



Function Independent Strategic Advisor
Nationality Netherlands
Year of birth 1952

Profile

Expert in clearly presenting the complexity of the railway system for politicians and managers. Specifically the role of signalling and control systems in the interaction between infrastructure, rolling stock and operations is emphasised. As well for heavy rail (ERTMS/ETCS) as for metro systems (CBTC).

Keywords: signalling, traffic management, train control, *railways as a system*.

Education

1970-1978 Electro technical Engineering, Technical University Delft
1981-1984 Doctor in Technical Sciences, Technical University Delft

Employers: Functions

1978-1985 Netherlands Railways: Member of Staff Development of process automation
1985-1986 Advanced Semiconductor Materials, Bilthoven: Senior Software Engineer
1986-1990 Data View / Datex, Amersfoort: Consultant Software Engineering and Quality
1990-1992 Engineering Department NS: Acting Head Development
1993-1995 Engineering Department NS: Head Development
1995-1998 Holland Railconsult: Manager Infrastructure Studies
1998-2000 Holland Railconsult: Head Plan Development, division Infrastructure
2000-2002 Holland Railconsult: Strategic Advisor, Department Traffic & Transport
2002 DoorZigt B.V.: Independent Strategic Advisor, General Manager

Courses

1983 Software Engineering (Post-Academic Education).
1987 Working Colleges Organisation Development, Vrije Hogeschool, Zeist
1989 Management for Automation Personnel (BEKAUT), Institute for Management Training (IBO), Zeist
1991 Consulting skills, NS Training Centre (SORT)
1993 Working Colleges Organisation Development, Vrije Hogeschool, Zeist
1997 Workshop Acting Commercially
1998 Executive Presentation Skills (Van Kessel & Partners / Communispond Inc.)
1998 Internal Quality Audits (Lloyd's Register)
2000 The four important governments' plans – course of PAO Traffic & Transport Sciences, TU Delft



Experience

- 1978-1980 Keyboard Control System, Traffic Control Centre in Rotterdam
- 1978-1981 Train Describer Systems for Traffic Control Centres in Rotterdam en Den Haag
- 1981-1984 Doctor's study: specification and design of railway interlocking
- 1981-1982 Study Development plan for Traffic Control Systems
- 1981-1985 Electronic interlocking, pilot project in Hilversum
- 1985-1986 Specification, design, building, testing of robot systems for the production of integrated circuits
- 1985-1986 Generic control system for these robot systems
- 1986 Consultant for Development and Acceptance Tests for Traffic Control and Communication Systems of the Netherlands Railways
- 1987-1990 Consultant Software Development and Quality Control at PTT Research.
- 1987-1990 Developing and presenting courses on Software Development and Project Management at PTT Research.
- 1987-1990 Developing and presenting courses on Structured Analysis and Design of Real Time Systems, Datex, Philips.
- 1988 Consultant in the graphical industry (process automation) Stork
- 1990-1991 Study into the possibilities for the Netherlands Railways to change-over from the 1500V DC system to a 25kV AC traction power supply system
- 1991-1992 Feasibility study into the possibilities to increase railway capacity by introducing new, modern Train Control and Traffic Management Systems
- 1992-1994 Development of new, modern Train Control and Traffic Management Systems: framework, development scheme, cost-benefit analysis, estimation of gain in railway capacity
- 1993-1995 Feasibility study into Radio Based Train Control Systems
- 1994-1995 Advise on new electronic systems for the so-called Rail 21 projects
- 1994-1995 Member of reflection group Innovative studies for High Speed Line Amsterdam – Antwerp (HSL-South)
- 1995 Development of vision on future Railway Infrastructure 2005
- 1996 Vision on electro technical systems for the Betuweroute, the dedicated freight line from West to East through the Netherlands
- 1997 Review of Twin-airport system and contribution to Remote-system for enhancement of Schiphol Amsterdam Airport.
- 1997 Consultancy on the organisation of Infrastructure Management of the Portuguese railways (CP). This led to the organisation of REFER.
- 1997-1999 President of the Holland Railconsult internal network Light Rail, which developed knowledge and exchanged experience in the area of Light Rail applications
- 1999-2000 Project manager Guided Transport Systems, internal study of Holland Railconsult, in order to develop knowledge and exchange experience within Holland Railconsult in the area of application of modern Guided Transport Systems, like e.g. people movers
- 1999-2001 Contributions to the study "Growth on the Rail" of Railforum, which has as target the short term increase of railway capacity by means of alternative train schedules, minor enhancements to the infrastructure and a well-chosen combination of these kind of measures
- 2000-2001 Rail Systems Engineering: different lectures, TopTech Studies, TU Delft
- 2000 Organisation of the course Light Rail Technology, PAO Traffic & Transport Sciences, TU Delft



- 2000-2002 Many contributions to the study IMPULSe (Innovative Means and Processes to Utilisation of the railway capacity) of Railinfrabeheer (the Netherlands Infrastructure Manager). The long term target (2010) is to double railway capacity.
- 2001 Organisation of the course Light Rail Projects, PAO Traffic & Transport Sciences, TU Delft
- 2000-2001 Network Control, a new concept for Rail Traffic Management in order to increase the utilisation of railway capacity (subproject of the IMPULSe programme of Railinfrabeheer)
- 2001 Flexible time-route-windows: "second opinion" for Railed
- 2001 Independent assessment of the Traffic Management System of Banestyrelsen (the Infrastructure Manager), Denmark
- 2001 Flexible time-route-windows: refinement and detailing of the concept for Railed
- 2001 Dynamic allocation of platform tracks: international and national investigations, definition of the concept (subproject of the IMPULSe programme of Railinfrabeheer)
- 2001 Capacity Check of Design Rules (subproject of the IMPULSe programme of Railinfrabeheer)
- 2001 Circle Line Randstad: definition of required railway capacity, contract from the Ministry of Transport and Water Management
- 2002 Platform tracks: the actual design process (subproject of the IMPULSe programme of Railinfrabeheer)
- 2002 Assessment of Capacity Measurement Model CAMERA (subproject of the IMPULSe programme of Railinfrabeheer)
- 2002 Organisation of the course Light Rail Technology, PAO Traffic & Transport Sciences, TU Delft
- 2002 Organisation of REFER (Portuguese Rail Infrastructure Manager) with regard to Engineering and Maintenance
- 2002 Lectures Integrated Transport Systems, Hogeschool Arnhem / Nijmegen, contracted by Holland Railconsult
- 2002-2003 Dynamic allocation of platform tracks: feasibility study (subproject of the IMPULSe programme of Railinfrabeheer) Railinfrabeheer / ProRail
- 2002-2003 Strategic study on Train Control and Traffic Management Systems, Railinfrabeheer / ProRail
- 2002-2003 MATCHBOX: survey of tools and methods for capacity assessment, Railed
- 2003 Survey of potential Train Traffic bottle-necks around Schiphol in 2007, ProRail
- 2003 MATCHBOX: relating Cost / Benefit Analyses and RAMS (Reliability, Availability, Maintainability, Safety) to railway capacity, ProRail / Railed
- 2003 Lecture Principles of Train Schedules in the course Rail Systems Engineering, Delft TopTech
- 2003 Consultancy for the study programme Clever Control of Trains, ProRail
- 2003 Transport study
- 2003 Lecture Dynamic Traffic management in the course Rail Systems Engineering, Delft TopTech
- 2003 MATCHBOX: presentation of study results and analysis for next steps, ProRail
- 2003 Review of a study for Traffic Management Systems
- 2003 Stakeholder analysis for a railway supplier
- 2003 Review of revised signalling scheme for Schiphol 2007, ProRail
- 2003 Project definition and project plan for innovative study of temporary points (*Oplegwissel*), Mott MacDonald, on behalf of ProRail
- 2003 Review of simulation study for Schiphol 2007, ProRail



- 2003 Assessment of service offer of train operating company for stopping services at two new stations (Twello and Apeldoorn Osseveld) for province of Gelderland
- 2003 Review of an innovative design for the Public Transport Terminal Rotterdam
- 2003-2004 Review of Assessment of Dynamic Traffic Management for ProRail:
- The project plan of the simulation study.
 - The first results of the simulations (planned).
- 2003 Outline for a course “newcomers” in the market of rail infrastructure
- 2003 Safety regulations: report on a meeting with regard to new European Guidelines for Railway Safety
- 2003 Lecture *Innovations Rail infrastructure* for the Bachelor of Innovation Management, University of Utrecht
- 2004 Lecture Principles of Train Schedules in the course Rail Systems Engineering – Delft TopTech
- 2004 Review of renewed service offer of train operating company for stopping services at two new stations including problem of payment for infrastructure use – Province of Gelderland
- 2004 Organisation ProRail (Dutch infrastructure manager) highlighted for different parties
- 2004 New generation rolling stock: implications for railway infrastructure – ProRail
- 2004 Review of Dutch policy in area of Railway Safety – Ministry of Transport and Water management
- 2004 Course *Traffic Management in the air, on the water, on the road and on the rails* – PAO Traffic & Transport Sciences, TU Delft
- 2004 Creation of Project Plan for the Assessment of EURO-TBL equipment – under contract of KEMA Rail Transport Certification
- 2004 Transport Concept for Regional Rail in the City triangle (Apeldoorn – Deventer – Zutphen) – Province of Gelderland
- 2004-2009 Project management for the Safety Assessment of EURO-TBL equipment – under contract of KEMA Rail Transport Certification
- 2004-2005 Consultancy services for the theme *Advanced Utilization* of Railway Infrastructure – ProRail
- 2004 Review of tender for RijnGouweLijn tracé through the city of Leiden
- 2004 Lecture Dynamic Rail Traffic Management in the course Rail Systems Engineering – Delft TopTech
- 2004-2006 Regional Rail for the City Triangle (Apeldoorn – Zutphen – Deventer): assisting Province of Gelderland for implementation
- 2004 Defining research opportunities for the theme *Advanced Utilization* of Railway Infrastructure – ProRail
- 2004 Development of lectures *Traffic & Transport* for High School Windesheim
- 2004 Lecture *Innovations Rail infrastructure* for the Bachelor of Innovation Management, University of Utrecht
- 2005 Development of education module 25 kV – ProRail, in co-operation with Railinfra Opleidingen
- 2005 Options to solve the problem of train detection; as well rolling stock as infrastructure (indirect under contract of the Ministry of Transport and Water management)
- 2005 Lecture *Dynamic Rail Traffic Management* in the course Rail Systems Engineering – Delft TopTech
- 2005 Regional Rail for the City Triangle (Apeldoorn – Zutphen – Deventer): redesign of layout of Apeldoorn yard, assisting Province of Gelderland



- 2005 Feasibility study *Clever passing tracks* for the theme *Advanced Utilization* of Railway Infrastructure – ProRail
- 2005-2006-2007 Lectures *Management of Transport and Traffic* High School Windesheim
- 2004 Lecture *Innovations Rail infrastructure* for the Bachelor of Innovation Management, University of Utrecht
- 2005-2006 Quick scan for Safe track maintenance – ProRail
- 2006 Lecture Dynamic Traffic management in the course Rail Systems Engineering, Delft TopTech
- 2006 Review course on 25 kV system – Rail Infra Opleidingen
- 2006 Functional Requirements Specification for replacement of existing signalling system for metro RET (Rotterdam) – under contract of Mott MacDonald
- 2006-2009 Project management for the Safety Assessment and Certification of ETCS on-board equipment – under contract of KEMA Rail Transport Certification
- 2006-2007 Preparation of tender documents for replacement of existing signalling system for metro RET (Rotterdam) and support of tendering process, including the selection of the supplier – under contract of Mott MacDonald
- 2006 Assessment of infrastructure costs for enhancement of rail infrastructure in the Province Fryslân – subcontracted by inno-V
- 2006-2007 ProRail contest for improvements on regional lines – subcontracted by RVDB / lightrail.nl
- 2007-2009 Project management for the Safety Assessment and Certification of USSB to create STM-ATB and STM-TBL on-board equipment for Thalys trains – under contract of KEMA Rail Transport Certification
- 2007 ERA (European Railway Agency) project: Survey of Safety Approvals for the first ERTMS implementations – under contract of KEMA Rail Transport Certification
- 2007-2008 support for the development of the winning idea *Trams on rails* for the 2nd ProRail contest – under contract of ProRail (via ARCADIS and / or RVDB / lightrail.nl)
- 2007 Lecture *Traffic management* in the course Rail Systems Engineering, Delft TopTech
- 2007 Masterclass *Better Utilisation* (of Railway Infrastructure) for the Dutch Forum *Urban Renewal*
- 2008-2010 Independent Safety Assessment and Certification of ERTMS-on-board equipment for the European Mitsui locomotives – under contract of KEMA Rail Transport Certification.
- 2008 Innovative study first called *SuperRail*, later: *DoubleRail* – under contract with TRAIL, for the Dutch Ministry of Transport and Water management
- 2008 Lecture *Traffic management* in the course Rail Systems Engineering, Delft TopTech
- 2008-present Signalling & Control for AMSYS (Amsterdam Metro System), under contract with dIVV, the Municipality of Amsterdam: to define the requirements for the Control part, the Traffic Management System, contribute to and review of Requirements Specification and Request to Tender
- 2008 Options for freight trains in the schedule towards a new business park – municipality of Apeldoorn
- 2008 3rd ProRail contest: don't forget the little ones ...
- 2008-2009 ERA (European Railway Agency) project: Study to examine Job Profile and Tasks of Train Crew Members not driving trains but performing other Safety Critical Tasks on board trains – under contract of KEMA Rail Transport Certification



- 2008-2009 ERA (European Railway Agency) project: Study of the publication and availability of national safety rules in 17 EU Member States and for the Channel Tunnel – under contract of KEMA Rail Transport Certification
- 2008-2009 Classification of the South-African rail network in Core Network and Branch Lines for Transnet – under contract of Mott MacDonald South Africa
- 2009 ISA for *Optimised LEU* (Lineside Electronic Unit – Interoperability Constituent for ETCS) – under contract of KEMA Rail Transport Certification
- 2009-2010 Review documents “Signalling” for the Spartacus project – under contract of Grontmij
- 2009-2010 Advise to the Regional City triangle (Apeldoorn – Deventer – Zutphen) concerning the Programme High Frequent Rail Transport
- 2010 Independent Safety Assessment (ISA) and Certification (NoBo) of integrated DMI for ES64F4 locomotive in different variants – under contract of KEMA Rail Transport Certification
- 2010 feasibility study for reactivation of Nijmegen – Kleef – under contract of Mott MacDonald
- 2010 Independent Safety Assessment (ISA) for Track – Train – Integration of ES64F4 locomotive in different variants – under contract of KEMA Rail Transport Certification
- 2010-2011 Independent Safety Assessment (ISA) and Certification (NoBo) of an integrated DMI (Driver Machine Interface) for the ES64F4 locomotive – under contract of KEMA Rail Transport Certification
- 2011 monitoring phase for Track – Train – Integration of ES64F4 locomotive in different variants – under contract of KEMA Rail Transport Certification
- 2011 upgrade of diesel locomotives to ERTMS/ETCS version 2.3.0d: certification (NoBo) and Track – Train – Integration – under contract of KEMA Rail Transport Certification
- 2011 consultancy to Infrabel in the project ERTMS Level 2 – under contract of Walenberg Rail Assessment
- 2011 Cross Impact Analysis Corridor A – in cooperation with Te Pas Consulting, under contract of EEIG ERTMS Users Group
- 2011 Independent Safety Assessment (ISA) of some improvements of the *Optimised LEU* (Lineside Electronic Unit – interoperability constituent for ETCS) – under contract of KEMA Rail Transport Certification
- 2011 Independent Safety Assessment (ISA) and Certification (NoBo) of the integrated DMI (Driver Machine Interface) for the X4 (Vectron) locomotive – under contract of KEMA Rail Transport Certification



Memberships

- 1982-1985 ORE Specialist Committee A155: Use of electronics in Railway Signalling
- 1993-1998 Advisory Board Contacts with Universities (AUC) (NS)
- 1994-1996 Advisory Board Innovations in Rail Traffic (AIR) (NS)
- 1994-1996 Intermediary for Holland Railconsult with Project Group Line Infrastructure of ICES-project Land, Water, Environment and Information Technology (LWI)
- 1995-2001 Railforum: member of different Theme Groups (Information Technology, Societal and Economical Contributions of Railways, Automatic Train Driving, National Traffic And Transport Plan, Green Rail (Environmental Friendly Rail), Magnetic Levitation System and Steering Committee "Growth on the Rails"
- 1996-2000 Intermediary Intelligent Transport Systems (ITS) and Connekt, Knowledge Centre for Traffic and Transport
- 1996-2002 Member of the Coördinating Committee Traffic Management (CROW)
- 1998-2002 Member of the Users Group of the Research Programme "Seamless Multimodal Mobility" (TRAIL, TU Delft)
- 1997 Editorial committee for theme edition of "Cement"
- 1997-2002 Advisory Board "Rail Systems Engineering", Delft TopTech, TU Delft
- 2004, 2006, 2008, 2010 member of the TRAIL International Review Committee (IRC) in the context of the biannual TRAIL congress
- 2009-present Member of IRSE (Institution of Railway Signal Engineers)

Languages

| | Speaking | Writing | Reading |
|--------------------|-----------------|----------------|----------------|
| Netherlands | Native language | | |
| English | Good | Good | Good |
| French | Reasonable | Reasonable | Reasonable |
| German | Good | Good | Good |



Publications

- 1984 A new approach to specification and design of a railway interlocking: the 'route' approach, doctor's thesis.
- 1984 Controlling the Train Traffic, (in Dutch), Klvl symposium Electronic Systems for safe and controlled traffic, 4-5 April, TH Delft, pp. 37-48.
- 1984 Specification and design of an interlocking system, IRSE Conference Railway Safety, Control Automation Towards the 21st Century, 25-27 September 1984, London, Conference Proceedings pp. 49-56.
- 1984 Specification and design of an interlocking system, Third CHILL Conference, 23-28 September 1984, Cambridge, Conference Proceedings pp. 161-168.
- 1989 The software house in the nineties, (in Dutch) BEKAUT thesis, with Henk Berg, Ronald Gram and Marc van Mil.
- 1992 Gleichspannung 1500V oder Wechselfspannung 25kV bei den Niederländischen Eisenbahnen? (in English: *1500 V DC or 25 kV AC for the Netherlands Railways?*) Elektrische Bahnen, 90. Jahrgang (1992) Heft 1, Seite 31-37, (with Jack Doornik and Peter-Paul Frielink).
- 1992 No integral transition to 25 kV AC, (in Dutch) – Energie Technologie, year 2, nr. 4, pp. 26-33 (with Jack Doornik and Peter-Paul Frielink).
- 1993 Kapazität von Eisenbahnstrecken im Zusammenhang mit modernen Sicherungsanlagen und Zuglenkungssystemen (in English: *Capacity of Railway Lines related to modern Safety and Traffic Management Systems*) Elektrische Bahnen, 91. Jahrgang (1993), Heft 7, Seite 219-223.
- 1994 The hospitality of railway technology (in Dutch) symposium 1994 van Engineering Department NS
- 1997 Rail 21: actual status, (in Dutch) Cement 1997/ 7-8, pp. 29-32.
- 1997 Regional application of Light Rail, Railtech, 23-25 April 1997, Utrecht.
- 1998 Taking control of Europe's trains, European Railway review, 1998 (with Reinout van Bloemendaal and Sidney van de Stouwe)
- 1999 The Inter-Stop-City OV-magazine 30 juni 1999 (in Dutch) (with Frank Behr and Reinout van Bloemendaal)
- 1999 Innovative, but forgetting the client (in Dutch) OV-magazine 10 November 1999
- 2000-present Columnist of OV.Magazine, till 2005 under the heading: *the engineer* (in Dutch)
- 2001 Controlling for capacity and quality, brochure Holland Railconsult, July 2001 (with Sidney van de Stouwe)
- 2002 Intelligent Real Time Traffic Control in Railway Networks, TRAIL seminar: Optimal Regulation of Train Operation in case of Incidents, Delft, 14 March 2002
- 2002 More trains and better punctuality by intelligent traffic management Proceedings Rail & Traffic Congress, 16 + 17 April 2002
- 2002 Network control for improved performance: A new concept for on-line scheduling and dispatching – Proceedings COMPRAIL 2002 (with Frits Makkinga)
- 2003 Railway safety becomes more transparent (in Dutch) OV-magazine 18 December 2003



- 2003-2004 Columnist of OV@ctueel, electronic newsletter
- 2004 Can Rail learn from Air transport? (in Dutch)
OV.magazine 5 February 2004
- 2004 Can one earn money with passenger transport by rail? (in Dutch)
OV.magazine 11 March 2004
- 2004 Can Rail learn from Water transport? (in Dutch)
OV.magazine 16 April 2004
- 2004 Conflicts call for dynamics (in Dutch)
OV.magazine 2 September 2004
- 2004 The order of the control centre: is the human able to increase safety and efficiency?¹ (in Dutch: De orde van het seinhuis en: kan de mens het spoor veiliger en efficiënter maken?) (in co-operation with Berend Schotanus)
Colloquium Vervoersplanologisch Speurwerk 2004, Proceedings part 4, pages 1103-1122
- 2005 More trains, more dynamics (concerning the new Train Schedule 2007) (in Dutch: meer treinen, meer dynamiek)
OV.magazine 8 September 2005, pages 20-21
- 2005 ERTMS fails at the border (in Dutch: Bij de grens gaat het fout met ERTMS)
OV.magazine 17 November 2005, pages 20-21
- 2005 The order of the control centre II: *continued* (in Dutch: De orde van het seinhuis II: verslag van onze ervaringen) (in co-operation with Berend Schotanus)
Colloquium Vervoersplanologisch Speurwerk 2005, Proceedings part 4, pages 1155-1167
- 2006 No train driver, better for the passenger – Colloquium Vervoersplanologisch Speurwerk 2006, part 2, pages 531-539
- 2008 ERTMS operates, but not yet at the border (in Dutch: ERTMS werkt, maar nog niet aan de grens) – article concerning HSL-South in: OV-magazine, nr. 2, 13-03-2008
- 2008 “We should have done more lobbying for 25 kV” (in Dutch: We hadden meer moeten lobbyen voor 25 kilovolt) – interview in OV-magazine, nr. 9, 11-12-2008
- 2009 Tackling the challenges to standard train control – Railway Gazette International, March 2009, pages 33-36 (with: Frank Walenberg and Rob te Pas)
- 2010 Balancing capacity and safety – Metro Report International, December 2010, pp. 33-35

¹ This paper received the so-called *Innovation Award*.