THE QUADRUPLE HELIX
- TALENT DEVELOPMENT AS A UNIVERSITY MISSION
A YOUNG UNIVERSITY CHALLENGED
WHY IS DENMARK DOING SO WELL?

- Life long education for all
- Long term perspectives in research policy and strategy
- Talent development as a key priority
- Focus on excellence in research (as outlined in the Aarhus Declaration)
- Stable or increasing funding levels

The principles of the Aarhus Declaration of excellence:

- Basic research is the foundation
- Freedom and trust in the individual researcher
- Respect for the long-term perspective

www.excellence2012.dk/the-aarhus-declaration/
MAKING SENSE OF MASSIFICATION

Increasing coverage of higher education systems leads to diversification in institutional mission and new models emerge

• Universities establish elite colleges on campus and recruit international students for special programs as well as exchange students for traditional programs
• Universities collaborate by creating new institutions that are designed to be flexible, interdisciplinary and train graduates to adapt to society’s demands
• Emergence of transnational colleges and campuses, network institutions and institutions without tenured faculty
THE REFORM AGENDA

For universities the reform agenda will continue to focus on:

• human capital
• funding structures
• governance framework
• institutional landscape
• research base and its study programs.

However, higher education will become much more integrated with work life
FLEXICURITY AND DENMARK’S REFORMS

• Education and life long learning for all
• Highly flexible labor market, privatization of pension funds, and tight social safety net

1968  Expansion of higher education system
      abolishment of civil service status for faculty
      new (democratic) governance system

1986  Quality in a mass system. First wave of new reforms

2003  Universities became self governing legal entities, external majority in
       governing boards, and appointed rectors. Private auditing.
The Bologna Declaration: Governments working to create coherent educational systems by 2010. Signed by 29 countries.

The European Research Area: Coordination of research and development activities in Europe

European Higher Education Area: 10 years after the Bologna process. 47 countries have signed the Bologna Declaration.

DK’s Reforms in European Context

1 Graduate reform
- Research Academy
- The Doc. Decree
- 3+2+3, 4+4, 3+5 year cycles

2 Financial reforms
- The DNRF (“blue sky”)
- Strategic research programs: environment, food, biotech, materials technology

3 Management and governance reforms:
- The new University Act (2003, 2011)
- Performance based core funding system

4 Structural reform:
- 28 institutions → 8 universities + 3 depts.
- 90 colleges become 8 university colleges

5 Curricular reform:
- Quality and labor market
- Progression, and financial aid
- Reengineering study programs

DK: Research Commission and OECD Review

DK: Globalisation Council

AU Acad. Dev. Process:
- Unified management
- Interdisciplinarity

AU Consolidation Process

1986-91
1991
1999
2000-02
2003
2005
2010
2011
2014
2018
WHAT MADE CHANGE POSSIBLE?

• Accumulated need for reforms since the 1980s and 1990s
• Realisation of need for increased interaction between research and society
• Increased global competition
• Change in influence
  • From a more traditional research policy idea
    (the Humboldt model and the linear models focus on autonomy and internal academic criteria and governance mechanisms)
  • Towards a new public management approach with transparency, accountability, efficiency, competition, contract, documentation and quantification in focus and new innovation policy ideas
    (closer integration between basic research, strategic research, innovation and knowledge exchange)
• Political pressure supplemented by free choice of merger partners – not all merged
• Realised in a period of increasing funding (Globalisation Act of 2006)
A RESPONSIVE UNIVERSITY
CHANGE PROCESS AT AARHUS UNIVERSITY

Mergers
- Institute of Business and Technology in Herning
- Danish Institute of Agricultural Sciences
- National Environmental Research Institute
- Aarhus School of Business
- Danish University of Education

Common strategy
9 faculties with 55 departments located all over Denmark

Academic development process
4 faculties with 27 departments primarily located in Aarhus

Implementation

Merger
- Aarhus School of Engineering

5 faculties located in Aarhus

2006 2007 2008 2009 2010 2011 2012
BACKDROP FOR ACADEMIC DEVELOPMENT PROCESS

• Mergers in 2006-2007 where five individual institutions merged
  • Mostly “business as usual” until early 2010…
  • A need to strengthen excellence in research, talent development, knowledge exchange and education
  • A need to unify deep expertise in the core disciplines with interdisciplinary research
• High societal expectations and a new, stronger role for the universities
  • Societal challenges (and policy choices) are complex, crossing the boundaries of individual disciplines
  • ... with regard to causes, consequences and solutions
  • Legitimate societal expectation of broad cooperation – that we actively strive to transfer research results into innovative, useful products, services and policy advice, thereby contributing solutions to societal challenges
THE COMPONENTS OF THE PROCESS

• **Academic organisation**: A unified university with *fewer internal boundaries*. From nine to four main academic areas, from 55 to 27 departments. Bringing basic and applied research closer. New i-centres, national centres, AIAS and AU Ideas.

• **Governance**: Management with *appointed leaders and joint responsibility* for the entire university. From ten management units to *a senior management team* with pan-university responsibility for strategic management and quality assurance.

• **Administration and finance**: A single university with *an integrated administration*. A common financial model, standardised quality service for the whole university; from three to *one (two) levels of administration* – front office and back office philosophy. Strategic financial pool (3-3.5% of annual turnover).

• **Empowerment**: *Increased staff co-determination*, strengthened academic councils, one per faculty, four AU Fora, one for each core activity: research, talent development, knowledge exchange and education.
THE QUADRUPLE HELIX
A STRATEGY
-- THE QUADRUPLE HELIX
VISION AND GUIDING PRINCIPLES

Mission:

• Aarhus University is an academically diverse, strongly research-oriented institution that creates and shares knowledge.

Vision:

• Aarhus University strives to be a leading globally-oriented university that is strongly engaged with society and that supports economic, cultural and social development.

Guiding principles:

• Interdisciplinary education and research based on strong core disciplines
• Talent development aimed at exceptionally motivated/qualified students at all stages of their academic careers
• Strengthening the university’s international capacity
RESEARCH

Challenges
- Universities are increasingly being called on to help address the grand challenges society faces
- Competition for research funding is increasing.
- Elite researchers are increasingly mobile.

Goals
- Increase the number of research areas that rank among the best in the world.
- Attract more external funding
- Achieve research breakthroughs and focus on challenges to society

Initiatives
- Establish interdisciplinary research centres to address society’s challenges
- Enter into strategic partnerships with major international universities
- Assume a leadership role in connection with more larger and new EU-financed project consortiums
- Make focussed efforts to recruit potential elite researchers and good research managers
**EDUCATION**

**Challenges**
- Admissions must be increased - the target is for 60% of school-leavers in any one year to complete a higher education course.
- We must develop the innovation capacity of our degree programmes
- Our degree programmes must be quality assured

**Goals**
- Enhance the profiles of the degree programmes offered at the university and of the university's graduates
- Accommodate diversity among students
- Develop the quality of degree programmes in accordance with the highest international standards

**Initiatives**
- Revise the quality policy and increase the coherence of the quality assurance system
- Systematise teaching and degree programme evaluations and cooperation with employers
- Develop a strategy for and organise teaching development
- Develop a model for upgrading the qualifications of teaching staff in connection with Educational IT
- Develop a clear education profile with principles for which degree programmes are offered - tree model
- Formulate approaches to and goals for the inner market - cross-disciplinarity
- Develop a plan for following up on study environment surveys effectively
- Develop a strategic brand management and recruitment policy
TALENT DEVELOPMENT

Challenges

- To maintain and increase Denmark’s competitiveness, a large number of trained researchers are required
- International competition to attract the best research talents is intense

Goals

- Offer researcher talent development at the highest international level
- Recruit, develop and retain researchers with outstanding talents

Initiatives

- Develop a focussed recruitment campaign aimed at potential PhD students
- Develop tenure track models to attract the best academic staff members from all over the world
- Develop a quality assurance policy for doctoral education
- Increase the international mobility of our PhD students
- Improve career counselling for PhD students, including guidance on opportunities outside academia
KNOWLEDGE EXCHANGE

Challenges

• Universities must share their knowledge with the society they belong to
• The value of knowledge exchange must be strengthened, developed and made visible, both internally and externally
• The amount and quality of existing public-sector consultancy services must be retained at current levels

Goals

• Intensify collaboration with the business community and the public sector
• Consolidate and develop the university's role of independent scientific consultant to the public sector
• Develop continuing and further education activities
• Strengthen contributions to the development of civil society

Initiatives

• Develop a comprehensive plan for future knowledge exchange activities, including a knowledge exchange conference
• Strengthen the national centres and transform them into gateways to research-based public-sector consultancy services
• Increase the number of Industrial PhD students, contracts and researcher and student projects in collaboration with businesses
• Establish a central alumni organisation, set up career centres at strategic locations and create a clear web gateway
AARHUS UNIVERSITY TODAY
AARHUS UNIVERSITY - TOP 100

In responding to the Danish reforms Aarhus University

• changed governance, external board and appointed rector

• engaged in mergers with the following independent institutions: Aarhus School of Business, Herning Engineering and Business College, Aarhus School of Engineering, the Danish University of Education, the National Center for Environmental Research and the National Center for Agricultural Research

• Reorganized and consolidated internal structures: 5 traditional faculties and the 6 merged institutions became 4 new faculties, and more than 100 departments became 26.

• Went from 22,000 to 39,000 students (and 75,000 open learners enrolled in the Danish University Extension)

• Annual budget 1billion USD, including more than 6000 individual research grants
AARHUS UNIVERSITY - KEY FIGURES 2017

7,800 employees (FTEs)

39,000 students, including MA- and PhD students

5,000 international students

12,600 publications

1 billion USD revenue

585,000 m² building space
# STUDY PROGRAMS

## ARTS & HUMANITIES
- **38** Bachelor’s degree programme
- **67** Master’s degree programme
- **105** Total

## BUSINESS & SOCIAL SCI.
- **11** Bachelor’s degree programme
- **13** Master’s degree programme
- **2** Other degree programmes
- **26** Total

## HEALTH
- **4** Bachelor’s degree programme
- **8** Master’s degree programme
- **4** Other degree programmes
- **16** Total

## SCIENCE AND TECHNOLOGY
- **15** Bachelor’s degree programme
- **28** Master’s degree programme
- **11** Other degree programmes
- **54** Total
STRATEGIC CHANGE IN EMPLOYABILITY

AU graduates employed in public and private sector, 2016

- Privat

AU graduates employed in public and private sector, 2030

- Privat
Aarhus University decided to proactively participate in the development of advanced global talent, and established AIAS in 2013. AIAS is an open, interdisciplinary institute for advanced study. [aias.au.dk](http://aias.au.dk)

- Advancing highest quality research at Aarhus University (AU) by recruiting talented, highly qualified fellows worldwide and within all disciplines
- Fellows are free to develop their research in periods of 6 month to three years
- Fellows are invited to participate in various kinds of collaboration with researchers, research teams and advanced students at AU and abroad
- Budget: EU co-fund – 15 M USD and Aarhus University Research Foundation -20 M EuUSD
ARCTIC RESEARCH CENTRE

Aarhus University decided to take responsibility for advanced and unique research infrastructure for the benefit of the international research community. One of these is organized by the Arctic Research Centre, which in few years has developed a comprehensive set of facilities that are open for international research cooperation

- Canadian-Greenlandic-Danish leadership
- Aims to answer critical questions related to climate change and Arctic populations. The partnership shares laboratories, research infrastructure, field stations, vessels and equipment enabling scientists to study the Arctic under all conditions
- Mutually planned educational programs facilitates student exchange
- Research stations in Canada and Greenland (Daneborg, Zackenberg, Station North and Nuuk)
RESEARCH INFRASTRUCTURE IN THE ARCTIC

• Three locations in the Arctic: NERO, ZERO and Station Nord

• Collaboration with international partners in the Arctic and Asia

• Arctic Research Centre: 250 researchers and students across disciplines
SINO-DANISH CENTER (SDC)

SDC in Beijing is a joint college for education and research established in 2011

- Aims to promote and strengthen collaboration between Danish and Chinese learning and research for the benefit of both countries
- Offers opportunities within postgraduate education and research through joint degree programs (joint and double degrees) and research activities (Ph.D. programs)
- Partners: 8 Danish research universities, the Danish Ministry of Education, the University of the Chinese Academy of Sciences (UCAS) and the Chinese Academy of Sciences (CAS)
- 350 master students, 100 Ph.D. students, 500 alumni
- No full time faculty, but recruited from the cloud (250/yr exchanged DK)
- 12,000 m2 new building and annual budget of 15 million Euro
The aim of the Sino-Danish Center for Education and Research is to strengthen collaboration between UCAS and Danish Universities, and to increase mobility of students and researchers.
AARHUS UNIVERSITY'S GLOBAL RANKING
### SUBJECT/FIELD RANKINGS

**THE 2017**

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<tr>
<th>Category</th>
<th>Rank</th>
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<td>Arts &amp; Humanities</td>
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<td>Computer Science</td>
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**TAIWAN 2017**

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<td>Environment/Ecology</td>
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<tr>
<td>Plant and Animal Science</td>
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<td>Clinical medicine</td>
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<td>Social sciences</td>
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**QS 2017**

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<td>Communication and Media Studies</td>
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<td>Dentistry</td>
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<tr>
<td>Theology, Divinity &amp; Religious Studies</td>
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<tr>
<td>Biological Sciences, Development Studies, Economics and Econometrics, Education, Environmental Studies, History, Medicine, Nursing, Politics and International Studies, Psychology, Social Policy &amp; Administration</td>
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**SHANGHAI 2017**

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<td>Agricultural Sciences</td>
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<td>Political Sciences</td>
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<td>Public Administration</td>
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<tr>
<td>Chemistry, Veterinary Sciences, Public Health, Sociology</td>
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CONCLUSION
MARKED INCREASES IN RESEARCH IMPACT

- In 1990, on average, Danish research was cited less than the world average in 1990.
- Since 2005, Danish research citation rates have been approximately 35% above the world average.

THE INSTITUTIONAL CHALLENGES

• Increasing enrollment
• Diversifying student body
• Expanding scope
• Multiple income sources
• Traditional and defensive structures
• Unequal research funding opportunities
• Fast external changes and slow internal response

How do your institution respond?
Ref: “Talent development as a university mission: The Quadruple Helix”


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