

Frans A. van Vught  
Frank Ziegele *Editors*

# Multidimensional Ranking

The Design and Development of  
U-Multirank

# Multidimensional Ranking

# HIGHER EDUCATION DYNAMICS

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## VOLUME 37

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Editors

# Multidimensional Ranking

The Design and Development of U-Multirank



Springer



U-Multirank

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# Preface

This book is the result of an intensive two-year research project focused on the design and testing of a new, globally applicable ranking tool for higher education and research. This project was initiated by the European Commission and undertaken by an international consortium of research groups working together as the Consortium for Higher Education and Research Performance Assessment (CHERPA): Centre for Higher Education (CHE, Germany), Center for Higher Education Policy Studies (CHEPS, The Netherlands), International Centre for Studies in Entrepreneurship and Innovation Management (INCENTIM, Belgium), Centre for Science and Technology Studies (CWTS, The Netherlands) and l'Observatoire des Sciences et Techniques (OST, France). The project resulted in a final report to the European Commission on the feasibility of a new ranking instrument called U-Multirank. This report '*U-Multirank: Designing and Testing the Feasibility of a Multidimensional Global University Ranking*' is available on the website of the European Commission: [http://ec.europa.eu/education/higher-education/doc/multirank\\_en.pdf](http://ec.europa.eu/education/higher-education/doc/multirank_en.pdf)

As the international debate on rankings in higher education and research continues, we thought it worthwhile to also publish a volume that addresses the major issues concerning ranking in higher education and research, and that sets the new multidimensional ranking tool (U-Multirank) within a broader context. This book (in Part I) discusses and analyzes the many current ranking practices and methodologies and introduces (in Part II) our own approach: a multidimensional and user-driven ranking methodology.

This book has been written by a team of authors all of whom participated in the U-Multirank project. The full project team was Maarja Beerkens (CHEPS), Sonja Berghoff (CHE), Uwe Brandenburg (CHE), Julie Callaert (INCENTIM), Koenraad Debackere (INCENTIM), Elisabeth Epping (CHEPS), Gero Federkeil (CHE), Jon File (CHEPS), Ghislaine Filliatreau (OST), Wolfgang Glänzel (INCENTIM), Ben Jongbloed (CHEPS), Frans Kaiser (CHEPS), Bart van Looy (INCENTIM), Suzy Ramanana-Rahary (OST), Isabel Roessler (CHE), Françoise Rojouan (OST), Robert Tijssen (CWTS), Philippe Vidal (OST), Martijn Visser (CWTS), Frans A. van Vught (CHEPS, project leader), Don F. Westerheijden (CHEPS), Erik van Wijk (CWTS), Frank Ziegele (CHE, project leader), and Michel Zitt (OST).

In addition the project team was greatly assisted by an Advisory Board and an international expert panel. The members of the Advisory Board constituted by the European Commission were: Kurt Deketelaere, League of European Research Universities (LERU); Henning Detleff, Business Europe; Christian Hemmestad Bjerke, European Students' Union (ESU); Marlies Leegwater, Bologna Secretariat; Howard Newby, University of Liverpool/European University Association (EUA); Viorel Proteasa, Bologna Follow up Group (BFUG); Dragan Stojanovski, European Students Forum (AEGEE); Richard Thorn, European Association of Institutions in Higher Education (EURASHE); Karine Tremblay, Organisation for Economic Cooperation and Development, (OECD); Isabel Turmaine, International Association of Universities (IAU); Noel Vercruyssen, BFUG; Henrik Wolff, European Network for Universities of Applied Science (UASNET); Richard Yelland, OECD; Adam Tyson, Robin van IJperen, Richard Deiss, Sophia Eriksson, Endika Bengoetxea, Barbara Nolan, Margaret Waters (all European Commission/Education and Culture); and Peter Whitten, European Commission/Research and Innovation.

The international expert panel consisted of: Nian Cai Liu, Shanghai Jiao Tong University; Simon Marginson, Melbourne University; Jamil Salmi, World Bank; Alex Usher, International Observatory on Academic Ranking and Excellence (IREG); Marijk van der Wende, OECD/Institutional Management in Higher Education (IMHE); Cun-Mei Zhao, Carnegie Foundation.

Interested and committed stakeholder representatives were crucial to the processes of designing and testing the new transparency tool. Over the life of the project the project team met regularly with stakeholders, who provided vital input on the relevance of potential performance indicators and dimensions, on methods of presenting the ranking outcomes and on different models for implementing the new ranking tool. The CHERPA project team is grateful to all of these stakeholders, both individuals and organizations, for investing their time and energy in the development of U-Multirank.

The U-Multirank project was undertaken by CHERPA under contract for the European Commission. The intellectual property rights to the material relating to this project belong to the European Commission and are used in this book with its express permission. This book reflects the views of its authors and the European Commission cannot be held responsible for any use made of the information contained herein.

The authors would like to take this opportunity to thank those involved in the language editing and layout of this book, in particular Karin van der Tuin-Wagenvoort, Ingrid van der Schoor and Rose-Marie Barbeau, without whose commitment and hard work this book would not have been produced.

For more information on U-Multirank, please see: [www.u-multirank.eu](http://www.u-multirank.eu)

Frans A. van Vught  
Frank Ziegele

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**Jon File** holds a first-class Honours degree in Sociology from the University of Cape Town. He was Academic Secretary at the University of Cape Town between 1987 and 1997 and a member of the 13-person National Commission on Higher Education (1995/1996) appointed by the new South African government to put forward proposals for the transformation of higher education. He joined CHEPS as Director of Development and Consultancy in 1998 and served as Executive Director from 2004 to 2009. Jon File's major project involvement is in policy-oriented and development projects. He has been project leader on ten extensive capacity development projects, at institutional and system levels, in South Africa, Ethiopia, Uganda and Mozambique. He has also been co-manager for six European Commission projects in higher education policy, including U-Multirank, and served as a member of the OECD review teams for higher education in the Czech Republic and Portugal. Since 2009 he has been a (Visiting) Senior Fellow of the L.H. Martin Institute for Higher Education Leadership and Management at the University of Melbourne, Australia. His current interests are comparative perspectives on the effects of government policies on higher education institutions; planning at institutional and system levels; higher education reform in the context of major socio-political transformation; and the development of higher education leaders and managers through education and training programmes.

**Ben Jongbloed** holds a Master's degree in Econometrics from the University of Groningen and a Ph.D. in Public Administration (Public Finance) from the University of Twente. Since starting to work for CHEPS at the University of Twente in 1992, his research and scholarly publications have focused in particular on governance and resource allocation issues in higher education. His work addresses topics such as funding methodologies for higher education, performance measurement in higher education, and university-industry collaboration. In 2004, he was one of the authors of the Kluwer publication *Markets in Higher Education: Rhetoric or Reality?* He has worked on several international research projects funded by the European Commission, including a recent (2010) study of governance and funding reforms in European higher education.

**Frans Kaiser** is senior research associate at CHEPS. His background is in public administration and he has two decades of experience in comparative studies in higher education, both from a qualitative and a quantitative perspective. Frans Kaiser is an expert in comparison of international higher education systems and policies as well as in the design and use of indicators for international comparison and has conducted several studies and projects on comparative issues and indicators in higher education, including the U-Map project.

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**Robert Tijssen** has a professorial chair in Science and Innovation Studies at Leiden University. He is also Visiting Professor at Stellenbosch University (South Africa) and associate adjunct professor at the University of Queensland (Australia). He is a Board member of the European Network of Indicators Designers (ENID) and a member of the Netherlands Graduate School on Science, Technology and Modern Culture (WTMC). A large part of his current research is devoted to quantitative empirical studies of structures and dynamics within science and innovation systems, focusing on institutional and geographical dimensions. Robert has more than 20 years of experience in consultancy work and commissioned studies for clients in the public and private sector worldwide, mainly on the measurement, assessment, monitoring and evaluation of scientific research performance – either the level of individual organizations, or at the meta-level of science systems, higher education systems or innovation systems.

**Frans A. van Vught** is a high-level expert and advisor at the European Commission. In addition he is president of the European Center for Strategic Management of Universities (Esmu), president of the Netherlands House for Education and Research (Nether), and member of the board of the European Institute of Technology Foundation (EITF), all in Brussels. He was president and Rector of the University of Twente, the Netherlands (1997–2005). He was the founding director of the Center for Higher Education Policy Studies (CHEPS) and has been a higher education researcher for most of his life. He has published widely in this field and in various languages. His many international functions include the memberships of the University Grants Committee of Hong Kong, the board of the European University Association (EUA) (2005–2009), the German 'Akkreditierungsrat' (2005–2009) and of the L.H. Martin Institute for Higher Education Leadership and Management in Australia. van Vught is a sought-after international speaker, a member of the editorial board of several international journals and has been a consultant to many international organizations, national governments and higher education institutions all over the world. He was one of the leaders of the U-Multirank pilot project. He is Honorary Professor at the University of Twente and at the University of Melbourne and holds several honorary doctorates.

**Don F. Westerheijden** graduated from the Faculty of Public Administration and Public Policy at the University of Twente in 1984 and subsequently completed his dissertation there, on political and bureaucratic decision-making, in 1988. Since then he has worked at CHEPS, where he coordinates research related to Quality Management. He is also involved in supervision of Ph.D. candidates at CHEPS. He has edited and contributed to books on quality assessment in higher education, and produced a number of articles on the topic. In addition, he is a member of the

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**Frank Ziegele** is director of the CHE (Centre for Higher Education) in Gütersloh, Germany, and professor of higher education and research management at the University of Applied Sciences Osnabrück, leading an MBA programme in higher education management. He trained as an economist and his research and publications focus on higher education finance, governance, strategic management, contract management and ranking. He has contributed some 100 publications to the field of higher education policy and management and delivered more than 80 projects in higher education reform and research. He is an editorial board member of the journals *Wissenschaftsmanagement* and *Higher Education Management and Policy* and was member of the executive board of the Gesellschaft für Hochschulforschung (the German society for higher education research). He was one of the leaders of the U-Multirank project.

# Chapter 1

## Introduction: Towards a New Ranking Approach in Higher Education and Research

Frans A. van Vught, Don F. Westerheijden, and Frank Ziegele

### 1.1 Introduction

League tables are all around us. In sports, for instance, there are seasonal league tables for baseball or football competition and lists ranking the number of times cyclists have won the Tour de France or the fastest runners in marathons, etc. Since the early twenty-first century we have also had league tables in higher education and research, global university rankings usually showing Harvard as the best university in the world, followed by the names of a number of other globally renowned universities. But while sporting league tables are well-accepted, university rankings remain hotly debated. Later in this book we will go into greater detail about the methodological critique of university league tables. This chapter briefly introduces three basic ideas that we will elaborate in more detail in the rest of this volume and which together define our ‘new’ approach to ranking in higher education and research:

- ‘user-driven’ rankings
- multidimensionality and multileveledness
- a participative approach to ranking

We start with our epistemological position. The more we engaged in the ranking debate, the more we realized that there is a deep, epistemological reason why the

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whole idea of league tables is wrong, and why transparency tools or rankings of higher education and research institutions can only be user-driven, adaptable to users' needs.

## 1.2 An Epistemological Argument

Each and every observation of reality is theory-driven: every observation of a slice of reality is driven by the conceptual framework that we use. In the scientific debate, this statement has been accepted at least since Popper's work (Popper, 1980): he showed abundantly that theories are 'searchlights' that cannot encompass all of reality, but necessarily highlight only certain aspects of it. He also showed that scientific knowledge is 'common sense writ large' (Popper, 1980, p. 22), meaning that the demarcation between common sense and scientific knowledge is that the latter has to be justified rationally: scientific theories are logically coherent sets of statements, which moreover are testable to show if they are consistent with the facts.

Failing scientific theories, sports have been organized with (democratic) forums that have been accepted as the bodies authorized to set rules. The conceptual frameworks behind sports league tables are well-established: the rules of the game define the winners and create leagues table from the results. Yet those rules have been designed by humans and may be subject to change: in the 1980s–1990s football associations went from awarding two points for winning a match to three points, changing the tactics in the game (more attacks late in a drawn match), changing the league table outcomes to some extent, and sparking off debates among commentators of the sport for and against the new rule.<sup>1</sup> Commentators also debate the meaning of Tour de France winners' lists: the route of the Tour changes from year to year, so is winning the Tour in year  $x$  an achievement equal to that of winning in year  $y$ ? Similarly, marathons are run on different courses which offer different chances of scoring a world record time—some courses (ironically including the original Marathon-to-Athens route) do not even qualify according to the rules for official marathon record times and fast times run on these courses are not recognized.<sup>2</sup>

This disquisition into sports illustrates the lighter side of our epistemological point about university rankings. All rankings are made up of selected 'indicators' that imply the conceptual framework through which reality is addressed. There is a body in charge of choosing those 'indicators'. In sports, such bodies are recognized organizations and it is accepted that they design and redefine the rules of the game, including the indicators. It is equally understood that rules and indicators are not derived scientifically but are artificial: rugby and football are different and it is impossible to say whether the number one rugby team is a better sports team than

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<sup>1</sup> [http://en.wikipedia.org/wiki/Three\\_points\\_for\\_a\\_win](http://en.wikipedia.org/wiki/Three_points_for_a_win)

<sup>2</sup> <http://www.nytimes.com/2011/04/19/sports/19marathon.html>