Informatics education in Europe: institutions, degrees, students, positions, salaries. Key Data 2008-2013

Cristina Pereira
Bertrand Meyer
Enrico Nardelli
Hannes Werthner

Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2008-2013

An Informatics Europe Report

Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2008-2013

October, 2014

Published by:

Informatics Europe
Clausiusstrasse 59
c/o ETH Zurich
8092 Zurich, Switzerland
www.informatics-europe.org
administration@informatics-europe.org

© Informatics Europe, 2014

ISBN: 978-3-033-04803-4

Other Informatics Europe reports

- *Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2008-2012* (2013, Cristina Pereira and Bertrand Meyer).
- *The Role and Relevance of Experimentation in Informatics* (2013, eds. Jan van Leeuwen and Viola Schiaffonati).
- *Informatics Doctorates in Europe — Some Facts and Figures* (2013, ed. Manfred Nagl).
- *Informatics Education in Europe: Europe Cannot Afford to Miss the Boat* (2013, joint report with ACM Europe, ed. Walter Gander).
- *Research Evaluation for Computer Science* (2008, eds. Bertrand Meyer, Christine Choppy, Jan van Leeuwen and Jørgen Staunstrup).
- *Student Enrollment and Image of the Informatics Discipline* (2007, eds. Jan van Leeuwen and Letizia Tanca).

All these reports can be obtained from Informatics Europe at:

www.informatics-europe.org/services/reports.html

ABOUT THIS REPORT

The publication in 2013 of the first Key Data Report on Informatics Education in Europe, covering the 2008-2012 period, was a milestone event. For the first time could policy makers, education and research professionals and the general public obtain precise information on the state of education in the area of highest importance for the future of Europe: information technology. Instead of relying on rumors and guesses, discussions and decisions could now take advantage of verified data on the key parameters in various countries, beginning with the exhaustive list of institutions offering education in the field and continuing with a precise exact description of the degrees offered, the student and graduates numbers at every level, with distribution by gender, the maze of faculty and researcher positions and titles, and the most controversial topic of all: faculty and researcher salaries.

Like its predecessor, the report emanates not from a government body or a group with a specific political agenda, but from professionals in the field, represented by Informatics Europe (the association of academic and industrial research institutions in the field), with the sole purpose of furthering the understanding of the discipline's parameters through the provision of basic, factual data.

The introduction to the first edition clearly stated that it was a first step. Citing:

> *"The picture presented here is a snapshot of the informatics situation in the period 2008-2012. It will be regularly updated and extended to continue providing the European Informatics community with a clear picture of the key academic and economic parameters defining its situation and evolution."*

Encouraged by the community's enthusiastic reception, we have indeed continued, updated and improved the work, enlarging its scope with the help of two new authors. **Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2008-2013** provides a stunning picture of the state of Informatics education in Europe today. Based on an enormous amount of information from representative countries, it presents a wealth of fundamental data, starting from a list of institutions awarding degrees in the field and continuing with student enrollments, degrees awarded, gender information, academic titles, as well as precise and much-needed data about academic salaries across European countries.

This second edition brings with it a number of improvements. On form, the presentation now includes numerous graphics, making the salient trends more clear. On substance, the study has added a number of countries to those already covered. This extension respects the report's fundamental rule of favoring precision over coverage: we only include data about countries where the sources are available and verifiable. Thanks to the active participation of new collaborators acknowledged below, the report now covers Austria, Ireland and Turkey in addition to the original countries (Denmark, Germany, Italy, Netherlands, Switzerland, and France for salaries). In all countries, the descriptions have been not only updated but improved in numerous respects to provide the reader with an accurate picture and enable meaningful comparisons. An important change is the decision, taken after considerable discussion, of including data about University of Applied Sciences for countries where such institutions exist distinct from traditional Universities.

The Informatics Key Data report series will continue to provide the community with the precise and objective information that is indispensable for understanding the field and making informed, effective policy decisions.

***Disclaimer**: All facts and figures were obtained from publically available sources. Although extreme care has been taken to ensure the data of interest was correctly extracted from these sources we give no warranty, express or implied, as to the accuracy, reliability, utility or completeness of this information. The reader assumes all risks and is solely responsible for any conclusions drawn from the information portrayed in this report as well as for the use of the data presented. Please report any incomplete or erroneous data to administration@informatics-europe.org.*

***Acknowledgements**: for invaluable help in obtaining and interpreting country-specific data, the authors are indebted to: Clarissa Schmid & Gerald Steinhardt (Austria), Jens Christian Godskesen (Denmark), Antoine Petit (France), Hans-Ulrich Heiss (Germany), Colm O'Riordan & Stefan Decker (Ireland), Enrico Nardelli & Carlo Ghezzi (Italy), Erik Barendsen & Jan van Leeuwen (Netherlands), Reyyan Ayfer & Leyla Yigit (Turkey), Jane Hillston, Neil McGillivray & Paul Martin (UK).*

Table of Contents

Executive Summary 3
1 Introduction 4
2 Sources of data 6
2.1 Methodology 6
2.2 Data sources for subjects, student enrollments, degrees and institutions 6
2.3 Data sources for salaries 7
2.4 A general warning 7
3 Names of subjects 8
4 Systems of Higher Education 10
4.1 Austria 10
4.2 Denmark 11
4.3 France 12
4.4 Germany 14
4.5 Ireland 15
4.6 Italy 16
4.7 The Netherlands 17
4.8 Switzerland 18
4.9 Turkey 19
4.10 UK 21
5 Student enrollments 23
5.1 First year 23
5.2 Bachelor 25
5.3 Master 28
5.4 Tentative extrapolation to the whole of Europe 30
6 Degrees 31
6.1 Bachelor's degrees 31
6.2 Master's degrees 34
6.3 Doctoral degrees 36
6.4 Tentative extrapolation to the whole of Europe 38
6.5 Relationship between supply and demand 38
7 Positions and Titles 39
7.1 A basis for multinational comparison of academic positions 39
7.2 Austria 40
7.3 France 41
7.4 Germany 41
7.5 Italy 42
7.6 The Netherlands 42
7.7 Switzerland 43
7.8 UK 43
8 Salaries 45
8.1 Salaries: Overview 45
8.2 Salaries: PhD Candidates and Postdoctoral Researchers 45
8.3 Salaries: Professors 48
9 Conclusion and outlook 53
Appendix A: Institutions 54
Appendix B: Salary Tables 82
Appendix C: References and sources consulted 92

Executive Summary

Informatics, the science behind IT, is a core enabler of Europe's future success. Crucial to that success is the availability of superb Informatics education throughout Europe.

In this report series, the first to attempt a general study of the state of the art in European Informatics education, the emphasis is on raw facts and figures rather than deep analysis; it provides the material for such analyses as others may wish to perform. Still, a number of salient points emerge:

- The field in Europe suffers from a **serious branding problem**. Even after an approximate translation to English, a good dozen terms are used to denote what is fundamentally the same discipline.

- The quantity and quality of available data varies considerably from country to country. In the interest of reliability, this report has mostly used data from countries where a solid and reasonably complete picture could be drawn from official sources. Even when available, the data does not always allow direct comparisons, since definitions and methods of collection vary significantly from country to country. It is important for the field to ensure that **consistent, solid Informatics education data becomes available in all European countries**.

- Informatics is a well-developed academic field, with **hundreds of accredited institutions** training huge numbers of students for bachelor, master and PhD degrees.

- Extrapolating from precise data in specific countries, we come to a rough estimate that **over three quarters of a million students are enrolled in Informatics bachelor's programs** across Europe.

- The corresponding estimated figure **for master students is over hundred thousand.**

- In some countries, the presence of "Universities of Applied Sciences" alongside traditional Universities **complicates the picture**.

- The **status of faculty** varies considerably across Europe.

- **The salaries vary even more**. Our detailed study of the exact salaries of faculty in seven of the most advanced economies in Europe (Austria, France, Germany, Italy, Netherlands, Switzerland, UK) **shows, for a similar faculty position, a difference in salaries that can reach a factor of four or even more.** For example a full professor at the top level receives, in some countries, the salary of a high-level industry executive, whereas in others the compensation is more comparable to that of a junior engineer in the IT industry.

ISBN 978-3-033-04803-4

www.informatics-europe.org