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IEASA Workshop 2

"Challenge accepted! The internationalisation of Doctoral Studies as a Response to the 4th Industrial Revolution"

Stellenbosch, 23 August 2019

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UPPSALA UNIVERSITET

Response, challenge, necessity, driver?

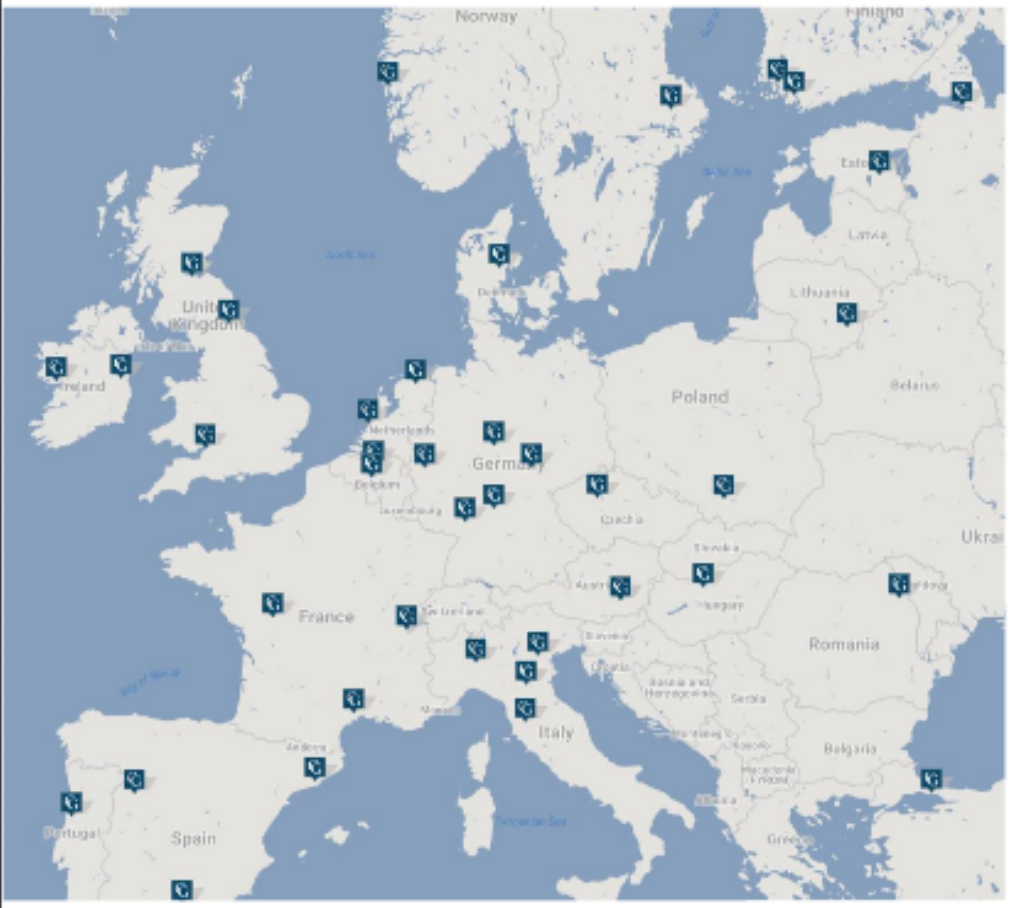
A European perspective to the internationalisation of doctoral education in the context of a changing world

22nd IEASA Conference, Workshop 02, 23 August 2019

Dr. Gunda Huskobla, Coimbra Group

Doctoral Studies Working Group

COIMBRA GROUP: FACTS AND FIGURES



- **39** Universities from **23** European countries
- **>1,4M** students
- **>226 000** staff (teaching, research, admin.)
- The latest overview (2014), showed that **36 000** students had undertaken Erasmus mobility to/from CG universities (**16%** of all Erasmus students in Europe)
- **Multi-billion €** total annual Research budget

COIMBRA GROUP: A TRADITION OF INNOVATION

About the network:

- Long-established, comprehensive and multidisciplinary European universities
- Networking and strategic partnerships
- Promote internationalisation, academic collaboration, excellence in learning and research, service to society
- Contribute to the debate on higher education in Europe and, where appropriate, influence European policy
- Develop best practice through mutual exchange

➢ WG Doctoral Studies

Reform Processes, Changing Conditions, Challenges

DOCTORAL EDUCATION IN EUROPE

The „Salzburg“ Process – a doctoral education reform made by academia (European University Association EUA)

Common agreement on core characteristics of doctoral education in Europe:

- Doctoral candidates = **early career researchers**
- Doctoral education is highly individual, **based on original research** which is the basis for the advancement of knowledge
- **Diversity** of doctoral programmes is a strength of doctoral education in Europe (e.g. duration, funding, level of structuring)
- Promotion of **innovative structures and mobility**
- New challenges: research ethics and integrity, digitalisation, globalisation of research, societal commitments

Salzburg Principles (2005), Salzburg Recommendations (2010), Taking Salzburg Forward (2015)

WHY REFORMING DOCTORAL EDUCATION?

Two “outputs”:

- Research results = new knowledge creation, basis for innovation
- Trained people with analytical and critical thinking skills

Changing needs:

The doctorate is a qualification that serves the needs of academia, government, private and public sectors.

- Internationalisation helps to improve on both results and skills, e.g. finding solutions for complex issues and global societal problems

"Innovation Union" (2010) – high political Attention to better doctoral Training by the European Union

- Doctoral education has a place both in the European Research Area (ERA) and the European Higher Education Area (EHEA)

- Principles for *Innovative Doctoral Training* (European Commission, 2011)
  - Research excellence
  - Attractive institutional environment
  - Interdisciplinary research options
  - Exposure to industry and other relevant employment sectors
  - International networking
  - Transferable skills training
  - Quality assurance

- Triple „i" drivers for growth in the knowledge society: international, interdisciplinary, intersectoral
  - Funding schemes with agenda setting, e.g. for doctoral programmes (ITNs within the EU Marie Sklodowska-Curie Actions)

Responding To Changing Conditions

New ways of organising doctoral qualification

- More structuring elements of the doctoral training phase
- More cooperation (e.g. with non-university research institutes, industry, international partner organisations)
- Increased institutional responsibility, set-up of university-wide doctoral schools / graduate academies

Multiple qualification goals

- Academia
- Leadership positions in all sectors (private and public)
- Entrepreneurship

International Mobility

- Mobility at home
- Short-term mobility (research, teaching, conferences, summer schools, internships)
- Long-term mobility (guest researchers, international collaborative PhD programmes)

Types, Benefits, Challenges

INTERNATIONALISATION OF DOCTORAL EDUCATION

Example: International Mobility

Doctoral Researcher and staff exchange, research periods abroad, collaborative programmes

Incoming mobility – “Internationalisation at home”

recruitment of international students and staff, events, international projects, guest lecturers from abroad, networking, online courses incl. MOOCs, etc.

Outgoing mobility – “Internationalisation abroad“

- Short-term mobility
  - Research, teaching
  - Conference, Summer School, skills training, internship
- Long-term mobility
  - Full-time qualification abroad (free-mover, international doctoral programmes)
  - Part-time abroad („Sandwich“ PhD programme, joint and double degree programmes / „Cotutelle“)

Benefits of International Mobility

Research is always international!

- Exchange of knowledge across borders
- Academic value added, i.e. international dimension of research is appreciated

Benefits of International Mobility

University perspective: accessing and increasing **knowledge**

- Strengthening strategic partnerships
- Building on existing academic / scientific collaboration
- Competition to attract the „best“ researchers
- Sometimes budgetary incentives (e.g. collaborative doctoral programmes)
- Branding, reputation, visible internationalisation strategy

Individual perspective: Global competences of doctoral candidates

- Ability to work in different countries
- Communication across different cultures
- Knowledge of global organisations and contexts
- Personal adaptability to diverse cultures

International Research Experiences for Graduate Students – Results from the 2019 NSF Workshop

Student Outcomes from international research experiences

- Personal development
- Adaptability and resilience
- Global preparedness
- Critical thinking
- Network and collaboration
- Intercultural competencies
- Understanding of cultural variations to research
- Trust-building/empathy with local entities

Benefits to the research advisor from student international experiences

- Increased productivity
- Improved research networks
- Input to promotion and tenure
- Funding, e.g. add-ons to existing grants
- Community building and collaboration across instiutions
- Encourages broader conversations with student

Challenges of International Mobility

Challenges due to

- different regulation by national standards
- different higher education systems
- different goals of involved parties (individual motivation vs. institutional policies vs. national/EU/international agenda setting)

- Doctoral education landscape in Europe and globally is highly diverse and heterogeneous!
- Challenges affect both the institutional and the individual level (doctoral supervisors, doctoral candidates)

Example Joint and Double Degree Doctoral Programmes: unbridgeable differences?

- How much deviation from national legislation is allowed? Some national systems are very strict. Deviations are very beaurocratic or even impossible.
- Example: „Supervisor must be a member of the committee“ vs. „Supervisor is not allowed to be a member of the committee“.
- Example: Admission to PhD programmes with a Bachelor degree vs. Requirement of 5 years of university training / a Master degree.
- University-internal „No-Go“-criteria, e.g. joint degrees only with equal time distributions at the partner instiutions or minimum requirements of a research stay of at least one year at the partner institution.

➢ Incompatible? Feasible? Compromise possible?

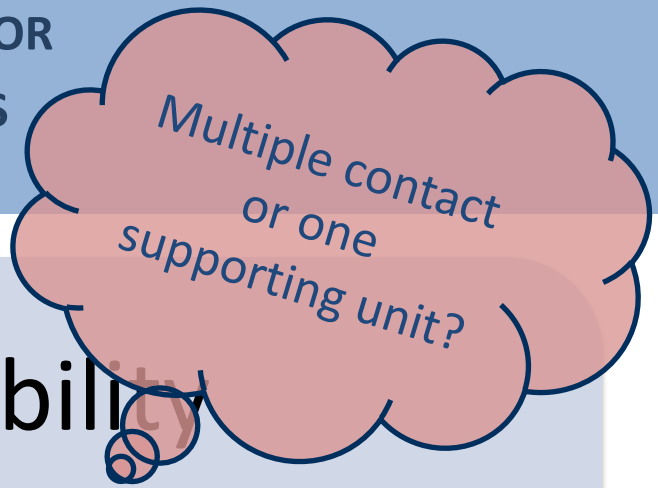
➢ Communication!

Example: Challenges in Doctoral Supervision

International Mobility

- National system differences influence expectations with respect to supervision
- Language & intercultural communication
- Extra-professional care needs

Example: Challenges for Doctoral Candidates



International Mobility

- Information
- Contact
- Funding
- Extra-professional care needs upon arrival

Doctoral Programmes, institutionalised structures, lessons learnt

CHALLENGE ACCEPTED?

EXAMPLE: DOCTORAL PROGRAMMES

Doctoral programmes are a key component of the discussion on European higher education in a global context and are central to the development of any international strategy for

- attracting the best doctoral candidates from all over the world
- encouraging mobility within doctoral programmes
- fostering inter-institutional collaboration, e.g. supporting European and international joint doctoral programmes and co-tutelle arrangements

Example: Doctoral Programmes – Doctoral Researchers at the University of Jena

3,459	Doctoral researchers (01.12.2018)	49.3 % women
		22.8 % international
	2,591 without medicine (ca. 1/3 Social Sciences and Humanities, 2/3 Natural and Life Sciences)	44.5 % women
		28.6 % international
	23.1% within structured doctoral programmes	46.5% women
		40.6% international
542	PhD graduations (2018)	51.3 % women
		18.1 % international

Example: International Doctoral Researchers – Incoming Mobility at the University of Jena

- Total N=786
- Of that 22,4% EU mobility
- More than 90 countries of origin
- Many incomings from Asia
- Strategic partnerships

Nationality	N	%
China	134	17,0%
India	71	9,0%
Italy	39	5,0%
Russia	32	4,1%
Iran	32	4,1%
Spain	23	2,9%
USA	18	2,3%
Turkey	16	2,0%
Egypt	16	2,0%
Taiwan	14	1,8%
Korea	14	1,8%
Pakistan	14	1,8%
Poland	13	1,7%
Syria	13	1,7%
UK (Great Britain and Northern Ireland)	12	1,5%
Serbia	12	1,5%
Columbia	12	1,5%
Greece	12	1,5%
Ukraine	11	1,4%
France	11	1,4%

EXAMPLE: INSTITUTIONAL SUPPORT STRUCTURES

Most of Europe's universities have **established institutional structures** to support doctoral education.

The level of development is not the same for all regions.

Example: Institutional Support Structures – Graduate Academy of the University of Jena

Zur Rosen – House for Young Researchers

Welcome and Service Desk

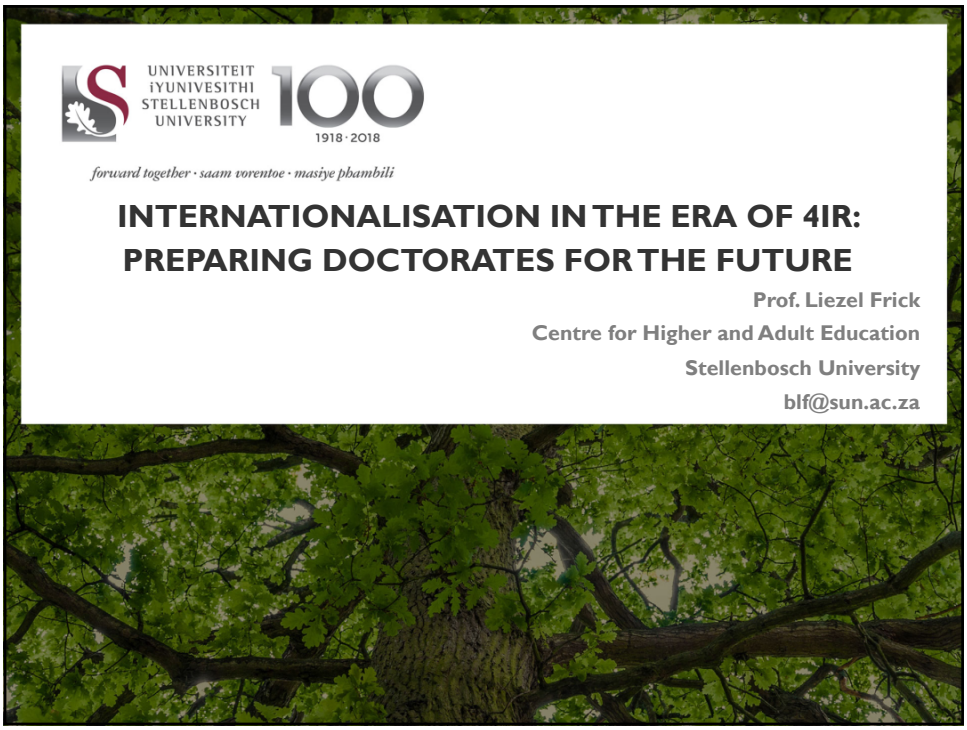
Example: Institutional Support Structures – Graduate Academy of the University of Jena

Specific offers for supporting international mobility at doctoral level:

- Counselling on international mobility: research stays in Germany, planning and funding of a stay abroad during the doctorate
- Welcome Service for all international early-stage researchers
- International tutoring service (Intudocs)
- Service for setting up Co-tutelle agreements: Workflow, templates, coordinating unit
- Support in setting up international collaborative PhD programmes
- All information available in German and English

Shaping the doctoral education landscape means not only responding to changing conditions.

CHALLENGE ACCEPTED!



INTERNATIONALISING THE (SOUTH) AFRICAN DOCTORATE: SOME CONTEXTUAL COMMENTS

GROWTH OF DOCTORATES IN SA
(DHET Report: real numbers)

Year	Doctorates awarded
2004	985
2006	1 104 (+ 12.1%)
2008	1 100 (- 0.36%)
2011	1 182 (+ 7. 5%)
2012	1 878 (+ 58.9%)
2013	2 051 (+ 9.2%)
2017	3 057 (+ 49%) (since 2013)
Year	**Enrolments**
2008	41 711 master's 9 994 doctoral
2012	49 561 master's (+ 18.8%) 13 965 doctoral (+ 39.7%)
2017	59 153 master's (+ 19.4%) (Since 2012) 22 572 doctoral (+ 61.6%) (Since 2012)

EQUITY, RACE & GENDER: Doctoral enrolments and graduates (2008 and 2012) (Cloete et al., 2015)

Race	Enrolled 2008	Enrolled 2012	Graduated 2008	Graduated 2012
African	4077	6714	384	816
Coloured	575	811	56	100
Indian	774	1085	97	142
White	4568	5354	563	820
Total	9994	13964	1100	1878
Gender	**Enrolled**	**Enrolled**	**Enrolled**	**Enrolled**
	2000	**2004**	**2008**	**2012**
Female	38%	41%	43%	45%
Male	62%	59%	57%	55%

THE SA 2001 DOCTORAL COHORT: COMPLETION IN ALL FIELDS (n=1877)
(Cloete et al., 2015)

Year	Graduated
2003 (after 2 years)	11.4%
2004 (after 3 years)	20.2%
2005 (after 4 years)	30.3%
2006 (after 5 years)	35.2%
2007 (after 6 years)	39.5%
2008 (after 7 years)	47.8%
2009 (after 8 years)	50.1%
2010 (after 9 years)	53.1%
2011 (after 10 years)	53.9%
2012 (after 11 years)	54.4%
2013 (after 12 years)	55.1%

COMPARISONS: PhD production in SA vs a number of selected OECD countries, 2000 and 2011 (OECD, 2013)

Country	Average annual growth rate in total PhDs 2000 - 2011	Population 2011	2011 SET PhD graduates per 100,000 of 2011 population	2011 total PhD graduates per 100,000 of 2011 population
Australia	**4.7%**	22 324 000	15.9	27.2
Canada	3.3%	34 483 980	10.3	16.5
Czech Rep	**9.6%**	10 496 670	14.5	23.5
Finland	-0.2%	5 388 272	21.1	34.4
Germany	0.5%	81 797 670	24.2	33.4
Hungary	**5.1%**	9 971 726	6.5	12.4
Ireland	10.1%	4 576 748	20.3	31.6
Italy	11.1%	60 723 570	11.8	18.6
Korea	**6.0%**	49 779 440	14.0	23.4
Norway	6.4%	4 953 000	16.7	26.2
Portugal	3.5%	10 557 560	11.4	21.9
Slovak Rep	**12.8%**	5 398 384	16.1	31.0
Switzerland	2.2%	7 912 398	30.1	44.0
Turkey	**7.4%**	73 950 000	3.5	6.3
United Kingdom	5.1%	61 761 000	19.5	32.5
United States	4.5%	311 591 900	13.0	23.4
South Africa	4.5%	51 770 560	**1.6**	**3.0**

PhD COMPLETION RATES

Country	Entity	Author	PhD completion rates
Australia	Department of Education, Training and Youth Affairs	Martin et al. (2001)	36% in 4 years 53% in 7 years 65% in 10 years
Canada	Graduate Students Association of Canada	Elgar (2003)	50% in 10 years
United Kingdom	Higher Education Funding Council for England	Naylor (2005)	57% full-time and 19% part-time in 5 years 71% full-time and 34% part-time in 7 years
USA	Council of Graduate Schools	Sowell (2008)	46% in 7 years 57% in 10 years
India	National Institute of Advanced Studies	Kurup & Arora (2010)	50% in 10 years
South Africa	CREST	Mouton (2013)	50% in 8 years (2001 cohort) 46% in 7 years (2002 cohort) 45% in 6 years (2003 cohort) 40% in 5 years (2004 cohort) 35% in 4 years (2005 cohort)

ACADEMICS WITH DOCTORATES (2012)

(Cloete at al., 2015)

- Major indicator of PG supervisory capacity
- Benchmarks for different institutional types
  - 50% for Traditional Universities (3 out of 11 met this benchmark by 2009)
  - 40% for Comprehensive Universities (0 out of 6)
  - 20% for Universities of Technology (1 out of 6)

GLOBAL CONCERNS ABOUT RESEARCH EDUCATION

- Dropout rates too high, throughput too slow
- Low completion rates
- Funding/subsidy issues
- Quality assurance issues within institutions
- Comparable international benchmarks and standards
- Inconsistencies in the system
- Inexperience and un(der)preparedness of candidates
- Lack of research background and a research base
- Lack of training and inexperience of supervisors
- Expectations of the doctoral production system

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DOCTORAL EDUCATION IN SOUTH AFRICA

Four main issues or discourses:

- Comparisons and competition
- Transformation (race, gender and fields of study)
- Efficiency
- Quality

[ASSAf Report (2010); Cloete, Mouton & Sheppard (2015)]

PG SUPERVISION CONTEXT IN AFRICA

Africa needs strong research universities (Cloete & Bunting, 2013)

- Knowledge transfer, production, re-production and dissemination
  - Universities remain the only producers of this self-renewing knowledge-producing capacity
  - Best index for this is the production of research-based PhDs
- Universities are better at indirect, long-term knowledge capacity building than at direct short term knowledge application
- Institutions of the knowledge economy such as parastatals, NGOs and businesses are probably more effective in the latter case
- A vibrant secondary knowledge production landscape only occurs successfully in counties which have a stable PhD producing university sector

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AFRICAN RESEARCH THAT MATTERS

(Butler-Adam, 2017)

- Africa produces 1.1% of global scientific research
- Africa and its universities, institutes and scientists need to make far greater contributions to world knowledge
  - BUT high quality and important research is happening
  - The contribution might be small, but smart people are undertaking smart and important work
- The range of research being undertaken is remarkable in view of the size of Africa's overall contribution
- Irrespective of the disciplines involved, the research is tackling both international concerns and those specific to the African continent and its people's needs

➢ Despite these advances, development is skewed across African countries

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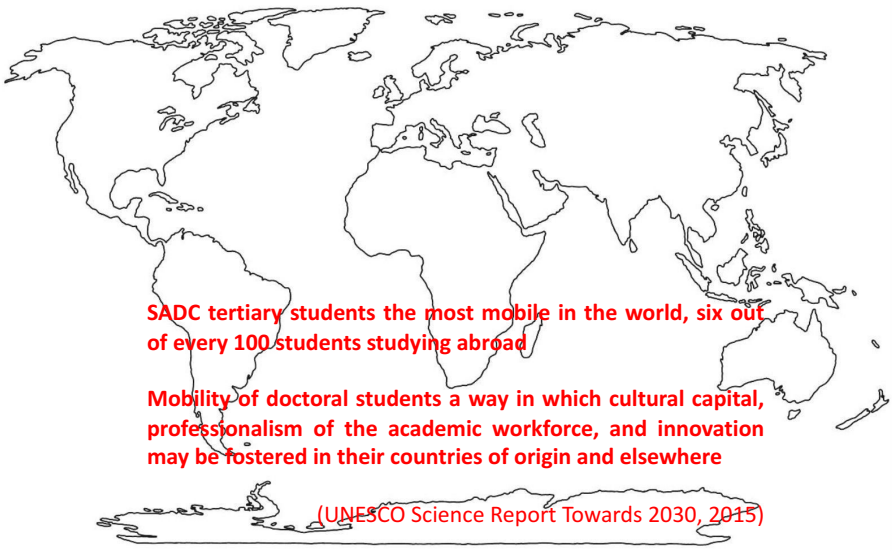


SADC tertiary students the most mobile in the world, six out of every 100 students studying abroad

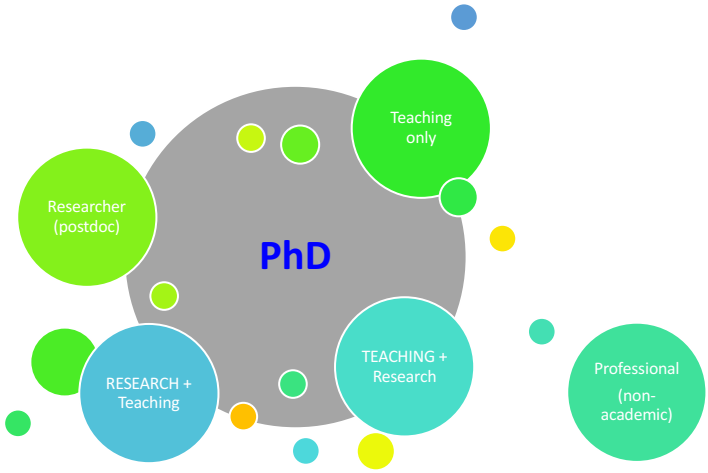
Mobility of doctoral students a way in which cultural capital, professionalism of the academic workforce, and innovation may be fostered in their countries of origin and elsewhere

(UNESCO Science Report Towards 2030, 2015)

WHAT DO YOU WANT TO BE WHEN YOU GROW UP?

CAREER TRAJECTORY – IDENTITY TRAJECTORY

(McAlpine & Amundsen, 2016)



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ENTERS 4IR: A NEED FOR CREATIVE SOLUTIONS IN A COMPLEX WORLD

- Fourth Industrial Revolution
  - Increasing rate of knowledge production
  - Influence of artificial intelligence on labour
  - Obsolescence of many manual jobs
  - Globalisation (and localised issues) and human migration patterns
  - Wicked problems (such as global warming and climate change)

➢ Defies defy simple and single disciplinary solutions

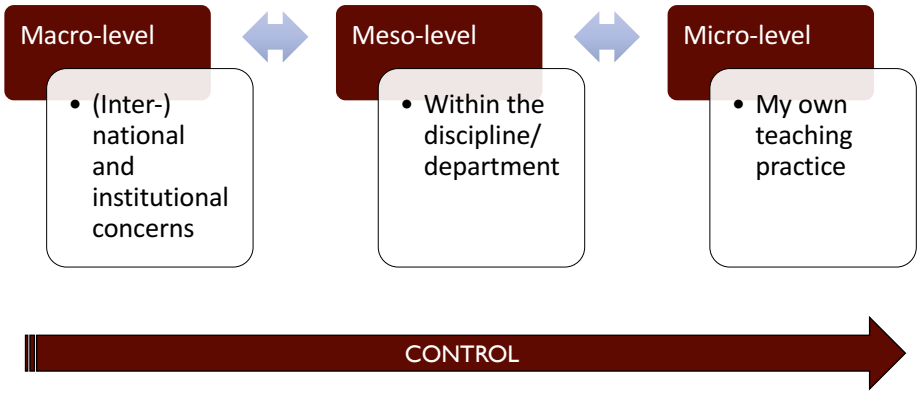
➢ Need for a more flexible and re-/up-skilled workforce influences the way we think about education and the workplace

➢ More international exposure and influences

HIGHER EDUCATION RESPONSE: INTERNATIONALISATION (Agnew, 2012; Stier, 2014)

Ideology	Idealism	Instrumentalism	Educationalism
Vision	Create a better world	Sustainable development	Education (broadly)
Focus	The moral world	The (global) market	The individual's learning process
Goals	Mutual understanding, respect, tolerance among people Social change Redistribution of wealth Personal commitment	Economic growth, profit Competence availability Exchange of know-how Cultural transmission	Enrich learning New perspectives & knowledge Personal growth Commitment to learning
Strategies	Provide global knowledge Facilitate insights Stimulate empathy & compassion	Attract international fee-paying students Provide relevant professional training Conduct market relevant research	Stimulate self-awareness & self-reflection Train intercultural competence
Critiques	Arrogance Victimisation	Brain drain Increased global disparity Exploitation Cultural imperialism	Academicentrism Chauvinism Individualising Social & global problems

SO WHAT ARE THE KEY QUESTIONS?



MACRO-LEVEL QUESTIONS

- **How, if at all, can a university prepare a student to enter society and the economy as a thinker, worker and problem-solver within an uncertain and exciting future?**

- Do we have a shared understanding of what doctoral education means across countries?
- Do we share the same expectations on outcomes across (and even within!) our national and disciplinary borders?
- To what extent are our institutional and national policies sensitive to contextual and disciplinary nuances, but at the same time robust in meeting international expectations and demands?

MESO-LEVEL QUESTIONS

- **How can universities create a space for internationalisation in doctoral learning and development?**

- How do we need to transform doctoral education to meet the challenges presented by the 4IR?
- Do our students and lecturers have a shared understanding of what these challenges are?
- How do we prepare students and/or lecturers to meet these challenges within an international context?
- What (human, monetary, infrastructural, networking) resources do universities need to contribute to international debates as equal partners?

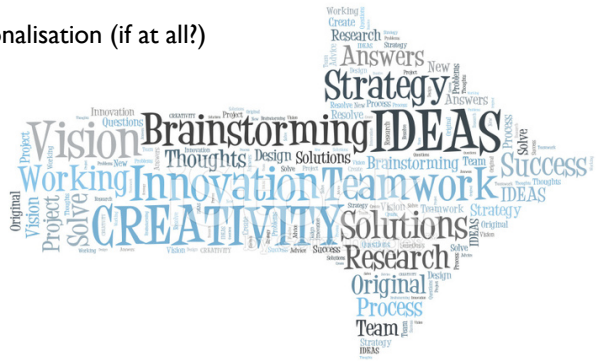
MICRO-LEVEL QUESTIONS

- **How do I foster learning in an international context for the uncertain/exciting future within my interaction with students?**

- How do I define learning for the future within my field/discipline?
  - Are there differences in this definition based on the level of study?
- What pedagogies do I employ to foster such learning?
- How do I facilitate students' access to both international networks and debates?

SO WHAT?

- Internationalisation matters (or does it?)
- Why you should care (or not?)
- How to foster internationalisation (if at all?)



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