

**30<sup>th</sup> Conference of Rectors and Presidents of European  
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**Introduction to the 2011 Conference theme**

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- The unity of education and research is a fundamental concept of European universities.
- In the eighties of the last century the THIRD MISSION of universities emerged – the universities opening up for cooperation with “the real world” in research services, technology transfer, company spin-offs and continuing education.
- The increased importance of knowledge and the role of the university in incubation of technology-based firms have given innovation a more prominent place in the orientation of universities. “The entrepreneurial university takes a proactive stance in putting knowledge to use and in broadening the input into the creation of academic knowledge. Thus it operates according to an interactive rather than a linear model of innovation.”
- Henry Etzkowitz has emphasised that innovation is increasingly based upon a TRIPLE HELIX of university-industry-government interactions.
- In recent years, the term KNOWLEDGE TRIANGLE of EDUCATION, RESEARCH and INNOVATION is increasingly being used to describe the mission of universities – and universities of technology in particular.
- Lets first look at the three sides of the triangle one by one and than address the problem of integration.

## **EDUCATION-RESEARCH**

- As mentioned at the beginning already the unity, combination of education and research is nothing new. Also, your assemblage here today will emphasise the importance of research-led education at universities of technology. However, in the course of our conference we should look in more detail what it means in reality.
  - First of all, the research role of the universities has to be ensured.
  - Secondly, are we just considering the idea that the attitude of the researcher/teacher will communicate a professional ethos and curiosity towards creating new knowledge to the students?
  - Or do we have to re-consider our understanding of learning and teaching, integrating research into education or rather into the learning experiences of students.
- In addition, we should also discuss if there is not only an influence of research on education but also the other way round. Recent studies in the US show that the research performance of graduate students substantially improves when they are also teaching.

## **RESEARCH-INNOVATION**

- The second side of the triangle relates to the connection of research and innovation. This issue has been discussed at length during our last year's conference in Trondheim. Therefore, I can be short.
- But first, let us remind the definition of innovation by the FRASCATI MANUAL: *“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relation. The minimum requirement for an innovation is that the product, process, marketing method or organisational method must be new (or significantly improved) to the firm.”*

- Therefore, accepting innovation as a part of university activity requires the opening up of the university to the outside world. Innovation needs intensive communication and cooperation with industry and other societal actors. The innovation chain or process has to transcend the interface between the university and the real world.
- In the past, rather simplistic technology “transfer” concepts have prevailed adhering to the linear model of innovation. In the meantime we understand that innovation is a highly interactive process and we need to develop more sophisticated approaches in order to succeed.
- We will have to discuss which kind of activities in this domain are specific and appropriate for universities as compared to consultancy work or also the activities of polytechnics or Fachhochschulen or universities of applied sciences.
- And finally, what does it mean for the institutional strategy of universities including human resource development, academic promotion and career development?

## **INNOVATION-EDUCATION**

- The third side of the knowledge triangle points to the relations between innovation and education.
- It seems to me that this might be the most challenging and possibly new issue and we will have to see how that can be addressed.
  - How can we prepare students for innovative activities in their professional life? How to support them in developing creativity, entrepreneurship, management skills, etc.?
  - What does innovation mean for our curricula and the different learning objectives towards competencies, capabilities and skills?
  - How to organise cooperation with industry related to educational activities and how to organise industry feedback
  - Which are the challenges for professors and the academic staff?

- Which methods and measures are appropriate? Traditional teaching will probably be not sufficient. We need new concepts and approaches and also new contents like innovation management, IP management, entrepreneurship.
- New teaching/learning models have to be considered including project based student placements in industry. I remember the very positive experience with the European COMET Programme at the beginning of the nineties of last century.

## **INTEGRATION**

- The final challenge is how to integrate the three sides of the knowledge triangle into an integrated fundamental concept of university activities.
- At European level, the forthcoming HORIZON 2020 Framework Programme for Research and Innovation is going to implement a Common Strategic Framework integrating research and innovation and education.
- The EIT the European Institute of Innovation and Technology is an important and interesting experiment to realise the knowledge triangle.
- Again, for universities the integration is a challenge for institutional strategies, management and structures and for advanced approaches towards making the knowledge triangle a reality.

## **CLOSING**

- I am really glad that we have succeeded to assemble eminent speakers to address some of the issues outlined.
- Today, we have several keynote speeches providing the general context of our discussions, in particular
  - The future European context of programmes in research and innovation and education.
  - Views from the university and industry side, and
  - The state and perspectives of the EIT.

- Tomorrow, we will hear a number of examples and views from different universities of technology.

**THANK YOU FOR YOUR ATTENTION!**