



Multi-dimensional Mapping and Ranking

New higher education transparency tools



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Contents

- The concept of diversity
 - Vertical and horizontal diversity
 - And how traditional rankings ignore it
- Mapping horizontal diversity: U-Map
- Further concepts: process and performance
- Multi-dimensional, user-defined ranking: U-Multirank

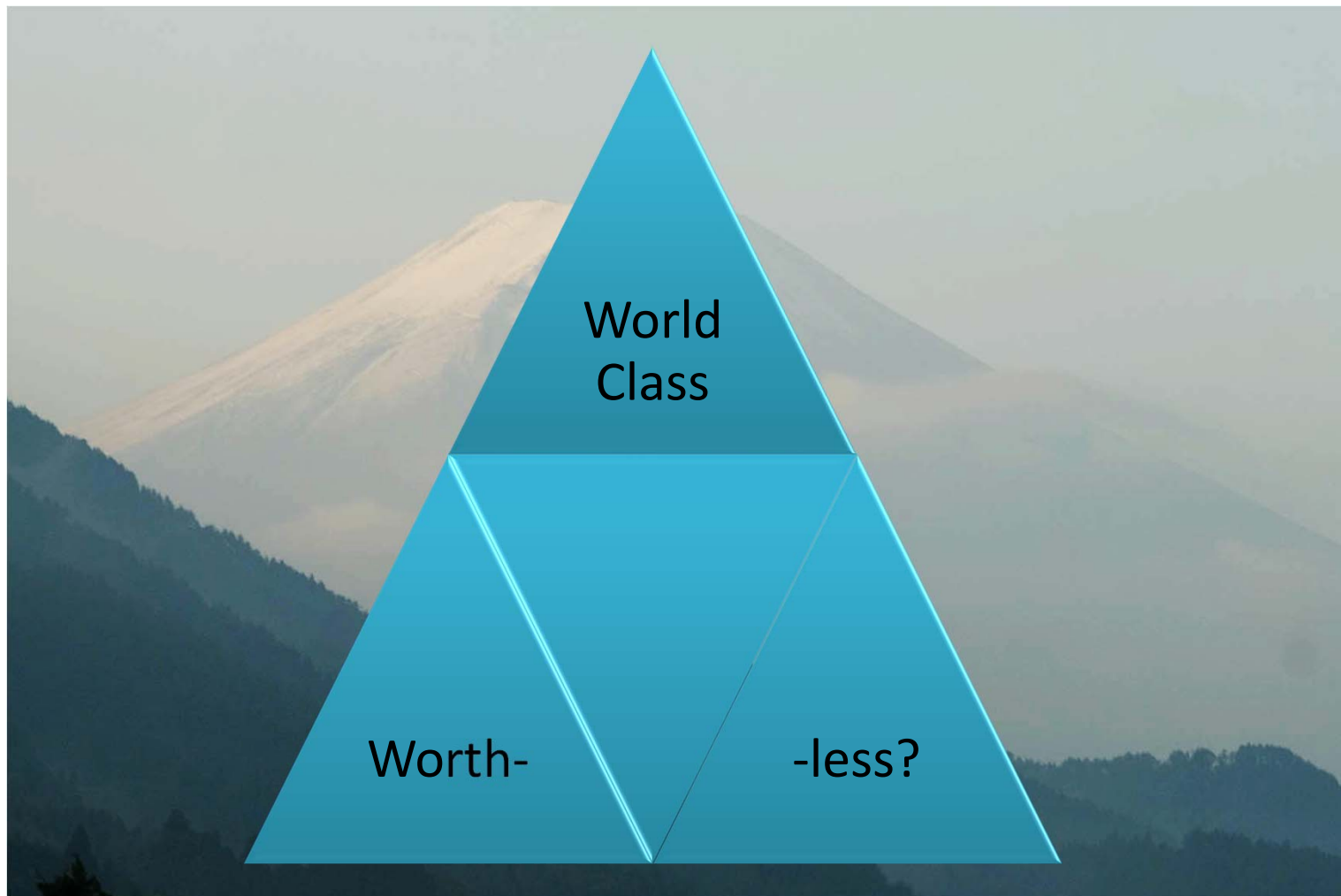
Diversity in Higher Education Systems

- Institutional and programme diversity
- Horizontal and vertical diversity

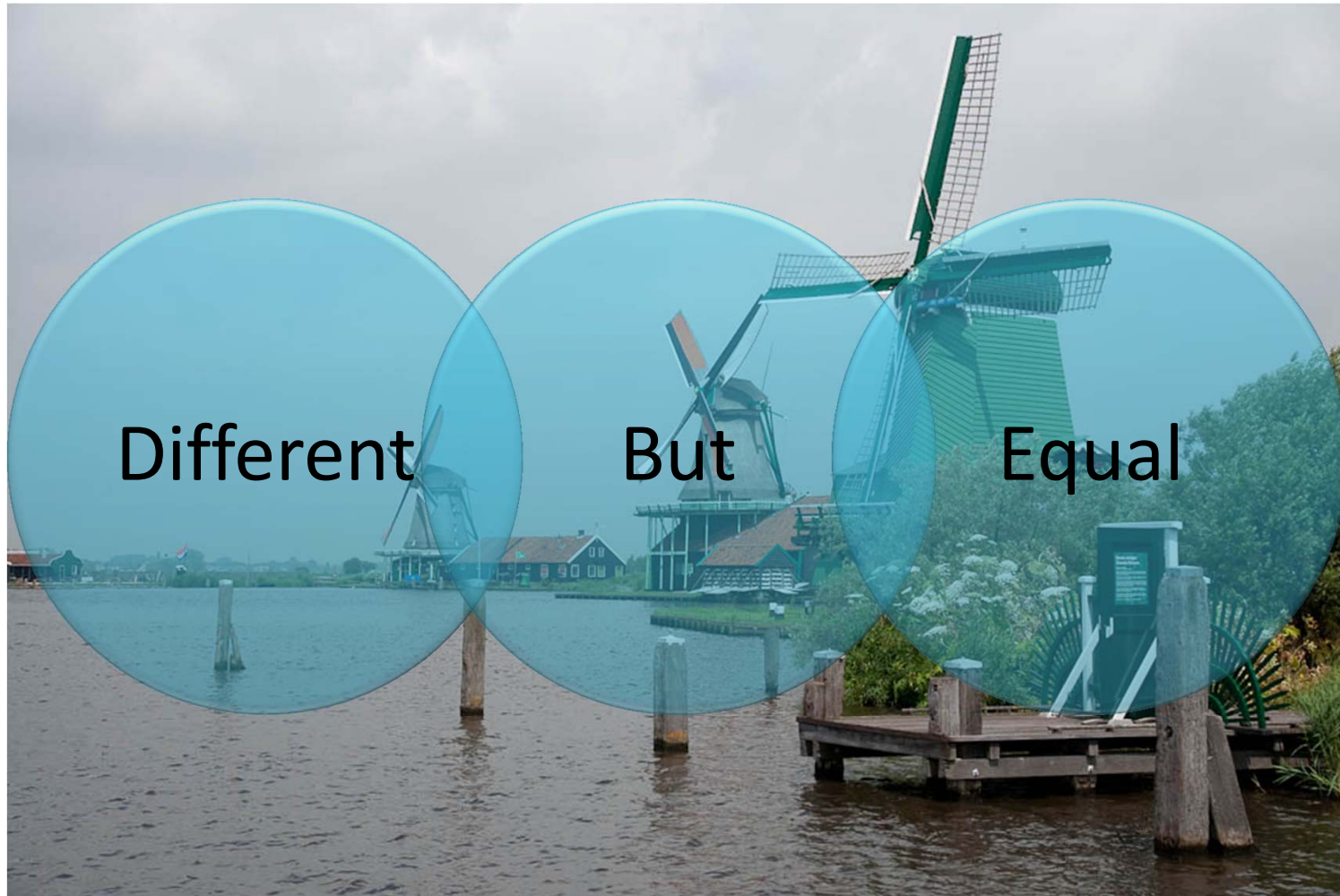
Why is diversity needed?

- Offers better access to a wider variety of students
- Provides more social mobility through multiple modes of entry and forms of transfer
- Better meets the diverse needs of the labor market
- Is a condition for regional specialisation
- Serves the political needs of larger number of interest groups (social stability)
- Increases the effectiveness of higher education institutions (institutional specialisation)
- Offers opportunities for experimentation

Diversity: vertical



Diversity: horizontal



The rise of global rankings

- *Academic Ranking of World Class Universities (ARWU)*
Shanghai Jiaotong University, since 2003
- *Times Higher Education Supplement World Rankings (THE)*
Times Higher Education, since 2004
- *Higher Education Evaluation and Accreditation Council of Taiwan Ranking (HEEACT)*, since 2007
- *The Leiden Ranking (LR)* Leiden University, since 2008

Critique of existing rankings

- Focus on ‘whole institutions’ (ignoring internal variance)
- Concentrate on ‘traditional’ research productivity and impact
- Focus on ‘comprehensive research universities’
- Aggregate performance into composite overall indicators
- Use constructed ‘league table’
- Imply cultural and language biases
- Imply bias against humanities and social sciences

Conceptual approach

- One common ranking of all higher education and research institutions worldwide does not make sense for any group of stakeholders
- Identify institutions that are *comparable*
- Use the *U-Map classification* tool to find comparable 'institutional profiles'
- Apply ranking instrument to sets of comparable institutions or fields

Functions of Classifications

- Transparency tool (various stakeholders)
- Instrument for institutional strategies (mission, profile)
- Base for governmental policies
- Tool for research
- Instrument for better ranking

US Carnegie Classification

- Initial objective (1973): improve higher education research
- Over time several adaptations: 1976, 1994, 2000, 2006
- Labels and categories
- Impacts on higher education system dynamics
- Multi-dimensional approach (2006)

European Classification: U-Map

- Recently designed
- Interactive design process: stakeholders approach
- Basic design principles (see next slide)
- Tested on validity, reliability, feasibility

- Available online: database 336 universities;
viewable 76 universities

- See: www.u-map.org

Design Principles

U-Map is:

- based on empirical data
- based on a multi-actor and multi-dimensional perspective
- non-hierarchical
- relevant for all higher education institutions in Europe
- descriptive, not prescriptive
- based on reliable and verifiable data
- parsimonious regarding extra data collection

U-Map dimensions

1. Teaching and learning profile
2. Student profile
3. Research involvement
4. Knowledge exchange
5. International orientation
6. Regional engagement

Institutional Profiles

- Sets of ‘scores’ on the dimensions and indicators
- Actual institutional activities, not performance
- Full or partial institutional profiles
- Information for external stakeholders
- Instrument for strategic institutional management
- Base for benchmarking, for inter-institutional cooperation, for effective communication and profiling

Institutional Profiles

Viewing 31 of 336 (*)

Compare (0)



Doctorate degrees awarded: major, substantial, some ✕ > Scope (# Subject fields): comprehensive, broad ✕ >

Graduates in the region: major, substantial ✕ > Regional income: major, substantial ✕ >

Malmö University



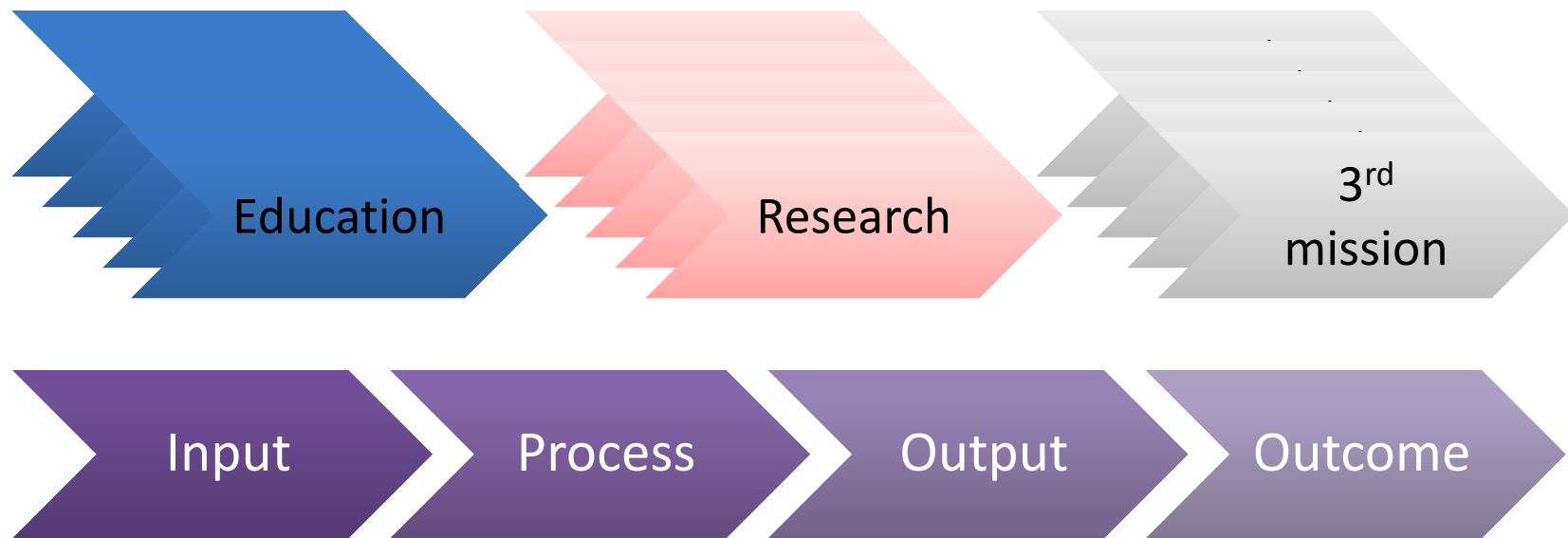
University of Lisbon



University of Tampere

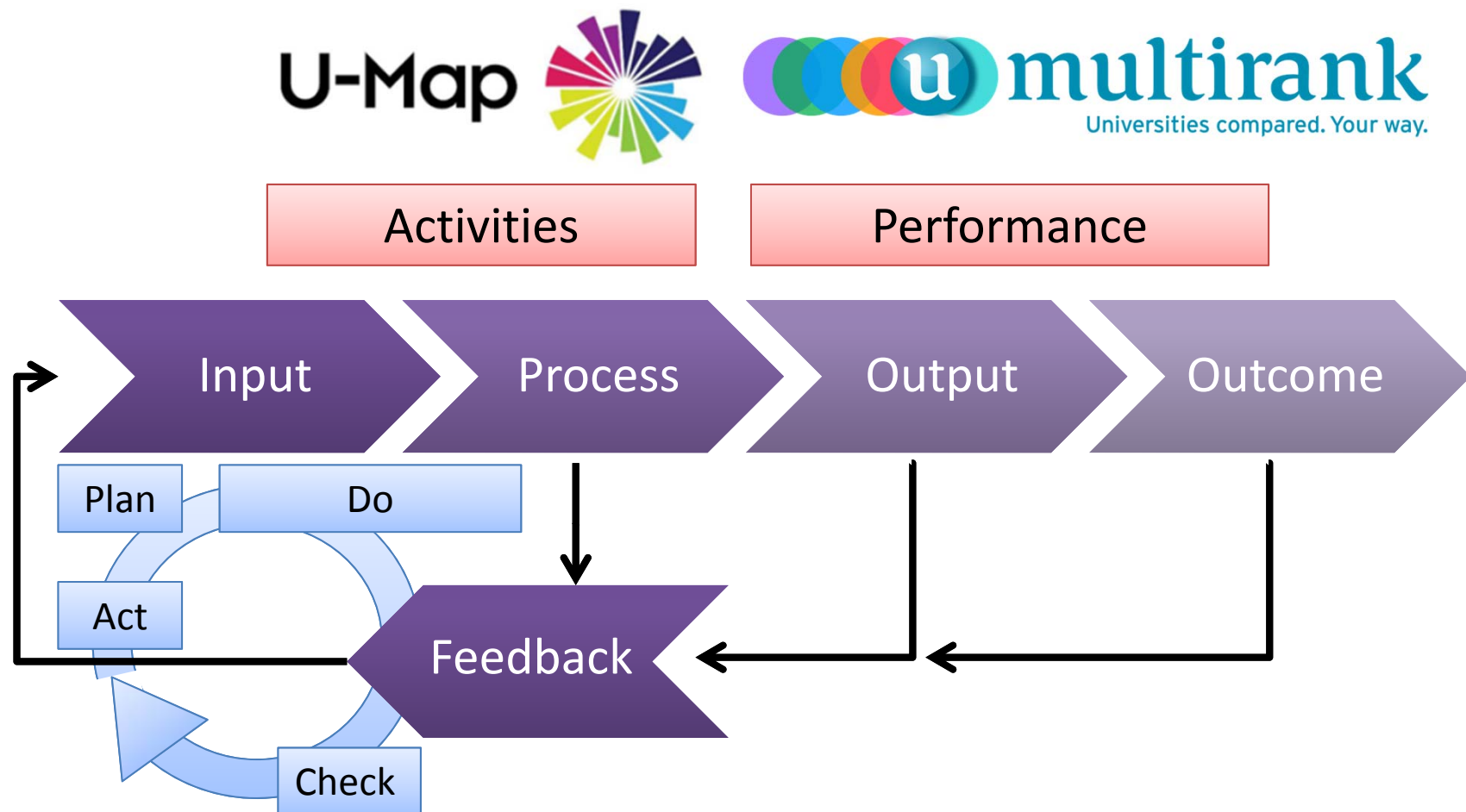


Process and performance: multi-dimensionality



- HE institutions differ
 - Scope: knowledge areas
 - Orientation: professional to academic
 - Mission: education, research, 3rd mission

Process and performance: the places of U-Map and U-Multirank



Three things on U-Multirank



One

Distinguishing features of U-Multirank

Two

Overview of the U-Multirank web tool for
comparing university performances

Three

Some first findings from U-Multirank 2014
and its future development

A new instrument to compare university performances



“University X is the best in the world”

Multi-dimensional ranking: ranks 30+ individual indicators (performance measures) in five dimensions of performance

Teaching and learning	Research
Knowledge transfer	International orientation
Regional engagement	

Indicators at institutional and field levels

Teaching and Learning

	Institutional ranking	Field-based ranking
• Student-staff-ratio		●
• Graduation rate (BA and - separately - MA)	●	●
• Percentage of academic staff with PhD		●
• Percentage of students graduating within normative period (BA and –separately - MA)	●	●
• Rate of graduate employment	●	●
• Inclusion of work experience in degree programme		●

Indicators at institutional and field levels

Teaching and Learning – Student Satisfaction Indicators

	Institutional ranking	Field-based ranking
• Overall learning experience		●
• Quality of courses & teaching		●
• Organisation of the programme		●
• Contact to teachers		●
• Social climate		●
• Facilities (libraries, laboratories, rooms, IT)		●
• Research orientation of teaching /programme		●
• Inclusion of work experience /practical elements		●

Indicators at institutional and field levels

Research

	Institutional ranking	Field-based ranking
• External research income (per FTE academic staff)	●	●
• Doctorate productivity		●
• Total research publication output (per FTE academic staff)*	●	●
• Art related output	●	
• Field-normalised citation rate*	●	●
• Highly cited research publications *	●	●
• Interdisciplinary research publications*	●	●
• Research orientation of teaching (student survey)		●
• Number of post-doc positions	●	

Indicators at institutional and field levels

Knowledge Transfer

	Institutional ranking	Field-based ranking
• Income from private sources (service contracts, consultancies, licenses, royalties, trials, etc.)	●	●
• Joint research publications with industry*	●	●
• Patents (per fte academic staff)	●	●
• Co-patents with industry (per fte academic staff)	●	●
• Number of spin-offs (average over three year period)	●	
• Patent citations to research publications*	●	●
• Revenues from Continuous Professional Development	●	

Indicators at institutional and field levels

International Orientation

	Institutional ranking	Field-based ranking
• Educational programmes (BA/MA) in foreign language	●	
• International orientation of degree programmes		●
• Opportunities to study abroad (student survey)		●
• Student mobility (composite of incoming, outgoing, joint degree students)	●	●
• Percentage of international academic staff	●	●
• Percentage of PhDs awarded to foreign students	●	●
• International joint research publications*	●	●
• International research grants	●	●

Indicators at institutional and field levels

Regional Engagement

	Institutional ranking	Field-based ranking
• Percentage of graduates working in the region	●	●
• Student internships in regional enterprises	●	●
• Degree theses in cooperation with regional industry		●
• Regional joint research publications*	●	●
• Income from regional sources	●	●

A new instrument to compare university performances



“Indicator 1 counts 40%, indicator 2 for 30%, etc., altogether leads to a score of X”

No composite overall scores, as there is no theoretical or empirical justification for weighting and adding scores

User-driven: user decides on areas of performance to compare (and on the kind of university to be compared) – YOUR WAY!

A new instrument to compare university performances



ranking performances of universities as a whole



ranking performances in specific fields or disciplines

U-Multirank 2014 is the most comprehensive international data comparison in higher education



➤ 850

universities are included with publicly available data

➤ 70

countries have universities in U-Multirank

➤ 500

of the 874 universities have provided comprehensive data

➤ 1,000

faculties/departments are included in the four field based rankings
(physics, electrical and mechanical engineering, business studies)

➤ 5,000

study programmes within these faculties are included

➤ 60,000

students completed the student satisfaction survey

U-Multirank offers a global view of a large variety of university profiles



Worldwide coverage

In 2014, 62% of U-Multirank universities are from Europe, 17% from North America, 14% from Asia and 7% from Africa, Latin America and Oceania

PhD-awarding
institutions
+
universities of
applied sciences

small
+
large universities

specialised
institutions
+
comprehensive
universities

old (pre 1870)
+
young institutions
(after 1980)

Welcome to U-Multirank



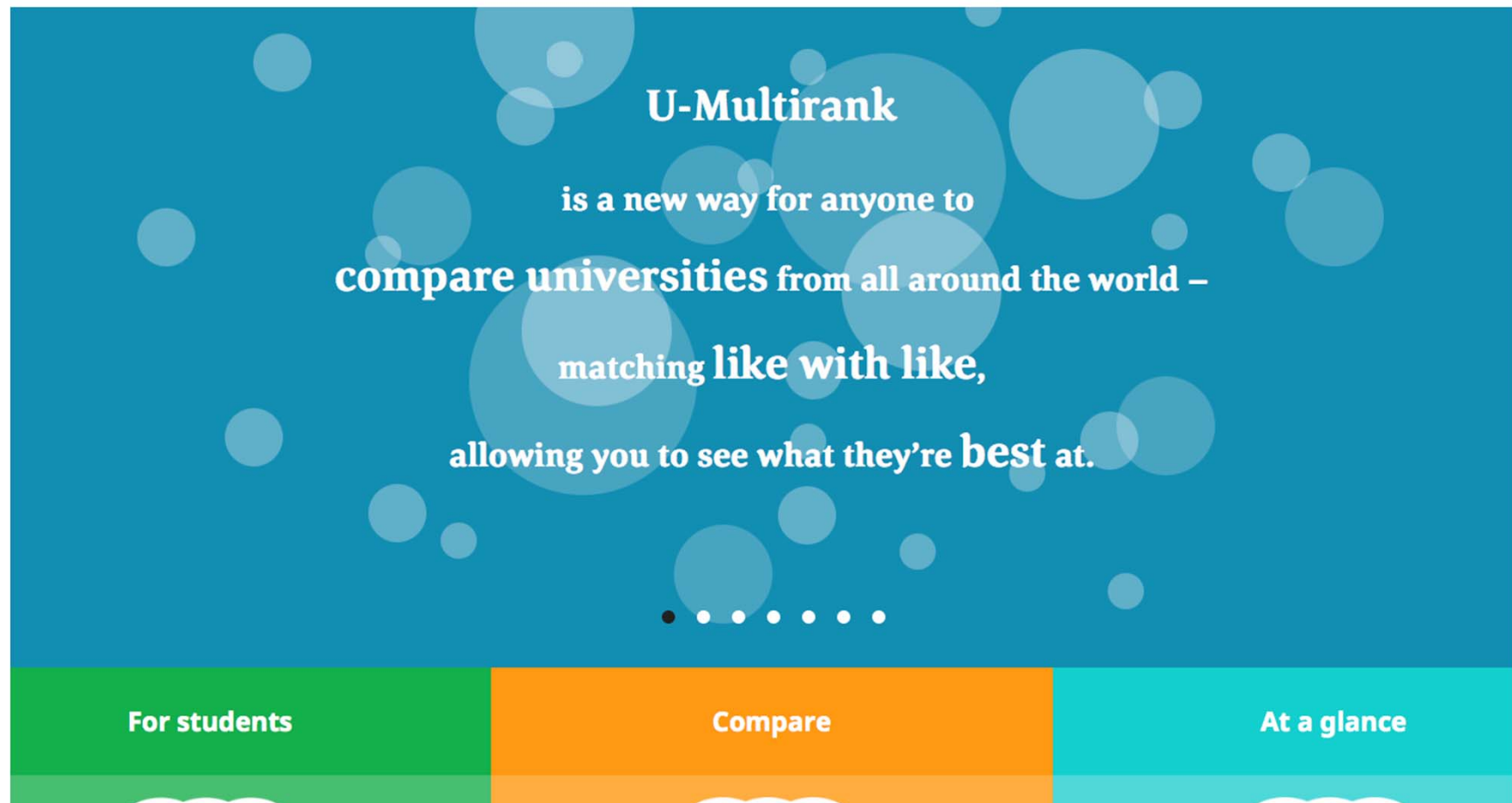
Overview of the web-tool

- An example of an interactive user-driven (student) field-based ranking in business studies
- Comparing ‘like with like’ universities
- The U-Multirank “readymade” rankings



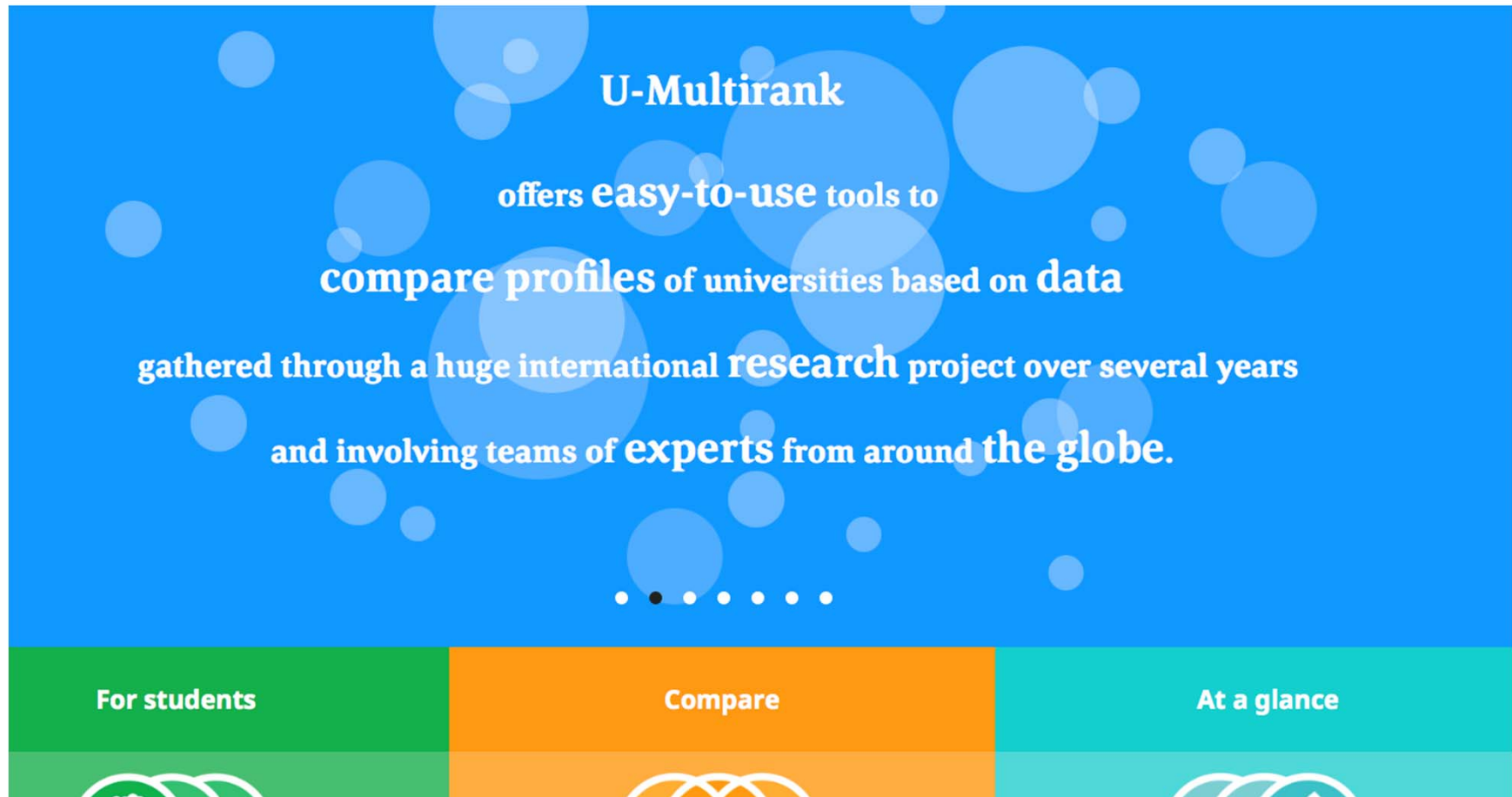
Welcome page

www.umultirank.org



Welcome page

www.umultirank.org



The banner features a blue background with white text and several light blue circles of varying sizes. The text describes the U-Multirank project and its purpose. Below the main text is a row of three colored boxes: green, orange, and teal, each with a white icon at the bottom.

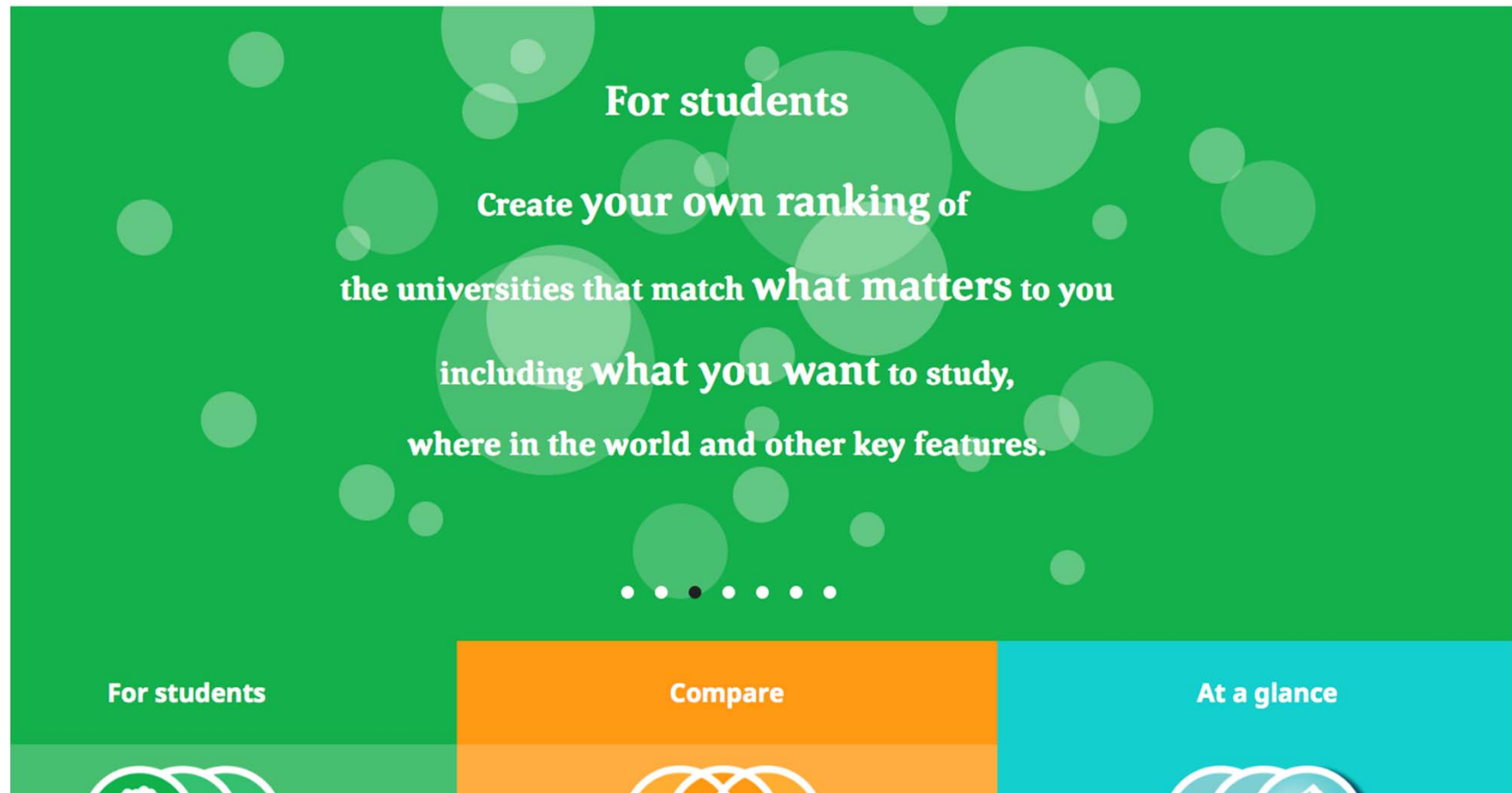
U-Multirank
offers **easy-to-use** tools to
compare profiles of universities based on **data**
gathered through a huge international **research** project over several years
and involving teams of **experts** from around the globe.

• • • • •

For students **Compare** **At a glance**

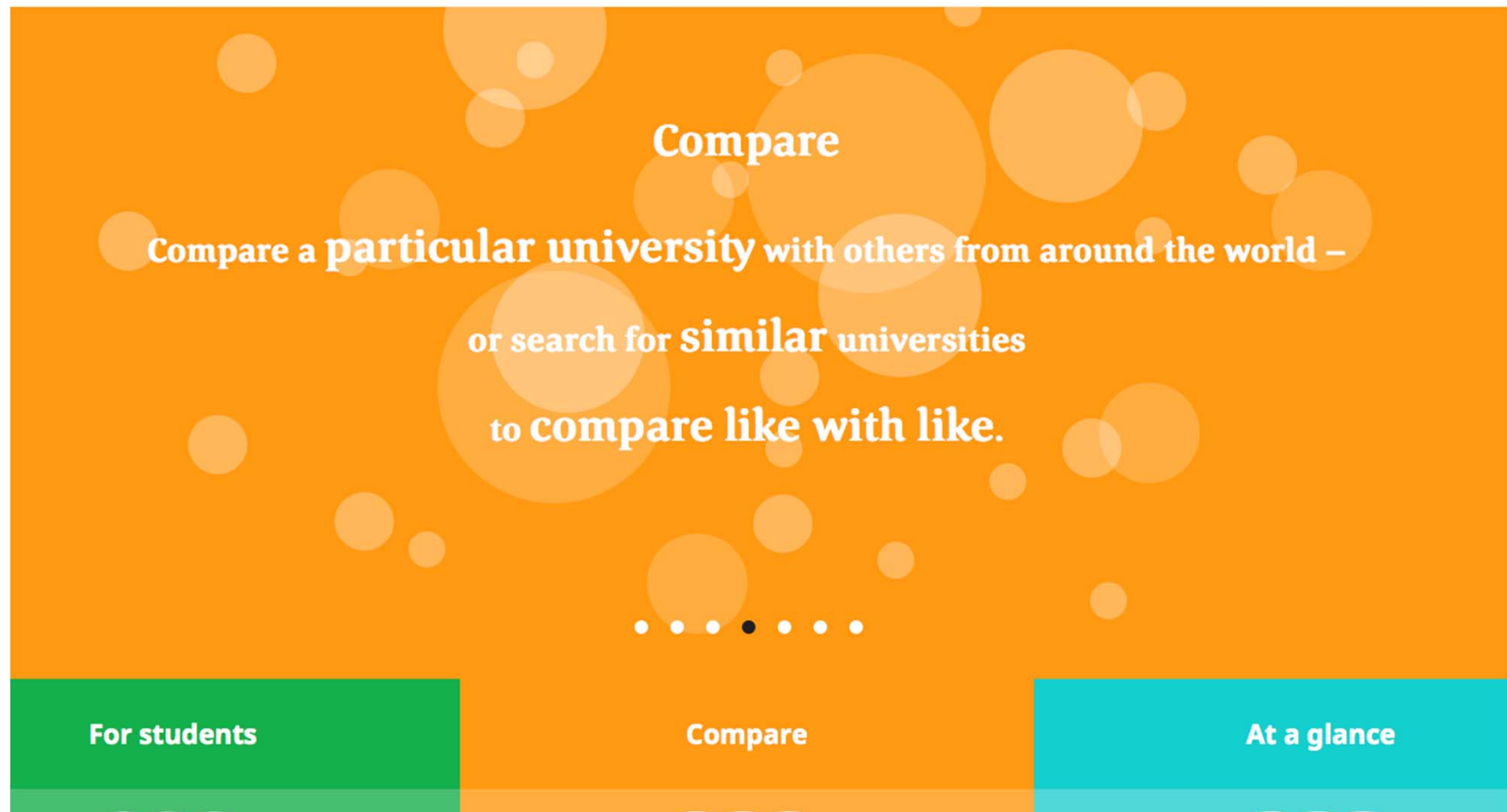
Welcome page

www.umultirank.org



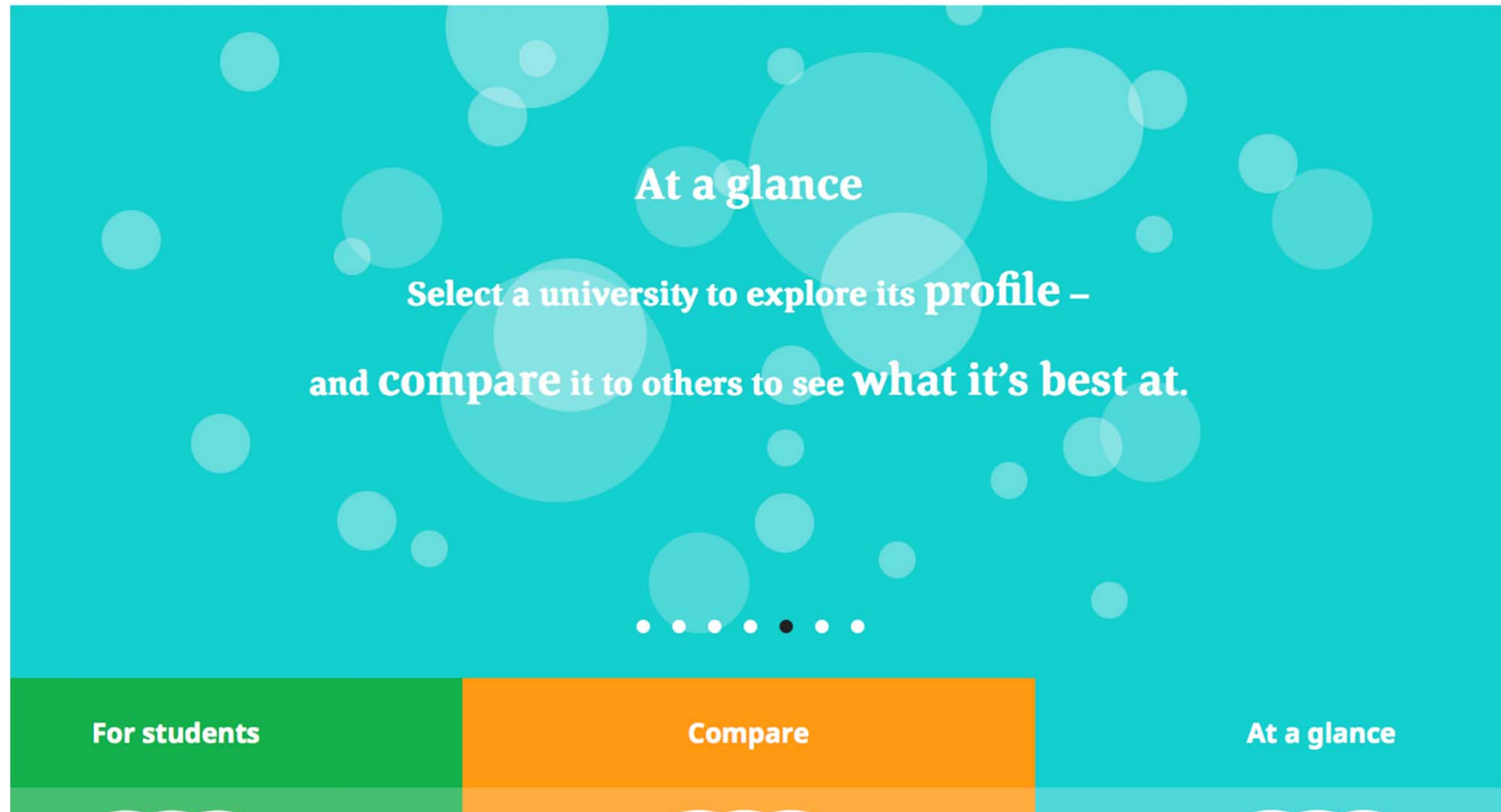
Welcome page

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Welcome page

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For students: Fields and universities



Find universities that match what you want

U-Multirank can help you find universities that meet your needs and compare them. Use the following steps to filter out universities that don't match with what you want.

1 What are you interested in?

Select a subject area or choose to compare universities by looking at the whole institution.

Select a subject area

Physics

Electrical Engineering

Mechanical Engineering

Business

or

Compare universities

Compare universities as a whole

Choose this option if the subject area you want isn't listed on the left or if you don't want to consider subjects yet.

Example:
business studies

For students: Type of university

I choose: bachelor,
international, smaller

Reduction from 324
(=all with business
studies) to 72
universities

2 What kind of university do you want?

There are many different types of university and college around the world. In this section, you can narrow down the choice a bit by using the features below. You don't have to answer them all and you can skip to the next step at any time.

Which level of study are you interested in ?

bachelor	master	doctorate
-----------------	--------	-----------

What other features would you like the university to have?

Would you like to study at specialised university or at a broad/comprehensive university ?	Don't care	specialised	a wide range
Universities that do lots of research ?	Don't care	yes	
Universities that have a strong international focus ?	Don't care	yes	
Universities that have a strong regional focus ?	Don't care	yes	
Size of institution ?	Don't care	smaller	larger

Next step

72 universities are on your shortlist

1
2

For students: field = business

3 Where would you want to study?

In this section, you can narrow down the choice by selecting individual countries, whole continents or other regions (such as the EU).
If you want to include all universities that match the selections you have made so far, scroll down to skip this step.

Show all countries

Undo selection

56
universities are
on your
shortlist

I choose: EU countries

China (2)

Kazakhstan (1)

Saudi Arabia (1)

Europe (62) [Select European Union](#)

Austria (6)

Belgium (1)

Bulgaria (1)

Cyprus, Republic of (3)

Czech Republic (2)

Denmark (1)

Finland (5)

France (6)

Germany (12)

Hungary (1)

Ireland (2)

Italy (2)

Liechtenstein (1)

Netherlands (3)

Norway (1)

Poland (4)

Portugal (1)

Slovenia (1)

Sweden (1)

Switzerland (3)

Ukraine (1)

United Kingdom (4)

Latin America (0)

North America (2)

United States (2)

Oceania (4)

Australia (3)

New Zealand (1)

1
2
3

For students: Multidimensional ranking

Initial result:
alphabetic order

Scroll down for
more universities

Measures		Teaching & Learning										+ Teaching & Learning (student survey)	+ International Orientation
Show values		Student-staff ratio	Graduating on time (bachelors)	Academic staff with doctorates	Contact with work environment (bachelors)	Overall learning experience	Quality of courses & teaching	Organisation of program	Contact with teachers	Library facilities	IT provision	International orientation of bachelor programmes	
Show the whole table													
★ Show favourites only													
A-Z		Top scores											
★	U Aalto	FI	●	—	—	—	●	●	●	●	●	●	
★	Audencia Sch. of Management	FR	—	×	—	—	—	—	—	—	—	—	
★	Bocconi University	IT	—	●	—	●	●	●	●	●	●	●	
★	Bournemouth U Business School	GB	●	●	●	●	—	—	—	—	—	—	
★	Bournemouth U School of Tourism	GB	●	●	●	●	—	—	—	—	—	—	
★	U Economics Bydgoszcz	PL	●	●	●	●	—	—	—	—	—	—	
★	Catholic U Portugal	PT	●	●	●	●	●	●	●	●	●	●	
★	ESSEC Business School Cergy	FR	●	●	—	●	●	●	●	●	●	●	
★	Technical U	DE	—	●	—	—	●	●	●	—	●	—	

Add your own indicators if you want

PDF export

Latest update: May 2014

Add your own indicators
if you want

Scroll right for more indicators.
Student-relevant indicators are selected.

PDF export

Latest update: May 2014

For students: Multidimensional ranking

Ordered by an
indicator: overall
student experience

Change measures		Teaching & Learning				Teaching & Learning (student survey)					International Orientation	
Show values		Student-staff ratio	Graduating on time (bachelors)	Academic staff with doctorates	Contact with work environment (bachelors)	Overall learning experience	Quality of courses & teaching	Organisation of program	Contact with teachers	Library facilities	IT provision	International orientation of bachelor programmes
Show the whole table												
★ Show favourites only												
A-Z Top scores												
★ ESSEC Business School Cergy	FR	●	●	—	●	●	●	●	●	●	●	●
★ EBS University Wiesbaden	DE	—	●	—	●	●	●	●	●	●	●	●
★ WHU School of Management	DE	—	●	—	●	●	●	●	●	●	●	●
★ Maastricht U	NL	●	●	—	—	●	●	●	●	●	●	●
★ U Paderborn	DE	—	●	—	●	●	●	●	●	●	●	●
★ Jacobs U Bremen	DE	—	●	—	●	●	●	●	●	●	●	●
★ UAS Karlsruhe	DE	●	×	—	●	●	●	●	●	●	●	●
★ Kozminski U	PL	●	●	●	●	●	●	●	●	●	●	●
★ Catholic U Portugal	PT	●	●	●	●	●	●	●	●	●	●	●
★ Bocconi University	IT	—	●	—	●	●	●	●	●	●	●	●

PDF export

Latest update: May 2014

For students: Multidimensional ranking

Or rank by across-the-board top scores

4 Business studies Ranking

Your selection: 50 universities

Show choices made

Change measures

Show the whole table

Show favourites only

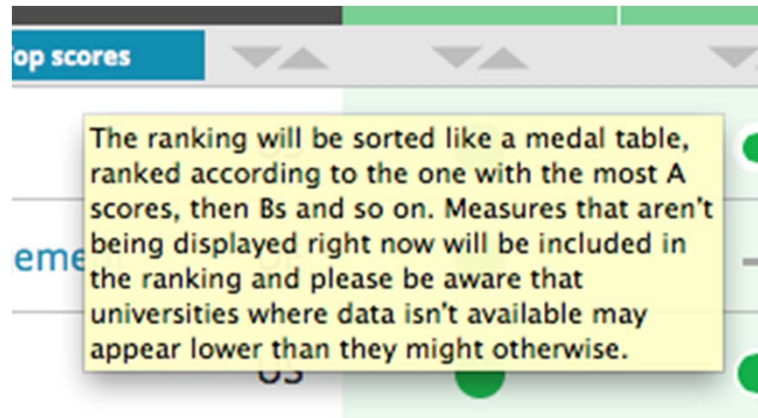
		Teaching & Learning				Teaching & Learning (student survey)						International Orientation
		Student-staff ratio	Graduating on time (bachelors)	Academic staff with doctorates	Contact with work environment (bachelors)	Overall learning experience	Quality of courses & teaching	Organisation of program	Contact with teachers	Library facilities	IT provision	International orientation of bachelor programmes
★	ESSEC Business School Cergy	FR	●	●	—	●	●	●	●	●	●	●
★	EBS University Wiesbaden	DE	—	●	—	●	●	●	●	●	●	●
★	Reutlingen UAS	DE	●	●	—	●	●	●	●	●	●	●
★	U Trento	IT	●	●	●	●	●	●	●	●	●	●
★	Unicorn College Economics and management	CZ	●	●	●	●	—	—	—	—	—	●
★	U Economics Bydgoszcz	PL	●	●	●	●	—	—	—	—	—	●
★	Dublin City U	IE	●	●	●	●	—	—	—	—	—	●
★	ICN Business School Nancy-Metz	FR	●	●	—	●	●	●	●	●	●	●
★	Kozminski U	PL	●	●	●	●	●	●	●	●	●	●

PDF export

Latest update: May 2014

Ranking order:

Top scores = 'Medal table'



Compare like with like



For students **Compare** At a glance Readymade



Compare similar universities or start with a university to compare

U-Multirank helps you compare universities with each other on a like-with-like basis. Use this page to say what universities or what kind of university you're interested in. We'll help you make useful comparisons.

1 What do you want to compare?

Create your own rankings. Start by choosing one of the options below.

Compare like with like

Compare similar universities by defining the kind of universities you're interested in.

or

Compare a university

Select a particular university and compare it with similar ones.

1

Compare like with like: Type of university

3 What do you want to compare?

Click on the options below to narrow the choice by saying what kind of university you want. Make at least one choice.

Teaching & Learning				
Expenditure on teaching (%) ?	low	medium	high	
Graduate students ?	none	low	medium	high
Scope ?	specialised	broad		comprehensive
	bachelor	master		doctorate
	Education	Humanities and arts	Social sciences, business and law	Engineering
	Science	Agriculture	Health and social services	Services
Research				
Expenditure on research ?	none	low	medium	high
Academic research publications ?	none	low	medium	high
Professional publications ?	none	low	medium	high
Knowledge Transfer				
Income from private sources ?	none	low	medium	high
Patent applications ?	none	low	medium	high
International Orientation				
Foreign degree seeking students ?	none	low	medium	high

52 universities are on your shortlist

1
2
3

Focus on (1st + 2nd cycle) education

In a number of fields

No preferences regarding research

With at least some KT

And at least some internationalisation

Compare like with like: Ranking by indicator or 'top scores'

5 University comparison Ranking Your selection: 143 universities Show choices made

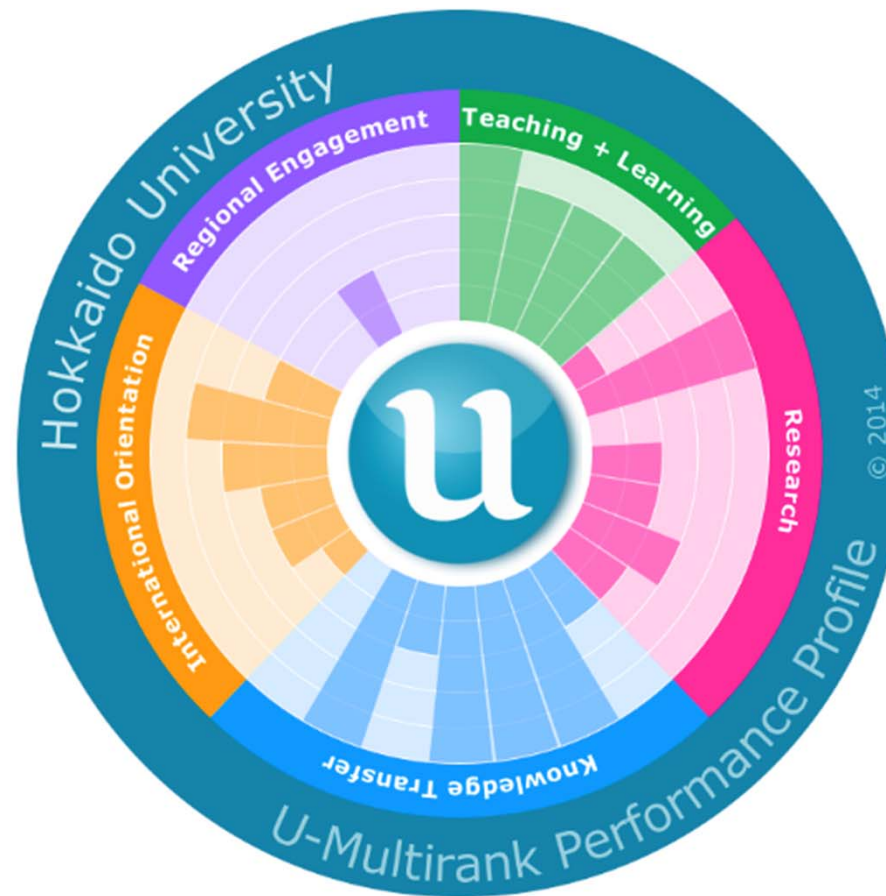
Change measures + Show values Show the whole table ★ Show favourites only

		Teaching & Learning				Research			Knowledge Transfer			
		Bachelor graduation rate	Masters graduation rate	Graduating on time (Bachelors)	Graduating on time (Masters)	Citation rate	Research publications (size normalised)	External research income	Co-publications with industrial partners	Income from private sources	Patents awarded (size-normalised)	Publications cited in patents
★ Erasmus U Rotterdam	NL	●	—	●	●	●	●	●	●	●	●	●
★ Telecom ParisTech	FR	—	—	—	—	●	●	●	●	●	●	●
★ U Liverpool	GB	●	●	●	●	●	●	●	●	●	●	●
★ Dublin City U	IE	●	—	●	●	●	●	●	●	●	●	●
★ ENS Lyon	FR	●	●	●	●	●	●	●	●	●	●	●
★ U College Cork	IE	●	●	—	—	●	●	●	●	●	●	●
★ Free U Brussels	BE	●	—	—	—	●	●	●	●	●	●	●
★ UAS Wiener Neustadt	AT	●	●	●	●	●	●	●	●	●	—	●
★ National U Kyiv	UA	●	●	●	●	●	●	●	●	●	—	●
★ Belarusian State U	BY	●	●	●	●	●	●	●	●	●	—	●

PDF export ● A (Very good) ● B (Good) ● C (Average) ● D (Below average) ● E (Weak) — Data unavailable × Not applicable Latest update: May 2014

'Universities' and 'UAS' side
by side

Focus on a single university: 'Sun-burst' graph



Readymade rankings



[For students](#) [Compare](#) [At a glance](#) [Readymade](#)

Select one of the readymade rankings

For your convenience, we've created a selection of rankings by choosing the settings for you to allow you to see which universities are performing best in different areas.

1 What readymade ranking do you want to see?

Select one of the readymade rankings.

Research and Research Linkages Ranking

Economic Involvement Ranking

Business Studies Programmes Ranking

1

Readymade 1:

Research and research linkages

2

Research and Research Linkages Ranking

Personalise this ranking

Show values

Show the whole table

Research

Knowledge Transfer

International Orientation

Regional Engagement

Citation rate

Research publications (absolute numbers)

Research publications (size normalised)

Top cited publications

Co-publications with industrial partners

International joint publications

Regional joint publications

A-Z

Top scores

U California Santa Cruz

US

U Siegen

DE

MIT

US

Princeton U

US

U California Berkeley

US

Stanford U

US

U Chicago

US

Caltech

US

Harvard U

US

London Sch. Hygiene & TropMed.

GB

U California, Santa Barbara

US

U California San Francisco

US

PDF export

Latest update: May 2014

Readymade 2:

Economic involvement

2 Economic Involvement Ranking												
Personalise this ranking		Knowledge Transfer						Regional Engagement				
Show values		Co-publications with industrial partners	Income from private sources	Patents awarded (absolute numbers)	Industry co-patents	Spin-offs	Publications cited in patents	Income from continuous professional development	Bachelor graduates working in the region	Master graduates working in the region	Student internships in the region	Regional joint publications
Show the whole table												
A-Z	Top scores											
Telecom ParisTech	FR	●	●	●	×	●	●	●	—	●	●	●
UAS Wiener Neustadt	AT	●	●	—	—	●	●	●	●	●	●	●
Luleå U Tech.	SE	●	●	—	—	●	●	●	●	●	—	●
Chalmers U Tech.	SE	●	●	●	●	—	●	●	●	●	—	●
UAS Osnabrück	DE	●	●	●	●	●	●	●	●	●	—	●
Yokohama National U (YNU)	JP	●	●	●	●	●	●	●	●	●	●	●
U West Bohemia	CZ	●	●	●	×	●	●	●	●	●	●	●
Reykjavik U	IS	●	●	—	—	●	●	●	●	●	●	●
Waseda U	JP	●	—	●	●	—	●	—	—	—	—	●
ParisTech	FR	●	—	●	●	—	●	—	—	—	—	●
U Linz	AT	●	●	●	×	●	●	●	—	—	—	●
Norwegian U Science & Tech	NO	●	●	●	●	●	●	●	—	—	—	●

PDF export

Latest update: May 2014

Readymade 3:

Business study programmes

2 Business Studies Programmes Ranking									
Personalise this ranking Show values Show the whole table		Teaching & Learning			Teaching & Learning (student survey)			International Orientation	
		Graduating on time (masters)	Academic staff with doctorates	Contact with work environment (masters)	Overall learning experience	Quality of courses & teaching	Contact with teachers	International orientation of master programmes	Opportunities to study abroad
A-Z	Top scores								
American U Florida	US	●	●	●	●	●	●	●	—
WHU School of Management	DE	●	—	●	●	●	●	●	●
Dartmouth College	US	●	●	●	●	●	●	●	●
Zeppelin U	DE	●	—	●	●	●	●	●	●
HEC Paris	FR	●	●	●	●	●	●	●	—
ESSEC Business School Cergy	FR	●	—	●	●	●	●	●	●
EBS University Wiesbaden	DE	●	—	●	●	●	●	●	●
U Trento	IT	●	●	●	●	●	●	●	●
Reutlingen UAS	DE	●	—	●	●	●	●	●	●
Acad. Business Dąbrowa Górnicza	PL	●	●	●	●	●	●	●	—
Ecole des ponts - ParisTech	FR	●	—	●	●	●	●	●	●
U Paris-Est	FR	●	—	●	●	●	●	●	●

PDF export

Latest update: May 2014

● A (Very good) ● B (Good) ● C (Average) ● D (Below average) ● E (Weak) — Data unavailable × Not applicable

Findings: U-Multirank shows a wide distribution of “A” scores



Very few univs. with no “A” scores	“A” scores per univ.	% of univs.	Many univs. have specific strengths
	0	2.4%	
	1 to 5	46.5%	
No univ. has “across the board” “A” scores	5 to 10	41.3%	Around 100 univs. have a wide range (>10) of “A” scores
	11 to 15	10.3%	
	16 to 21	1.9%	
On individual indicators performance differences between univs. are clearly visible		300 univs. were not yet visible in global rankings. Of these, 30 have more than 10 “A” scores	

Different universities show top performances in different indicators



80 universities from the total sample of 879 achieved ***a score in the top five*** on at least one of the 30 indicators.

8 of these 80 universities achieved ***a score in the top five*** on three or more indicators (the highest is one university with six such scores)

4 of these 8 universities have not been visible before in global rankings

- An Austrian University of Applied Science
- A private US Christian University
- A private German Business School
- A French Management Grande École

Analyses by indicator reveal information about the state of higher education



An example

- “Interdisciplinary publications” is a new bibliometric indicator introduced within U-Multirank
- Almost 90% of universities have scores in a fairly narrow band of around 7% to 11% of their total publication output being interdisciplinary
- Only 17 universities perform better than this general pattern. None of the top five scorers on this indicator appear in other global rankings.

Analyses by indicator reveal information about the state of higher education



An example

- In U-Multirank students are able to assess the “Overall Learning Experience” of study programmes
- An analysis of this indicator shows that 27% of the programmes in Business Studies are assessed as offering a “top-level experience”
- These programmes are being offered by different types of universities (research universities, business schools, universities of technology and universities of applied science) from 28 different countries

The “world’s top 100 universities overall”?



- U-Multirank demonstrates for the first time the diversity of university profiles in the international context.
- The findings indicate that it is not possible to meaningfully identify “the world’s top 100 or 200 universities overall”.
- Instead, U-Multirank is a flexible learning tool where students, parents, academics, policy-makers, administrators, etc., can find information to support decision-making

U-Multirank 2014 was only the first step



2015
registrations
are no longer
open

More
universities
will
participate in
2015 and
beyond

Psychology,
computer
science and
medicine will
be added as
new subject
fields in 2015

to be continued...

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