., Leleur, S. (2008). Multi-dimensional project evaluation: Combining cost-benefit analysis and multi-criteria analysis with the COSIMA software system. Paper in proceedings and presented at the 19<sup>th</sup> International Conference on Multiple Criteria Decision Making, Auckland, New Zealand, January 7-12 2008.
9. Leleur, S., Barfod, M.B., Petersen, N.B. (2007). The COSIMA Approach to Transport Decision Making – Combining Cost-benefit and Multi-criteria Analysis for Comprehensive Project Appraisal. In: *Improving Public Investment Management for Large-Scale Government Projects: Focusing on the Feasibility Studies*, pp. 100-122, 1<sup>st</sup> edition, KDI, Seoul, 2007.
10. Jensen, A. V., Leleur, S. & Barfod, M.B. (2007). Strategic Planning and Decision Analysis: Presentation of the COSIMA Software System. Paper in proceedings and presented at the INFORMS International Conference, Puerto Rico, July 8-11 2007.
11. Jeppesen, S. L., Barfod, M. B. & Leleur, S. (2007). Comparing a soft and a hard multi-methodology approach: Location of an IT company in the Øresund Region. Paper in proceedings and presented at the International Conference "ISOneWorld 2007", Las Vegas, NV, USA, April 2007.
12. Barfod, M. B. & Leleur, S. (2007). COSIMA-ES-PORT – A new Decision Support Model for the handling of road/rail/cargo related impacts. *MERCATOR – Maritime Innovation, Research and Education*, Weillbach & Co.

## Reports and dissertations

1. Barfod, M.B. (2012). Optimising Transport Decision Making using Customised Decision Models and Decision Conferences. PhD thesis, Department of Transport, Technical University of Denmark.
2. Salling, K.B., Barfod, M.B. & Ambrasaite, I. (2011). Ranking and Assessing Bicycle Projects in Denmark: the CPPIII Decision Support Model. Technical Report, DTU Transport, January 2011 (in Danish).
3. Barfod, M.B., Salling, K.B. & Leleur, S. (2009). Principles and methods for prioritizing funds with regard to bike projects in Denmark. Technical Report, DTU Transport, September 2009 (in Danish).
4. Rich, J., Barfod, M. B., Enei, R., Pearman, A., Räsänen, J., & Shires, J. (2009) Report on Scenario, Traffic Forecast and Analysis of Traffic on the TEN-T, taking into Consideration the External Dimension of the Union: assessment of Infrastructure packages. Report for the EU Commission.
5. Hiselius, L., Barfod, M.B., Leleur, S., Jeppesen, S.L., Jensen, A.V., Hjalte, K. (2009). Helhetsorienterad Utvärdering av Kollektivtrafikåtgärder. Final report for the VINNOVA research project. University of Lund, 2009 (in Danish and Swedish).
6. Carlsson, Andersson, Arnfalk, Barfod, Cederin, Day Larsen, Ericsson, Gammelgaard, Jeppesen, Larsson, Larsson, Leleur, Olshov, Ryden, Rørbech, Skovby, Varhelyi, Vestergaard Jensen, Winslott Hiselius (2008). Hållbart transportsystem för inre och yttre attraktivitet. Final report for phase 2 of the INTERREG IIIA-project: Strategic Transport Management i Øresundsregionen (STMØ), Malmö Högskola, april 2008 (in Danish and Swedish).
7. Barfod, M.B. (2007). Impact Models. Chapter 11 (page 215-217) in Transport Modelling Towards Operational Standards in Europe (MOTOS) Final Report, presented at the MOTOS Final Conference, Budapest, Hungary, May 24-25 2007.
8. Barfod, M.B., Kronbak, J. (2006). East-west – Danish WP3 report: Development of the COSIMA-ES-PORT decision model. Centre for Traffic and Transport, Technical University of Denmark & Department of Maritime Research and Innovation, University of Southern Denmark, November 2006.
9. Barfod, M.B. (2006). Vurdering af alternativer til ny Hornsherredforbindelse. M.Sc. thesis, Centre for Traffic and Transport, Technical University of Denmark, May 2006 (in Danish).

## Popular science articles

1. Jensen, A. V., Barfod, M. B. & Pilkauskienė, I. (2012). En introduktion til beslutningskonferencer. *Trafik og Veje*, August (2012) pp 18-20, Dansk Vejtidskrift 08-2012 (in Danish).
2. Barfod, M. B. & Salling, K. B. (2010). CykelPuljePrioriterings-metoden (CPP-metoden). *Trafik og Veje*, Januar (2010) pp. 14-16, Dansk Vejtidskrift 01-2010 (in Danish).