

CRP CONFERENCE 2016:

U-MULTIRANK: Universities' First Experiences

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IREG FORUM 2015:

Rankings of Engineering Institutions – the Way they are, and the Way they should be

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RANKINGS:

No one likes them
Everyone checks them

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Dean of Engineering Education, NTNU
Vice President, CESAER

The main topics

- Working with the development of U-MultiRank from within an organization (CESAER)
- Working on the development of U-MultiRank from within an institution (NTNU etc.)
- Results so far – for engineering institutions collectively
- Results so far – for engineering institutions individually
- Reflections on how rankings / U-MultiRank is perceived – and how they should be further developed
- Recommendations on how benchmarkings / U-MultiRank is functioning – and how they could be further improved
- What do we still want to achieve for engineering institutions?
- How do we achieve what engineering institutions actually need?

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NTNU – My Home ...



CESAER – Another Castle ...



NTNU – The Institution

- Norway's only National University with Science and Technology as its Main Area
- From the Grandest to the Largest in Norway (!)
- Not from Quality Focus to Quantity Focus (?)
- Has Recently Merged with 3* University Colleges!
- Which Impact will Similar Merger Trends have?

CESAER – The Organization

- Conference of European Schools for Advanced Engineering Education and Research
- Not-for-profit international association of leading European universities of technology and engineering schools/faculties at comprehensive universities and university colleges
- Established in 1990
- Membership of 50 plus institutions from 25 different countries
- Represents the best of European universities in engineering

Rankings - The standard way

Times Higher Education, QS, Shanghai Jiao Tong - World University Rankings

- Evaluation Tools
- Very direct Rankings
- Well established Rankings
- Institutional & Field-based Rankings

- Know what you Get
- One League Table
- Easy to Understand
- Easy to Use

CESAER & U-Multirank: Why we like(d) it

Compare like with like

- Classification system & Evaluation system
- Benchmarking more than Ranking per se
- Several dim. & Several indic. – Not League Table
- Peer to Peer Evaluation – Forward Engineering
- Broad Information Scope
- Heavy Stakeholder Involvement

CESAER & U-Multirank: Our Processes / Goals

Heavily debated

- Why ranking? Why another ranking?
- International disagreement! Internal discussion!
- Difficult to deliver – across borders & institutions
- Difficult to achieve – correct, fair, without tweaking & without biasing
- We wanted to Impact the result – Better to be Inside than outside
- We sought Increased visibility & Increased involvement

CESAER & U-Multirank: As Associated Partner

- Advising the consortium on the *development of indicators and methods* to be applied in U-Multirank (OK !)
- Being involved in the *development of the web tool, testing the user interface* and advising on *presentation modes and instruments of user guidance* (OK ...)
- Possibly *drafting and developing an 'authoritative' ranking* for universities of technology, in which *CESAER would be the major actor* regarding the selection of indicators and the presentation of the results (OK ?)

CESAER & U-Multirank: Important factors / results

- New task force Easily established
- Being Really listened to as Stakeholder
- From 1/3 to 2/3 Participation
- Now considered a Wise Involvement

Early Feedback (1:4)

What	How
1) Which data are collected	<p>Identify data that engineering schools feel should also be collected</p> <ul style="list-style-type: none">• <i>Fine tune the indicators</i>• <i>Like in the Dutch framework</i>• <i>Achieve understanding of why indicators are present and why they are not</i>
2) How are data collected	<p>Pinpoint less fortunate processes wrt data input</p> <ul style="list-style-type: none">• <i>From data providers</i>• <i>From other sources</i>• <i>Achieve full transparency</i>• <i>Remember that LERU has left</i>

Early Feedback (2:4)

What	How
3) Organize consistent data collection	<p>Help (own) colleagues at (other) engineering schools to input data in the right way</p> <ul style="list-style-type: none">• <i>Big, complex system</i>• <i>Not all items well defined</i>
4) Maintenance of data	<p>Push a more frequent update of the database</p> <ul style="list-style-type: none">• <i>Not just every 4-5 years</i> <p>And push the need for a centralized QA of these data</p> <ul style="list-style-type: none">• <i>Not user driven as such</i>• <i>Methodology issues</i>

Early Feedback (3:4)

What	How
5) Profiling for engineering schools	<p>Establish a unique engineering school profile</p> <ul style="list-style-type: none">• <i>Still apples & oranges</i> <p>Or rather identify items especially appropriate for engineering schools</p> <ul style="list-style-type: none">• <i>Inside / outside the existing framework</i>
6) Reverse engineering & media simplification	<p>Underline the inherent options for misuse</p> <ul style="list-style-type: none">• <i>Pick the best indicators so as to end up on top</i>• <i>Collapse all the dimensions so as to present a league table</i>

Early Feedback (4:4)

What	How
7) Well-defined & well-executed assessment / evaluation	<p>Endorse QA initiatives as the sensible processing of the existing data</p> <ul style="list-style-type: none">• <i>Put a layer on top like the Dutch system</i>• <i>Like the peer to peer evaluation approach</i>• <i>Not just a user driver approach</i>
8) The follow-up into new phases	<p>Engage us in discussions with U-Multirank and E-Commission wrt the next crucial phases</p> <ul style="list-style-type: none">• <i>Which no one knows much about</i>

Early Evaluation of Dimensions & Indicators (1:3)

Dimension	UMR PROPOSAL		CESAER SUBSET SUGGESTION		
	Institutional rankings	Field-based rankings	OK	OK - IF REFINED	NOT OK
TEACHING & LEARNING					
Bachelor graduation rate	X		YES		
Master graduation rate	X		YES		
Graduation on time (Bachelor)	X	X	YES		
Graduation on time (Masters)	X	X	YES		
Academic staff with doctorates		X	YES		
Student-staff ratio		X	YES		
Contact with work environment (bachelors)		X		ALL PERCENT	
Contact with work environment (masters)		X		ALL PERCENT	
Inclusion of work/practical experience		X			QUAL, DIFF
Contact with teachers		X			QUAL, DIFF
IT provision		X			QUAL, DIFF
Laboratory facilities		X			QUAL, DIFF
Library facilities		X			QUAL, DIFF
Organisation of programme		X			QUAL, DIFF
Overall learning experience		X			QUAL, DIFF
Quality of courses & teaching		X			QUAL, DIFF
Room facilities		X			QUAL, DIFF

Early Evaluation of Dimensions & Indicators (2:3)

RESEARCH					
Art related output	X		YES		
Citation rate	X	X	YES		
External research income	X	X	YES		
Post-doc positions	X	X	YES		
Top cited publications	X	X	YES		
Doctorate productivity		X	YES		
Research publications (size normalized)	X		YES		
Research publications (absolute numbers)	X	X			ONLY SIZE NORM
Research orientation of teaching		X			QUAL, DIFF
Interdisciplinary publications	X	X			VAGUE, DIFF
KNOWLEDGE TRANSFER					
Co-publications with industry papers / industrial partners *	X	X	YES		
Income from private sources **	X	X	YES		
Income from continuous professional development	X		YES		
Publications cited in patents	X	X	YES		
Spin-offs	X			MEDIUM	
Industry co-patents	X			WORLD	
Patents awarded (size-normalized)	X			WORLD	
Patents awarded (absolute numbers)	X	X			WORLD & ONLY SIZE NORM

Early Evaluation of Dimensions & Indicators (3:3)

INTERNATIONAL ORIENTATION					
Foreign language bachelor programmes	X		YES		
Foreign language master programmes	X		YES		
International academic staff	X		YES		
International doctorate degrees	X	X	YES		
International joint publications	X	X	YES		
Student mobility	X		YES		
International research grants		X	YES		
International orientation of bachelor programmes		X		ALL PERCENT	
International orientation of master programmes		X		ALL PERCENT	
Opportunities to study abroad		X			QUAL, DIFF
REGIONAL ENGAGEMENT					
Bachelor graduates working in the region	X			EUROPE	
Income from regional sources	X	X		EUROPE	
Master graduates working in the region	X			EUROPE	
Regional joint publications	X	X		EUROPE	
Student internships in the region	X	X		EUROPE	

Definitions & Subset: Comments Having Had Impact ...

- *ALL PERCENT: The whole definition – and not only some of the sub-definitions, ought to be made into percentages of something*
- *ONLY SIZE NORM: The size normalized values are better – and enough*
- *WORLD: The patent coverage ought to be the world – and explicitly given as that, nothing less*
- *EUROPE: The region area ought to be Europe – or the respective continent, not a sub-region of a country (country at least)*
- *MEDIUM: The spin-offs counted ought to be those above the average size in the given country / continent – not all spin-offs*
- *QUAL, DIFF: The indicator is based on a student survey, and the output is just too qualitative – and hence too difficult to apply*
- *VAGUE, DIFF: This indicator refers to interdisciplinary research - which is too difficult to define appropriately*

Definitions & Subset: Input Having Had Impact ...

- *EXTRA INDICATOR REQUIRED:
Percentage Size of Engineering Education
vs. All Education in Given Institution !
(how dominant is it or not)*
- *EXTRA INDICATOR REQUIRED:
Vertical Student Mobility
(between bachelor and master) –
and Not Only Horizontal Student Mobility !
(within bachelor or master)*

Mid-term evaluation – Externally & Internally

U-MULTIRANK ...

- had listened to the early stakeholder input

CESAER ...

- had created debate
- had impacted the system
- had achieved increased involvement
- had achieved increased visibility

Important Restructuring & Dilemma

- **Still:** Identify an Appropriate subset of indicators for Engineering Education & Research institutions – For both Internal & External Use
- **But:** Establish an Authoritative ranking for Engineering Education & Research institutions – By an external Unit
- **Irony:** Banning the basic Single League Table notion and Working for a Fourth/Fifth Ready Made ranking Simultaneously

Later Feedback (1:4)

What	How
1) Indicators	<ul style="list-style-type: none">• Once released, indicators obtain their own importance - and lose their contact to the context in which created• Actually a problem of all rankings• Example: Bachelor Graduation Rates
2) Levels	<ul style="list-style-type: none">• Some find it easier to participate on institutional level than on department level• Some indicators are not in line with common perception• Example: Patents Awarded

Later Feedback (2:4)

What	How
3) Results	<ul style="list-style-type: none">• Some of the results for some of the institutions somewhat strange ?!• They were unexpected – and perceived wrong !?
4) Cost	<ul style="list-style-type: none">• Substantial effort needed at institution level as well as at department level• Data collection involved a lot of time and work – worthwhile / not worthwhile• Some unsure if they actually did interpret the indicator the right way• The students survey is found very large

Later Feedback (3:4)

What	How
5) Tools	<ul style="list-style-type: none">• The user interface of the UMR web site is complicated - and far from user friendly / intuitive• The year of data collection is not clear – nor consistent, in the UMR web site• Too little improvement from earlier releases of the UMR web site
6) Usage	<ul style="list-style-type: none">• UMR does not get the same attention as other rankings – the league tables• Interested in finding out how widely UMR is actually used by other universities & students• Beneficial to see a report on user statistics of the UMR web site

Later Feedback (4:4)

What	How
7) Approach	<ul style="list-style-type: none">• Many find the regional engagement dimension problematic• A region varies so much from one country to the next• Regional focus is considered good by some - and bad by some
8) Classification	<ul style="list-style-type: none">• Not focussed as much as evaluation by many• Sunburst charts not posted by all institutions

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Overall learning experience		X			QUAL, DIFF
Quality of courses & teaching		X			QUAL, DIFF
Room facilities		X			QUAL, DIFF
Skills labs		X			QUAL, DIFF
Innovative forms of assessment (medicine)		X		Also Interesting!?	OTHER SUBJECT
Hospital beds available for teaching (medicine)		X			OTHER SUBJECT
Bedside teaching (medicine)		X			QUAL + OTHER
Inclusion of practical experience / clerkships (medicine)		X			QUAL + OTHER
Linking clinical / preclinical teaching (medicine)		X			QUAL + OTHER

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Income from continuous professional development	X		YES		
Publications cited in patents	X	X	YES		
Spin-offs	X		← NOW	MEDIUM	
Industry co-patents	X		← NOW	WORLD	
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International joint publications	X	X	YES		
Student mobility	X		YES		
International research grants		X	YES		
International orientation of bachelor programmes		X	← NOW	ALL PERCENT	
International orientation of master programmes		X	← NOW	ALL PERCENT	
Opportunities to study abroad		X			QUAL, DIFF
REGIONAL ENGAGEMENT					
Bachelor graduates working in the region	X			EUROPE	
Income from regional sources	X	(X-OUT NOW)		EUROPE	
Master graduates working in the region	X			EUROPE	
Regional joint publications	X	X		EUROPE	
Student internships in the region	X	X		EUROPE	
EXTRA DESCRIPTIVE INDICATORS!?					
TeachLearn: Graduation rate (Long First Degree)	X		YES		
TeachLearn: Graduation on time (Long First Degree)	X		YES		
TeachLearn: Relative unemployment (Bachelor)	X		YES		
TeachLearn: Relative unemployment (Master)	X		YES		
TeachLearn: Relative unemployment (Long First Degree)	X		YES		
Research: Publication output	X				ONLY SIZE NORM
InterOrient: Foreign language programmes (Long First Degree)	X		YES		

Later Process Comments / Input

APPLIED LEGEND:

- ALL PERCENT: The whole definition – and not only some of the subdefinitions, ought to be made into percentages of something
- ONLY SIZE NORM: The size normalized values are better – and enough
- WORLD: The patent coverage ought to be the world – and explicitly given as that, nothing less
- EUROPE: The region area ought to be Europe – or the respective continent, not a subregion of a country (country at least)
- MEDIUM: The spin-offs counted ought to be those above the average size in the given country / continent – not all spin-offs

- QUAL, DIFF: The indicator is based on a student survey, and the output is just too qualitative – and hence too difficult to apply
- VAGUE, DIFF: This indicator refers to interdisciplinary research - which is too difficult to define appropriately
- **OTHER SUBJECT**: This indicator concerns medicine only

FURTHER ISSUES: STILL CHALLENGES

EXTRA INDICATOR REQUIRED: **NOW ACCEPTED**

NO OF INDICATORS: **NOW LOWER**

Specification aspects

- Indicator Definitions
 - How described - Means a lot (Checked)
 - Big discussions (Within & Between)
- Indicator Subset
 - Which selected - Means a lot (Tested)
 - Big impact (4th vs. 1st / 2nd / 3rd)

Operational aspects

- Easy to Use – the Tools (when Applicable)
- Difficult to Use – the Tools (when Not Appl.)

- Lot of Work – to Supply the Data !
- Lot of Work – to Explain the Novelty ?

- Much Used – in the Old Way !
- Less Used – in the New Way ?

- Difficult Not to Give in ...
- Easy to Cave in

Some Important Results

- Tested on 40 out of 60 CESAER Institutions
- With Interesting Results
Considered Valuable Exercise
- Not Only One Winner Always
Not All Assumptions Confirmed
- Some Unexpected Output Produced
Some Better Input Needed
- Not Only Research Appreciated

Some Important Issues

- Institutions vs. Students – Whom is it basically for ?
- Institutional vs. Field-based – What is it mainly for ?
- Quantity vs. Quality – What will it impact ?
- Educators vs. Employers – Will both have impact ?
- Forward Engineering vs. Reverse Engineering – How will it be used ?
- European Engineering vs. Other Contexts – Will we have to differ ?
- Easy of Use vs. Wealth of Info – Can we achieve both - better ?
- Standard Rankings vs. New Benchmarking – Can we mix both - better ?

Still Some Challenges

- Too little Visibility ...
- Too little Reputation ...
- Diversity, Availability & Integrity ...
(Countries, Institutions, Fields & Indicators)
- Quantity vs. Quality ...
(Student-Staff ratio etc.)

And Several Conclusions

- The UMR approach is very Sensible & Appropriate
- The UMR init. must be better Marketed & Secured
- Will have to live with both types of Rankings / Benchmarking
- Should experiment with both types of Rankings / Benchmarking
- Acceptance of the new way of thinking takes Convincing & Lobbying
- Get employers, associations & accreditors Involved & Engaged

Future Work

- CESAER:
From U-MultiRank Only – To Benchmarking In General
- Monitor Performance of CESAER Members as Universities of Technology & Engineering
- Improve Measuring Methodologies & Output Resulting Measurements with Rankers on Universities of Technology & Engineering
- Influence Rankers on How to Benchmark Universities of Technology & Engineering
- CESAER:
Three Workshops to Come – Welcome Onboard

Round-off

- Comments / Reflections / Questions ?
- I Will be here for the Whole Conference ...
- Thank You for Your Attention !