

Resume Rob Basten, February 22, 2020

Surname	Basten
Given name	Rob
E-mail	rob[at]robbasten[dot]eu
Website	www.robbasten.eu

Working experience

August 2017 – Now	Associate professor at the Eindhoven University of Technology, Department of Industrial Engineering & Innovation Sciences, Group of Operations Planning, Accounting, and Control
March 2020 – August 2020	Visiting scholar at The University of North Carolina at Chapel Hill, Kenan-Flagler Business School, Area of Operations
October 2014 – July 2017	Assistant professor at the Eindhoven University of Technology, Department of Industrial Engineering & Innovation Sciences, Group of Operations Planning, Accounting, and Control
October 2014 – February 2015	Visiting scholar at the Rensselaer Polytechnic Institute, School of Engineering, Department of Industrial and Systems Engineering
September 2011 – September 2014	Assistant professor at the University of Twente, Faculty of Engineering Technology, Chair of Maintenance Engineering
November 2010 – August 2011	Consultant at Gordian Logistic Experts B.V.: project manager of ‘Planning Services’
February 2010 – August 2011	Postdoc at the Eindhoven University of Technology, Department of Industrial Engineering & Innovation Sciences, Group of Operations Planning, Accounting, and Control
Apr. – Dec. 2004	Project assistant at Keypoint Consultancy, Enschede, The Netherlands

Education

October 2005 – January 2010	Ph.D. degree in Operations Research, University of Twente, Department of Operational Methods for Production and Logistics Thesis: Designing logistics support systems. Level of repair analysis and spare parts inventories
September 2008 – January 2009	Visiting PhD student at the University of Texas at Austin, Graduate program in Operations Research & Industrial Engineering
September 2000 – August 2005	M.Sc. degree in Computer Science, University of Twente, Specialization: Human Media Interaction, graduation project at the Deutsches Forschungszentrum für Künstliche Intelligenz, Saarbrücken, Germany
September 1999 – December 2004	M.Sc. degree in Industrial Engineering and Management, University of Twente, Specialization: Finance & Accounting, graduation project at Keypoint Consultancy, Enschede, The Netherlands
December 2003 – March 2004	Internship at Rabobank Nederland Corporate Clients

Grants

- Future logistics. Een proeftuin voor high-tech service logistiek. Co-applicant. Main applicant: DSV Solutions B.V. 2.4 M€, funded by the European Union through the Operational Programme EFRO 2014-2020 Zuid-Nederland (OPZuid).
- Predictive maintenance for Very effective asset management (PrimaVera). Co-applicant. Main applicant: prof.dr. Mariëlle Stoelinga (Universiteit Twente). 5 M€, funded by The Netherlands Organisation for Scientific Research (NWO) through the Dutch Research Agenda – Research along routes by Consortia 2019 (NWA-ORC 2019).
- Increasing the usability, adoption, and acceptance of advanced planning and scheduling systems. Co-applicant. Main applicant: dr. Philippe van de Calseyde (Technische Universiteit Eindhoven). 485 k€, funded by the Top consortium for Knowledge and Innovation (TKI) Dinalog through the TKI Toeslag call.
- Pro-active service logistics for capital goods – the next steps (ProSeLoNext). Main applicant and principal investigator. 2.1 M€, funded by The Netherlands Organisation for Scientific Research (NWO) through the Accelerator call.
- Sustainability Impact of New Technology on After sales Service supply chains (SINTAS). Co-applicant. Main applicant: dr. Matthieu van der Heijden (University of Twente). 719 k€, funded by The Netherlands Organisation for Scientific Research (NWO) through the Sustainable Logistics call.
- Optimizing railway maintenance by advanced data capturing and analysis. Main applicant, together with prof.dr.ir. Tiedo Tinga (Universiteit Twente). 1 M€, funded by Strukton.
- Optimization for Conflicting Performance Requirements of Rail Operation and Maintenance (OCPROM). Main applicant. 657 k€, funded by The Netherlands Organisation for Scientific Research (NWO) through the Explorail program.

PhD students

- Bas van Oudenhoven. 2020 – 2023. Interaction between human decision makers and artificial intelligence fed decision support systems. Promotor. Other promotor: prof.dr. Evangelia Demerouti (Eindhoven University of Technology).
- Ragnar Eggertsson. 2020 – 2023. Data driven optimization of maintenance and service logistics. Promotor. Other promotor: prof.dr.ir. Geert-Jan van Houtum (Eindhoven University of Technology).
- Douniel Lamghari-Idrissi. 2017 – 2021. Service differentiation for high tech capital systems. Promotor. Other promotor: prof.dr.ir. Geert-Jan van Houtum (Eindhoven University of Technology).
- Bregje van der Staak. 2016 – 2020. Improving the use of decision support systems. Promotor. Other promotor: prof.dr. Evangelia Demerouti (Eindhoven University of Technology).
- Bram Westerweel. 2015 – 14 May 2019. Design and Control of Capital Goods Service Supply Chains with Additive Manufacturing. Co-promotor. Promotor: prof.dr.ir. Geert-Jan van Houtum (Eindhoven University of Technology).
- Wienik Mulder. 2011 – 1 June 2016. Supporting Developers in Addressing Maintenance Aspects. An Empirical Study in the Industrial Equipment Manufacturing Industry. Co-promotor. Promotor: prof.dr.ir. Leo van Dongen (University of Twente).
- Adriaan Goossens. 2011 – 30 September 2015. Maintenance Policy Selection for Ships. An investigation using the Analytic Hierarchy Process. Co-promotor. Promotor: prof.dr.ir. Leo van Dongen (University of Twente).
- Jorge Parada Puig. 2010 – 10 June 2015. Serviceability of Passenger Trains During Acquisition Projects. Co-promotor. Promotor: prof.dr.ir. Leo van Dongen (University of Twente).

PhD committees

- Zhou Su. 13 September 2018. Maintenance Optimization for Railway Infrastructure Networks Promotor: prof.dr.ir. Bart de Schutter (Delft University of Technology).
- Dennis Guck. 23 March 2017. Reliable Systems. Fault Tree Analysis via Markov Reward Automata. Promotor: prof.dr.ir. Joost-Pieter Katoen (University of Twente).
- Kim Verbert. 22 November 2016. Fault Diagnosis and Maintenance Optimization for Interconnected Systems with Applications to Railway and Climate Control Systems. Promotors: prof.dr.ir. Bart de Schutter & prof.dr. Robert Babuška (Delft University of Technology).
- Frank Karsten. 28 November 2013. Resource Pooling Games. Promotor: prof.dr.ir. Geert-Jan van Houtum (Eindhoven University of Technology).

PDEng candidates

- Felipe Ramos Gaete. 2016 – 2018. Condition based maintenance. Daily supervisor.
- Alard Snippe. 2016 – 2018. Condition based maintenance. Daily supervisor.

Published journal articles

- Lamghari-Idrissi, D., Basten, R.J.I. and Van Houtum, G.J. (2020). Spare parts inventory control under a fixed-term contract with a long-down constraint. *International Journal of Production Economics* 219: 123–137.
- Castro, I.T., Basten, R.J.I. and Van Houtum, G.J. (2019). Opportunistic maintenance for heterogeneous complex systems under continuous monitoring. Accepted for publication at *Reliability Engineering & System Safety*.
- Basten, R.J.I. and Ryan, J.K. (2019). Inventory Management with Two Demand Streams: A Maintenance Application. *European Journal of Operational Research*. 278(2): 646–657.
- Dao, C.D., Basten, R.J.I. and Hartmann, A. (2018). Maintenance scheduling for railway tracks under limited possession time *Journal of Transportation Engineering Part A: Systems* 144(8).
- Westerweel, B., Basten, R.J.I. and Van Houtum, G.J. (2018). Traditional or Additive Manufacturing? Assessing component design options through lifecycle cost analysis. *European Journal of Operational Research* 270(2): 570–585.
- Arts, J.J. and Basten, R.J.I. (2018). Design of multi-component periodic maintenance programs with single-component models. *IIE Transactions* 50(7): 606–615.
- Peeters, J.F.W., Basten, R.J.I. and Tinga, T. (2018). Improving failure analysis efficiency by combining FTA and FMEA in a recursive manner. *Reliability Engineering & System Safety* 172: 36–44.
- Poppe, J., Basten, R.J.I., Boute, R.N. and Lambrecht, M.R. (2016). Numerical study of inventory management under various maintenance policies *Reliability Engineering & System Safety*. 168: 262–273.
- Lin, X., Basten, R.J.I., Kranenburg, A.A., and Van Houtum, G.J. (2012). Condition based spare parts supply. *Reliability Engineering & System Safety*. 168: 240–248.
- Basten, R.J.I. and Arts, J.J. (2017). Fleet readiness: stocking spare parts and high-tech assets. *IIE Transactions*. 49 (4): 429–441.
- Arts, J.J., Basten, R.J.I. and Van Houtum, G.J. (2016). Repairable Stocking and Expediting in a Fluctuating Demand Environment: Optimal Policy and Heuristics. *Operations Research*. 64 (6): 1285–1301.

- Parada Puig, J.E. and Basten, R.J.I. (2015). Defining line replaceable units. *European Journal of Operational Research*. 247 (1): 310–320.
- Goossens, A.J.M. and Basten, R.J.I. (2015). Exploring maintenance policy selection using the Analytic Hierarchy Process; an application for naval ships. *Reliability Engineering & System Safety*. 142: 31–41.
- Basten, R.J.I., Van der Heijden, M.C., Schutten, J.M.J., and Kutanoglu, E. (2015). An approximate approach for the joint problem of level of repair analysis and spare parts stocking. *Annals of Operations Research*. 224 (1): 121–145.
- Wingerden, E. van, Basten, R.J.I., Dekker, R., and Rustenburg, W.D. (2014). More grip on inventory control through improved forecasting. A comparative study at three companies. *International Journal of Production Economics*. 157: 220–237.
- Basten, R.J.I. and Van Houtum, G.J. (2014). System-oriented inventory models for spare parts. *Surveys in Operations Research and Management Science*. 19 (1): 34–55.
- Karsten, F. and Basten, R.J.I. (2014). Pooling of spare parts between multiple users: How to share the benefits?. *European Journal of Operational Research*. 233 (1): 94–104.
- Basten, R.J.I. and Van Houtum, G.J. (2013). Near-optimal heuristics to set base stock levels in a two-echelon distribution network. *International Journal of Production Economics*. 143 (2): 546–552.
- Basten, R.J.I., Van der Heijden, M.C., and Schutten, J.M.J. (2012). Joint optimization of level of repair analysis and spare parts stocks. *European Journal of Operational Research*. 222 (3): 474–483.
- Basten, R.J.I., Van der Heijden, M.C., and Schutten, J.M.J. (2011). Practical extensions to a minimum cost flow model for level of repair analysis. *European Journal of Operational Research*. 211 (2): 333–342.
- Basten, R.J.I., Van der Heijden, M.C., and Schutten, J.M.J. (2011). A minimum cost flow model for level of repair analysis. *International Journal of Production Economics*. 133 (1): 233–242.
- Basten, R.J.I., Schutten, J.M.J. and Van der Heijden, M.C. (2009). An efficient model formulation for level of repair analysis. *Annals of Operations Research*. 172 (1): 119–142.

Submitted journal articles

- Westerweel, B., Basten, R.J.I., Den Boer, J. and Van Houtum, G.J. (2019). Printing Spare Parts at Remote Locations: Fulfilling the Promise of Additive Manufacturing. *Working paper*.
- Karabag, O., Eruguz, A.S. and Basten, R.J.I. (2019). Integrated Optimization of Maintenance Interventions and Spare Part Selection for a Partially Observable Multi-Component System. *Working paper*. Submitted for publication. Not available online.
- Westerweel, B., Song, J.-S. and Basten, R.J.I. (2019). 3D printing of spare parts via IP license contracts. *Working paper*. Submitted for publication.
- Westerweel, B., Basten, R.J.I. and Van Houtum, G.J. (2019). Preventive maintenance with a 3D printing option. *Working paper*. Submitted for publication.

Published ISI conference proceedings

- Goossens, A.J.M., Basten, R.J.I., and Van Dongen, L.A.M. (2014). Exploring the use of the Analytic Hierarchy Process for maintenance policy selection. *22nd Annual Conference on European Safety and Reliability (ESREL)*: 1027–1032.
- Puig, Parada J.E., Basten, R.J.I., and Van Dongen, L.A.M. (2013). Investigating maintenance decisions during initial fielding of rolling stock. *2nd International Through-Life*

Engineering Services Conference (TESConf). *Procedia CIRP*. 11: 199–203.

- Mulder, W., Basten, R.J.I., Jauregui Becker, J.M., and Van Dongen, L.A.M. (2013). Work in progress: developing tools that support the design of easily maintainable rolling stock. 2nd International Through-Life Engineering Services Conference (TESConf) *Procedia CIRP*. 11: 204–206.
- Mulder, W., Basten, R.J.I., Jauregui Becker, J.M., and Van Dongen, L.A.M. (2013). Towards Structured Integration of Maintenance Knowledge in Industrial Equipment Design. 19th International Conference on Engineering Design (ICED). *International Conference on Engineering Design*. 6.

PhD thesis

- Basten, R.J.I. (2010). *Designing logistic support systems. Level of repair analysis and spare parts inventories*. PhD thesis, BETA research school, D128, Eindhoven (The Netherlands).

Courses

- Responsible lecturer for Bachelor course Fundamentals of Operations Management (1CV00; not graded yet in 2019–2020)
- Lecturer for Master course Behavioral Operations Management (1JM40; not graded yet in 2019–2020)
- Lecturer for Bachelor course Quality & Reliability Engineering (1CV40; graded 4.0 out of 5 in 2018–2019)
- Responsible lecturer for Bachelor course Maintenance & Service Logistics (1CK60; graded 3.9, 4.1, 4.2, 4.3, and 4.2 out of 5 in 2015–2016 through 2019–2020).
- Supervisor for groups of students in Master course Modeling and Analysis of Manufacturing Systems (1CM10; graded 4.1, not graded, and 4.5 out of 10 in 2015–2016 through 2017–2018).
- Instructor in Bachelor course Microeconomics (1CK90; graded 3.8 out of 5 in 2015–2016, not graded in 2016–2017).
- Lecturer for a small part of Master course Service Supply Chains for Capital Goods (1CM30; graded 3.3 out of 5 in 2014–2015).
- Responsible lecturer for Master course Maintenance Engineering & Management (not graded in 2012–2013; graded 3.7 and 3.9 out of 5 in 2013–2014 and 2014–2015).

Organisation

- 2019: Chair of the organizing committee of the Behavioral Operations Conference 2019
- 2017 – now: Member of the program committee of the Bachelor Industrial Engineering
- 2015 – 2017: Initiator and, together with dr. Alberto Martinetti (University of Twente) and Marc Coumans BSc. (Eindhoven University of Technology), organizing committee of the Maintenance Research Day 2016 and 2017 (both times about 70 attendees).
- 2016 – now: Coordinator of the coherent choice package Advanced Operations Management (three courses that Bachelor students can choose).
- 2012 – 2014: Member of the committee that setup the consortium TIME (Twente Is Maintenance Excellence), a collaboration between multiple research groups of the University of Twente, and the Master specialization Maintenance Engineering & Operations of the Master programmes Mechanical Engineering and Industrial Engineering & Management.
- 2012: Vice director of the WCM Summer School 2012 (in further editions involved to a lesser extent, e.g., in the selection committee).

- 2010 – 2012: Member of a national committee that tried to setup a national maintenance Master. We did not succeed, but some other activities result from this (e.g., WCM Summer School).
- Session or stream organizer at various international academic conferences: IIE Annual Conference 2015, Various times at INFORMS, ISIR, and POMS.
- External reviewing:
 - 2019: Review of a proposal for a research project, submitted to the Deutsche Forschungsgemeinschaft.
 - 2016: Accreditation committee of the Master of Engineering of the University of Applied Sciences Utrecht.
 - 2016: Review of a proposal for a Postdoctoral Fellow, submitted to the Research Foundation – Flanders.
 - 2015: Peer review of a Master thesis of Industrial Engineering & Management of the University of Twente.
 - 2014: Review of a PhD research proposal, submitted to the Erasmus Research Institute of Management.

Selection of invited presentations

- *Service Supply Chains*. Workshop at the WCM Summer School 2019. Stroe, The Netherlands. 31 July 2019.
- *Data science is the key to proactive maintenance*. Invited plenary presentation at the Data Science Summit 2018. Eindhoven, the Netherlands. 27 November 2018.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. Invited seminar at the Luxembourg Centre for Logistics and Supply Chain Management at the University of Luxembourg. Luxembourg, Luxembourg. 21 November 2018.
- *Service Supply Chains*. Workshop at the WCM Summer School 2018. Oirschot, The Netherlands. 18 August 2018.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. Invited presentation in the workshop on 3D Printing for (Re) Manufacturing: Challenges and the Way Ahead. Cardiff, UK. 27 June 2018.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. Invited seminar at Duke's Fuqua School of Business. Durham, NC, USA. 28 March 2018.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. Invited seminar at the AM Systems Center. Eindhoven, The Netherlands. 13 September 2017.
- *Service Supply Chains*. Workshop at the WCM Summer School 2017. Breda, The Netherlands. 2 August 2017.
- *On-site additive manufacturing of spare parts*. Invited seminar at the University of Twente. Enschede, The Netherlands. 23 March 2017.
- *Service Supply Chains*. Workshop at the WCM Summer School 2016. Breda, The Netherlands. 4 August 2016.
- *Inventory Management with Two Demand Streams: A Maintenance Application*. Invited seminar at the University of Nebraska-Lincoln. Lincoln, NE, USA. 30 October 2015.
- *Design-for-Maintenance*. Workshop at the WCM Summer School 2015. Breda, The Netherlands. 6 August 2015.
- *On fleet readiness of trains: stocking spare parts and high-tech assets*. Invited seminar at the Rensselaer Polytechnic Institute. Troy, NY, USA. 19 November 2014.
- *On fleet readiness of trains: stocking spare parts and high-tech assets*. Invited seminar at

the University of Massachusetts Amherst. Amherst, MA, USA. 27 October 2014.

- *Rolling stock acquisition and maintenance*. Guest lecture in the course Railway Stock Acquisition and Management at the Technical University of Denmark. Lyngby, Denmark. 18 June 2014.
- *Condition based spare parts supply*. Invited seminar at the Zurich University of Applied Sciences - ZHAW. Zürich, Switzerland. 30 April 2014.
- *Design-for-Maintenance*. Workshop at the WCM Summer School 2013. Breda, The Netherlands. 29 August 2013.
- *Chair of Maintenance Engineering. University of Twente*. Lloyd's Register Foundation Research Workshop. Seoul, South Korea. 16 April 2013.
- *Design-for-Maintenance*. Workshop at the WCM Summer School 2012. Breda, The Netherlands. 30 August 2012.
- *LORA and Spare Parts at Thales Nederland*, NGB day LNMB conference. Lunteren, The Netherlands. 20 January 2011
- *Level of repair analysis and spare parts stocking*. Invited seminar at the University of Texas at Austin. Austin, TX, USA. 21 January 2009

Selection of further presentations

- *Judgmental adjustments in forecasting: Implications and a strategy for improvement*. INFORMS Annual Meeting. Seattle, WA, USA. 21 October 2019.
- *Judgmental adjustments in forecasting: Implications and a strategy for improvement*. POMS 30th Annual Conference. Washington, DC, USA. 4 May 2019.
- *3D printing of Spare Parts via IP License Contracts*. POMS 30th Annual Conference. Washington, DC, USA. 3 May 2019.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. INFORMS Annual Meeting. Phoenix, AZ, USA. 4 November 2018.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. MIMAR Conference. Manchester, UK. 13 June 2018.
- *Printing spare parts at remote locations: Fulfilling the promise of additive manufacturing*. INFORMS Annual Meeting. Houston, TX, USA. 24 October 2017.
- *Traditional or additive manufacturing? Assessing component design options through life-cycle cost analysis*. INFORMS Annual Meeting. Houston, TX, USA. 24 October 2017.
- *On-site additive manufacturing of spare parts*. POMS 28th Annual Conference. Seattle, WA, USA. 8 May 2017.
- *On the benefits of Additive Manufacturing for spare parts supply: Which parts to print?*. INFORMS Annual Meeting. Nashville, TN, USA. 15 November 2016.
- *The value of maintenance flexibility for improved spare parts inventory management*. ISIR 2016. Budapest, Hungary. 23 August 2016.
- *The value of maintenance flexibility for improved spare parts inventory management*. POMS 27th Annual Conference. Orlando, FL, USA. 7 May 2016.
- *Inventory Management with Two Demand Streams: A Maintenance Application*. INFORMS Annual Meeting. Philadelphia, PA, USA. 4 November 2015.
- *Spare parts supply for combined planned and unplanned maintenance*. IIE Annual Conference. Nashville, TN, USA. 2 June 2015.
- *Optimal and Heuristic Repairable Stocking and Expediting in a Fluctuating Demand Environment*. INFORMS Annual Meeting. San Francisco, CA, USA. 10 November 2014.
- *Optimal and Heuristic Repairable Stocking and Expediting in a Fluctuating Demand Environment*. 8th International Conference on Modelling in Industrial Maintenance and Re-

liability (MIMAR). Oxford, United Kingdom. 10 July 2014.

- *Fleet sizing and spare parts stocking*. INFORMS Annual Meeting. Minneapolis, MN, USA. 9 October 2013.
- *Fleet sizing and spare parts stocking*. OR 2013, Rotterdam, The Netherlands. 5 September 2013.
- *An operations research contribution to logistic support analysis: LRU-definition, LORA, and spare parts*. INFORMS Annual Meeting. Phoenix, AZ, USA. 17 October 2012.
- *Forecasting demand for slow-moving spare parts: A comparative study at three companies*. ISIR Symposium. Budapest, Hungary. 20 August 2012.
- *Condition based spare parts supply*. POM World Conference. Amsterdam, The Netherlands. 4 July 2012.
- *Condition based spare parts supply*. IIE Annual Conference. Orlando, FL, USA. 20 May 2012.
- *Level Of Repair Analysis for REMM*. Guest lecture in the course Reliability Engineering and Maintenance Management. Enschede, the Netherlands. 14 March 2012.
- *Design-for-maintenance voor Productiesystemen 2* (in Dutch). Guest lecture in the course Productiesystemen 2. Enschede, the Netherlands. 13 March 2012.
- *A heuristic to determine near-optimal base stock levels in a two-echelon distribution network*, MSOM conference, Ann Arbor, MI, USA. 26 June 2011
- *LORA en reserve-onderdelen bij Thales Nederland* (in Dutch), Final symposium of the IOP-IPCR project Life cycle oriented design of capital goods, Breda, The Netherlands, 2 December 2010
- *A Heuristic to Determine Near-optimal Base Stock Levels in a Two-echelon Distribution Network*, INFORMS annual meeting, Austin, TX, USA, 7 November 2010
- *A heuristic to determine close to optimal base stock levels in a two-echelon distribution network*, ISIR symposium, Budapest, Hungary, 23 August 2010
- *Designing logistic support networks. On LORA and spare parts stocking*, INFORMS annual meeting, San Diego, CA, USA, 11 October 2009
- *LORA and spare parts*, INFORMS MSOM conference, Boston, MA, USA, 29 June 2009
- *Level of repair analysis*, GOR conference, Augsburg, Germany, 3 September 2008
- *Level of repair analysis*, ISIR symposium, Budapest, Hungary, 22 August 2008
- *Life cycle oriented design of capital goods: the state of the art in theory and practice*, INFORMS annual meeting, Pittsburgh, PA, USA, 7 November 2006