

prof. dr. ir.  
Wouter Keller

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## Work experience

DIRECTOR AND FOUNDER, M&I/ARGITEK; ROTTERDAM – 2001–

M&I/Argitek ([www.argitek.nl](http://www.argitek.nl)) provides strategic consultancy on E-government and E-business architecture for various types of organizations, such as (semi-)governments (ministries, municipalities, agencies et cetera), private companies (e.g. financials, telecommunications), institutes for higher education (universities and high schools), and healthcare. Consultancy expertise covers organizational, informational, and technological architecture as well as process redesign. Specialized in:

- ~ E-government and E-business (E-commerce, E-procurement, E-markets)
- ~ Electronic Service Delivery and electronics forms / webintake
- ~ Multichannel Frontoffice and Customer Contact Center
- ~ Architecture regarding front- / mid- / backoffice integration and related issues
- ~ Enterprise Content Management (ECM), Web Content Management (CMS) and Web Portals
- ~ Document Management, Record Management and Workflow Management (DM, RM, WfM)
- ~ Relationship Management (CRM, SRM) and Supply Chain Management (SCM)
- ~ Application integration (SOA, EAI, B2Bi, BPA/BPM, ESB, brokers, etc.)
- ~ Knowledge Management (KM) and Groupware

### SELECTED PROJECTS OF M&I/ARGITEK

- ~ SURF Foundation: new tender for 'Studielink', the national system that brokers new and existing enrollments between Student Information Systems of Higher Educational Institutes (Universities of Applied Science and Universities) (2009).
- ~ Municipality of Amsterdam, stadsdeel Centrum: evaluation of the implementation of a Document Management Solution (2009)
- ~ GovUnited: joint European tender ('ANDEZ-3') for a hosted ASP / SaaS midoffice solution for 65 municipalities, including specifications, Request for Proposal, Proof of Concept and vendor selection (2007, 2008).
- ~ Many municipalities: consultancy on and contra expertise regarding E-government, including technical and organizational architecture (2005-2008).
- ~ The higher education institutions in the province of Zeeland. Consultancy regarding technical and organizational aspects for creating a joint Service Centre (2007).
- ~ GBO: chairman of the workgroup preparing and facilitating the national 'government service bus' for various organizations (BAG, Belastingdienst, BSN, EGEM, GBO, Justitie/ePV, mGBA, Kadaster, KvK, SBG, SUWI, and RINIS) including the harmonization of messaging protocols (ebMS / WS-\*) between these organizations (2006).
- ~ SURF Foundation: consultancy on the current and future usage of the Current Research Information System Metis and surrounding applications. (2007).
- ~ EGEM & municipalities of Barendrecht, Barneveld, Maastricht, NOFA (Achtkarspelen, Dantumadeel, Dongeradeel en Kollumerland), Utrecht, Veghel, Venlo: joint European tender ('ANDEZ2') for a midoffice solution, including specifications, Request for Proposal, Proof of Concept and vendor selection (2007).
- ~ Prorail: consultancy on technical and application architecture, particularly regarding document management (2006).
- ~ Municipality of Eindhoven, advisory role for the management team on E-government policies and related matters (2006).
- ~ Saxion University: consultancy on technical and application architecture, particularly regarding web portal, followed by European tender for CMS and portal, including a Proof of Concept (2006, 2007).

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- ~ EGEM & municipalities of Alphen a/d Rijn, Delft, Ede, Nieuwegein and Zoetermeer ('ANDEZ1'): joint European tender for midoffice solution, including specifications, Request for Proposal, Proof of Concept and vendor selection (2006).
- ~ Municipality of Amersfoort: second opinion regarding midoffice vendor selection and various consultancy and support with the following Proof of Concept (2006, 2007)
- ~ SURF Foundation: consultancy on, management of and support for a website to compare programs and facilities of institutions for higher education. See: [www.studiekeuze123.nl](http://www.studiekeuze123.nl) (2006).
- ~ Free University Amsterdam: consultancy on organization wide data, process, and application architecture, followed by European tender for CMS and portal, including a Proof of Concept (2006, 2007).
- ~ Ministry of Social Affairs: chairman of expert committee including Joop van Lunteren (HEC) and Udo Groen (HEC, SVB) that advised the secretary of state regarding the data, process and application architecture of the SUWI-chain (CWI, UWV, and GSD). See: [www.rwi.nl/cmscata/file/burger\\_bediend.pdf](http://www.rwi.nl/cmscata/file/burger_bediend.pdf) (2005).
- ~ Ministry of Economic Affairs (ICTAL): contra expertise on the 'Bedrijvenloket' concerning technical, application, and organizational architecture (2005).
- ~ Municipality of Zoetermeer: strategic consultancy concerning an organization wide process, application, and data architecture with specific emphasis on the midoffice concept (2005).
- ~ Ministry of Economic Affairs (ICTAL): second opinion on the technical, functional and organizational architecture of the 'overheidstransactiepoort' (OTP) and the so-called 'Bedrijvenloket' (2005).
- ~ Ministry of Internal Affairs (ICTU): contra expertise on the 'gemeenschappelijke beheerorganisatie (GBO)', which will be managing services such as DigiD and OTP, as well as supporting various standardization initiatives (2005).
- ~ Municipality of Delft: strategic consultancy concerning an organization wide process, application, and data architecture with specific emphasis on the midoffice concept (2005).
- ~ EGEM: research on midoffice applications for municipalities, including web intake, brokers, adapters, operational data storages, etc. See: [www.egem.nl/kennisbank/informatievoorziening/uitwisseling/midofficerapport](http://www.egem.nl/kennisbank/informatievoorziening/uitwisseling/midofficerapport) (2004).
- ~ Environmental Agency Rijnmond (DCMR): strategic consultancy concerning data, process, and application architecture (2004).
- ~ Municipality of Rotterdam: project MRF2 ('Mijn Rotterdam Fase 2'), consultancy regarding web enablement of back office systems through technical, informational, organizational, and legal feasibility studies (2004).
- ~ Municipality of Rotterdam: project AGAR ('Applicatie en Gegevens Architectuur Rotterdam'), strategic consultancy concerning data, process, and application architecture (2004).
- ~ Province of Gelderland: strategic consultancy on architecture and integration of high tide applications (2004).
- ~ Free University Amsterdam: strategic consultancy regarding web application architecture (2004).
- ~ SURF Foundation: research BIBA ('Beheer, Integratie, Bestuur en Architectuur') on content management and portals in higher education. See: [www.surf.nl](http://www.surf.nl), search for 'BIBA' (2004).
- ~ Ministry of Internal Affairs (ICTU): member of the ICTU guidance committee for government architecture (2004).
- ~ University of Maastricht: strategic consultancy concerning application integration in higher education, both in general and with the University of Maastricht in particular (2003-2004).
- ~ Visio: development of an organization wide data, process, and application architecture, including selection and implementation of a client tracking system (2003-2005).
- ~ Ministry of Economic Affairs (ICTAL): membership of the ICTAL monitor committee for projects such as Bedrijvenloket, BBR, and OTP (2003-now).
- ~ SURF Foundation: chief architect for the Dutch higher education broker 'Studielink' (previously known as 'VCH'), including an advanced European tender procedure for the development of the broker. See: [www.surf.nl](http://www.surf.nl), search for 'VCH' and/or 'studielink', or [www.studielink.nl](http://www.studielink.nl) (2003-now).

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- ~ Ministry of Internal Affairs (BPR): contra-expertise on architecture of the new GBA (Gemeentelijke Basis Administratie). With M&I/Partners (2003).
- ~ Ministry of Economic Affairs (Novem): strategic consultancy on IT and application architecture, in particular regarding content and knowledge management (2003).
- ~ Ministry of Internal Affairs (BPR): contra-expertise on architecture for the Burger Service Nummer (BSN). With Zenc (2003).
- ~ SURF Foundation: evaluation of 7 SIS (Student Information Systems) applications for higher education in the Netherlands by means of laboratory tests and user participated taxonomy constructions with 3 HBO and 3 WO members. See: [www.surf.nl](http://www.surf.nl), search for 'SIS' (2003).
- ~ Municipality of Rotterdam: evaluation and selection of content management system, application vendor and implementation partner, including RfP and European tender procedure (2002) and project management of implementation of the chosen CMS in 30+ departments and regional offices with over 20.000 employees (2002-2003).
- ~ Ministry of Internal Affairs: proposal for an E-government architecture, including multi-year process plan to standardize E-government infrastructure and methodologies for network, content, and process models such as XML, SOAP, UML, Dublin Core, and BP&E4WS. With VKA (2002).
- ~ InHolland University: start-up of E-business Expertise Centre (2002-2003).
- ~ NATO/NC3A (The Hague): development of application architecture for knowledge management, document management and portals. With M&I/Partners (2002).
- ~ National Institute for Metals Research (TNO/NIMR): consultancy regarding software engineering and integration strategy, including several software development methodologies such as SCCS (2002).
- ~ BEN (Dutch telecom operator): implementation of CMS and portal. With M&I/Partners (2002).
- ~ Ministry of Economic Affairs: strategic consultancy regarding E-government architecture, Government Forms Online (with HEC and Dialogic, 2001), and international ICT-test / E-government comparison (with Zenc and Dialogic, 2002). See: [www.egem.nl/kennisbank/organisatieinrichting/architectuurelektronischeoverheid.pdf](http://www.egem.nl/kennisbank/organisatieinrichting/architectuurelektronischeoverheid.pdf)
- ~ Municipality of Amsterdam: design of application architecture for content management system and portal (2001) and evaluation of document management and workflow system (2001-2002).
- ~ Dutch Digital University: start-up educational service provider (business plan, application architecture, and partner plan), including vendor selection of various E-learning applications and development of E-learning handbook focusing on various methodologies and standards in E-learning (including IMS, SCORM, and XML). With M&I/Partners (2001-2002).
- ~ University of Utrecht: evaluation of Content Management System and ICT strategy (2001-2002).
- ~ Ministry of Education: architecture design and implementation of an advanced website with datawarehouse functionality, including selection of content providers and implementation partners (2001-2002).
- ~ Fortis Bank: strategic consultancy regarding application architecture for stock brokerage, including security and legacy integration and selection of application vendor and implementation partner (2001).
- ~ General Insurance Alliance (ABZ): standardization of front/back office architecture, process and messaging structure and standards (including XML). With M&I/Partners (2001).
- ~ Ichthus University Rotterdam: strategic consultancy concerning E-learning architecture. With M&I/Partners (2001).

## Other work experience

MEMBER OF EXECUTIVE BOARD (FOR R&D), STATISTICS NETHERLANDS (CBS); VOORBURG – 1999-2001

Project manager and initiator of the 2000 CBS reorganization (25 sections grouped into 4 divisions), finished in one year, resulting into Mf 25 / year budget cut and a stronger internet orientation (both input and output).

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DIRECTOR OF DIVISION RESEARCH & DEVELOPMENT, STATISTICS NETHERLANDS (CBS); VOORBURG – 1994-1999  
One of the initiators of the 1994 CBS strategy, focusing on electronic data collection (input: EDIsent EDI software) and on electronic data dissemination (output: StatLine Datawarehouse; see www.cbs.nl). Project Director (for CBS) of the European TELER project ('EDI in administration') with 8 other countries (statistical bureaus, accountants, and multinationals). Project Director (for CBS) in the Dutch Steering Committee on E-government Enterprise Services ('elektronische heerendiensten', EHD) with top IRS and social security officials. Responsible for reorganization of all CBS systems development activities after an extensive study of software engineering methodologies (including RAD, OO, UML, RUP, and SCCS).

DIRECTOR OF STATISTICAL METHODS & DEVELOPMENT, STATISTICS NETHERLANDS (CBS); VOORBURG – 1990-1994  
Responsible for ICT (Systems Development, ICT Infrastructure, and ICT Operations), Statistical Methods, and Marketing & Corporate Policy departments. One of the initiators of the so-called TEMPO reorganization (1992-1994). Responsible for final restructuring of the CBS-organization to 45 sections grouped into 8 new business units/divisions with integral contract management and customer focus (1994). Responsible for many innovation projects including several software engineering projects such as IRIS and EDIsent, both for statistical data collection from financial systems at enterprises through Electronic Data Interchange (EDI). Responsible for redesign towards a completely Intel/Microsoft based architecture, including all data centre infrastructures, platforms, and enterprise applications.

HEAD OF AUTOMATION DEPARTMENT, STATISTICS NETHERLANDS (CBS); VOORBURG – 1987-1990  
Responsible for downsizing ICT infrastructure from completely mainframe based (1987) to fully Intel/Windows NT based, including all database, batch, file, print, and web servers. Lowest Cost of Ownership in Dutch government (from 25 Mf in 1987 to 10 Mf in 1996, excluding personal). Also redesigned both central and decentral ICT organization, from 400 fte centrally (1987) to 200/200 fte central/decentral. Responsible for reorganization of Software Engineering department and development of methodologies for the Blaise application (including SCCS).

PROFESSOR OF ECONOMETRICS AND INFORMATICS, FREE UNIVERSITY; AMSTERDAM – 1982-

HEAD OF DEPARTMENT OF STATISTICAL METHODS, STATISTICS NETHERLANDS (CBS) – 1979-1987  
Responsible for R&D regarding mathematics, psychometrics, econometrics, statistics, etc. Founder of the 'Blaise' software system for E-forms and Computer Assisted Personal Interviewing (CAPI) for laptop, telephone, e-mail, and web interviewing. Blaise is now sold worldwide as commercial software and a de-facto data collection standard for statistical bureaus.

RESEARCH ASSOCIATE, NETHERLANDS ORGANIZATION FOR THE ADVANCEMENT OF PURE RESEARCH – 1972-1979

ASSISTANT PROFESSOR, ECONOMETRICS, ERASMUS UNIVERSITY; ROTTERDAM – 1972-1979

## Varia

- ~ Member of many advisory boards (including BZK, EGEM, ICTAL, ICTU, GBA, and Innovatieplatform), particularly with respect to E-government and related topics.
- ~ Chairman of the Dutch National Advisory Council (NAC: large accounts panel) for Microsoft (1994-1999).
- ~ Member (editorial) of the board for several journals/conferences, including JOS, CSDA, ECJ, VVS, IASS89, ISI91, and Teleac Statistiek (until 2001).
- ~ Founder of JOG, a Dutch econometrics/statistics platform (1980-1989).
- ~ Developer and designer (with H. van Putten) of the famous Dutch timetabling applications 'Perspectief' and 'Olus', 1982-1995 market leader for HAVO/VWO/MBO schools and used by a wide variety of organizations such as police, navy, and hospitals for timetabling of labor shifts. Applications are commercially distributed by VNU/Malmberg and others.
- ~ Received the Elsevier/Winkler-Prins prize for best PhD thesis in Economics 1978-1982.

## Publications

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## BOOKS AND REPORTS

- ~ *Het midoffice: elektronische dienstverlening tussen frontoffice en backoffice*, with M. Roovers and F.J. Kuiper, 280 p. Academic Service / SDU Uitgevers, 2007.
- ~ *De burger bediend: eindrapport expertcommissie informatievoorziening en elektronische dienstverlening SUWI*, with U. Groen and J. van Lunteren, April 2005. See: [www.rwi.nl/cmscata/file/burger\\_bediend.pdf](http://www.rwi.nl/cmscata/file/burger_bediend.pdf)
- ~ *Marktverkenning midoffice*, with R. van Erkel and M. Roovers, published by EGEM, November 2004. See: [www.egem.nl/kennisbank/informatievoorziening/uitwisseling/midofficerapport](http://www.egem.nl/kennisbank/informatievoorziening/uitwisseling/midofficerapport)
- ~ *Relatiebeheer: toepassingen van CRM-applicaties in grote en kleine organisatie*, with R. Bosch, F. Kuiper, A. v.d. Flier, 265 p. TenHage Stam, The Hague, August 2004.
- ~ *Content Management & Portals: kennis- en contentbeheer op het web*, with R. van Erkel, A. Damstra and M.A. Klein, 263 p. TenHage Stam, The Hague, April 2003.
- ~ *Architectuur elektronische overheid: samenhang en samenwerking*, with F. van den Dool, R. Wagenaar, and J.A.F. Hinfelaar. See: [www.egem.nl/kennisbank/organisatieinrichting/architectuurelektronischeoverheid.pdf](http://www.egem.nl/kennisbank/organisatieinrichting/architectuurelektronischeoverheid.pdf)
- ~ *E-business Integratie: E-procurement en applicatie-integratie in de B2B keten*, with F.J. Kuiper, P.N.S. Kuin, W.J.G.P. Wagenaar, 275 p. TenHage Stam, The Hague, November 2001.
- ~ *E-commerce: de architectuur achter de webwinkel*, with R. W. Slotema and P. M. de Leer, 226 p. TenHage Stam, The Hague, Januari 2001.
- ~ *Component Based Applicatie Ontwikkeling (CBAO)*, with D. van Elst, R.M. Breteler, E.A. van der Zeeuw and J.B. Cromptvoets, 200 p. TenHage Stam, The Hague, April 1999.
- ~ *Groupware: Lotus Notes of... het intranet; een vergelijking van elf groupware-systemen*, with A.J. Lubrun and P.W.A. Ensink, 117 p. TenHagen Stam, The Hague, April 1997.
- ~ *Applicatieontwikkeling voor client/server: nieuw elan met Windows en SQL*, with S. Nieuwenhuyzen-Kruseman and J.B. Cromptvoets, app. 264 p. Tutein Nolthenius, Den Bosch, 1994.
- ~ *Client/server database programmatuur*, with M. Stultjens & J.B. Cromptvoets, 195 p. BSO, The Hague, 1991.
- ~ *Database management programmatuur voor PC en PC-netwerk*, with J.B. Cromptvoets, 143 p. Meinema, Delft, 1988.
- ~ *Automatisering: kunst of vliegwerk?* Oration for the Chair of Professor of Quantitative Information, 20 p. Faculty of Economic Sciences and Econometrics, Free University Amsterdam, November 1990.
- ~ *Tax incidence: a general equilibrium approach*, PhD-thesis, Erasmus University Rotterdam, January 1979, 345 p. Received the Elsevier/Winkler-Prins prize for best PhD-thesis in Economics 1978-1982. Published in the series 'Contributions to Economic Analysis' (134). Elsevier/North-Holland Publishing, Amsterdam, 1980.

## ARTICLES

Dozens of articles in scientific and other journals, both nationally and internationally. Details on these articles and papers, including a full list of titles, are available on demand. Topics include:

- ~ Business Process Redesign (BPR), downsizing, standardization and decentralization of IT, organization of IT, Total Cost of Ownership (TCO), and general management.
- ~ Content management and portals, E-business technology, E-procurement and Supply Chain Management (SCM), Component Based Application Development (CBAD), client/server development tools, Relational Database Management Systems (RDBMS), data warehousing, data mining, and internet, intranet, and groupware.
- ~ Application architecture, Enterprise Application Integration (EAI), security and privacy, software engineering, and technological and functional infrastructures.

## Presentations and seminars

Over a hundred presentations (conferences, seminars, et cetera) on the aforementioned topics (see 'articles'). Organized and presented several one-day seminars at the Free University (VU)

Amsterdam and elsewhere, with organizations like M&I/Argitek, M&I/Partners, Verdonck, Klooster & Associates (VKA), Origin, Software Engineering Research Centre (SERC), MediaPlaza, et cetera (see [www.kellerseminar.nl](http://www.kellerseminar.nl) for information on the most recent seminar). For each of the seminars, several software applications were evaluated hands-on in a laboratory set-up during several months (with the help of students and other participants). Results were presented at a concluding seminar and often published in a book (see 'books and reports'). Topics include:

- ~ Electronic documents and processes: DMS/RMA/WfM research, app. 300 participants (2007)
- ~ E-government - Frontoffice / Midoffice / Backoffice: EGEM midoffice research, app. 400 participants (2006)
- ~ Content Management Systems (CMS) & Portals: SURF BIBA research, app. 200 participants (2004)
- ~ Customer Relationship Management (CRM), app. 100 participants (2003)
- ~ Student Information Systems: SURF SIS research, app. 300 participants (2003)
- ~ Content Management Systems (CMS) & Portals, app. 200 participants (2002)
- ~ E-business Integration & E-procurement, app. 150 participants (2001)
- ~ E-commerce Technology, app. 400 participants (2000)
- ~ Component Based Application Development (CBAD), app. 300 participants (1998)
- ~ Groupware / Intranet, app. 200 participants (1996)
- ~ Client / Server Development Tools, app. 150 participants (1993)
- ~ Relational Database Management Systems (RDBMS), app. 150 participants (1990)
- ~ Development Tools for PC-LAN's, app. 100 participants (1988)
- ~ Several seminars on topics such as Decision Support Systems (DSS) and statistical software (1985-1988)

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## Education

- 1972-1979 Econometrics (PhD, cum laude),  
Erasmus University Rotterdam
- 1970-1972 Applied Mathematics (Master's degree, cum laude),  
Twente University of Technology
- 1965-1970 Electronics (Bachelor's degree, cum laude),  
Twente University of Technology

Furthermore Many courses, seminars and conferences on information management, information technology, software engineering, mathematics and general management