THE ROAD TO EXCELLENCE

- Quality of national framework conditions
  - Institutional autonomy
  - Governance and accountability
  - Adequate and stable financing

- Ability of universities to respond to opportunities in the marked for knowledge and talent
  - Favorable internal structures
  - Clear strategy and holistic management
  - Capacity to differentiate and prioritize
New Framework Conditions for Higher Education and Research in Denmark
Major Reforms of Higher Education in Denmark

- Financing reform (2006)
- University mergers (2007)
- Curricular / Bologna reform (1999-2007)
UNIVERSITY GOVERNANCE

- Autonomy – from state institutions to autonomous bodies within the public sector
- Governing boards with a majority of external members
- Appointed leaders in university governance structures (rector, deans and department heads)
UNIVERSITY FINANCING

- Globalization Council under the leadership of the Prime Minister
- Raise public investments in research to 1 percent of GDP in 2010
- Increase in competitive research funding
- Stability in base funding in exchange for enhanced accountability for results
REORGANIZING HE&R INSTITUTIONS IN 2007

Aalborg University
- Aalborg University
- Danish Building Research Institute

University of Aarhus
- University of Aarhus
- Aarhus School of Business
- Danish Institute of Agricultural Sciences
- National Environmental Research Institute

University of Southern Denmark
- University of Southern Denmark
- National Institute of Public Health

The National Research Institutions
- The National Geological Surveys of Denmark and Greenland
- The National Research Centre for the Working Environment
- The National Centre for Social Research

Technical University of Denmark
- Technical University of Denmark
- Risø National Laboratory
- Danish Institute for Food and Veterinary Research
- Danish National Space Centre
- Danish Institute for Fisheries Research
- Danish Transport Research Institute

University of Copenhagen
- University of Copenhagen
- Danish University of Pharmaceutical Sciences
- Royal Veterinary and Agricultural University

IT University of Copenhagen

Copenhagen Business School

Roskilde University
WHY Mergers?

- Achieving higher quality through disciplinary consolidation and critical mass
- Unleashing the educational potential of public research institutes
- Ensuring that each institution will be able to offer a comprehensive range of offerings
- Rationalization by eliminating duplication in research and education
- Increased international engagement and visibility
AARHUS UNIVERSITY FOLLOWING THE MERGERS

**STUDENTS**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Bachelor</td>
<td>20,104</td>
</tr>
<tr>
<td>Master</td>
<td>16,395</td>
</tr>
<tr>
<td>Part-time Master etc.</td>
<td>5,176</td>
</tr>
<tr>
<td>PhD</td>
<td>2,045</td>
</tr>
<tr>
<td><strong>Total no. of students:</strong></td>
<td><strong>43,720</strong></td>
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**STAFF**

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<table>
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<tr>
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<tbody>
<tr>
<td>Academic staff</td>
<td>4,629</td>
</tr>
<tr>
<td>Academic staff (part-time)</td>
<td>2,028</td>
</tr>
<tr>
<td>Administrative/technical staff</td>
<td>4,725</td>
</tr>
<tr>
<td><strong>Total no. staff members:</strong></td>
<td><strong>11,382</strong></td>
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**FINANCES**

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</thead>
<tbody>
<tr>
<td>Million € (2012 level)</td>
<td>693</td>
<td>733</td>
<td>761</td>
<td>803</td>
<td>826</td>
</tr>
</tbody>
</table>

DEPUTY UNIVERSITY DIRECTOR KRISTIAN THORN  
OCTOBER 2012
Tear down **INTERNAL BOUNDARIES** and promoting excellence by stimulating **COLLABORATION ACROSS DISCIPLINES**
CAPACITY TO RESPOND TO NEW SOCIETAL CHALLENGES

"We must organize the Aarhus University of the future to enable us to contribute even more to meeting our society's challenges."

- Climate change
- Food supply
- Mass migration
- Health
- Security
- Energy
- Access to Water

A complex world with interconnected challenges which transgress disciplinary boundaries – with regard to causes, consequences and solutions
DESIRE TO REMOVE INTERNAL BOUNDARIES

Merger with
- Danish School of Education
- Aarhus School of Business
- Danish Agricultural Institute
- National Environmental Research Institute

5 faculties, located in Aarhus

2006

Merger with
- Aarhus Engineering School

9 faculties with 55 institutes, located all over Denmark

2007 2008 2009 2010 2011 2012

Academic development process

4 faculties with 27 institutes, located mostly in Aarhus

DEPUTY UNIVERSITY DIRECTOR KRISTIAN THORN

AARHUS UNIVERSITY

OCTOBER 2012
EXAMPLE: FACULTY OF SCIENCE & TECHNOLOGY

Today:
- Department of Animal Science
- Department of Bioscience
- Department of Environmental Science
- Department of Geoscience
- Department of Engineering
- Department of Agroecology

- Department of Food Science
- Department of Molecular Biology and Genetics
- Department of Physics and Astronomy
- Department of Mathematics
- Department of Chemistry
- Department of Computer Science
A SINGLE UNIFIED MANAGEMENT WHERE DEANS HAVE **THREE** RESPONSIBILITIES
NEW SOLUTIONS TO COMPLEX SOCIETAL CHALLENGES

INTERDISCIPLINARY CENTERS AT AARHUS UNIVERSITY

- MINDlab
- iNANO
- Neurocampus
- Food, Nutrition and Health
- Global Change and Development
- Integrated Register-based Research
- Arctic Research
- ...

DNA twisted into boxes

Molecular keys can open tiny containers.

Geoff Brumfiel

A multidisciplinary team of researchers has created tiny DNA strongboxes measuring just 30 nanometres on each side. The boxes, which can be unlocked with a gene 'key', could be used for drug delivery or as sensors.

The boxes are the latest novelty to emerge from 'DNA origami', the technique by which researchers build structures out of DNA. They use oligonucleotides, short snippets of nucleic acid bearing genetic information, to fold longer strands of DNA into a complex structure. Each box is large enough to hold a single ribosome — the cell's machine for making proteins. Previously, researchers have built tubes and even a map of the Americas using the technique.

The boxes are formed from a single strand of DNA.

Ebbe Slots Andersen
Developing a clear strategy that reinforces strengths and supports differentiation
EXPENDITURES AT AARHUS UNIVERSITY

- Talent development: 24%
- Research: 33%
- Education: 31%
- Knowledge exchange: 12%

No. of PhD students at Aarhus University

- 2008: 1.200
- 2009: 1.300
- 2010: 1.400
- 2011: 1.500
- 2012: 1.600
- 2013: 1.700
- 2014: 1.800
- 2015: 1.900
- 2016: 2.000
- 2017: 2.100
- 2018: 2.200

DEPUTY UNIVERSITY DIRECTOR KRISTIAN THORN
OCTOBER 2012
EARLY IDENTIFICATION OF RESEARCH TALENT

- Bachelor 3 years
- Master 2 years
- PhD 3 years
  - Master/PhD 2 years
  - Honours Bachelor/Master/PhD 3 years
  - PhD 2 years
- Bachelor 3 years
  - Master 1 year
  - Master/PhD 2 years
  - PhD 2 years
- Bachelor 3 years
  - Master 1 year
  - Master/PhD 2 years
  - PhD 2 years

5 + 3
Bologna Classic

4 + 4

3 + 5
Bologna Danese
NEW CROSS-CUTTING INITIATIVES FOR TALENT DEVELOPMENT

- **AU IDEAS** (visionary and original project ideas)
  - Project Development (1-2 yrs. with up to € 67,000 per applicant)
  - Pilot Centers (3-5 yrs. with up to € 0.4-1 million)

- **Aarhus Institute of Advanced Studies**
  - Exceptionally talented younger researchers from all over the world
  - Stimulating, international and interdisciplinary environment
  - Opportunity to pursue own research interests for a 2-3 year period
  - Independent managerial structure with international advisory board
  - Seed grant of € 1.5 million annually for five years
What is the **net impact** of improved framework conditions and internal reform?
## A TOP 100 UNIVERSITY

<table>
<thead>
<tr>
<th>RANKINGS</th>
<th>AARHUS UNIVERSITY</th>
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<tbody>
<tr>
<td></td>
<td>2007</td>
</tr>
<tr>
<td>Leiden*</td>
<td>-</td>
</tr>
<tr>
<td>Shanghai</td>
<td>102</td>
</tr>
<tr>
<td>QS</td>
<td>114</td>
</tr>
<tr>
<td>THE</td>
<td>-</td>
</tr>
<tr>
<td>Taiwan</td>
<td>132</td>
</tr>
</tbody>
</table>
Relative citation impact as a function of publication volume for Nordic universities

Source: Comparing Research at Nordic Universities using Bibliometric Indicators, A publication from the NORIA Net, NordForsk 2011, p. 61

AARHUS UNIVERSITY

DEPUTY UNIVERSITY DIRECTOR KRISTIAN THORN
RECTOR LAURITZ B. HOLM-NIELSEN
OCTOBER 2012
NOVEMBER 2011
PARTICIPATION IN INTERNATIONAL BRAIN CIRCULATION

Proportion of international PhD Students at Aarhus University

Source: PhD Planner, 2012

DEPUTY UNIVERSITY DIRECTOR KRISTIAN THORN
OCTOBER 2012
What can be learned from the case of Aarhus University?
CONCLUSION: NATIONAL FRAMEWORK CONDITIONS

- Adequate framework as necessary but not sufficient condition
- Mergers can be an opportunity to shape the institutional landscape according to new demands
- University governance is important for the ability to develop unique Institutional profiles
CONCLUSION: INSTITUTIONAL RESPONSE

- Successful institutions challenge existing structures and historical “truths”

- Use autonomy to its fullest – Institutions needs to develop a clear sense of (i) who and where they are and (ii) where they would like to go

- Important to differentiate university missions in terms of disciplinary focus, core activities and how knowledge is produced

  Freedom to seek deeper connections – greater coherence