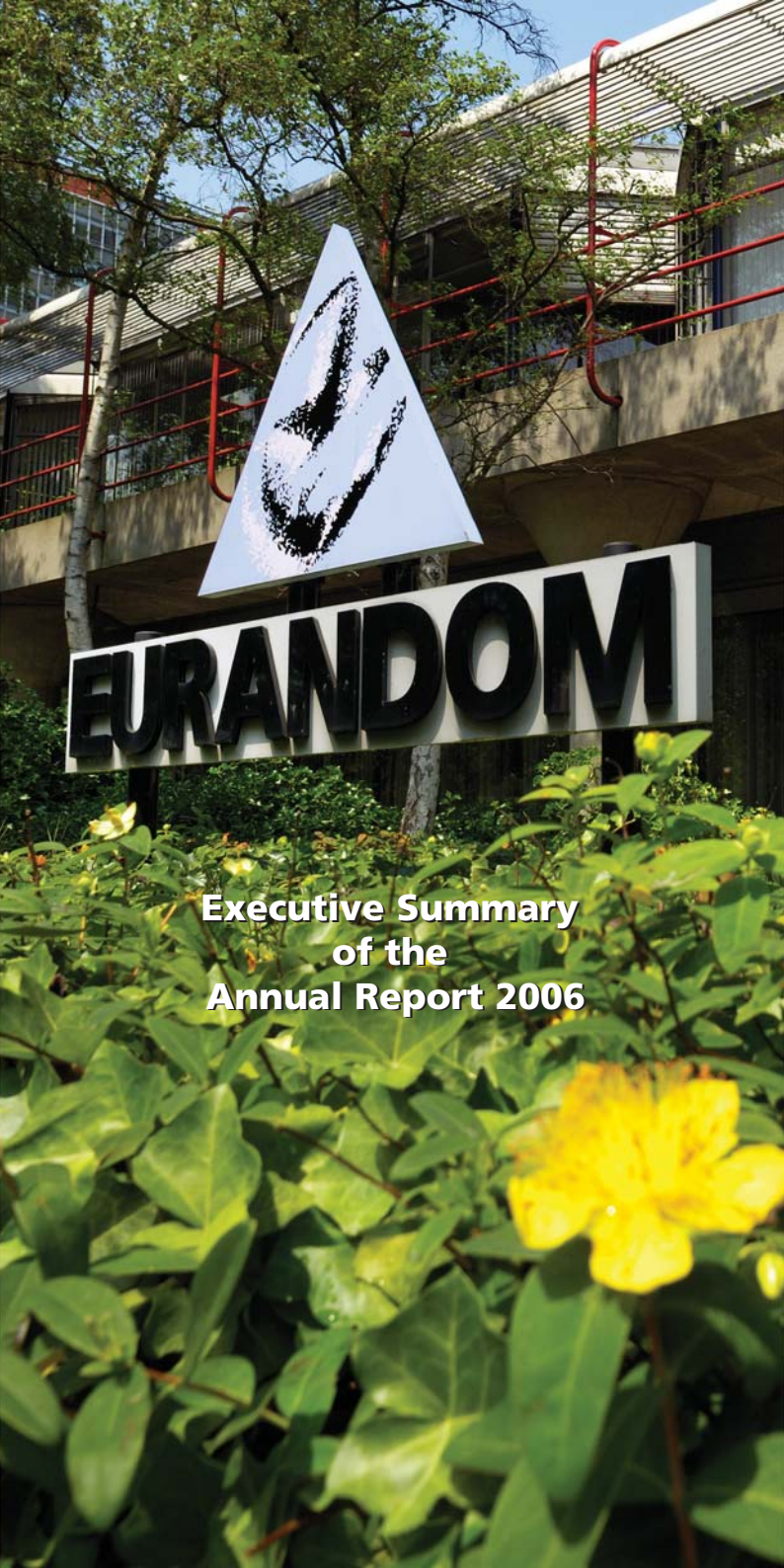


Executive Summary of the Annual Report 2006

EURANDOM

The core business of EURANDOM is fundamental research in the stochastic sciences and their applications in an international environment.

EURANDOM

European Institute for Statistics, Probability, Stochastic Operations Research and their Applications

Introducing EURANDOM

EURANDOM was founded as an international institute on 30 June 1997 by the Netherlands Organisation for Scientific Research (NWO) and Eindhoven University of Technology (TU/e) and has been operational since the summer of 1998. Basic funding comes from NWO and TU/e.

Mission Statement

The mission of EURANDOM is to foster research in the stochastic sciences and their applications. It achieves this mission:

- by recruiting and training talented young researchers and helping them to find their way to tenured positions in academia and industry;
- by carrying out and facilitating research through postdoctoral and graduate appointments, visitor exchange and work shops;
- by taking initiatives for collaborative research at the European level.

During the Annual Excursion (June 2006) EURANDOM people made a painting, under the guidance of artist Cilian Vinke. Each part tells a story, reveals the history or expresses the feeling of the maker.

The role of stochastics

Stochastics, consisting of statistics, probability theory and stochastic operations research, is a mathematical discipline that plays an important role in our technological society. We are more and more faced with organisations, systems and processes so complex that a description and analysis in terms of random elements is more appropriate and effective than a fully deterministic approach. Accordingly, stochastics is becoming increasingly important in other disciplines, like physics, chemistry, biology, economics and telecommunication.

Stochastics is internationally flourishing. Consequently, there is a great need to train a new generation of mathematicians with a strong knowledge of the foundations of stochastics, a good insight into the applicability of stochastics in diverse areas, and an open attitude toward newly developing theories and applications.

Research at EURANDOM

Research at EURANDOM covers *stochastics and its applications*, as well as its interfaces with other disciplines. The core business of EURANDOM is *fundamental research* in an *international environment*, carried out by a select and non-tenured staff of junior researchers and senior advisors, supplemented with an extensive programme of seminars, workshops and visitors. In spite of its modest size, EURANDOM is engaged in many activities on a local, national and international scale, making it into an important research facility in Europe.

"It is always nice to see young people grow"

Wim Senden

Workshops and visitors

One of the key instruments of EURANDOM in realising its mission is its workshop and visitor programme. This programme offers young scientists a well developed training opportunity. Workshops gather top researchers in the field. Sometimes concentrated mini-courses are given, in some cases junior researchers play a special role in a workshop. With the visitors they frequently develop a close cooperation.

Research programmes

Research at EURANDOM is thematic and interdisciplinary. The scientific activities of EURANDOM are organised in three research programmes, which all are central in the area of stochastics. Each programme has three or four themes.

Queueing and Performance Analysis (QPA)

- Performance Analysis of Production Systems
- Performance Analysis of Communication Systems
- Queueing Theory
- Multivariate Risk Modelling

Random Spatial Structures (RSS)

- Critical Phenomena
- Disordered Systems
- Combinatorial Probability

Statistical Information and Modelling (SIM)

- Statistical Signal and Image Analysis
- Statistics in Biology
- Statistics in Industry

QPA is concerned with the performance analysis of stochastic systems. It focuses on queueing theory and its main application areas. In addition the methodological overlap in queueing and risk theory is exploited to study multivariate problems in those two fields.

RSS focuses on systems consisting of a large number of interacting random components, possibly with disorder. It aims to capture their large space-time behaviour through a combination of probabilistic, combinatorial and ergodic techniques, with special emphasis on critical phenomena and universality.

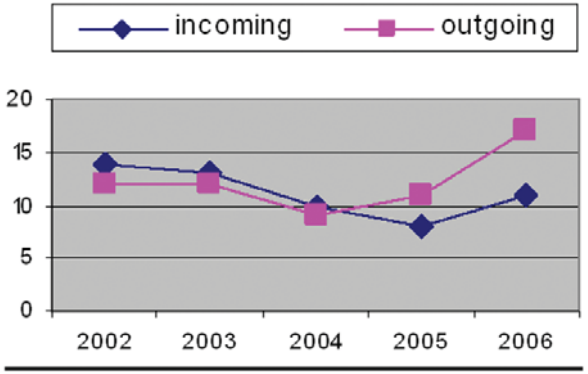
SIM combines analytic and algebraic methods to address a variety of statistical questions, including statistical classification, bootstrap, micro-arrays, gene expression, design of experiments, predictive maintenance.

In addition to the three programmes other projects may be running. In 2006 a new project as a follow-up of the Battery Management programme started: Integrated Batteries (*i*-BAT).

Scientific staff

Each programme hosts approximately eight postdocs and graduate students, supervised by senior scientific advisors, and guided by an international steering committee. Since its start, 88 PD's and PhD's have been working at EURANDOM (excluding the current researchers). Most of the researchers found tenured positions in academia or industry after leaving the institute. About 25 junior researchers are working at EURANDOM at any time.

Turnover Junior staff 2002-2006

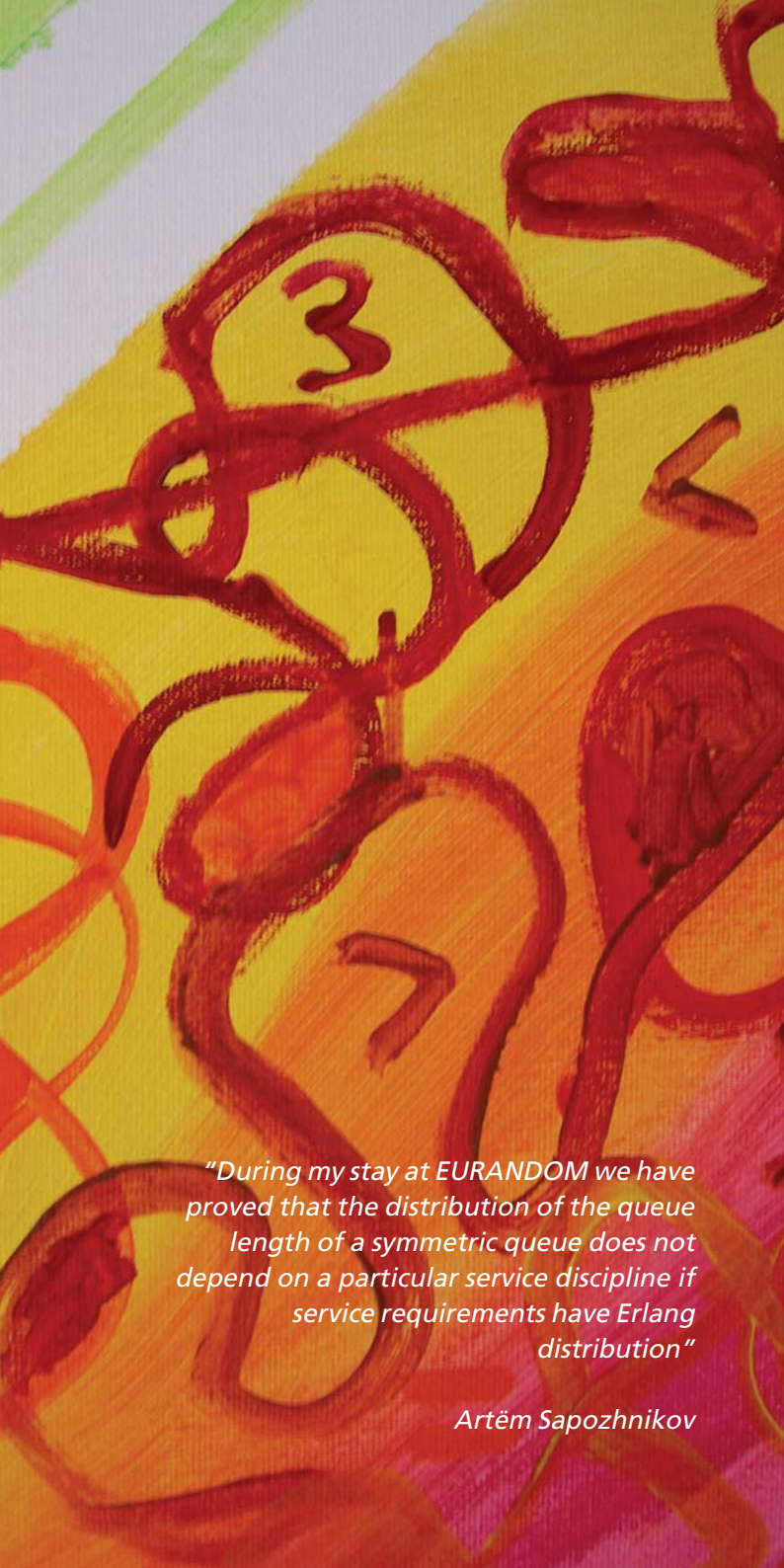


About one third of the former employees found a position at a Dutch university or in a research group of a Dutch industry. 80% - 90% have secured tenured positions in academia or industry.

Board, Scientific Council and Directors

Board

- Dr.ir. J.M.M. Ritzen (chair since January 2004)
- Prof.dr.ir. C.J. van Duijn (member since April 2005)
- Prof.dr. F.A. van der Duyn Schouten (member since May 2006)



"During my stay at EURANDOM we have proved that the distribution of the queue length of a symmetric queue does not depend on a particular service discipline if service requirements have Erlang distribution"

Artëm Sapozhnikov

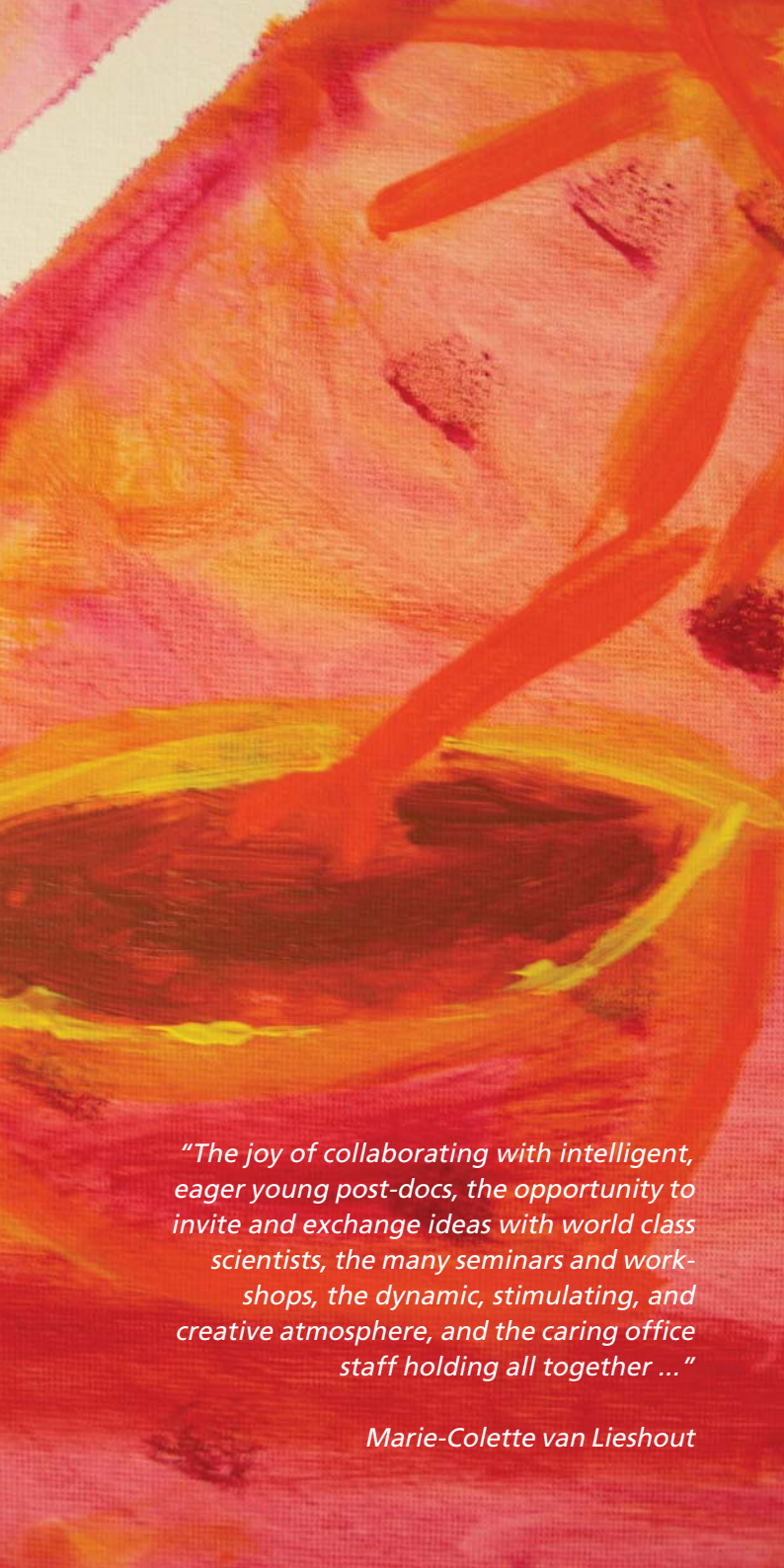
Scientific Council

- Professor S. Asmussen (Aarhus University, Sweden)
- Professor F. Baccelli (École Normale Supérieure, Paris, France)
- Professor E. Bolthausen (University of Zürich, Switzerland)
- Professor S. Borst (Eindhoven University of Technology, The Netherlands & Bell Labs, Lucent Technologies, Murray Hill, USA)
- Professor D. Dawson (chair), Carleton University, Ottawa & McGill University, Montreal, Canada)
- Professor F. Delbaen (ETH Zürich, Switzerland)
- Professor A. Frigessi (University of Oslo, Norway)
- Professor P. Green (University of Bristol, United Kingdom)
- Professor A. Greven (Friedrich-Alexander-Universität, Erlangen-Nürnberg, Germany)
- Professor P. Hall (Australian National University, Canberra, Australia)
- Professor P. Massart (Université Paris Sud XI, Orsay, France)
- Professor V. Schmidt (Ulm University, Germany)
- Professor N. Veraverbeke (Hasselt University, Diepenbeek, Belgium).

Professor J. Beirlant (Katholieke Universiteit Leuven, Belgium) is a new member as of July 1, 2006.

Directors

Professor O.J. Boxma, scientific director (since October 2005);
Drs. C.M.M. Cantrijn, managing director (since December 2006);
Ir. W.J.M. Senden, managing director (until December 2006).



"The joy of collaborating with intelligent, eager young post-docs, the opportunity to invite and exchange ideas with world class scientists, the many seminars and workshops, the dynamic, stimulating, and creative atmosphere, and the caring office staff holding all together ..."

Marie-Colette van Lieshout

Facts and Figures

Workshops and Conferences

Workshop topics are chosen by the scientific advisors and by the steering committees of the research programmes. Ideas for topics are collected from postdocs and senior visitors, and through the various European networks and programmes in which EURANDOM participates.

Workshops and conferences at EURANDOM in 2006:

January 16-18, 2006
Statistics for Biological Networks

January 30-February 3, 2006
55th European Study Group Mathematics with Industry (SWI 2006)

March 6-8, 2006
Risk Measures and Risk Management for High-Frequency Data

March 13-14, 2006
Queues, Fluid Queues and Extremes

March 20-24, 2006
YEP (Young European Probabilists) 2006, Large Deviations, Random Media, and Random Matrices

March 29-31, 2006
Self-Interacting Random Walks

June 19-20, 2006
Performance Analysis of Manufacturing Systems

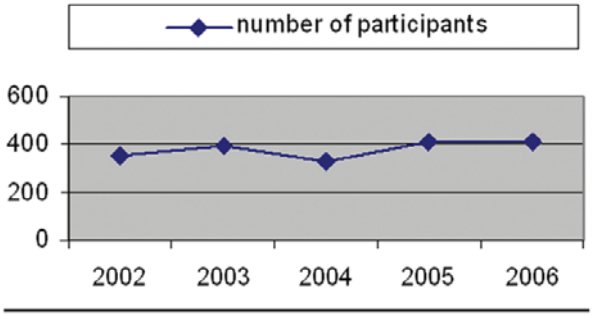
November 11, 2006
EURO-NGI workshop Transfer Control with Delayed Feedback

December 11-13, 2006
Image Analysis and Inverse Problems

"Eurandom offers to its employees a very stimulating and culturally rich environment that for sure helps them to freely find their own way in the scientific research field (…) the selected people that are part of EURANDOM's team are all young and with similar profiles, and that helps in quickly create a friendly atmosphere".

Bernardo D'Auria

Number of participants



- Number of workshops in 2006: 9
- Total number of participants in 2006: 423

Lectures and seminars

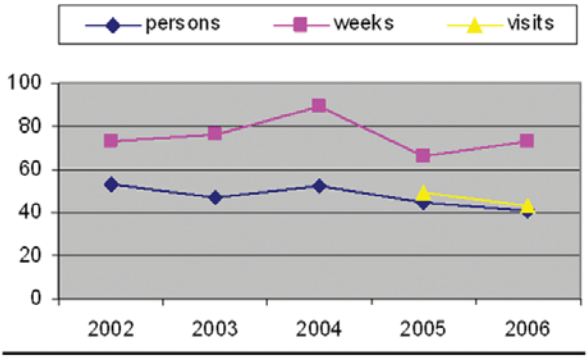
Lectures and seminars are organised on a regular basis within the framework of each of the three research programmes. Sometimes seminars are joint events, e.g. the QPA-SOR seminar with TU/e and the national Mark Kac seminar.

- Total number of lectures and seminars in 2006: 91.

Visitors

In 2006 41 researchers visited EURANDOM, from several days up to 2 months. Furthermore the QPA programme hosted a long term visitor for a period of three months: Professor U. Yechiali from Tel Aviv University (Israel), holder of the Beta Chair.

Visitors



- Total number of visitors in 2006: 41
- Total number of visits in 2006: 43
- Total duration of stay in weeks: 73

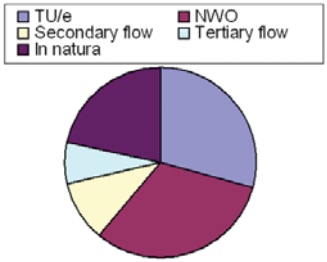
Publications

In 2006, 39 EURANDOM Reports were written, while 144 publications appeared in international refereed journals.

Finance

The following figures report on income and expenditure:

Income 2006



Expenditure 2006

Research includes costs of salary of postdocs and graduate students, scientific director, scientific advisors, EURANDOM chair, computing, library, workshops & visitors and travel costs.

Support includes salary of the administrative staff and managing director, housing, depreciation and general costs.

Location

EURANDOM is located on the campus - Laplace building - of Eindhoven University of Technology (TU/e), the Netherlands. The TU/e campus is situated close to the centre and the railway station of Eindhoven.

Facilities

EURANDOM provides office space and computing facilities. Lecture rooms and a modest library annex common room are also available. Full scale libraries may be found on the campus of the TU/e.

The TU/e campus offers facilities such as a sports centre, a language lab and restaurants, also available for EURANDOM staff.

Post-docs and long-term guests can be accommodated in the University guest house, the Fellowtel, close to the campus. All employees are allowed to join the TU/e collective health insurance and can get help with procedures concerning visa, work permit etc.

Prof.dr.ir. O.J. Boxma,
Scientific Director
Eindhoven, June 2007

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The full text of the Annual Report 2006 is available on the internet under the button 'annual reports'.