



**Name: Chris Oostman**

#### Summary

Since his graduation at the *Technical University of Delft* in 1983 Chris Oostman has been employed and working in ICT. In his early career he worked for several employers at different customer locations. The initial assignments were mainly in the field of software engineering and system development. Thereby the activities ranged from realization –i.e. programming and testing- via functional and technical design up to information analysis respectively information planning.

However, in more recent years his scope has changed into consulting activities. The focus is on (applicational and security) technical architecture and policy with respect to information security. Although he has a broad interest in ICT subjects, information security has always been very attractive to Chris – forming a kind of red line through his career.

Chris as a person can be best characterized by being analytical, methodical and very structured in his way of thinking and working, curious with respect to many areas of science, very conscious in working out –rather on his own than in a team- an assignment, having an eye for both structure and detail, loyal to the customer as well as to his employer, committed and driven in labour, to the point in appointments and keen on language both written and spoken.

In May 1991 Chris joined LogicaCMG already, implying an experience with this company -and the companies he has been working for- that extends more than a decade. Via the divisions *Information Technology* and *Finance / Advanced Technology* he arrived in 1999 at the division *Finance / Information Security*. Already since he started his career in the early eighties Chris has been carrying out assignments that had to do in some way or all the way with security.



**Experience, roles and branches**

**CMG Information Technology BV**

**CMG Finance BV division Advanced Technology**

**LogicaCMG Finance BV division Information Security**

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Jan. 2003 – To date	• Software / system / support engineer	• Finance
Jan. 1995 - Dec. 2002	• Information security specialist	• Finance
May 1991 - Dec. 1994	• annex architect	
	• Consultant	• Banks, Industry, Commercial services
	• Project leader	• Finance

**Database Consultants Europe Nederland BV (DCE)**

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Nov. 1986 - Apr. 1991	• Consultant	• Ministries, Banks, Commercial services
	• Software engineer	• Industry
	• Information analyst / functional designer	• Social security
	• Information planner	• Central government
	• Automation planner	• Provincial government, industry
	• Consultant product selection	• Industry
	• Consultant Service Level Agreements (SLAs)	• Finance

**Nixdorf Computer BV**

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Jul. 1985 - Oct. 1986	• Software Specialist department Product Marketing UNIX systems	• General
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**Philips Telecommunication and Information Systems BV (PTIS)**

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Sep. 1983 - Jun. 1985	• System & software engineer Department Software Support / Terminalsystemen & Netwerken	• Finance
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## Education and training

Education			Certificate
Mathematical Centre <sup>1</sup> in Amsterdam (MC)	• Term of probation Technical University of Delft	1981 - 1983	Yes
Technical University of Delft (TUD)	• Department of Electrotechnical Engineering	1974 - 1982	Yes
Vanderwaalsscholen-gemeenschap in Amsterdam	• Voorbereidend Wetenschappelijk Onderwijs (VWO) / Atheneum-B <sup>2</sup>	1968 - 1974	Yes
Dr. A. Plesmanschool in Weesp	• Primary modern school	1962 - 1968	N.A.

## Training

			Certificate
Zergo / Baltimore	• Security Risk Analysis	1999	N.A.
Zergo / Baltimore	• Implementing BS7799	1999	N.A.
Anton Meyer	• Insight into SAA	1989	N.A.
DCE	• Information Analysis	1986	N.A.
Oracle	• Oracle 4 & SQL	1986	N.A.
Philips / Diebold	• Automated Teller Machines	1985	N.A.
CAP Gemini	• Man/Machine Interface	1985	N.A.
Nixdorf Computer	• TWAICE Expert System Shell	1984	N.A.
Philips	• Public data networks, HDLC, X.21 en X.25	1984	N.A.
Philips	• Prodosta-R	1984	N.A.
Philips	• MAS (OS voor P800 CPU)	1984	N.A.
Philips	• Work Station Management	1984	N.A.
Philips	• The LAN & PABX	1984	N.A.

## General training and seminars

			Certificate
LogicaCMG	• Consultancy Skills	1991 -	N.A.
	• Commander Project Management / 1	To date	
	• Commander Project Management / 2		
	• Sales Essential Skills (extern)		
	• Communication Skills		
	• Social Skills		
	• General Development Program / General		
	• General Development Program / Sales		
	• Motivation and Leadership (extern)		
	• Advanced Training Course / General		
	• Advanced Training Course / Sales		
	• CMG's Quality Approach		
	• Basic Training Course		
Together <sup>3</sup>	• Turning Point Seminar (TPS)	2001	N.A.
RSA Security	• RSA Conference 2000 Europe in München	2000	N.A.
Neville Mullany	• Effective Business Presentations	1988	N.A.
Erik Krauthammer	• Management I	1987	N.A.

<sup>1</sup> Currently known as *Centre for Mathematics and Information Science* (CWI).

<sup>2</sup> Something like the technical version of a secondary modern school whereby Atheneum-B is the most technical, science oriented direction.

<sup>3</sup> See [www.together.nl](http://www.together.nl) for more information.



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### **Core competence**

In the field software engineering, system development and information security Chris is really an experienced generalist who is always able to accomplish difficult and unprecedented assignments to an approved and appraised completion. Also on other fields in ICT he has demonstrated his agility to fulfill customer consultancy requests. In the event he lacks -certain parts of- essential knowledge and/or experience he is always able to acquire this in short time.

Delivering quality in the tiniest detail and pursuing work until complete satisfaction of the customer –and his own high level of requirements- is the standard operating mode of Chris. When needed, he will generally succeed in matching tight timelines. To make the work as easy as possible, Chris will always try to look for and use available tools. Reuse ideas of others where and when possible is the idea behind this approach.

Information security is a very challenging and ever tempting and changing field in ICT, but Chris likes to work in many other ICT or scientific fields as well. To keep up pace and enthusiasm it is best for him to vary the nature of assignments often. Especially assignments on the border of scientific research and unprecedented jobs are what he is looking for.

After carrying out a so called “Security investigation level B” the Minister of Defense has issued on the 17<sup>th</sup> of July 2003 a “Statement of no objection for access to military installation” for Chris to hold a position in the Dutch Government involving confidentiality.

## Competence profile

<i>BRANCH COMPETENCES</i>	<i>JUNIOR</i>	<i>MEDIOR</i>	<i>SENIOR</i>
• Banking: smart cards		X	
• Banking: information security			X
• Banking: customer relationship management		X	

  

<i>ICT COMPETENCES</i>	<i>JUNIOR</i>	<i>MEDIOR</i>	<i>SENIOR</i>
<b>Methoden</b>			
• A&K-analysis		X	
• CMG: CPLC Commander		X	
• Entity Relation Diagrams		X	
• ITIL		X	
• Object Oriented		X	
• Prototyping		X	
• Quick Scan			X
• Risk Analysis			X
• SDM		X	
<b>Techniques</b>			
• Architecture: Client/Server			X
• Architecture: Infrastructure			X
• Architecture: Middleware			X
• Architecture: Web Technology		X	
• Datacommunications: HTTP		X	
• Datacommunications: OSI		X	
• Datacommunications: TCP/IP		X	
• Datacommunications: X.25		X	
• Data storage: Smart Card		X	
• Markup technology: HTML		X	
• Security: Cryptography		X	
• Security: Firewalls		X	
• Security: Intrusion Detection	X		
• Security: Vulnerability Scanning	X		
• Security: LDAP		X	
• Security: PKI			X
<b>Tools</b>			
• Assembler			X
• C / C++			X
• HTML		X	
• Microsoft: FrontPage			X
• Microsoft: Project		X	
• Microsoft: Visio		X	
• Microsoft: Visual Basic	X		
<b>Platforms</b>			
• AIX		X	
• DOS		X	
• HP-UX		X	
• UNIX			X
• Windows			X

  

<i>GENERAL COMPETENCES</i>	<i>JUNIOR</i>	<i>MEDIOR</i>	<i>SENIOR</i>
• CRM		X	
• Microsoft: Visio		X	
• E-Business		X	
• E-Commerce		X	
• Office automation		X	



#### PROFESSIONAL SKILLS

##### Planning and Organization

- Assignment definition
- Risk analysis and risk management
- Reporting
- Evaluating
- Application of Project Life Cycle
- Time management

##### Consultancy

- Organizational research
- Customer diagnosis
- Interviewing

##### Management

- Coaching

##### Communication

- Verbal communication
- Written communication
- Listening
- Presenting

##### Languages

	Reading	Speaking	Presenting	Writing
• Dutch	Native	Native	Native	Native
• English	Fluent	Fluent	Fluent	Fluent
• German	Fluent	Fluent	Fluent	Fluent
• French	Proficient	Proficient	Proficient	Proficient

#### TYPICAL ATTITUDE

- Analytical
- Customer/service oriented
- Loyal towards both customer and employer
- Responsible
- Solitary



## **LogicaCMG career track**

**August 2003 – Now**

### **LogicaCMG (Amstelveen / Leatherhead UK)**

Department	Finance / Information Security
Project	Writing and reviewing bids to RFIs and RFPs – notably the RFP for the <u>Galileo Phase C0</u> project
Role	Security Specialist

#### Situation

While awaiting a new assignment Chris worked on several bids to both RFIs and RFPs during this period. The most important of these was the RFP on the so called Galileo Phase C0 project:

Galileo will be Europe's own global navigation satellite system, providing highly accurate, guaranteed global positioning service under civilian control. It will be interoperable with GPS and Glonass, the two other global satellite navigation systems.

Because LogicaCMG UK in Leatherhead (a town situated at the Orbital highway to the South-West of London) is the main contractor of the Galileo project, Chris went for 2,5 weeks to England to write the security parts of the bid. The last week he was assisted by two of his Dutch security colleagues due to the large amount of documents to read and pieces of texts to write. Besides security many other subjects had to be covered in the bid. For this reason there were tens of people working on it. Finally some 300 binders containing each 800+ pages were sent off to ESA's (European Space Agency) ESTEC organisation in Noordwijk. Several weeks later it became clear that LogicaCMG had won from its competitors in content and technical merits. At the end of October the so called Industrial Policy Committee (IPC) from ESA had to take the final (more political) decision to either grant or deny the bid.

Without going into detail Chris worked on the following bids as well:

- ABN AMRO Bank - AT49 Phasing out SNA (RFI & RFP; SNA plus line encryptors to be replaced by IBM's WebSphere 5.3 with SSLv3.0 over TCP/IP).
- Sony Europe - "De Digitale Voorziening" (The Digital Provision; RFP; this project aims to realise a digital workflow within and inbetween the Dutch public broadcast organisations).
- ABN AMRO Bank – Billing Server (review).
- Federale Overheidsdienst Financiën (Belgium) – Prestudy Identity Management (review).
- OPTA – Adviesrapport "Beveiligingsimpact Wet Elektronisch Bestuur Verkeer" (review).

Next to this Chris worked out a sales presentation on the subject "Windows Security Patch Management".

**April 2003 – June 2003**

### **ABN AMRO Bank (Amsterdam)**

Department	ICT Development / User Security Domain
Project	Quick Scan Empowering Multichannel PeopleSoft 8 CRM Applications through the Internet (EMPATI)
Role	Security Specialist

#### Situation

Within the central *Multichannel Platform* (MCP) environment of the Bank amongst others *PeopleSoft 8 CRM* applications are being developed and used. So far only employees could make use of such applications (implementing automated parts of business processes). It was the intention to make this functionality also available to customers (to start with) and employees (later on) via the Internet. The Business sponsor for this quick scan aimed to have a clear view in the middle of the year 2003 on all security issues that would probably arise when bringing PeopleSoft functionality to the Internet. Next to security issues, also applicative, infrastructural, functional and organizational issues were researched and described in this quick scan. Hence, the target of investigation was more than the *PeopleSoft Application Server* alone (PAS). Together with three colleagues from the Bank Chris conducted the *Quick Scan Empowering Multichannel PeopleSoft Applications Through the Internet* (EMPATI). The MCP Steering Committee has accepted the results of the quick scan, as the realizing project has been suspended to the year 2004.

#### Tasks, responsibilities and activities



- Research and describe (mainly security) issues.
- Write parts of and be the end-editor of the quick scan report.

#### Deliverables

- Quick Scan report (which will be the basis for the realizing project).

**November 2002 – May 2003**

#### **ABN AMRO Bank (Amsterdam)**

Department	ICT Development / User Security Domain
Project	Quick Scan Higher Level of Security for Internet Banking (HLS4IB)
Role	Security Specialist

#### Situation

The business case behind this quick scan was the need to attain a higher level of security (HLS) for transactions over the Internet. The current implementation of the *ABN AMRO Bank Internet Banking* offer makes use of 1-way SSL connections only. By doing so some known vulnerabilities inherent to SSL can be exploited as was demonstrated in the Dutch TV program *Netwerk* in October 2002. These so-called *Man-in-the-Middle attacks* (MitM) have to be banned out when high-value / high-risk transactions have to be submitted over the Internet. A possible solution is to switch over to 2-way SSL whereby not only *server authentication* takes place, but also *client authentication*.

The Bank was already looking for several years after a solution to implement HLS when at the end of the summer of the year 2002 a new Dutch product was introduced: *Remote Authentication Services* (RAUS) of the like-named company in Apeldoorn. Some architects at the Business side became immediately enthusiastic for this brand-new product. However, at the side of ICT Development many had their objections against RAUS. Therefore two managers of ICT Development started in November 2002 the *Quick Scan Higher Level of Security for Internet Banking* (HLS4IB). The aim of this quick scan was to compare and select the best product to implement HLS4IB. Next to a RAUS-based solution also a solution based on a standard Soft PKI was described. The latter was envisioned to be implemented using the *UniCert* product from *Baltimore* (which the Bank is already using for some time).

Both RAUS and Soft PKI are software-only solutions that can provide secure login and set up a secure tunnel between a client and a server via 2-way SSL connections. Somewhat later a third, hardware-based solution was described and researched: the so-called *modified e.dentifier*. By way of a *Request for Information* process (RFI) two vendors were queried for their views on the possibilities and merits of all the proposed solutions in different implementation scenarios. Criteria by which the solutions were compared: general, security, infrastructure, manageability, deployment, customization and vendor / product.

The *University of Leuven* (Belgium) –and implicitly the *Technical University of Eindhoven* as well- was also involved in the quick scan by analyzing, researching and reporting on all security aspects and questions. Chris had to coordinate the ICT team's activities and was the contact person between the vendors and the Bank. He worked out the technical implementation schemes and the costs comparison sheets. Next to this he was the end-editor of the quick scan report.

The idea was to bring out an unanimous advise to the Bank's management team on HLS4IB. This turned out to be a difficult, long-lasting, political process that ended up in a compromise. Only in the middle of June 2003 some decisions were taken that have to be worked out in due time. Everybody agreed on the end-state solution that will take years to realize. What the short-term solution will be is still dependent on the results of some other investigations.

#### Tasks, responsibilities and activities

- Be the coordinator of the activities of all in the quick scan participating employees of ICT Development.
- Be the end-editor and co-writer of the quick scan report and all other associated documents and presentations.
- Be the contact person between the vendors and the Bank, respectively between the Business team and the ICT Development team.

#### **Deliverables**





- RFI documents for the two selected vendors.
- Technical implementation schemes and descriptions.
- Detailed costs sheets (based on 3 year TCO figures).
- ICT findings, conclusions and advice report.
- Some ICT-related sections of the Business MT advise report.

**April 2001 – December 2002**

**ABN AMRO Bank (Amsterdam)**

Department      ICT Development / User Security Domain  
Project            Project MCP Security & Directory Services  
Role                Security Specialist / Architect

Situation

The *Multichannel Platform* project (MCP) at the Bank went live about March 2001 starting with *ABN AMRO Bank Internet Banking* according to the *Milestone 0* planning. With respect to security for future MCP Milestones a new, central technical security architecture needed to be realized. Also somewhere in March 2001 the *MCP Security & Directory Services* project within ICT Development was started to realize this need in practice. The functional and technical design of a central *Multichannel Security: Replication Server, Directory Server* and *Security Server* –plus all other peripheral components needed- took off then. After a long period of architecture and design the MCP S&DS project entered in the middle of the year 2003 its production phase.

In close cooperation with the Bank's security architects Chris has written the major part of the *Technical Domain Architecture* (TDA) for the *Multichannel Security Domain*. The TDA is based on the already longer existing blueprint end-state security technical architecture as described in the so-called *BATSEA* document (i.e. *Business, Application and Technical Security Execution Architecture*). A TDA always consists of three parts of which Chris has written two: *Volume 1 – Management View* and *Volume 2 – User View*. Others have written *Volume 3 – Implementation View*. Chris and some others have reviewed this part of the TDA.

Next to this Chris has been responsible for writing a reference guide for terminology to be used in the *Multichannel Security Domain*. A well-worked out list of acronyms, abbreviations and terms make part of this guide. Because of the large number of people working on the MCP project different terms were used for the same entity v.v. Hence, it was felt necessary to set up a guide in order to avoid misunderstandings.

Tasks, responsibilities and activities

- Be a team member of the Technical Committee of the MCP S&DS project.
- Write (TDA Vol. 1 - & 2), respectively review (TDA Vol. 3) the Technical Domain Architecture for the Multichannel Security Domain.
- Review documents of other project team members (ongoing activity).
- Conduct ad hoc architectural research (ongoing activity).
- Study relevant documentation, literature and commercial novelties (ongoing activity).

Deliverables

- Many internal memos, reports, etc. as input to others.
- Multichannel Security Domain TDA Vol. 1 (Management View) en TDA Vol. 2 (User View).

**July 2001 – August 2002**

**ABN AMRO Bank (Amsterdam)**

Department      ICT Development / User Security Domain  
Project            Project MCP PeopleSoft 8 CRM Application Developers Guidelines  
Role                Security Specialist

Situation

*PeopleSoft 8 CRM for FSI* (i.e. *Customer Relationship Management* with a special extension for the *Financial Services Industry*) is one of the first multichannel application servers that started making use of the new central security services of the Multichannel Platform environment. To realize this already at early stage specific guidelines needed to be written. This effort was carried out from different views of which one was security. Along with some colleagues Chris has worked out guidelines for the security view (both as co-author and as end-editor). Therefore –and to assure PeopleSoft applications comply to the Multichannel Security Architecture according to the above-mentioned BATSEA document- Chris had to study, analyze and describe (in Bank



terms) the security aspects of this package. To discuss (potential) issues a delegation of the Bank made a visit to the headquarters of PeopleSoft in Pleasanton (California / U.S.A.). Together with the security architect of the Business Chris discussed security issues with the experts from PeopleSoft.

#### Tasks, responsibilities and activities

- Look after compliancy with the Multichannel Security Architecture according to the BATSEA document of the PeopleSoft 8 CRM for FSI product and the applications written on top of it.
- Study relevant documentation, literature and commercial novelties (ongoing activity).

#### Deliverables

- Internal memos, reports etc. as input to others.
- Reviews documents of others.
- Security section of the document PeopleSoft 8 CRM Application Developers Guidelines.

**January 2000 – June 2001**

#### **ABN AMRO Bank (Amsterdam)**

Department	ICT Development / User Security Domain
Project	PeopleSoft 8 CRM Assessment Track
Role	Security Specialist

#### Situation

At the end of the year 2000 *Vantive* –the company and in line with this also the like-named CRM product– was taken over by its rival *PeopleSoft*. The latter company's aim was to extend their e-Business suite with a CRM package. All existing packages–like HRS, ERP, Financials, etc.- were based on the *PeopleTools 8* framework. The CRM package had to fit in this framework too, which meant a complete change in the way of working: from client/server-based (Vantive CRM) to fully web-based (PeopleSoft CRM). As a result of this the takeover implied a lot of new integration issues for the Bank.

Security plays an important role in the *Multichannel Platform* environment in general, but also more specific when applying packages like Vantive CRM or PeopleSoft CRM. Together with some other security experts of the Bank Chris had to ensure that the design of CRM applications would take place in a robust and secure fashion that complied with the Bank's *Multichannel Security Architecture*. The MCP end-state security architecture according to the already mentioned BATSEA document stood thereby model.

Due to the sudden and unexpected takeover the Bank decided to carry out first an assessment of the possibilities and consequences of a possible replacement of Vantive CRM by PeopleSoft 8 CRM (whereby Vantive CRM was even not live at the moment!). All documentation provided by PeopleSoft had to be studied and analysed in detail. To discuss (potential) issues a delegation of the Bank made a visit to the headquarters of PeopleSoft in Pleasanton (California / U.S.A.). Together with the Business security architect Chris discussed security issues with the experts from PeopleSoft.

#### Tasks, responsibilities and activities

- Ensure compliancy with the Multichannel Security Architecture according to BATSEA of the PeopleSoft 8 CRM product and the applications written on top of it.
- Visit PeopleSoft Headquarters in Pleasanton, California, U.S.A., to meet the experts there on (potential) security issues.
- Review results of other project team members (ongoing activity).
- Conduct ad hoc research (ongoing activity).
- Study relevant documentation, literature and commercial novelties (ongoing activity).

#### Deliverables

- Internal memos, reports, etc. as input to others.
- Reviews of documents from other team members.

**October 2000 - April 2001**

#### **ABN AMRO Bank (Amsterdam)**

Department	ICT Development / User Security Domain
Project	Project MCP Vantive Infrastructure Roll-out (VIRO)
Role	Security Specialist

### Situation

Begin October 2000 Chris had taken over the work of a LogicaCMG colleague in the already for some time running *Vantive Infrastructure Roll-out* project at the Bank (VIRO). The assignment entailed consultancy with respect to security in the *Multichannel Platform* environment of the ABN AMRO Bank (MCP). The MCP project is a very large project that was already running some years and had to be finished by the year 2004.

At that time the aim of the current project phase –Preparation MCP Milestone 1- was implementing and bringing into production some *Vantive CRM* applications. The Vantive CRM package had to support the Bank's *Customer Contact Center* activities (CCC) like *complaints handling* and *outbound calling*. Earlier the Bank had chosen Vantive from a shortlist of CRM package vendors. Vantive CRM went live in the middle of the year 2001.

Like stated before already with respect to PeopleSoft 8 CRM –the successor of Vantive CRM- security plays an important role. Also all the documentation provided by Vantive had to be studied and analysed by Chris with respect to the security aspects. And also this time a delegation of the Bank made a visit to the headquarters of Vantive in Santa Clara, California, U.S.A. Chris went along to meet the security experts from Vantive.

### Tasks, responsibilities and activities

- Ensure compliancy with the Multichannel Security Architecture according to BATSEA of the PeopleSoft CRM product and the applications written on top of it.
- Visit Vantive Headquarters in Santa Clara, California, U.S.A., to meet the experts there on (potential) security issues.
- Review results of other project team members (ongoing activity).
- Conduct ad hoc research (ongoing activity).
- Study relevant documentation, literature and commercial novelties (ongoing activity).

### Deliverables

- Internal memos, reports, etc. as input to others.
- Reviews of documents from other team members.

**June 2000 - October 2000**

#### **Bank Nederlandse Gemeenten (Den Haag)**

Department/Project	Quality Assurance (“Kwaliteitszorg”)
Role	Consultant information security policy

### Situation

Chris has written a new version of the *information security policy* for the Dutch Triple-A rated *Bank Nederlandse Gemeenten* (BNG). In October 2000 the draft policy was discussed on several management platforms. The writing of this document went in close cooperation with the Security Officer and the Head of the Quality Management Department of the BNG. They have looked after the further implementation of the policy at the end of Chris' assignment.

### Tasks, responsibilities and activities

- Writing draft policy.

### Deliverables

- Draft information security policy.

**August 2000**

#### **Intrasites BV (Den Bosch)**

Department/Project	Anna - Personal Assistant ( <a href="http://www.AnnaPA.com">www.AnnaPA.com</a> )
Role	Consultant security risk analysis

A *mini security audit* on one of their newly launched Internet applications had to be carried out by Chris in only very short time. This specific application showed some unexpected *security vulnerabilities* that were exploited fairly soon after its introduction on the Internet by the end of July that year. The effects of the exploitation were very embarrassing to this young Dutch Internet company. The question of the management of Intrasites to be



answered by the report based on this short investigation was whether the problems could have been avoided beforehand - or not.

#### Tasks, responsibilities and activities

- Interviewing key development personnel.
- Analysing relevant development and product documentation.
- Looking around on the test system.

#### Deliverables

- Report to the management.

**June 2000**

#### **Nutsbedrijf Regio Eindhoven (NRE)**

Department/Project Portfolio Management  
Role Consultant system configuration

#### Situation

In this short assignment Chris has described the current and future *system configuration* for the newly introduced Portfolio Department. This had all to do with the upcoming liberalization of the Dutch energy market. *Security aspects* were part of this investigation. This specific job of Chris was only a tiny part of a large project carried out by other LogicaCMG consultants to set up an automated approach to portfolio management.

#### Tasks, responsibilities and activities

- Analyzing and describing the existing and future system configuration.

#### Deliverables

- Report on the existing and future system configuration.

**January 2000 – May 2000**

#### **ABN AMRO Bank (Amsterdam)**

Department/Project Project Corporate Cryptographic Infrastructure  
Role Consultant PKI

#### Situation

The ABN AMRO Bank (AAB) has introduced a *Global PKI (Public Key Infrastructure)*. This was one of the sub-projects of the *Corporate Cryptographic Infrastructure* project (CCI). Part of this PKI is formed by a hierarchy of *Certification Authorities (CAs)*. On top of the hierarchy is the *AAB Root CA*. This system is the most trusted system in this scheme. Both its creation ceremony and its normal operations have to be carried out in the ultimate secure way. Hence, the aim of this assignment of Chris was to write, test and (let) execute appropriate procedures for the AAB Root CA. This resulted in the *AAB Root CA Creation Ceremony Procedure* and the *AAB Root CA Normal Operations Procedure*. These two documents served also as an example for the international *Identrus* project –in which the AAB took part- as well. There were no known precedence's for these two procedures at the time.

#### Tasks, responsibilities and activities

- Writing procedures around the Root CA of the Global PKI of the Bank.
- Testing of the Root CA procedures.

#### Deliverables

- ABN AMRO Bank Root CA Creation Ceremony procedure.
- ABN AMRO Bank Root CA Normal Operations procedure.

**November 1999 - December 1999**

#### **Amsterdam Exchanges (AEX)**

Department/Project Project Open-TSA  
Role Consultant risk analysis

#### Situation

Risk analysis on the information security of a new, on-line version of the *Trading System Amsterdam* (i.e. Open-TSA). The so called *Afhankelijkheids- en Kwetsbaarheidsanalyse* standard (A&K; i.e. dependencies &



vulnerabilities analysis) was used for this fixed-price / fixed-date project. Representatives of all parties involved in the Open-TSA product were interviewed. Before every interview an interviewee had to fill in a tailor-made questionnaire. The results of all the interviews and questionnaires were assembled in a report with recommendations. A management summary accompanied the report.

#### Tasks, responsibilities and activities

- Conduct a risk analysis of the Open-TSA system.

#### Deliverables

- Report risk analysis Open-TSA.
- Management Summary risk analysis Open-TSA.

**October 1999 - November 1999**

#### **CMG Finance BV (Amstelveen)**

Department/Project CMG Finance

Role Consultant WAP security

#### Situation

In this period Chris has written an in-depth overview of the security aspects of the *Wireless Application Protocol* (WAP) in relation to the CMG Telecommunications *WAP Service Broker* product (WSB). This *red book* served as an introduction into this field used internally by other CMG consultants that had to work on WAP products. Next to this a shorter version of this document –i.e. *white paper*– has been derived that was used to give clients and prospects of CMG an introduction into the world of WAP security.

#### Tasks, responsibilities and activities

- Analyze and describe security aspects of the WAP protocol.

#### Deliverables

- Red book plus white paper on WAP security.

**September 1998 - September 1999**

#### **Informatie & Automatisering Fortis Nederland (IAFN te Utrecht & Woerden)**

Departement/Project Fortis / VSB Bank

t

Role Project Leader Operational Services (OS)

#### Situation

In this period Chris acted as Project Leader of two different, but in a way quite similar projects: the *Informatie en Automatisering Fortis Nederland* organization (IAFN) in full facilitates IT Services for most companies of the mother company *Fortis Nederland*. One of these companies is the *VSB Bank* which has its headquarters in Utrecht. In 1998 this bank initiated two important projects:

- Replacement of the operational *Automated Teller Machines* (ATMs) from *NCR* by *ATS 6400/n* ATMs of the brand *Olivetti* that were marketed by *Wang Global* in the Netherlands at that time (*Getronics* from January 2000 on and *Diebold Nederland* from January 2001 on).
- Introduction of the opponent of the ATM: *Automated Deposit Machines* (ADMs). *Ascom EBS* in Tiel marketed such machines at that time. Four ADMs of type *CRS 6530* had to be tested for some time in a pilot environment at different VSB branches.

*Operational Services* (OS) of IAFN in Woerden is the computer centre of Fortis Nederland and, hence, is responsible for the day-to-day operation of both ATMs and ADMs. Although there was a general Project Manager from IAFN Business Applications in Utrecht in charge for both projects, the need was felt for a specific, local (i.e. in Woerden) *Project Leader OS*. Chris was selected for this job due to his experience with ATMs from Olivetti at the ABN AMRO Bank (see below in the text).

Testing, accepting, preparing rollout and setting up of day-to-day operation of both these devices was planned by Chris and a team of OS employees carried out the associated activities. However, Wang Global did not succeed in getting the ATM application stable enough for production. This led to the decision to postpone rollout of new ATMs to March 2000. In fact they succeeded only halfway the year 2001 in successfully replacing NCR ATMs by Olivetti ATMs.



#### Tasks, responsibilities and activities

- Act as project leader.
- Advise the project owner of the VSB bank.

#### Deliverables

- The project was frozen in September 1999. Hence, a whole new crew took up the project later on (i.e. from March, 2000, on).

**January 1994 - August 1998**

**ABN AMRO Bank (Amstelveen) via Wang Global, formerly Olsy resp. Olivetti**

Department/Project Self Service Competence Centre

Role Software engineer

#### Situation

Wang Global (WG) contracted Chris for a long period to do software development (and some support) on their *Self Service Terminals (SSTs)*, especially their *Automated Teller Machines (ATMs)* deployed at one of their major Dutch accounts, the *ABN AMRO Bank (AAB)*. This job was performed on-site in one of the Bank's computer centres in Amstelveen. The main task was analysing and solving problems in the ATM software package *CIAO*. Innovation of *CIAO*'s functionality -on request of AAB or due to innovations on WG's side- was always the primary goal. Chris was responsible for analyzing, planning, designing and developing of all the ATM software projects. In order to do this he had to represent WG in their communication with different departments of the AAB.

The most important features introduced with *CIAO*'s latest major release 6.0 were:

- an *increased number of Dynamic Fast Cash Values (FCVs)* for the customer -6 instead of 3 Static (i.e. fixed) FCVs- that are optimised for the type of card used (i.e. the top six withdrawal amounts for that type of card will be presented to the customer by default), and,
- the so called *Extended Transaction* that permits the customer to make a choice out of three different note mixes -other than the standard top-down mix used with FCVs- as determined by the ATM for a given amount to withdraw as asked by the customer.

In the almost five years that Chris worked on the *CIAO* environment virtually every piece of source code involved had undergone some restyling and thorough optimizing. The code was improved in readability, in clarity and -where appropriate- in efficiency too. Many of the minor important needs and wishes of the Bank were incorporated into the package on the fly. Newer hardware, firmware and drivers coming in from Olivetti Italy had their influence on *CIAO* as well and involved sometimes lots of updates in the software. And, of course, there were bugs to solve now and then. In the end lots of time were spent on writing new and updating existing project documentation.

#### Tasks, responsibilities and activities

- Perform software engineering with respect to ATM software (*CIAO*).
- Represent Olivetti in regular meetings with the Bank.
- Solve ad hoc problems in the software with operational ATMs like millennium problems.
- Work out new functionality like:
  - Acceptance of Postbank cards.
  - Introduction of EURO with account information requests.
  - Introduction of new ATM types like the *Midi ATM* (meant for non-banking environments).
  - Preparation introduction of *Extended Dynamic Key Change*.
  - Project SOAP (Software integrity check on operational ATM PCs).
  - Preparation of the so-called *Efteling-ATM*.
  - Preparation migration from DOS to Windows NT.
  - Preparation introduction Triple DES.
- Beautify all *CIAO* software.

#### Deliverables

- Olivetti ATMs operating according to the Bank's specifications.





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**January 1994**

**Electron BV (Breda)**

Short job to design and implement some Korn Shell scripts on an IBM RS 6000 mini computer running AIX and CMG's *Personnel Management System* (PMS). Subject was local printing on a printer connected to a PC running PMS.

**July 1991 – December 1993**

**Rabobank Nederland (Zeist)**

Participation in the *Security Working Group* (SWG) of a large client server project called *LAURA*. Chris worked on five LAURA SWG sub-projects:

- Design and implementation of the *LAURA Chip card Personalization System (LCPS)*. This included programming of the *Philips TB100* chip card and its associated reader.
- Design and implementation of the enhanced version of LCPS *Rabobank Nederland Chip card Personalization* system (RNCP; modified version of LCPS running on an Olivetti PC under UNIX instead of DOS).
- Implementation of the *Rabobank Nederland Cryptografische Infrastructuur* (RNCI running on an Olivetti UNIX mini computer) that consisted of three parts:
  - *Certification Authority* (CA).
  - *Central Key Management System* (CKMS).
  - *Central Registration Facility* for chip cards issued (CRF).
- Olivetti in Italy developed the CA and CKMS subsystems. Chris designed and developed the CRF subsystem and had to look after the integration of the three parts in a UNIX environment.
- Improved and completely rewritten existing Korn Shell scripts for *User Authorization* on LAURA local bank systems.
- Research on the introduction of a *DAT Recorder* (Digital Audio Tape) as backup and restore medium for LAURA systems under the UNIX OS. Design and implementation of a generic Korn Shell Script that can generate so-called *mini-UNIX-kernels*.

**May 1991 – July 1991**

**Psychiatric Hospital Rosenberg (The Hague)**

In the absence of a colleague due to his holiday: kick off of a project for the search after a LAN based solution to interconnect all of the computer hardware residing in some 40+ buildings that belonged to the hospital. Contacts were set up with the potential suppliers of the hardware and software.

**Former employers****November 1986 - April 1991****Database Consultants Europe Nederland BV (Amsterdam, Nieuwegein, Breda and Badhoevedorp)**Function: Consultant at the *Communication Engineering Consultancy* department.

Chris worked on the following assignments:

- Gist-Brocades in Delft  
Assistance -together with a DCE colleague- in getting 'on the air' a newly bought IBM RS6000 mini computer running under AIX (i.e. IBM's implementation of the UNIX operating system). The work involved the development of a set of Korn shell scripts (UNIX command language).
- Janivo in Breda  
A small, but interesting consultancy study was carried out concerning the problems of running simultaneously on a PC a spreadsheet or a word processor and a communications program of IBM to connect a PC (PS/2 Model 80) with a popular mini computer of them (AS/400). A description of the PC memory management problem and some solutions to it were presented to the client.
- Honig Merkartikelen BV in Koog A/D Zaan and
- Provinciehuis in Arnhem  
Writing of a *Technical Infrastructure Plan* for both organizations. The plans were in both cases part of an Information Plan being set up by other DCE colleagues. It involved the study of the current technical infrastructure, the examining of the needs and wishes for the future in this respect and the synthesis of these facts together with the results of the Information Plan plus the Organizational Plan to recommendations of a future hardware platform.
- Ministry of Social Affairs & Labour in The Hague  
In the first phase of this project together with a free-lance fellow professional Chris has written an *Information Plan*. The scope was the *Central Directorate Personnel Management* (CDPM) of this large organization. The resulting report consisted of (a set up for) an Organization Plan, the description of existing and planned information systems and an overview of all problems and remarks with regard to the information flows within the organization as seen by its representatives. The proposed solutions were discussed by the Staff and were worked out in practice by others. The focus was on resolving the problems with respect to the outgrow and chaos around the purchase and use of PCs.
- Ministry of Defense in The Hague  
Description of the history and actual situation on the trend towards open systems regarding operating system interfaces and user interfaces. Topics in this field were UNIX, POSIX, Open Software Foundation (OSF), X/Open Group Ltd., UNIX International Inc., Motif, Open Look and so on. An evaluation of alternatives for the above mentioned interfaces resulting in some recommendations and conclusions were part of this document. As an add-on a description of IBM's Systems Application Architecture (SAA) and a comparison of SAA against XAA (the UNIX Application Architecture) was written.
- Rabobank Nederland in Zeist  
At this bank Chris had to run a *Pilot Project* to see whether it would be feasible to introduce so called *Service Level Agreements* (SLAs) in a specific part of the organization (i.e. Tandem Support). SLAs are formal, written agreements between the providers of an information service (computer centre) on the one hand and the clients of it (end users and/or their representatives) on the other side. In an SLA are both the duties of the provider and the expectations / requirements of the clients described and - above all - guaranteed. Both the theoretical basis for tailor-made SLAs combined with a practical implementation for the bank was worked out by Chris. As an add-on the description of a possible organization around and strategy for the introduction of SLAs (Service Management) was conceived.
- Sociaal Fonds Bouwnijverheid in Amsterdam (SFB)  
For a longer period assignment at the department 'Premievaststelling' (PV) of this Dutch 'bedrijfsvereniging'. Together with some DCE colleagues an *information system* was developed for the *automatic control of 'jaarloonopgaven'* and the accompanying automatic generation of premium bills. This became necessary by the fact that per January 1st, 1989, all Dutch 'bedrijfsverenigingen' were subjected to keep their administration based on the level of employees instead of employers. The so-called LOVER system -despite its complexity- was delivered on time and has been running successfully ever since then.
- Nixdorf Computer BV in Vianen





Chris prepared and held a presentation for the sales force of his former employer (see below in the text). The subject was the *UNIX Operating System*. Next to this presentation he has also written an *Introduction in the UNIX OS*. This document should guide EDP Managers in their orientation on this topic.

- UNIX in general

In cooperation with his manager Chris has written an article that was published in a Dutch weekly computer magazine. The title of this article was '*Good development tools compensate for application backlog*'. Further he prepared and held a *presentation* for the half-yearly meeting of the NLUUG (the Dutch UNIX Systems User Group) on the subject '*Shell Programming*'. A comprehensive *manual* was published along with this presentation. Next to this the Dutch market was investigated for UNIX (related) products. Contacts were set up with representatives of almost every UNIX based hardware and software supplier in the Netherlands. He wrote a report on the UNIX Operating System that should give EDP managers a quick, but deep enough insight in the merits of most relevant aspects of UNIX.

- Heineken Bierbrouwerij BV in Zoeterwoude

By the direction of this well-known Dutch beer brewery a report was compiled in which three relational DBMS packages were compared with each other (i.e. *Digital's RDB*, *Ingres* and *Oracle*). Using a list of selection criteria that was composed in close cooperation with a representative of the brewery did this. Based on the contents of this report the concerning company made a final choice for one of the mentioned packages.

**July 1985 - October 1986**

**Nixdorf Computer BV (Vianen)**

Function: Software Specialist at the *Product Marketing* department.

Activities carried out by Chris were:

- Chris had to deal with pre/after-sales activities around the -at that time- newly introduced UNIX-based computer systems under the family name *Targon* of this company.
- To be able to do this well a research in the field of the UNIX Operating System and related topics, including the study of literature with respect to new trends in information theory had to be done.
- Apart from this relations with software and system houses with regard to the acquisition of third party software were set up and maintained by Chris.
- He has also set up a presentation for a group of students and their professor from the University of Amsterdam. The subject was *TWAIICE* which is an expert system shell developed by Nixdorf itself. Assistance in the promotion of Targon machines by taking part in manning the Nixdorf stand at major exhibitions (like *Systems'85* in Munich and the *Efficiency Beurs* in Amsterdam).
- Finally many system tools (shell scripts) that came of hand in the day-to-day use of Targon machines were developed by Chris.

**September 1983 - June 1985**

**Philips Telecommunication and Information Systems BV (The Hague)**

Function: System Engineer at the *Software Support / Terminal Systems & Networks* department.

Activities carried out by Chris were:

- As test leader annex analyst programmer involved in the development of application software for an early Dutch *Electronic Funds Transfer / Point-of-Payment (EFTPOP) trial project* in the southern region Eindhoven / Tilburg of the Netherlands. Before testing the terminal software running on hardware based on the *Philips P800* microprocessor against the banks host (a Tandem system) at the *Bankgirocentrale* in Leusden (BGC), at the Paris based development laboratory of Philips the so called master application was developed, which consisted of a slave handler (PIN pad), a peripherals handler and an X.25 interface for the Layers 4, 5 and 6 of the ISO OSI 7 Layer Model.
- Continued development of the software for the TREM project: see below.
- Earlier several exhibition demonstration programs were developed on a *Philips P2000 PC* running under the CP/M operating system. These programs were written in Pascal and were used by the Traffic Systems department of PTIS.

**March 1983 - August 1983**

**Military Service (Breda)**

Training in *Artillery Sergeant* at the *Chassé* barracks in Breda. Due to an allergy rejected as unfit for military service after several months.

**September 1982 - February 1983**

**Mathematical Centre (Amsterdam)**

Awaiting the planned fulfilling of military duty in March 1983 by request of the involved employees at the



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Mathematical Centre Chris continued working on the hereafter described MISS project.

**September 1974 - August 1982**

**Technical University (Delft)**

Graduating activities were carried out by Chris at the *Mathematical Centre* in Amsterdam which is now dubbed *Centre for Mathematics and Computer Science*. Design and implementation of a program-generator written in the locally invented computer programming language *SUMMER* and its associated parser-generator *PGEN*, with which it became possible to generate a simulator for any micro-programmable processor architecture. This huge application package got the acronym *MISS - A Machine Independent Simulation System* - and was used as a test tool around the doctor's degree activities of someone else.

The purpose was to be able to test automatically generated microcode for a given micro-programmable processor architecture in an easy manner, via a very flexible user interface. Techniques like simulation, parser generation, man/machine interfacing and abstract data types/complex data structures were used in this project.

The term of probation was done at the Dutch multinational Philips in the Hague (i.e. *Philips Telecommunication and Information Systems BV*). Part of the program package *TREM - Transaction Emulation* - was developed. It served practice examples for a course in transaction analysis that was given both by Philips itself as by an external software bureau.