



Transport & Planning at Delft University of Technology

Mission

Transport & Planning (T&P) aims to achieve top-level fundamental research that contributes to a more efficient and robust design and reliable operation of transportation systems that meet mobility demands and respect scarce resources of land, environment and people. It is part of this mission to produce and disseminate new insights and tools to support professionals (planners, designers, authorities, operators) in transportation planning practice. Equally, the mission includes the contribution to top-level MSc- and PhD-education in transportation. From this statement it follows that the research is predominantly knowledge-driven with a clear perspective to society-driven applications using a multidisciplinary approach.

History

T&P has its roots in the Faculty of Civil Engineering and started Traffic Engineering education and research in 1960 by the appointment of professor Volmuller. During the years important new fields were added such as public transport, traffic safety, traffic management and traffic safety. The department has developed into the leading transport research and education group

at Delft University of Technology, consisting of 50–60 staff members, of which 20 permanent. Staff members have different educational backgrounds, including civil engineering, mathematics, physics, psychology and economics. T&P is the only Civil Engineering research group in the Netherlands that was awarded the maximum score in the last three research assessments 2001, 2005 and 2012. T&P works closely with other faculties, in particular Mechanical, Maritime and Materials Engineering (3ME) and Technology, Policy and Management. T&P is leading the TU Delft Transport Institute aimed at multidisciplinary research and education at Delft University of Technology.

Education

T&P provides education at all academic levels. The BSc course

Transport & Planning provides the fundamental knowledge of Transport system analysis and modelling and is yearly followed by 500–700 BSc students from Civil Engineering and Technology, Policy and Management. In addition T&P provides a BSc Minor programs in Transport, Infrastructure and Logistics. T&P provides a Transport & Planning track in the MSc Civil Engineering program and leads the inter-faculty MSc program Transport, Infrastructure & Logistics. Yearly, some 20–30 MSc students graduate at T&P. The department also hosts a vibrant international community of PhD researchers and officially hosts the national PhD Research School Transport, Infrastructure and Logistics TRAIL. It yearly celebrate 5–10 PhD thesis defences.

Quick Facts



Director: Prof. Dr.
Bart van Arem

Lab name: Transport & Planning
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Established: 1960
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Research

The research portfolio encompasses a comprehensive approach to transport systems, covering passenger and freight transport, public transport, traffic safety and traffic management. In its research approach the following key elements are characteristic for the “T&P-approach”:

- Empirical data analysis. T&P has been collecting and analyzing real-world data from the Delft area since 15 years and has leading expertise in the Dutch Travel Survey. Remote sensing, video image processing and blue tooth detection are used to detect and track pedestrians, cyclists and vehicles. Data from trains, trams and buses are used to analyze the efficiency and reliability of public transport. A driving simulator and an instrumented vehicle are used to study driver behavior in a wide range of conditions.
- Theory and modelling. Transport systems are inherently complex and the emergent behavior of transport system is the result of interacting decisions by travelers, drivers, freight operators, public transport operators, road and rail operators at different temporal and spatial level. Theory development focuses on the development of hypothetical relation between of these interactions, the emergent behavior and explanatory variables in particular at the behavioral level. T&P uses analytical and simulation models to assess and predict the behavior of transport systems at short term to support traffic management and long term to support transport system planning.
- Empowering technology. Being part of Delft University of Technology, T&P focuses especially on technological solutions to improve the performance of transport systems in terms of efficiency, reliability, safety and environmental impacts. Advanced information, communication and sensing technology has been enabling the



FIG 1 Transport & Planning is at Faculty of Civil Engineering and Geosciences of Delft University of Technology.

application of traffic management systems for different modalities, road types and for travelers as well as freight. Increasingly, end users have access to advanced personal travel information and driver support systems to make their travel more efficiently and safely.

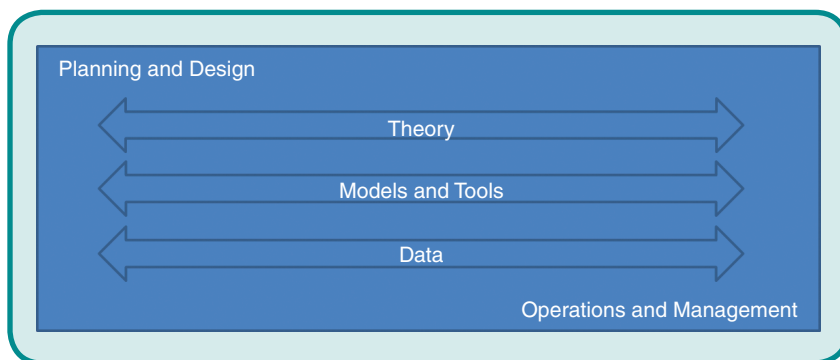
- Society embedded research. In addition to develop theory and modelling on a firm empirical basis, T&P also aims to put solutions for transport problems to the test in real-life. It works closely with road operators, consultancy and industry in pilot project, such as network wide traffic management, traffic jam removal using dynamic speed limits and In-car driver support systems.

Events and Exchange

Scientific debate, education and exchange are vital for the progress of international academic research and education. T&P researchers are frequent attendants of international conferences such as the IEEE ITSC and IV conferences and the Transportation Research Board. T&P is hosting the annual international summer school on Sustainable Transportation in collaboration with NorthEastern University and Portland State University and Portland State Traffic Safety and the international Road Traffic Safety Course in cooperation with FIA. In 2013, T&P organized the prestigious IEEE ITSC conference and the International Symposium on Traffic and Transport Theory. Sabbatical visits



FIG 2 TU Delft organized IEEE ITSC 2013 at the Kurhaus Steigenberger hotel in the Hague-Scheveningen.



Full Professors

Bart van Arem, Serge Hoogendoorn, Hans van Lint, Marjan Hagenzieker, Erik de Romph, Rob Zuidwijk

Associate/Assistant Professors

Winnie Daamen, Rob van Nes, Rob Goverde, Oded Cats, Gonçalo Homem de Almeida Correia, Haneen Farah, Andreas Hegyi, Victor Knoop, Adam Pel

(Senior) Researchers

Kees van Goeverden, Milan Janic, Jaap Vleugel, Bart Wiegman

have been established in cooperation with amongst others University of Lyon, UC Berkeley, University of Maryland, Virginia Tech and Swinburne University. At a national level, T&P works with professional and networking organizations in the Netherlands such as Connekt/ITS Netherlands and Automotive NL.

Toward Smart and Sustainable Transport

The last decades have shown a decreasing interest in building and expanding transport infrastructure, given environmental and financial

limitations and decreasing growth rate in transport demand. Now, and during the coming decades transport will be of vital societal and economic importance. The main challenge for T&P will be on research and education to enable smart and sustainable transport. Whilst T&P approaches transport systems both from planning and design as well as operations and management, it cherishes cross-fertilization of theories, models, tools and data throughout the department.

Key lines of future research are:

- Network wide and cooperative traffic management

- Data analysis and traveler and traffic flow modelling
- Intelligent Vehicles
- Traffic safety
- Strategic Transport Modelling
- Freight Transport and Traffic Networks
- Slow modes: pedestrian and bicycle traffic
- Operations and management of public transport systems.

ITS

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