

# Towards a Career Development Framework for Teaching

CDIO Europe regional meeting – Skoltech – Moscow 2018

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# Agenda of the workshop

- Introduction
- Case Studies (Twente, Eindhoven, Skoltech)
- Round table discussions
- Wrap up discussion
- Conclusions & recommendations



## Career Development Framework for Teaching, why?

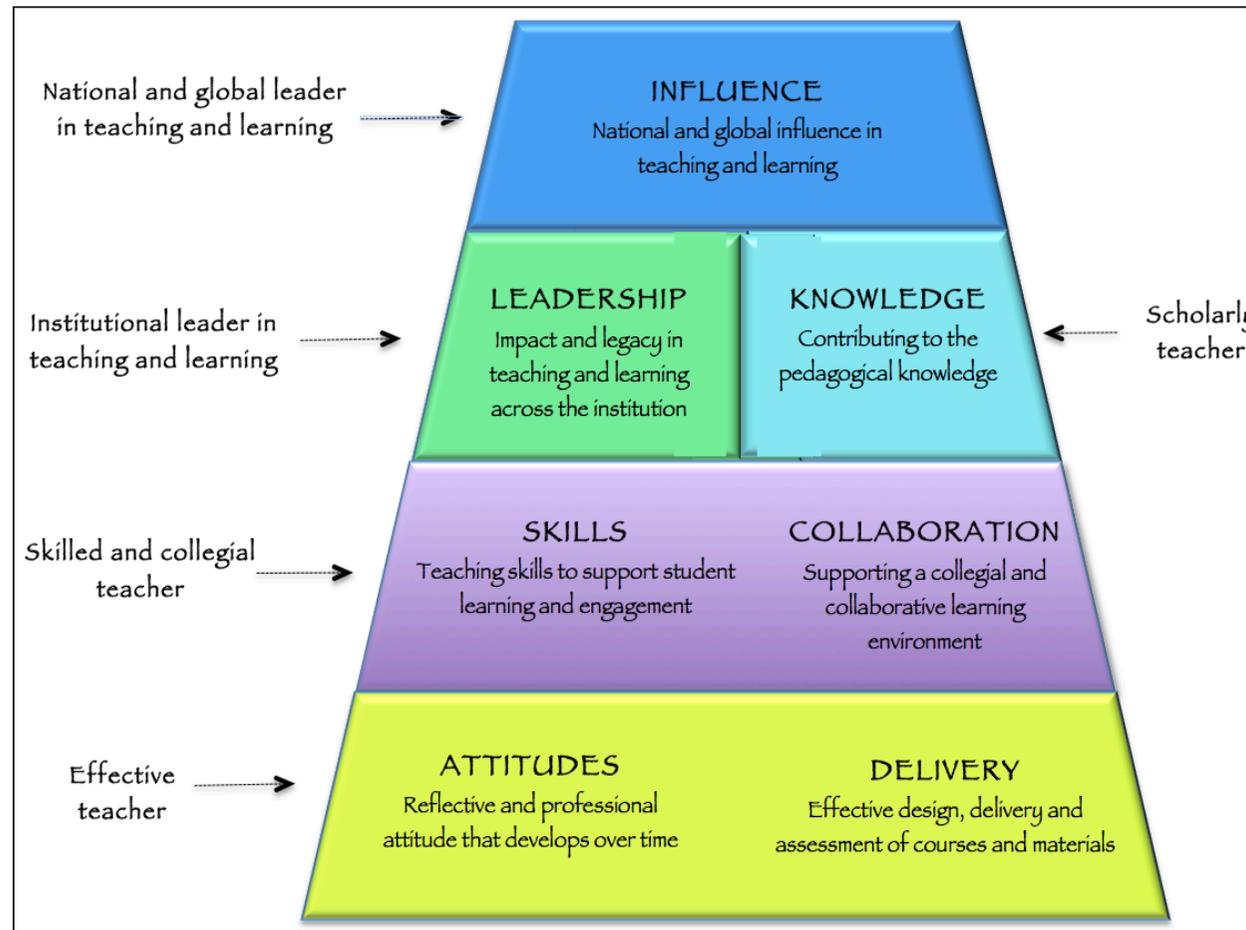
- Engineering education redesign > teachers ask recognition
- Balance is lost between Research vs Teaching in career promotion
- Professional development: teachers ask for options beyond the basic teaching qualification
- Professional and academic approach for teaching
- Internationalisation of education requires strong profile
- How to score or evidence teaching quality?

<http://www.evaluatingteaching.com>



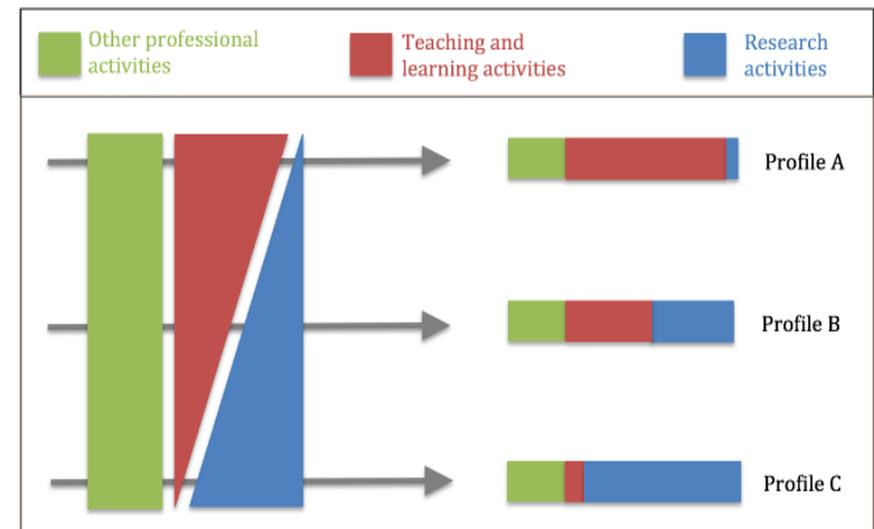
# Career Framework for University Teaching

Source: Royal Academy of Engineering UK (Ruth Graham)



# Career Development Framework for Teaching: different approaches

- First steps: Educational prizes & other incentives
- Separate track for those with main task = teaching
- Number of Educational professorships
- Combined research & teaching track with different emphasis →
- Impact framework linked to research, teaching, spin-off/outreach & organisation contributions
- Preferences and more suggestions from you today!



# Career Framework for Teaching University of Twente

*What happened before:*

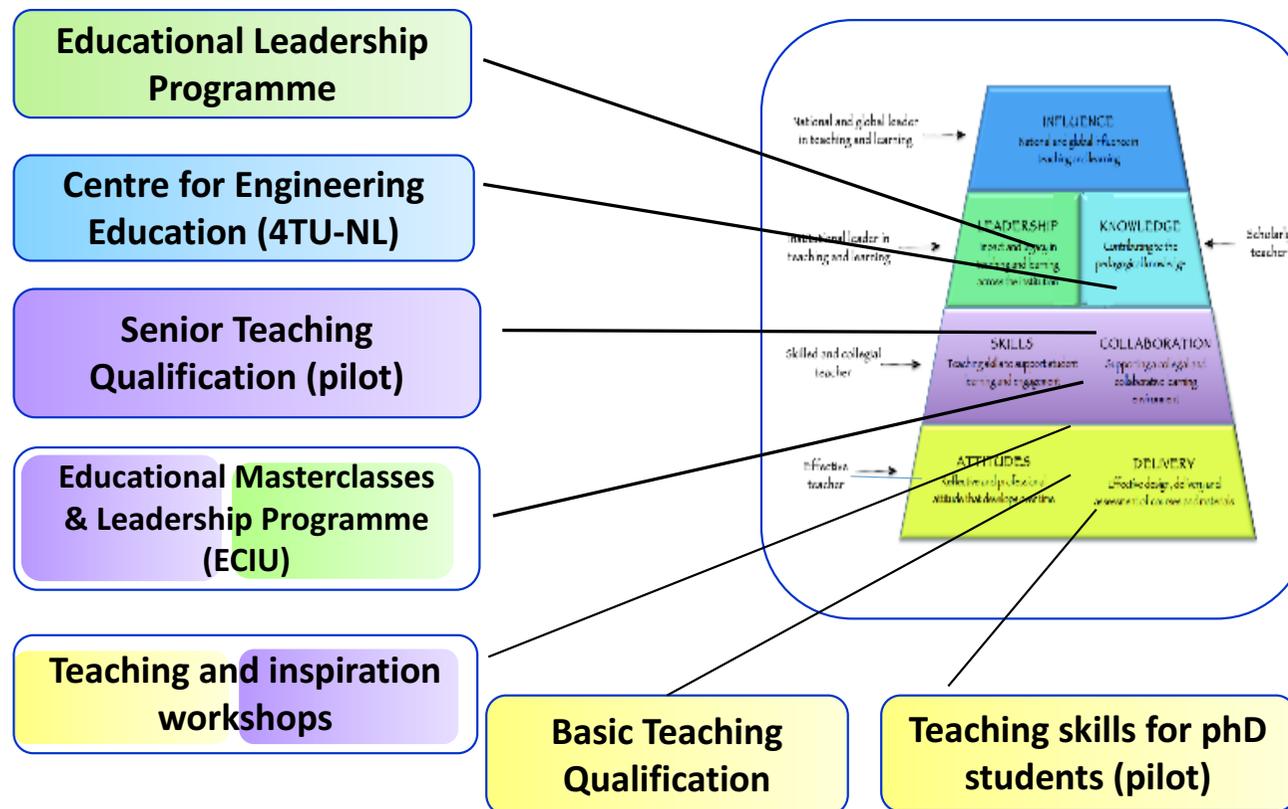
- Partner in Royal Academy of Engineering network
- Snapshot needs analysis by Ruth Graham
- Two faculty pilots helped to define Twente focus

*Present status:*

- Per faculty two professorships with emphasis on education
- Research should be at associate professor level
- Similar ambition will be defined at associate professor level
- Each faculty should have number of SUTQ staff
- Tenure track and professor criteria more emphasis on education
- Annual interview: improved educational items
- Collaboration with Dutch and international universities (portability & quality control)

UNIVERSITY OF TWENTE.

# Supporting Teaching Excellence at University of Twente



# Senior University Teaching Qualification University of Twente

- Objectives, able to...
  - Define an educational problem or ambition
  - Collect relevant evidence and data
  - Analyze data and connect with literature
  - Design an intervention and share insights with peers
- Examples:
  - International students background and project based learning
  - From small well-defined to 'wicked' problems
  - Introducing modelling in quantum physics course
  - Flipped classroom redesign
  - Digital testing in Mathematics

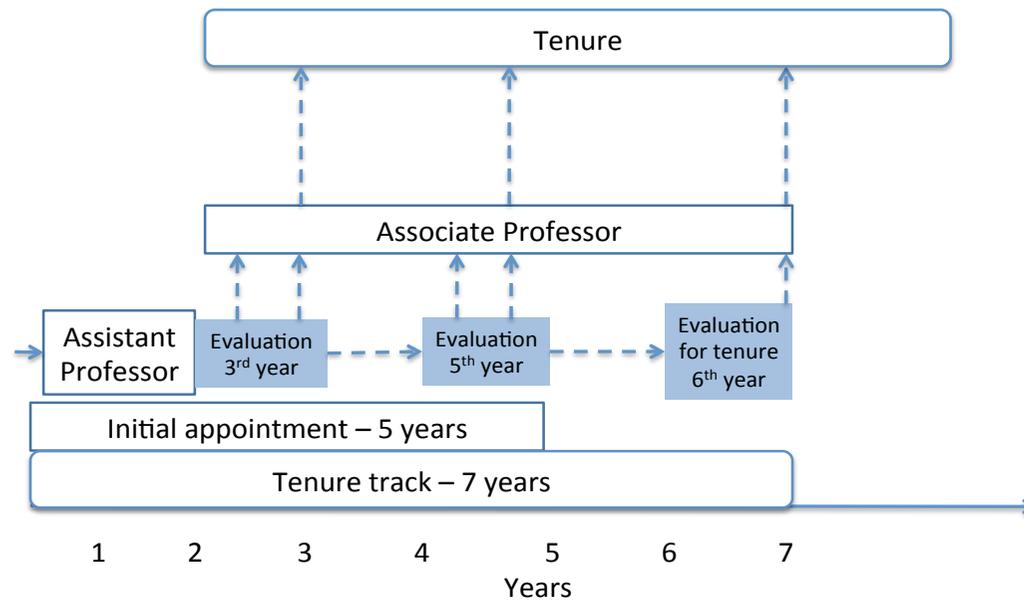
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# Career development framework at Skoltech

- Skoltech was founded in 2011
- Students provide courses evaluations after 2 weeks and at the end of the course and this is a very important input for Faculty members
- We had the original faculty appointment, promotion and tenure policy that needed to be updated in 2017
- We prepared a new version strongly influenced by the principles proposed by the Royal Academy Framework
- The new policy was approved in September 2017
- We are currently going through the first few promotion cases

# General process for Assistant Professors

Figure 1 : Appointment, Promotion and Tenure of Assistant Professors



# Promotion criteria for assistant professors

- Demonstrated research capability in the respective field, including the number and quality of publications indexed in reputable sources such as Web of Science, Scopus and quality of the presented research statement;
- Interest in and commitment to education as detailed in the teaching and learning statement;
- Demonstrated ability for teaching;
- Desire to become engaged in innovation as indicated in the innovation statement;

# Promotion criteria for Assistant professors

- Demonstrated important contribution and impact of research, ...
- Dedication and demonstrated capability in education including for example the development of new courses and delivery modes, contribution to the development of educational programs;
- Proven involvement in innovation including industrial contracts, patents and mentoring of students involved in start-up activities;

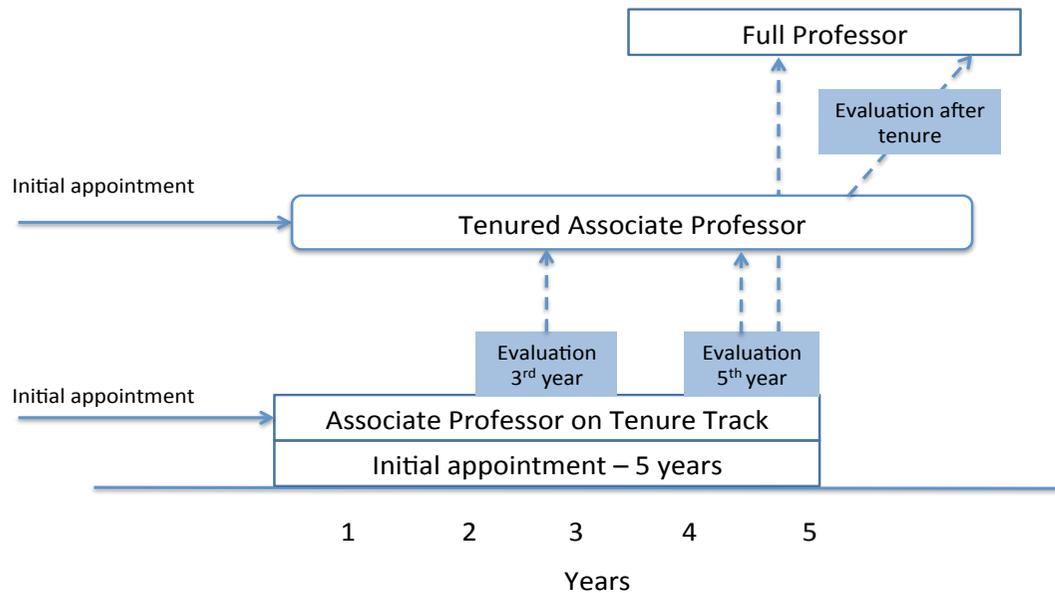
# Appointment criteria for Assistant professors

- Evidence of lifelong learning, and indications of external involvement in service and significant peer recognition;

**Impact statement that will describe his/her impact on research, education, innovation and service to the Institute.**

# General process for Associate Professors

Figure 2 : Appointment, Promotion and Tenure of Associate Professors



# Appointment criteria for Associate professors

- Demonstrated excellence in education, and interest in educational development, including for example the development of new courses and delivery modes, contribution to the development of educational programs, program coordination at both the Master and the PhD levels, refereed publications in educational conferences and journals and other initiatives having impact in university education at the national and international levels;



## **Structure of the presentation**

- Some background information
- AUTIQ at TU/e
- New development and opportunities ->Turning challenges into opportunities

## Advanced University Teaching Qualification

“Recent research published by the Royal Academy of Engineering identified a widespread perception across the UK and international academic community that university career advancement is primarily driven by achievement in research, with teaching achievement playing only a marginal role.” (Graham, 2015)

## Advanced University Teaching Qualification

In the Netherlands, and at TU/e, there seem to be similar developments (see also Meijers & den Brok, 2013) which can be linked to the following (perhaps worldwide) challenges:

- There is a considerable increase in student population, and in student diversity (e.g. different backgrounds), which necessitates an expansion of education and greater attention to students' diverse needs.
- Technology is changing fast, and technological tools/resources have changed, which affect both the ways people think and act.
- The connection between research and education is the central pillar in the university's pursuit of excellence (e.g. Education 2030 initiatives).

## Advanced University Teaching Innovation Qualification

### Aims:

- To provide incentives for university teachers/lecturers to engage and invest in innovative teaching & learning project/approaches that are beneficial for all: the department and the university; lecturers' own professional development/learning; and students' study process and learning.
- To enhance the status of teaching in university engineering departments (so to redress the balance between research and teaching).

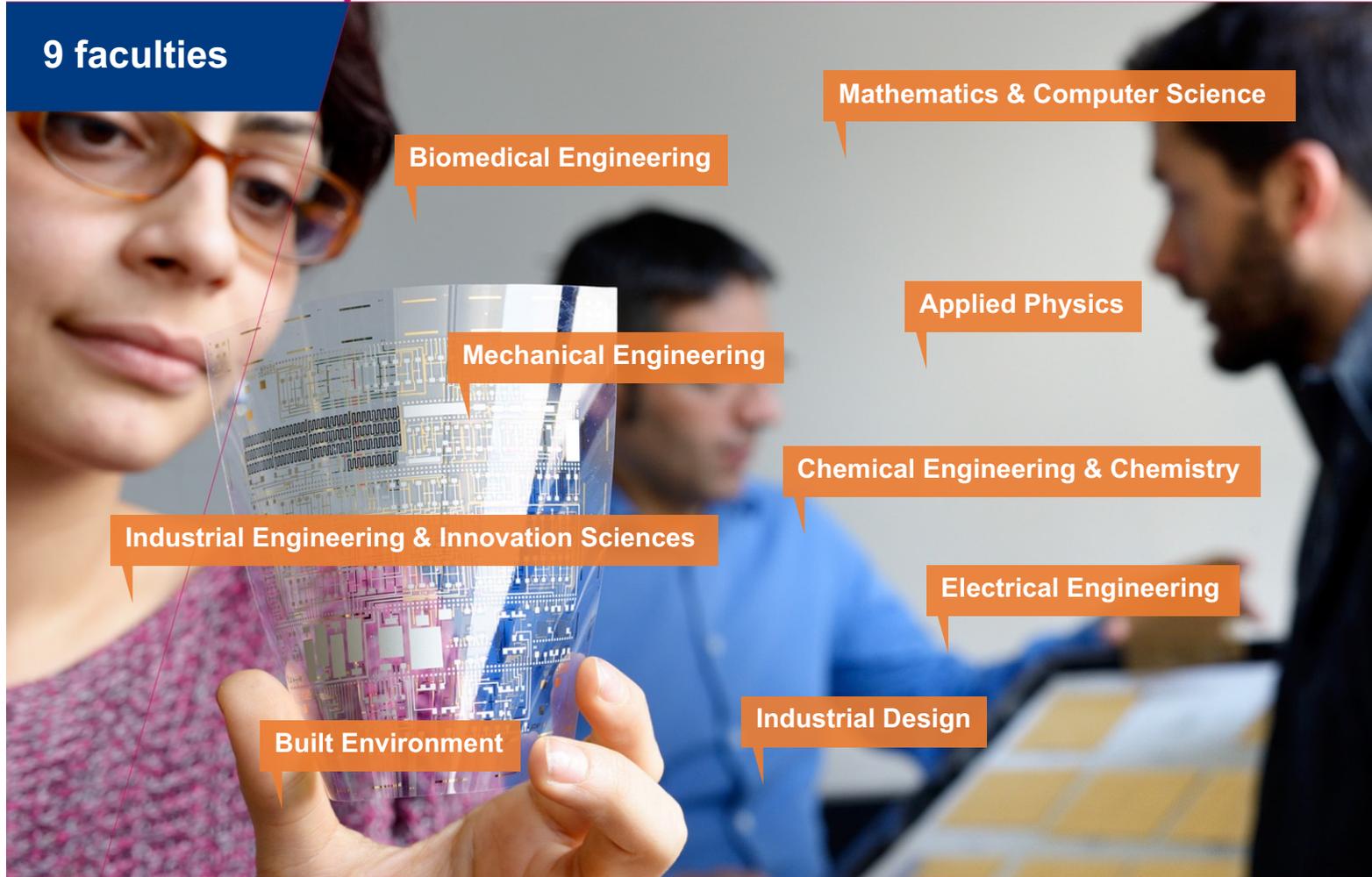
## Objectives

- To acknowledge & value, and “re-source” engineering education (at TU/e)
- To provide the basis for promotion (in selected cases) and teacher professional development across the universities
- To support innovation reforms (e.g. Education 2030 at TU/e)

## AUTIQ at TU/e

- First call 2017 pilot: proposals accepted from departments such as Applied Physics, Eindhoven School of Education, Industrial Engineering & Innovation Sciences
- Second call Jan 2018 pilot: proposal/s accepted from Industrial design & still more to come
- “Pilot applicants” have more funding (e.g. for coaching, materials, etc.)

**9 faculties**



## Education 2030

### **Turning challenges into opportunities**

Key words at TU/e: "hands-on"

"online"

"small-

scale"

Questions to ask:

- How can we support staff members so that they can not only cope with, but actually professionally develop through those changes?
- What means "hands-on" for the different departmental courses (e.g. mathematics as compared to physics), and how can we prepare for the changes associated with this?
- How can we combine initiatives, e.g. hands-on and online education? Which kinds of capacities and support are needed? (e.g. technical support, course/curriculum design capacities)
- Moreover, do all technical universities face similar challenges, and in which ways can we combine forces?

New  
developments  
& opportunities

Example/s: "Virtual Labs"

Question/s to ask:

- In which ways would Virtual Labs be useful (or not?) for your department's courses?
- What are the needs of different departments/universities (that are linked to Virtual Labs)? (e.g. health and safety of students; increase of student numbers working in labs; access to lab at all times)
- How can we (collaboratively?) support staff members so that they can not only cope with, but actually professionally develop with those education changes?
- In which ways can initiatives such as AUTIQ support these changes?

Thank you for listening!

Please tell us “your story”:

- your university/departmental context regarding (a)educational innovation and (b)professional development ;
- needs, or wishes, regarding innovations and/or professional development;
- examples where they go hand-in-hand

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# Roundtable Topics:

1. Issues that support, block or hinder excellent teaching?
2. What teaching career opportunities can you report or advise?
3. What continued/advanced professional development can you report or advise for excellent teaching?



# Workshop outcomes

- Balancing research & teaching achievements in career paths is important indeed.
- Take care that sufficient education minded colleagues are members of appointment or career step committees.
- Ensure that professional development activities align with the renewal of engineering education.
- Support the move from traditional teaching paradigm to a more facilitating learning approach.
- Balance in research & teaching tasks/time.
- Low threshold and informal professional development activities for staff to get involved.
- Ensure that staff have the essential skills to prevent blocking new developments.

# Workshop outcomes continued

- Continuing professional development should be the standard. This can start off with special weekly sessions dedicated to certain skills.
- Teacher skills should include learning/cognitive psychology; managing a course including learning technology.
- Benchmarking and organisational design can help.
- There are CDIO digital learning (or blended learning) resources that can be used to train staff on CDIO standards and how to work with them. These materials were produced by experts from different universities and can be reused for own university professional development of teaching staff (5 modules). Both blended learning and distance education mode is possible.
- Different opinions on the usability of student evaluations. Should not be the only source. Try to find ways to use students as a source.