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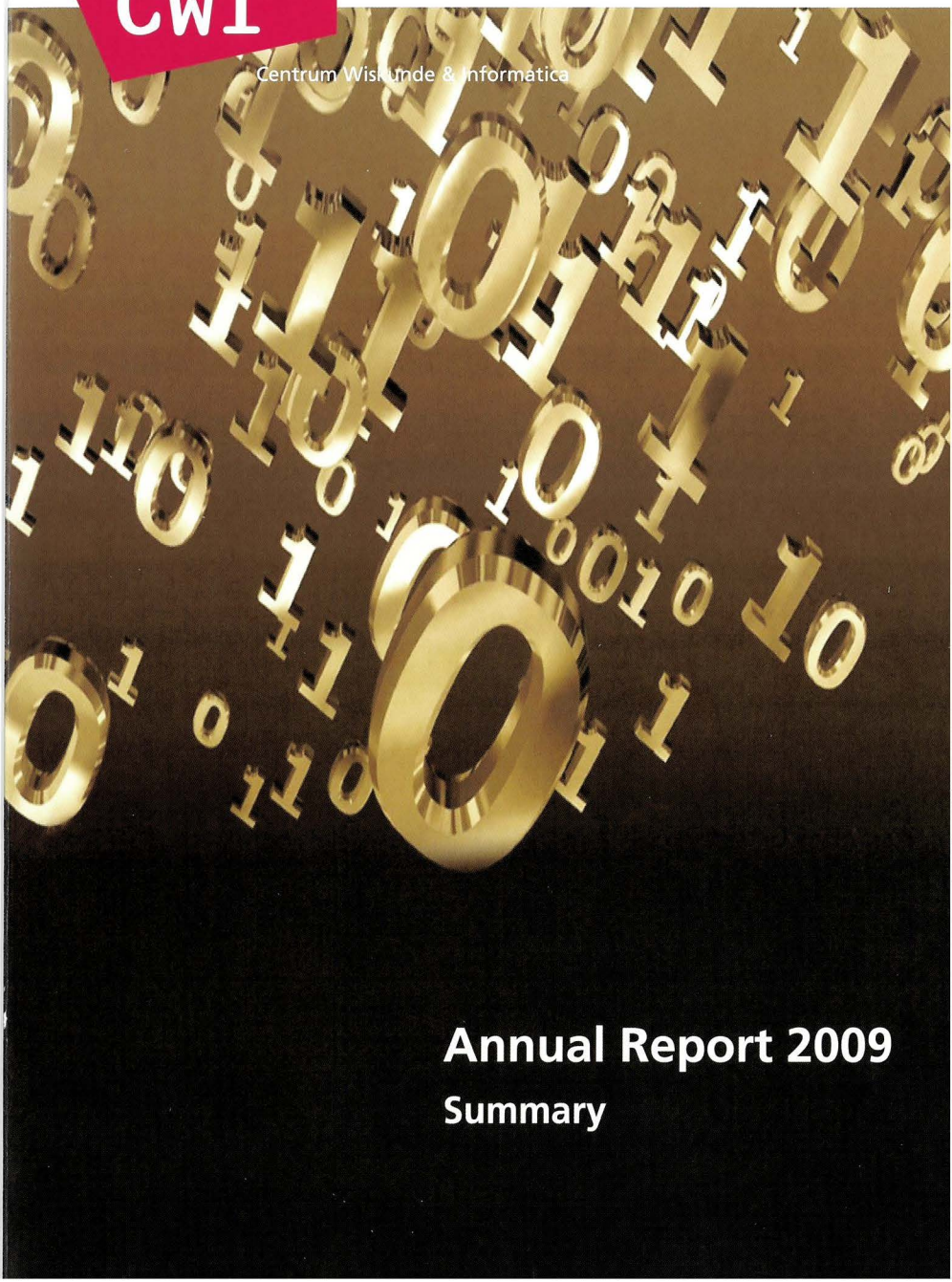


Annual Report 2009

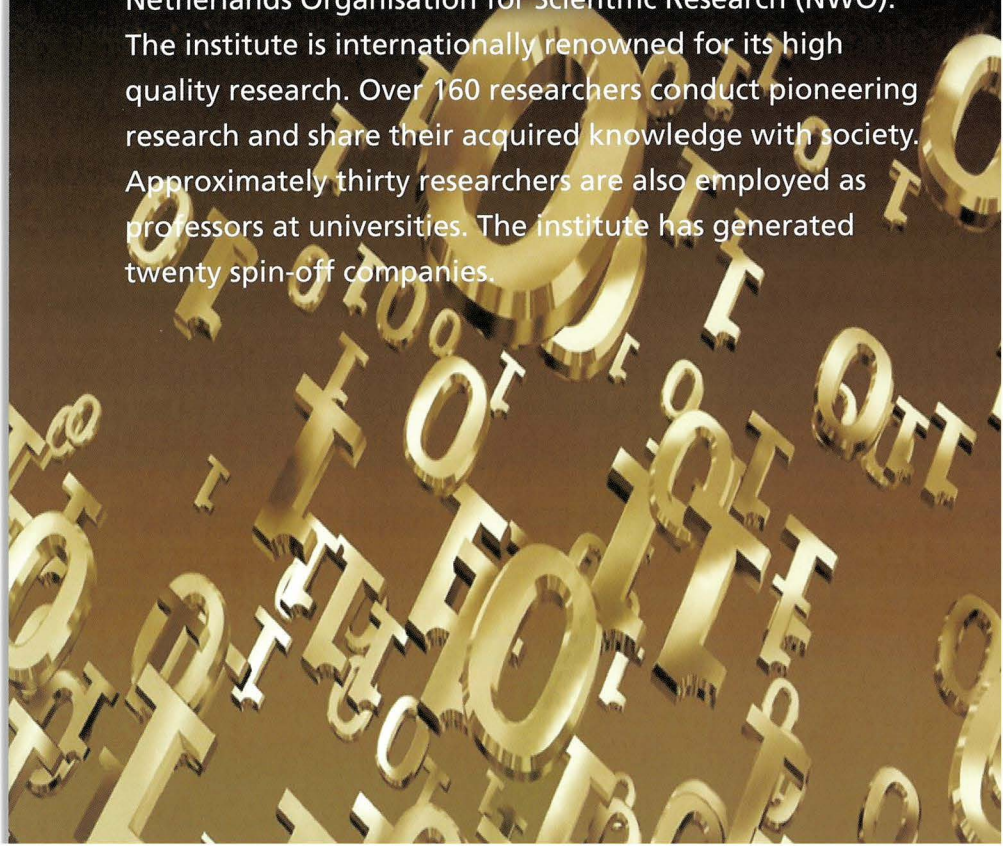
Summary

Centrum Wiskunde & Informatica (CWI)

Summary of CWI's Annual Report 2009
The full Annual Report can be found on our website:
www.cwi.nl/annualreport

Who are we?

Founded in 1946, the Centrum Wiskunde & Informatica (CWI) is the national research institute for mathematics and computer science in the Netherlands. It is located at the Science Park Amsterdam and is part of the Netherlands Organisation for Scientific Research (NWO). The institute is internationally renowned for its high quality research. Over 160 researchers conduct pioneering research and share their acquired knowledge with society. Approximately thirty researchers are also employed as professors at universities. The institute has generated twenty spin-off companies.



CWI in 2009

CWI conducts pioneering research in mathematics and computer science, generating new knowledge and passing it on to society, and to trade and industry in particular. To achieve its mission, CWI has formulated four objectives:

1. **To conduct advanced research of scientific and societal relevance**
2. **To act as a breeding ground for academic staff and young researchers**
3. **To transfer knowledge to society and increase public interest in mathematics and computer science**
4. **To accept a leading role in science policy in the fields of mathematics and computer science**

Scientific and societal relevance

We had many research successes in 2009. We launched Rascal, a new method for meta-programming. Our researchers started recomputing the dike heights and the investments needed, 55 years after we did it for the first time. We also focused on revenue management, combining operations research and game theory. Three national ICT projects where terminated: BRICKS (coordinated by CWI), MultimediaN and VL-e. We published several books and won six best paper awards and two prestigious prizes: the AMC CHI lifetime service award and the bronze achievement award from ITEA 2.

Breeding ground

Researchers at CWI are able to fully concentrate on their scientific work. Many of them maintain close contact with universities. Our research networks attract talent from all over the world. In 2009, seven CWI researchers were appointed professor and twenty PhD students received their degree. To create more space for science, a new wing of the CWI building has been finished, and the old building was renovated. The metamorphosis of the CWI building has brought us better contact between researchers in an energizing and sociable atmosphere.

Transfer to society

Apart from its scientific publications and conferences, CWI has many ways of disseminating its scientific results to society: cooperation with industry, granting licenses, establishing spin-off companies, organizing meetings, and maintaining a website with recent research news are just a few examples of activities raising public and industrial awareness.

In 2009, Ingres Corporation (USA) and VectorWise, a CWI spin-off from the database research team, announced the Ingres VectorWise project. It provides for superior database technology, which allows industry developers to take full advantage of modern hardware. Together with VU University Amsterdam and planning software specialist Ortec, CWI initiated the Pricing and Revenue Management (PreMa) platform to bridge the gap between science and the business world. The BRICKS project published the book *Omringd door informatica* (*Surrounded by computer science*), which explains important results to a general audience.

Leading role

CWI plays a leading role in setting the Dutch research agenda in mathematics and computer science. Together with other top institutions, CWI forms the backbone of European research in these fields. CWI is a founding member of ERCIM, the European Research Consortium for Informatics and Mathematics. The institute is a member of the World Wide Web Consortium (W3C) and manages the W3C Office in the Benelux.

In June, a new project team was formed with INRIA in France, financed by both CWI and INRIA, and housed in Amsterdam. For both institutions, this is the first research funding across borders. The objective of the cooperation is to strengthen the European research infrastructure. CWI will be one of the five Dutch core partners in EIT ICT Labs, one of the three European Institutes of Innovation and Technology. CWI plays a leading role in the Netherlands Consortium for Systems Biology, which started in 2009 and combines biological experiments with mathematical and computational modelling. A new research group in the life sciences started in January, which was celebrated with the CWI Lectures 2009, including a lecture by Turing Award winner Richard Karp (USA).

We have highlighted five research projects in the Annual Report: *The Computer is The New Microscope*, *Meta-programming Made Easy*, *The Real Cost of Dry Feet*, *Boosting Revenues with Maths and Statistics*, and *Designing the Web Technology of Tomorrow*. See www.cwi.nl/annualreport

"We apply fundamental research to find answers to real-world dilemmas."

Source: Boosting Revenues with Maths, Annual Report 2009

Research

CWI bundles its research in four clusters, collected around applied analysis, combinatorics and stochastics, software enginering, and information systems. The clusters comprise fifteen research groups. See: http://www.cwi.nl/en/Researchclusters

Strategic research themes are earth and life sciences, the data explosion, societal logistics, and software as service.

Facts and figures 2009

- 17.3 M€ income: 11.0 M€ base funding NWO, and 6.2 M€ projects
- 160 researchers, including 35 postdocs, 63 PhD students; 55 support staff
- 29 part-time full professors
- 20 PhD graduates
- 1 Spinoza Prize, 2 Vici, 6 Vidi, 8 Veni
- 513 scientific publications, including technical reports
- CWI is cooperating with 200 partners from academia, industry, society and government
- CWI researchers come from more than 30 countries worldwide; 38% international research staff, 14% female researchers

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