Main research interest (DSC/e related)

Freight Transport & Logistics involves the process of transporting commodities and goods and cargo. ICT infrastructure is an enabler for planning and scheduling via providing the right information resources at the right time and place. Nowadays, larger quantities along with more detailed and faster data and information are available. This allows for better planning and scheduling. But this is also a challenge as many planning and scheduling tools are not able to handle this amount and quality of information. This is exactly the focus of this stream of research.

Research involves:
• Urban logistics (or first/last mile logistics)
• Transport network design
• Omnichannel logistics
• Public transportation
• On-demand transportation (e.g. Uber for people and freight)
• Retail operations

Scientific staff (DSC/e related)

Approximately half of the OPAC group is focusing on data driven research. Key involved staff:

Prof. Tom Van Woensel  
Freight transport, city logistics, e-commerce, omnichannel logistics, retail operations

Dr. Luuk Veelenturf  
Public transport and freight transport

Dr. Nico Dellaert  
City logistics, long-haul transport and healthcare logistics

Dr. Nevin Mutlu  
Revenue management

Furthermore 5 PhDs are working on various Data Science related projects.

Success stories

Data-driven logistics MSc projects with DHL, Deliveroo, Royal FloraHolland, Trunkrs, Nabuurs, etc. leading to important insights and deliverables based on a data-driven approach to understand problems and to support improved decision making.

Project examples

• DATAS NWO Vitale Logistiek  
Multi-channel and multi-company decision support systems involves connectivity, allowing data to be exchanged, shared and connected.

• CONCOORD JPI Urban Europe  
Integrated logistics system for CONsolidation and COORDination of urban distribution flows.

www.tomvanwoensel.com
Data science is an **interdisciplinary field** that uses a variety of techniques to **create value** based on extracting knowledge and insights from **available data**. Data science is applied everywhere: in business, health, industry, finance, government, education, and also in scientific research.

The Data Science Center Eindhoven (DSC/e) is TU/e's response to these challenges and possibilities. By bringing top scientists and students from **over thirty research groups** from different TU/e departments together on specific topics, we can tackle the most challenging scientific and societal challenges. All involved groups made a **one-page description** of their main research interests and the involved staff with their key expertise, like the one you’re holding now.

**Mathematics and Computer Science**
- Algorithms
- Applied Geometric Algorithms
- Architecture of Information Systems
- Data Mining
- Mathematical Image Analysis
- Probability
- Security of Embedded Systems
- Software Engineering & Technology
- Statistics
- Stochastic Operations Research
- System Architecture & Networking
- Visualization
- Web Engineering

**Electrical Engineering**
- Cognitive Internet of Things
- Control Systems
- Electrical Energy Systems
- Signal Processing Systems

**Built Environment**
- Building Lighting
- Information Systems in the Built Environment
- Real Estate Management & Urban Planning
- Urbanism and Urban Architecture

**Industrial Engineering & Innovation Sciences**
- Human Technology Interaction
- Information Systems
- Innovation, Technology Entrepreneurship & Marketing
- OPAC: Freight Transport & Logistics
- OPAC: Maintenance & Manufacturing
- OPAC: Supply chain management
- Philosophy & Ethics

**Biomedical Engineering**
- Cardiovascular Biomechanics
- Computational Biology
- Medical Image Analysis