

Promoting Problem Solving Skills

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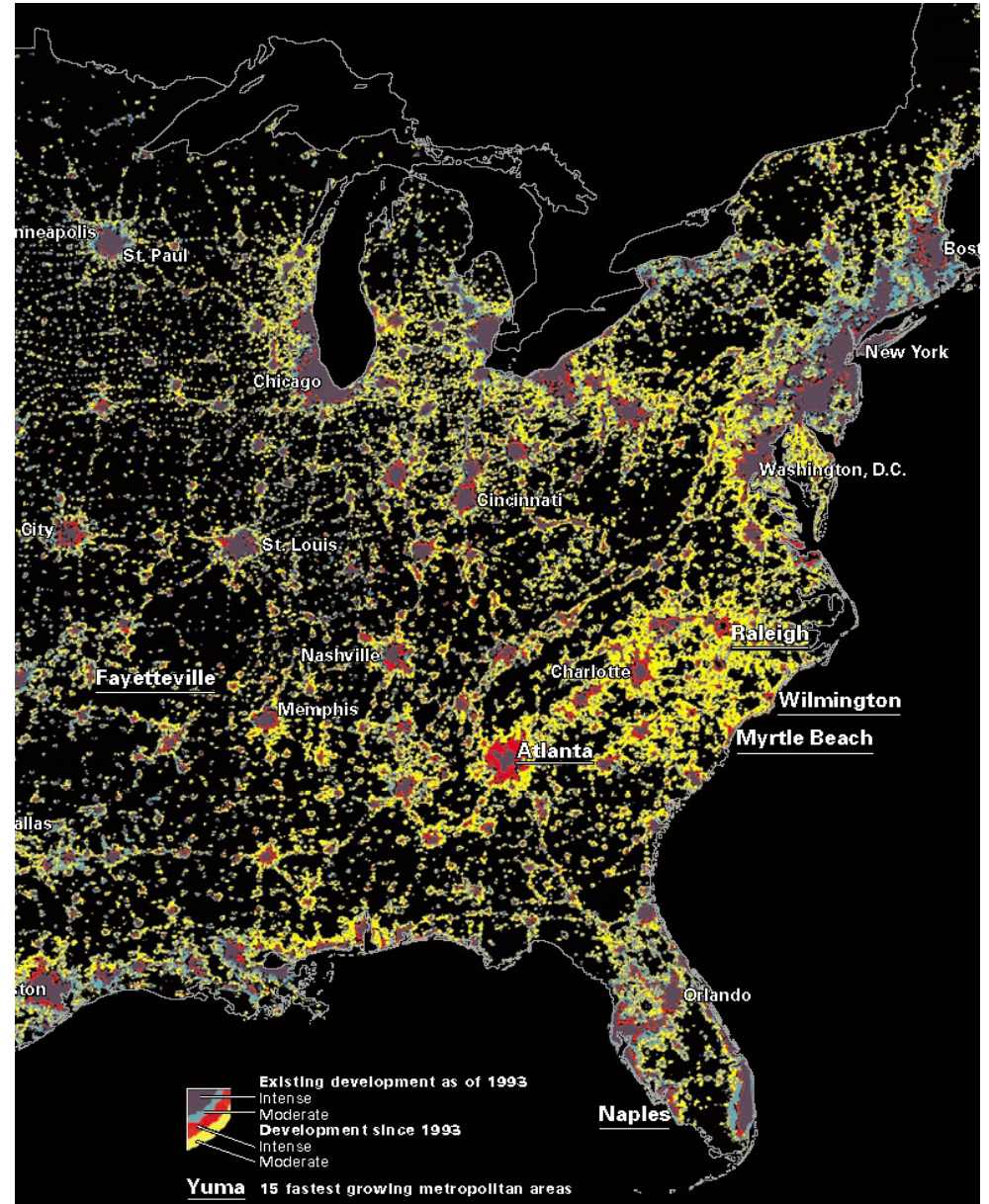
INT. CONGRESS ON GEOMATICS, SURVEYING ENGINEERING AND TOP-CART 2008
VALENCIA, SPAIN, 18 – 21 FEBRUARY 2008

The Enlightened Globe



Source: NASA/REUTERS

The Enlightened Globe



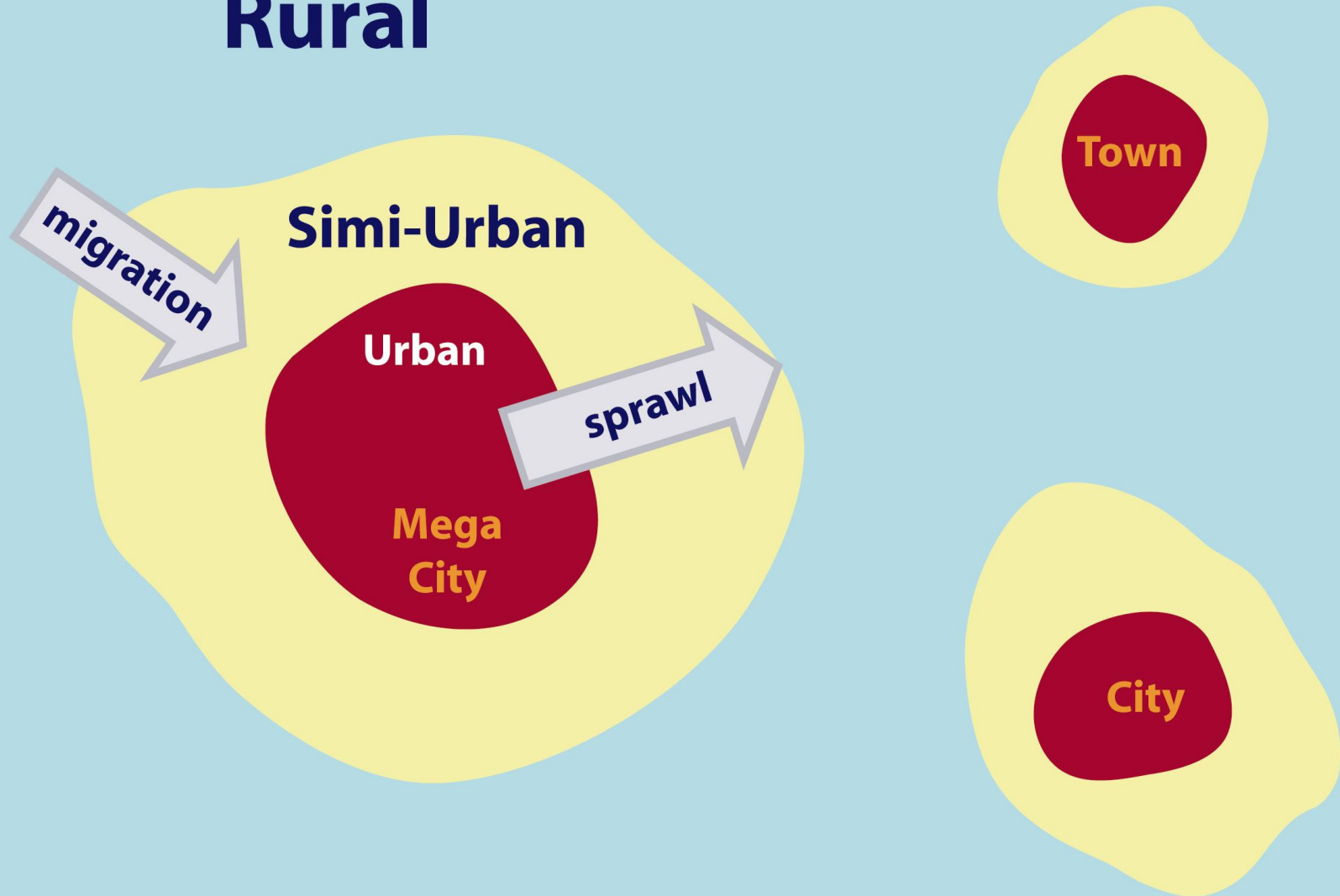
Endless Urban Sprawl



Source: National Geographic 2001

Urban-Rural Interrelationships

Rural



Informal settlement Cape Town 2001



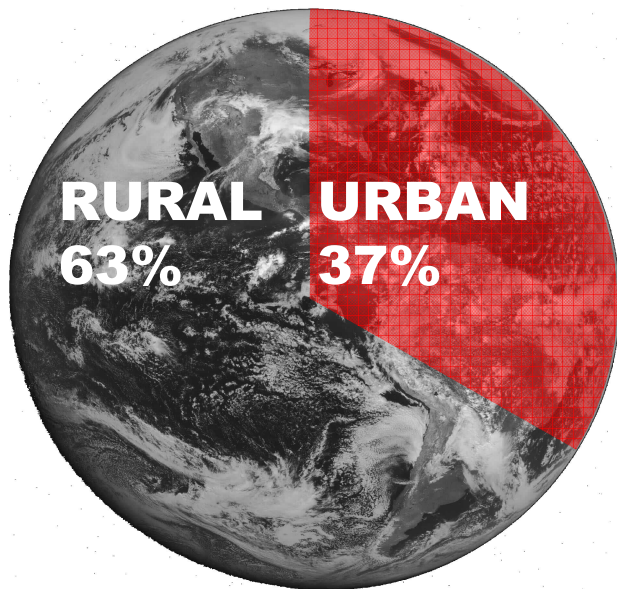
Eviction, Cape Town, 2006



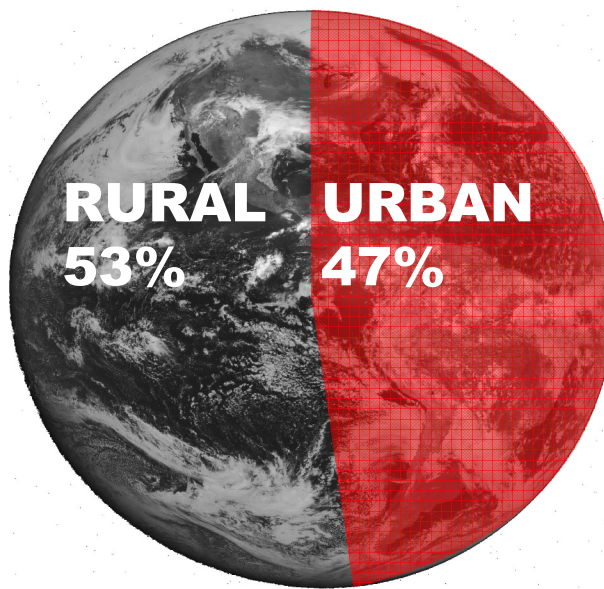


Kibera, Nairobi

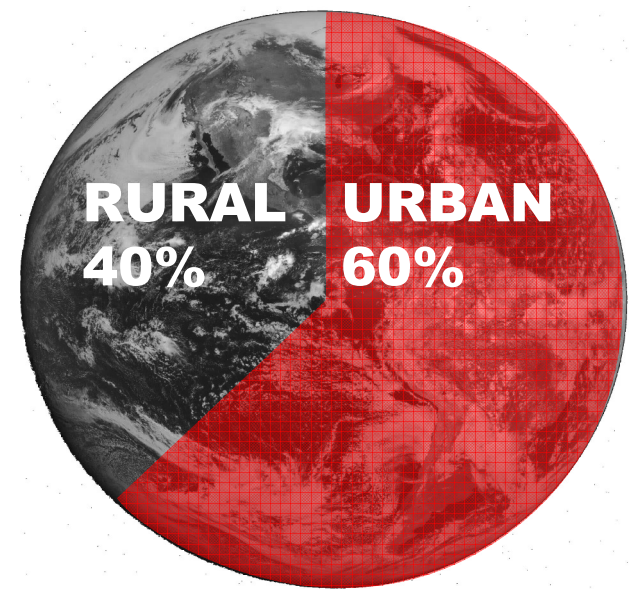
Urban population growth



1970



2000



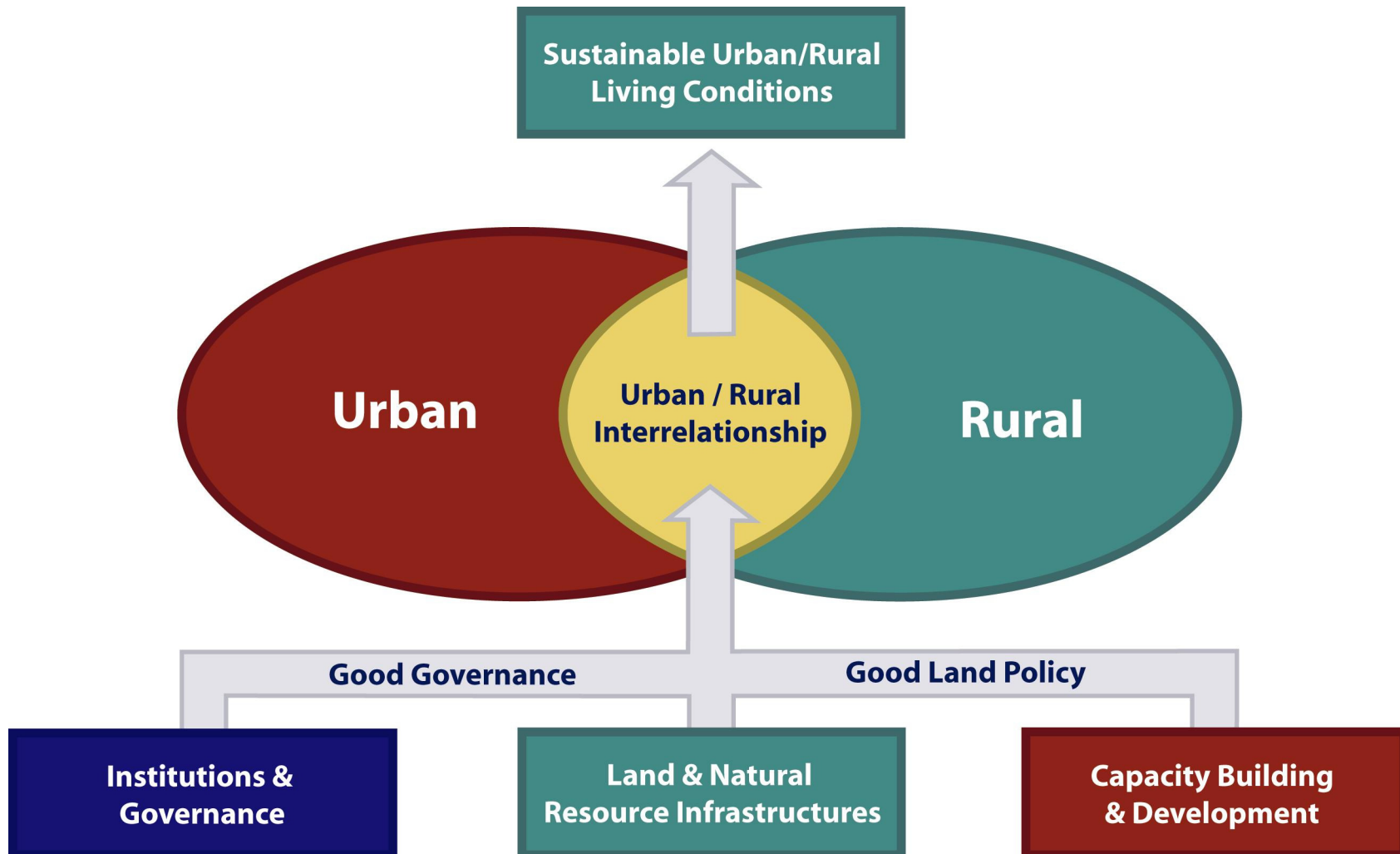
2030

Total world population : 6.5 billion

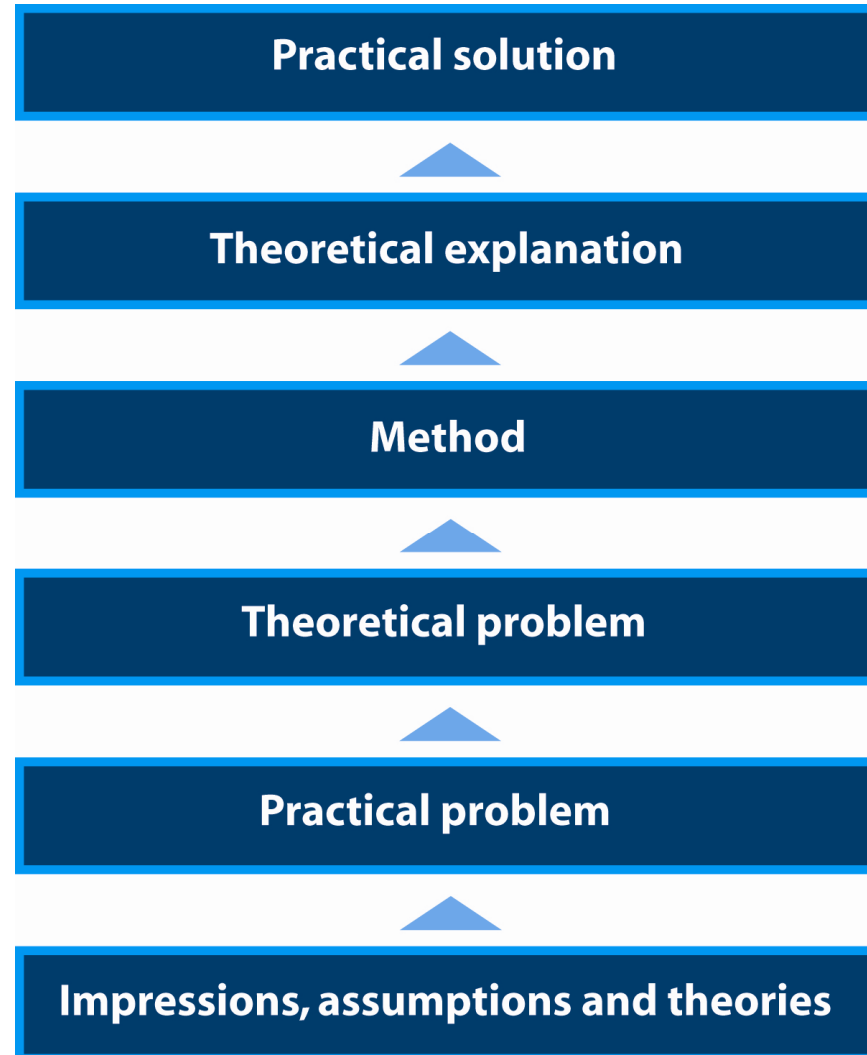
Total urban population: 3.3 billion

Total slum dwellers: 1.1 billion (100 mill. to be improved by 2015)

The Urban-Rural Interrelationship



Problem Solving and Applied Science



International Trends in Surveying Education...

- **Management Skills - versus specialist skills**

from traditional technical skills and push button technologies
to interpretation and management of data meeting the needs
of the clients

- **Project Organised Education - versus subject based**

from traditional technical skills (knowing how)
add-on approach
to management and problem solving skills
(knowing why)
focus on "learning to learn"

...International Trends in Surveying Education

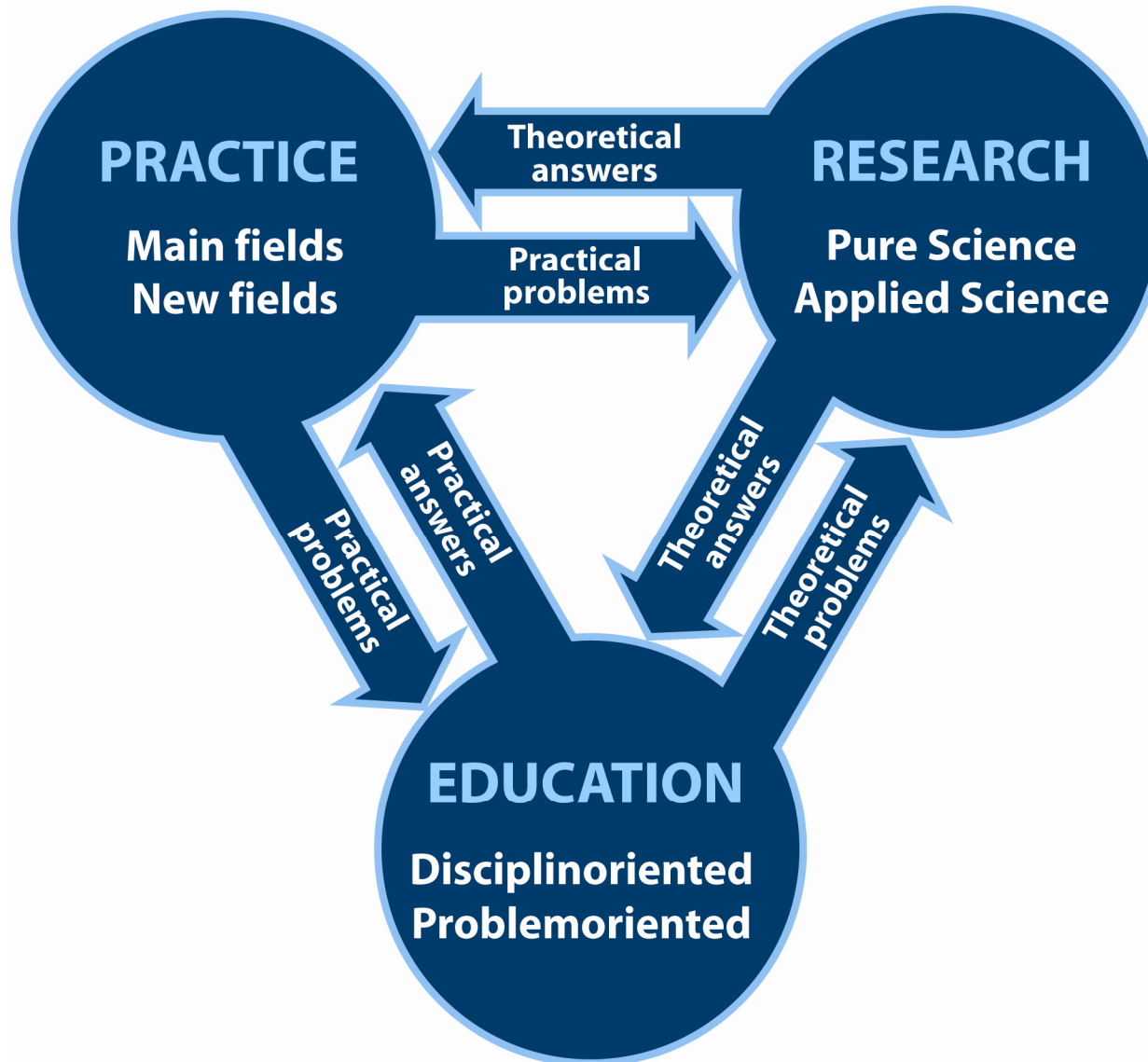
- **Virtual Academy - versus classroom lecture courses**

from traditional on-campus activities
to a more open role of serving the profession
and the society

- **Lifelong Learning - versus vocational training**

from learning for life
through university graduation
to lifelong learning
through CPD-strategies and distance
learning

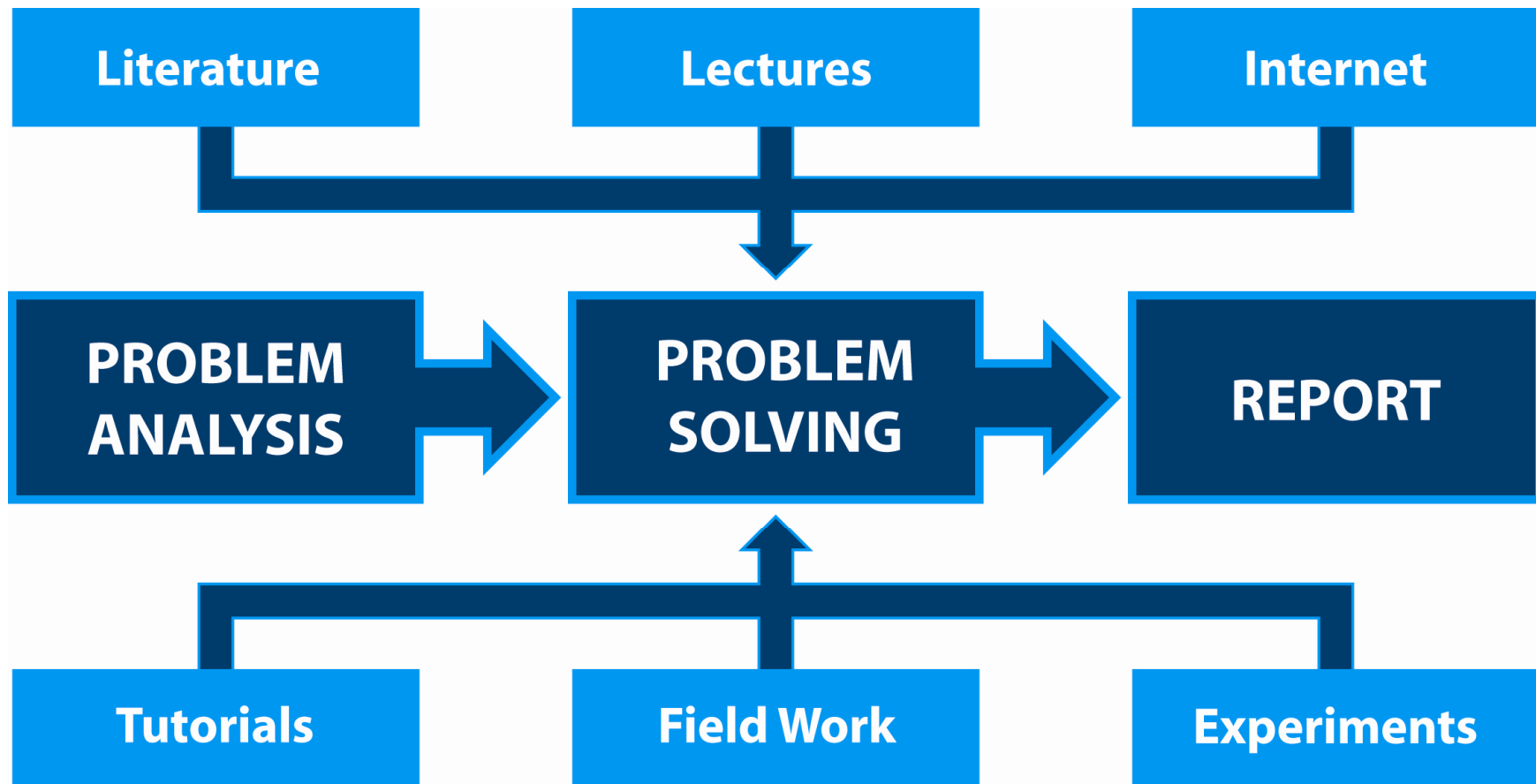
Education, Research and Professional Practice



PBL - Key Points

- **Learning** rather than teaching
- **Problem-solving** rather than text-book knowledge
- **Project work** rather than class-room lecturing
- **Interdisciplinary approach** rather than subjects
- **Contextual understanding** rather than by heart knowledge
- **Applied Science** rather than pure science
- **Flexible concept** rather than fixed course standards

Project-organised and Problem-based Learning



Project Work



Key Philosophy

Tell me and I will forget

Show me and I will remember

Involve me and I will understand

Step back and I will act

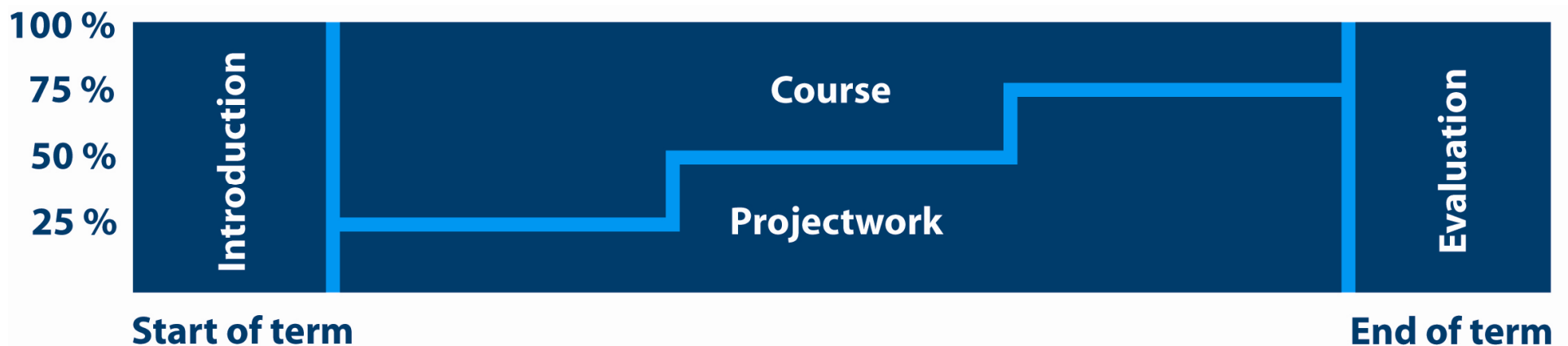
Chinese proverb

The Aalborg Curriculum



Lecture Courses and Project Work

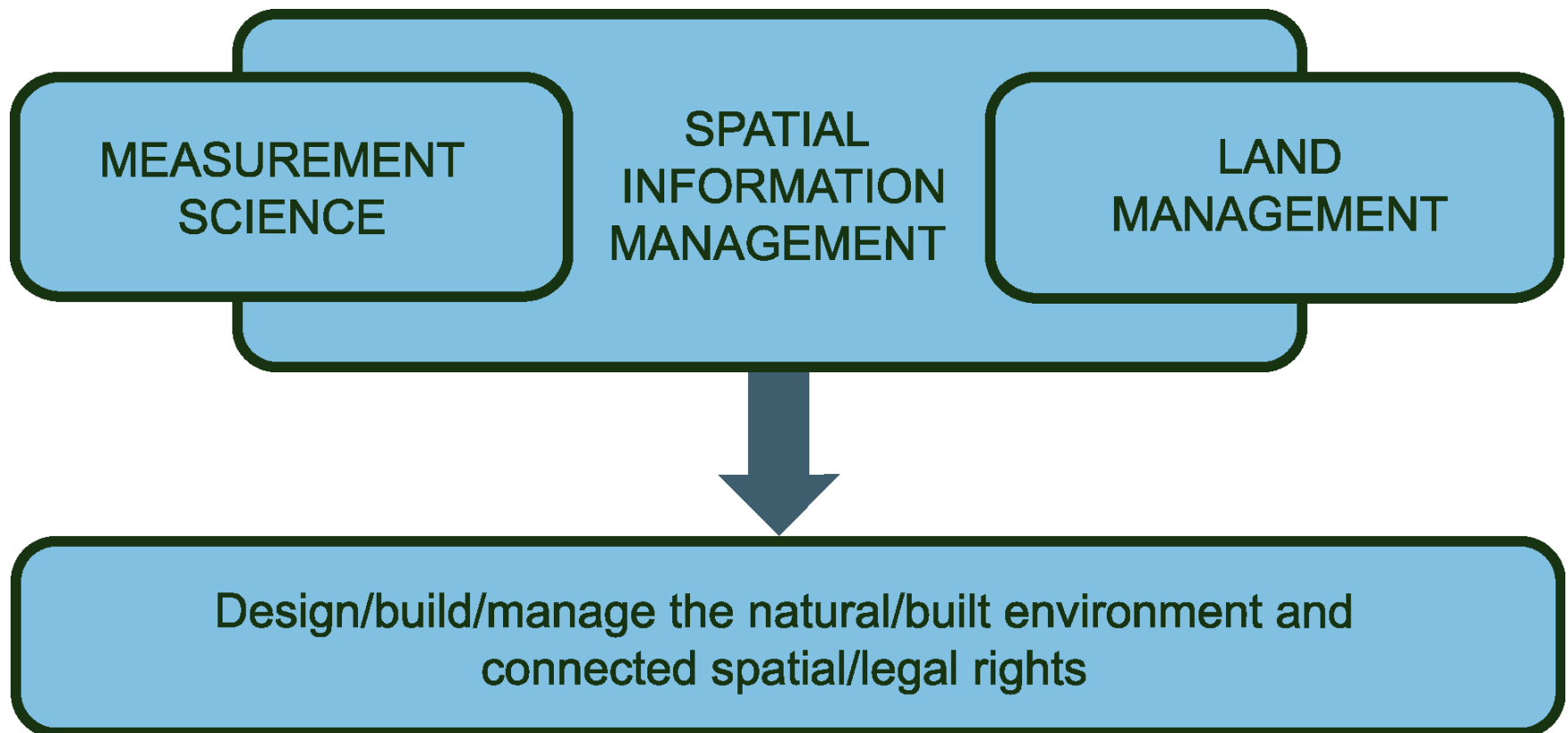
- 50 % project work work: a major assignment within a given subject-related framework determined for each semester.
- 25 % project related courses supporting the project work
Evaluated as oral examinations based on the project report.
- 25 % mandatory courses relating to the overall academic profile of the curriculum. Evaluated through individual written or oral examinations.



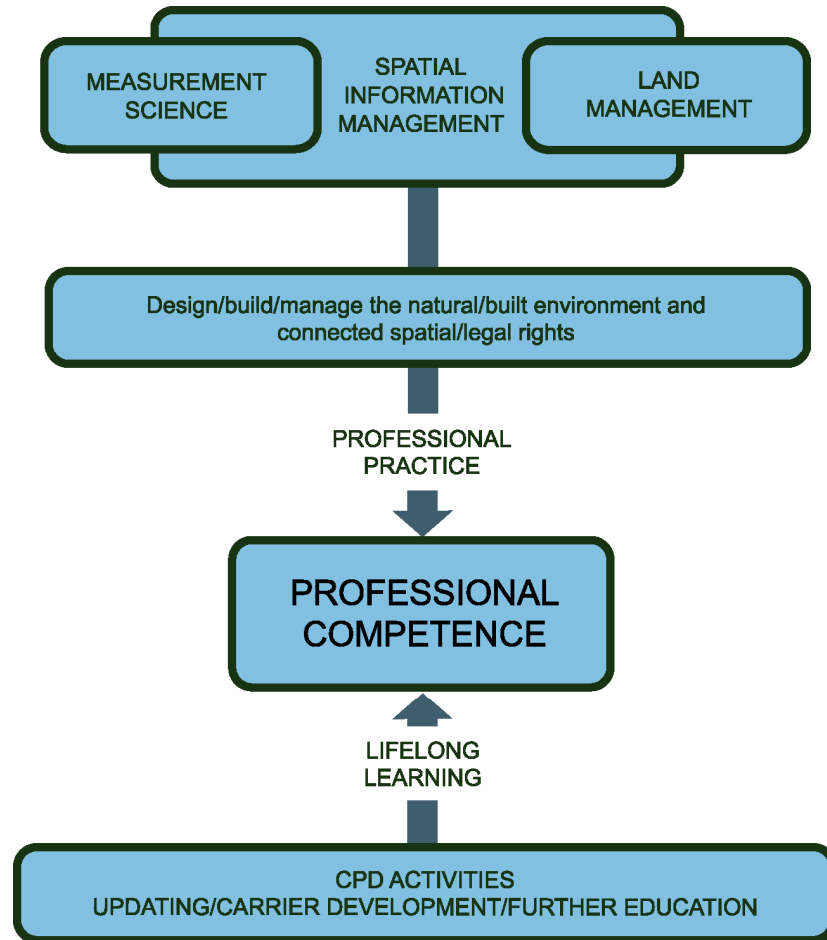
The Role of the Teacher

- A three-dimensional role:
Lecturer (teacher), Supervisor (coach), Researcher (scientist)
- Focus on learning rather than teaching
- On-going renewal of lecture courses
- On-going and dynamic interaction between education, research and professional practice

The Educational Profile of the Future



The Professional Challenge



THE PROFESSIONAL COMPETANCE MODEL

Professional competence relates to the status as an expert.

This status cannot be achieved only through university graduation and it cannot be achieved solely through professional practice.

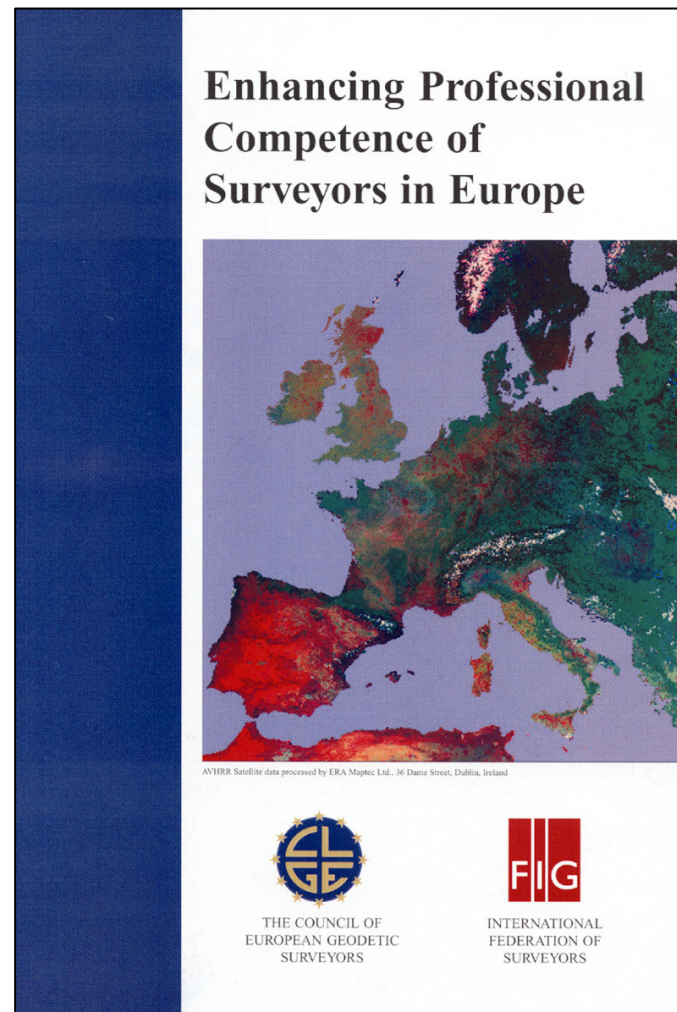
The idea of “learning for life” is replaced by the concept of lifelong learning.

All graduates must have access to the newest knowledge throughout their professional life.

E-Learning and innovative interaction between education, research and professional practice is essential in this regard

Enhancing Professional Competence

<http://www.fig.net/pub/CLGE-FIG-delft/report-1.htm>



Summarising the Aalborg PBL Model

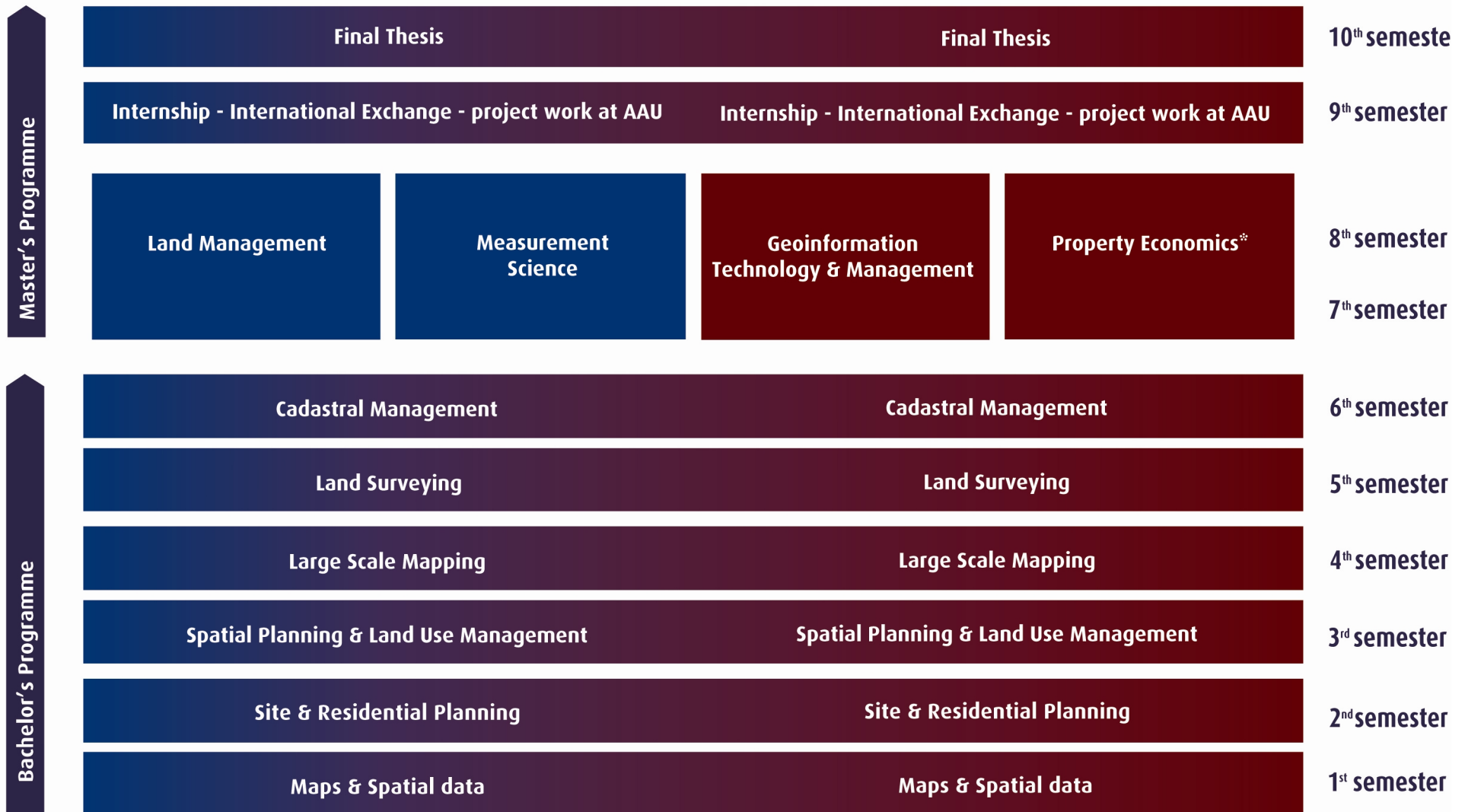
- **Problem Based Learning**
 - Based on real-life engineering problems
- **Project Organised Education**
 - Project work supported by lecture courses
- **Group Work**
 - Groups of four to six students
 - Supervised by the teachers
- **Interdisciplinary Studies**
 - Integration of theory and practice
 - Focus on Learning to Learn

M. Sc. - Chartered Surveyor Study Programme

View Curriculum September 2007

AALBORG

COPENHAGEN



* In co-operation with Faculty of Engineering LTH / Lund University



**Thank you
for your attention**