

Abstract

Our national industrial base is experienced very rapid and large scale changes where old corporation are losing their leading market position and at the same time new corporation are created based on new innovation on technology, service or business concept. At the same our nations and industrial infrastructures are facing global challenges in terms of climate, people's wellbeing, safety and security. This rapid change has pushed the academic system most recently in Europe, to start to work with new working models in terms of strategic partnership and pedagogic models.

During the last 25 years KTH has been very active in innovating and implementing educational reforms at local and at global level for ICT with key focus on societal and industrial impact. Global challenges are often materialized locally and render solutions in a local context. In good circumstances, they may be scaled up into global solutions. The lack of investments in certain areas or lack of certain infrastructure in emerging and developing economies offers unique opportunities to explore entirely different solutions to problems that are beyond the horizon of our present imagination. They could thrive and develop rapidly in the fertile innovation ecosystem that is provided by universities and their interface to society. Thus, from a university perspective, connecting research, education, and innovation to an effective knowledge triangle is of paramount importance.

We present here the concrete experiences, and directions for the new development especially from the global perspective in order to create more innovative learning environments with much stronger impact and excitement for the all stakeholders. Although over the last 25 years we have walked a long way from the traditional engineering education models, we still have a long way to go, especially in understanding the need and role of global partnership and possibilities to create significant impact to the society, university, students and involved faculty. We foresee that there will be no single "correct" model, but various models and best practices which a context and partnership dependent, but which at the same time fulfills the fundamental degree requirements and intended learning outcomes at the degree level both at international and national perspective in an explicit and transparent manner.

As summary, the new approach consists of three fundamental concepts forming the pillars for activities and actions:

- Strong commitment and support of Open Science and related transparency and global co-operation, as defined in the recent Dakar Declaration on that. This is facilitated and empowered by the recently development Open Science Platform with focus on integrating the knowledge triangle and providing Science Gateways.
- Introducing a new approach for societal stakeholder integration through the Challenge Driven Education model and Technology Transfer Alliance supporting a comprehensive multi-partner interaction.
- Physically co-locating the activities to university initiated co-creation, co-design, and co-drafting centers forming the local Open Labs and Maker Space meeting places and critical infrastructure resources for integrating problem owners to various solution provides especially from academia.