Technical University of Denmark, DTU

'Evolution of University Learning Facilities on Campus'

TRANSFORMING DTU

About us:

- **Jesper Engbo Larnæs**
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- **Lars R. Kruse**
- Project Manager Technical University of Denmark – DTU

DTU
Service departments

AUS
Office for Study programmes and student affairs

AIT
Office for AV and IT

CAS
Campus Service

TRANSFORMING **DTU**

Technical University of Denmark

DTU is an internationally recognized elite university with high standards. Our mission is to develop applicable technical solutions for the greater benefit of society, which are grounded in science.

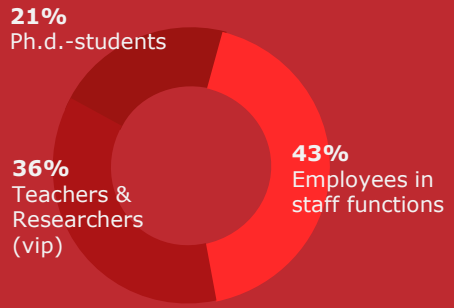
Lyngby Campus built between 1959-1974
Ballerup Campus built between 1988-1995

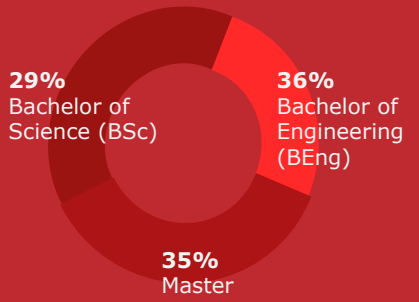
Technical University of Denmark

We educate engineers

6.000
staff of DTU

12.000
students at DTU





Programmes

Bachelor of Engineering (BEng)
18

Bachelor of Science (BSc)
22

Master of Science (MSc)
32 + 28 Programmes in co-work with international universities

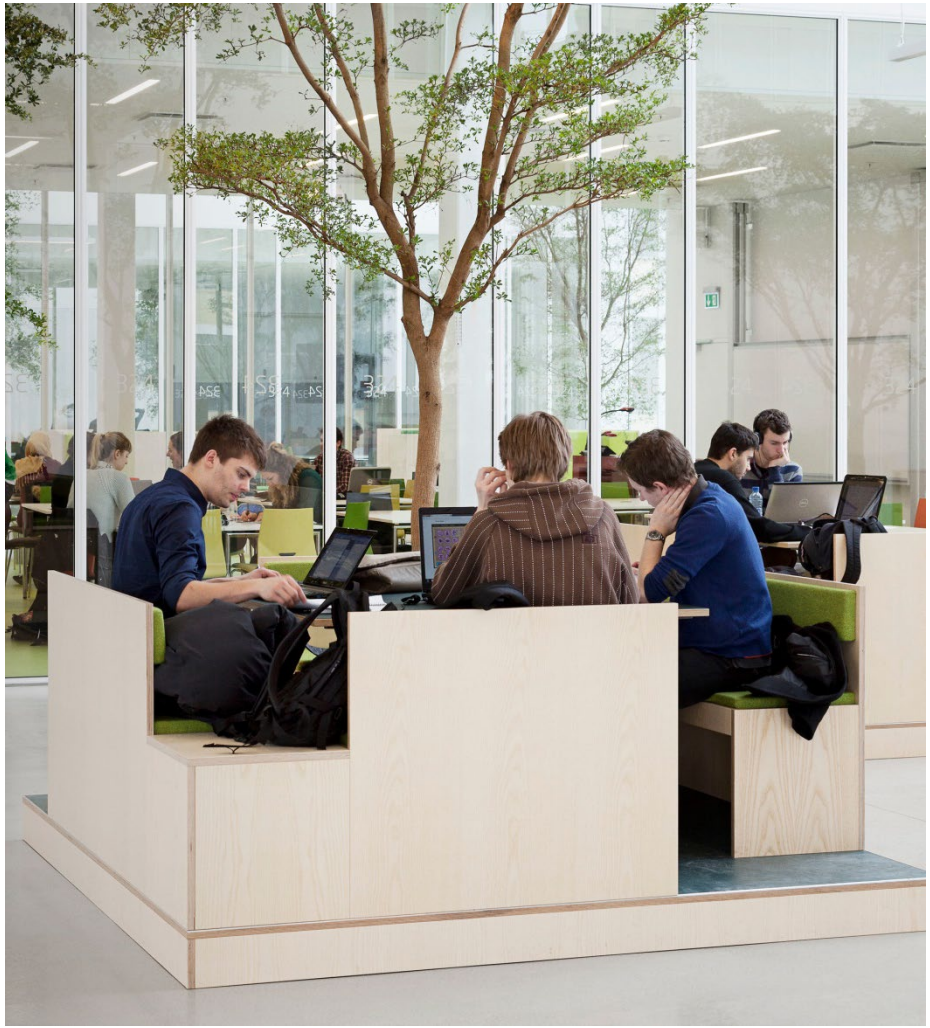
TRANSFORMING **DTU**

Transforming DTU 2010-2021 Campus Investments: 800 million euro

More than 25 different building projects have been initiated and are on their way. These aim to create the best conditions for a world-class technical university, which can attract the best researchers and students from all over the world.

The overall vision 'Transforming DTU', supports the following 3 areas:

- **Life Science Center**
- **Science and Research Facilities**
- **Teaching and Learning Enviroments**

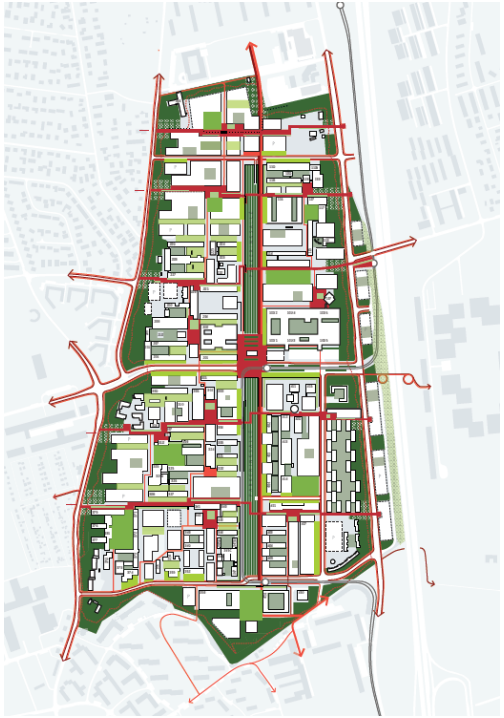


DTU shall strengthen and develop formal and informal enviroments including experimental learning facilities for students

DTU's strategy 2014-2019

TRANSFORMING DTU

STRATEGIC CAMPUS DEVELOPMENT



Strategic Themes:

- Value creation
- Excellent university environment
- Identity
- Campus environment.

Physical themes:

- Mobility
- Landscape
- Architecture
- Utilities

DTU Projects within Teaching and Learning Environments

2013 New building
Building 127

2013 New building
Building 324

2015 New building
Building 329A

2011 Remodelling
Building 421

2014 Remodelling
Skylab

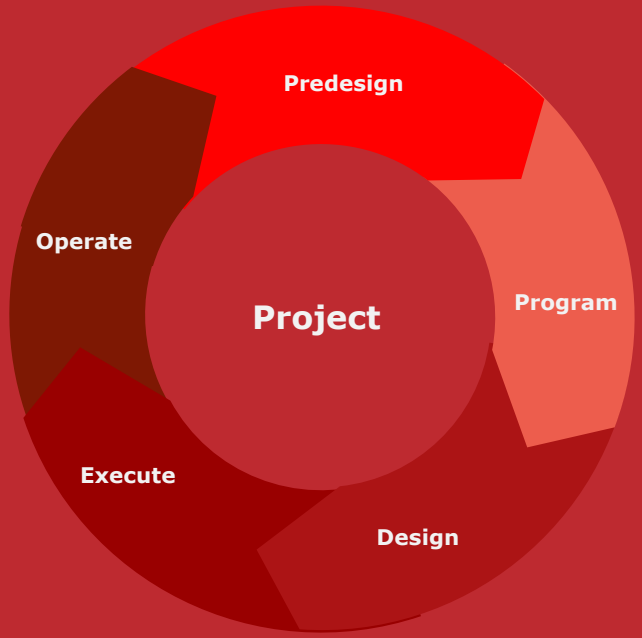
2016 Remodelling
Building 303

Project Development Process

We prioritize the PREDESIGN phase

The objective is to bring clarity to the following topics:

- Clear mission goals for the project
- Establishing project boundaries.
- Specification’s program (user needs), investigation of the full potential within the facilities.
- Risk analysis.
- Well structured project organisation.
- Project plan, time schedule with approval gateways (Steering committee).

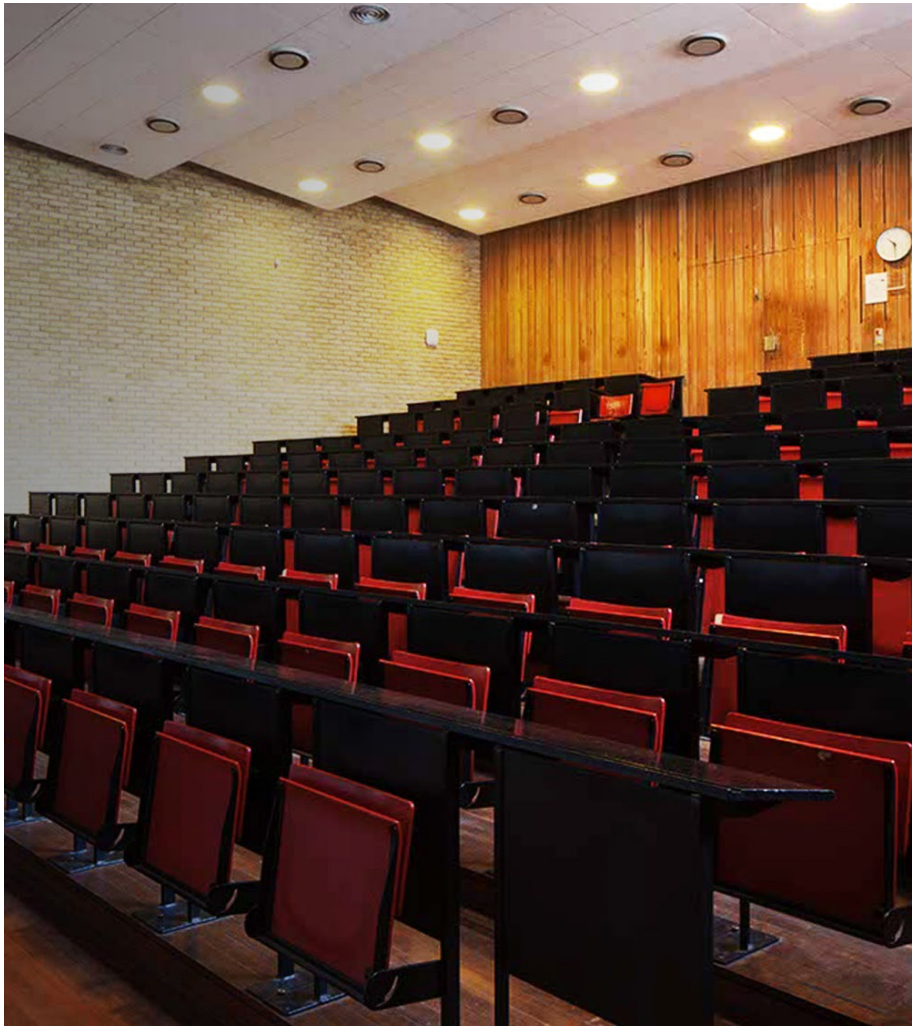


Case study:
Lechture hall building remodelling project

Building 303A

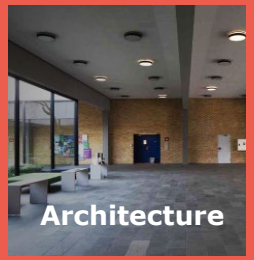
ca. 3.300 m2
6 lecture halls
3 databars

Remodelling
Executed: 2013-2016
Budget ca. 12,5 mio. Euro



The Project's process

Dreams, wishes, needs



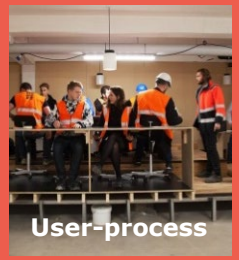
Room-and geometry

Experience from other projects

BUDGET

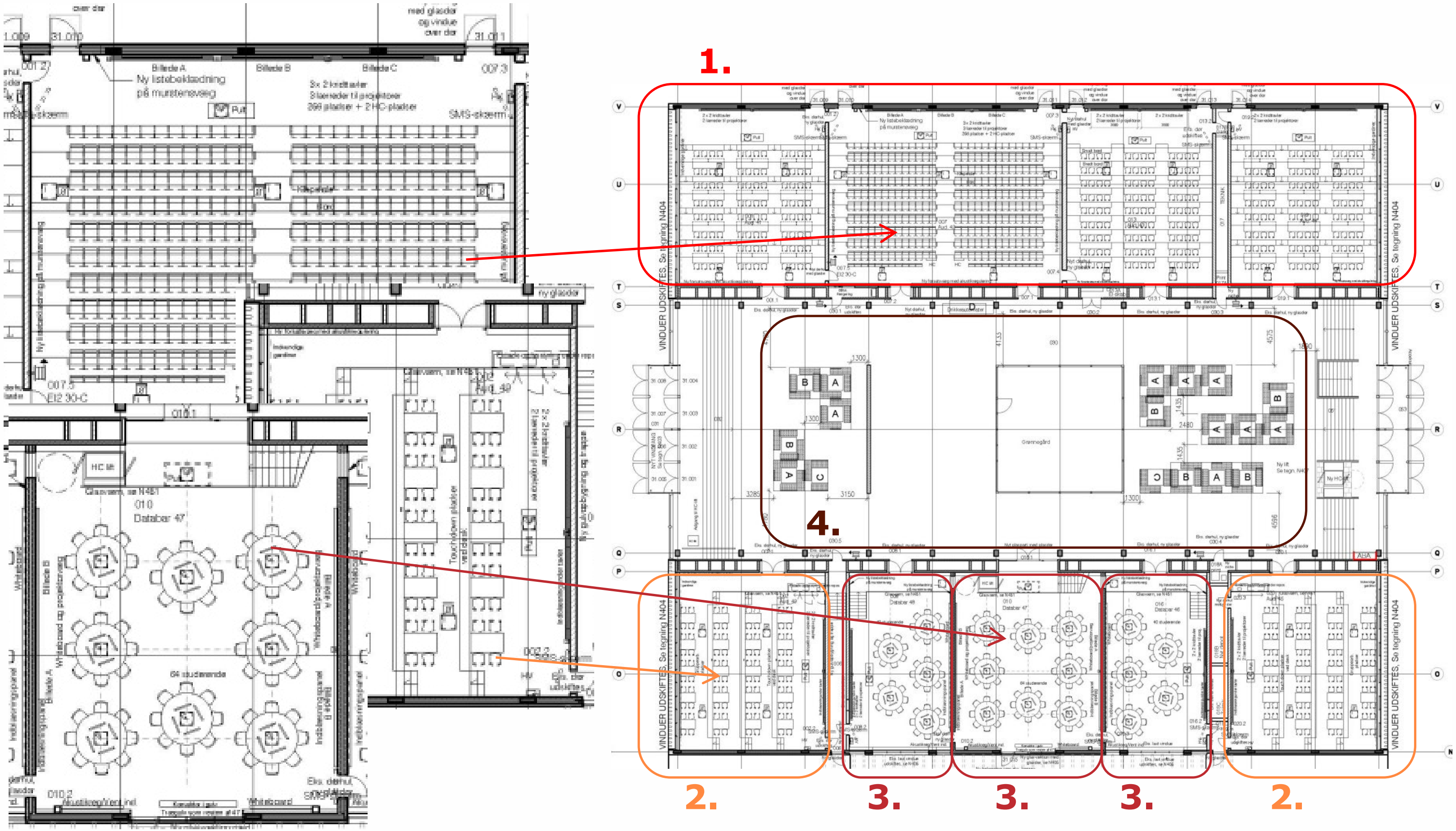
Structure

Inspiration



Developing roomtypes:

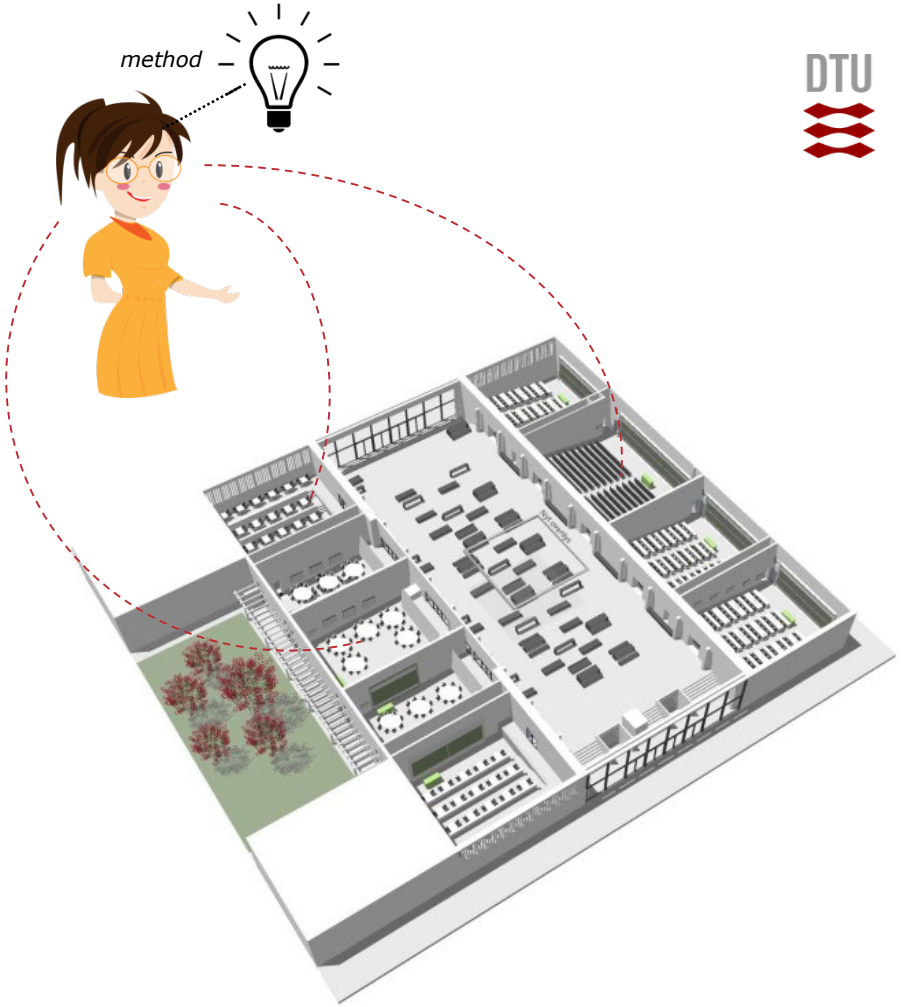
- Traditionel lecture hall
- Flexible lecture hall
- ALC Databar
- Informal Student environment



1.
2.
3.
3.
3.
2.
4.
Ny listebeklædning på murstensvæg
3x 2 kridttavler
3 lærreder til projektorer
298 pladser + 2 HC-pladser
SMS-skærm
Databar 47
64 studerende
VINDUER UDSKIFTES, Se tegning N404
Grønnegård

Experiences

- Survey (2016)
- Preliminary interview series (2018)
- Effective teaching
- Effects of the teaching and learning environment



Traditional Lecture Hall

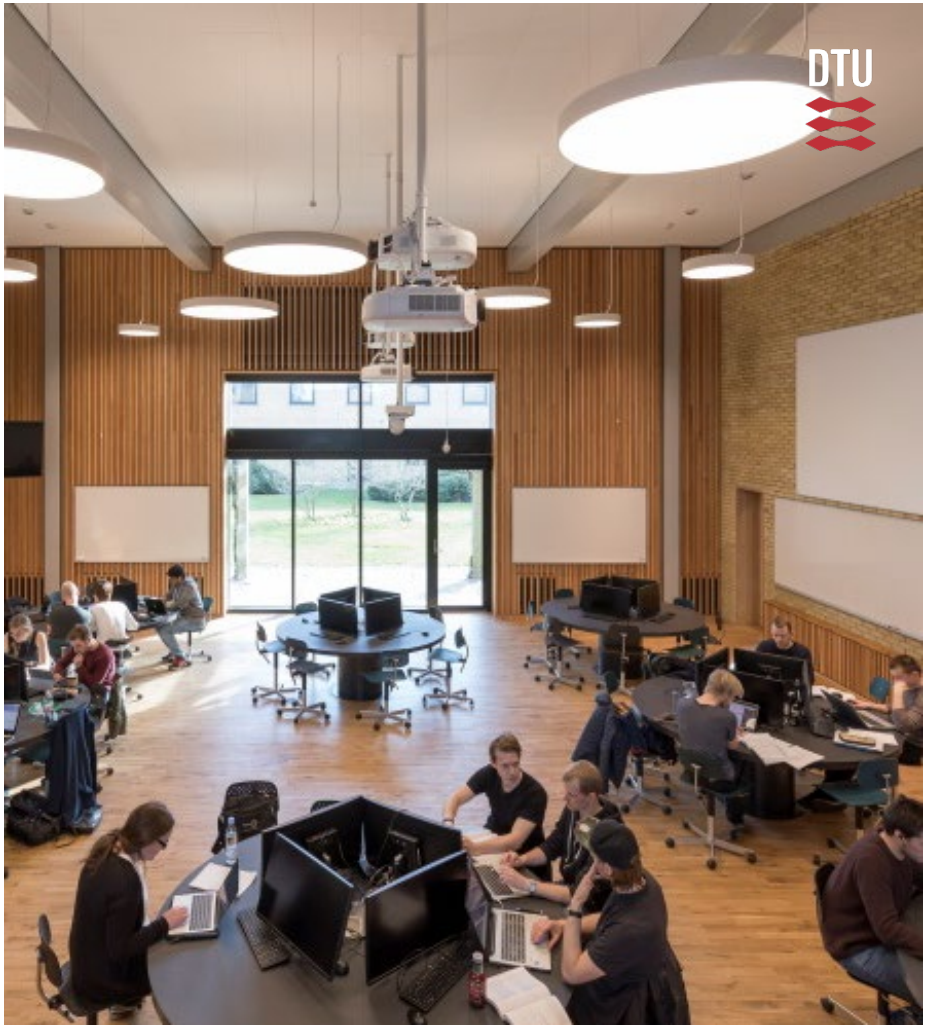
- Large classes
- Attention on the teacher
- Not ideal for group work

Flexible Lecture Hall

- Switching back and forth between short lectures and group work session (20 mins ~ 5-10 mins)
- Not ideal for long lectures
- Not ideal for long group work sessions

Active Learning Classroom

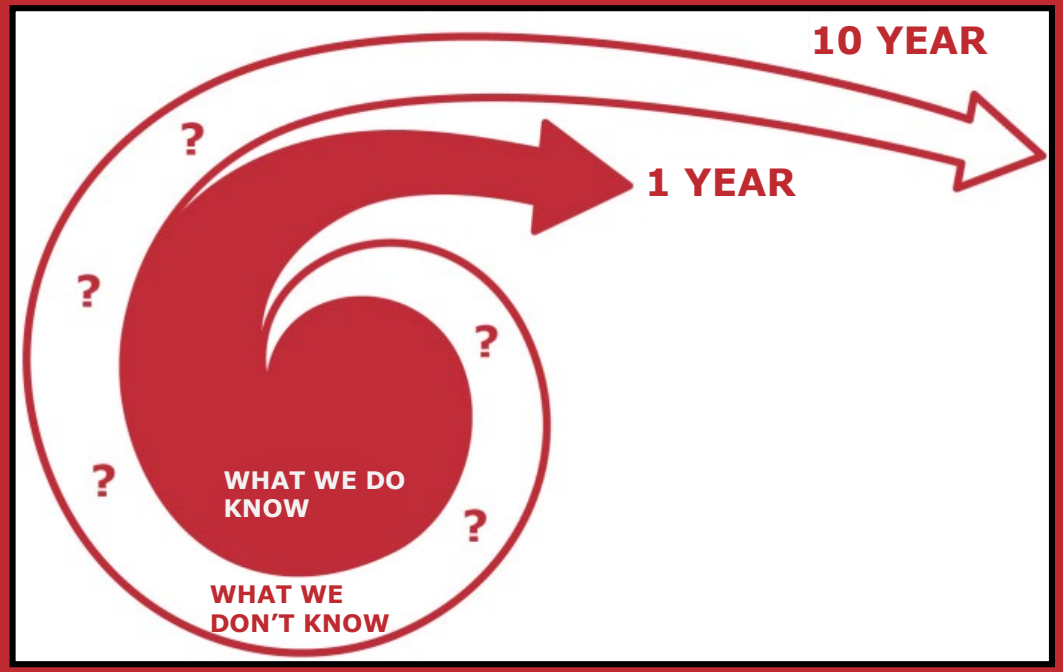
- Long sessions of group work
- Not ideal for lectures



Conclusions

- Different class room types support different styles of teaching
- Different class room types support different styles of student activities
- Synergy vs. Non-synergy
- Flexibility is important!
- Low-tech equipment is important!
- Class room instruction manual
- Diversity of available facilities

Future?



Future: Analysis

Pedagogy

Developing new didactics

Strategies for IT

Capacity scenarios

Number of programs and development in student numbers

Building registration

Condition + maintenance + development potential

Future: Tools

Tools – suitability

Campus, building, room and IT/AV

Tools – investment model

Recovery and development

Thank You! ☺