

The Changing Role of Universities in the Knowledge Triangle. From Ivory Towers to Oil Wells to Light Houses.

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The *knowledge triangle* refers to interaction of research, education and innovation. At its heart is the University.

How is the role of universities changing?

For many centuries universities dealt mainly with education. Elites were educated at the universities and professionals were trained. The inclusion of knowledge creation, in the mission of universities came later, less than 200 years ago. At the time guaranty of non interference from the State or ruling power was paramount and related mainly to the need of keeping scholars and scholarship protected from political and or religious influences. The concept of university autonomy was then shaped in such a way that resulted in an isolation of Universities from societal needs giving rise to the epithet of the **Ivory Tower**.

During the last two decades the importance of Higher Education in the economic performance of the countries or regions has been realised and several changes, namely in the governance models, were brought about with the objective of enabling universities to better respond to the global challenges they face (Shared governance is being substituted by models inspired on corporate governance). At the top of those challenges there was, and still is, the need to generate income from knowledge transfer and to contribute to the economic welfare of the country. However this does not mean that **Ivory Towers** can be changed into **Oil Wells**.

How can one stimulate a better interaction?

The linear model of knowledge transfer, i.e. from basic research, to applied research and development and from there into products and services, has been changed to blur the difference between basic and applied research and focus on technology driven economic development, through spin-off and start-ups companies.

Now it has become obvious that innovation needs to be integrated with education and research within every university.

Universities should educate and train the knowledge workers so that they understand the ways of knowledge creation and have the skills to use it in different situations and in a more proactive manner. Higher Education should be about research based education integrated with research based innovation in a truly interdisciplinary approach stimulating the end-user innovation and not only the research and development based breakthrough innovation.

Furthermore the triangle research, education, innovation must include all areas of knowledge and their mutual interaction; attention should be paid to humanities and social sciences as much as to technology and hard sciences.

Entrepreneurial ship should be stimulated and experienced at all levels. However it is perhaps easier to start at Master and PhD level, taking advantage of the fact that doctoral education is being restructured in many European Universities.

Universities have recognized that doctoral training must increasingly meet the needs of the employment market which is wider than academia. Consequently doctoral programmes have changed a lot in recent years, becoming more outside employment geared, including interdisciplinary training, the development of transferable skills and operating within appropriate time duration.

Collaborative doctoral programmes offering geographical as well as inter-sectoral mobility and international collaboration within an integrated framework of cooperation between universities and other partners, in particular enterprises and business are already a reality. These efforts should be intensified; some focused more on innovation and entrepreneurial ship. Examples of good practice should be disseminated. Trust between the partners and quality of research seems to be the key components of success. However there is a lack of data concerning the tracking of graduates from these collaborative programmes which should be addressed.

A more diverse concept of university is emerging. From teaching and learning to research and innovation. From a single institution to a network of partners; involving universities, industry and business, sharing responsibility and funds.

Can Universities in Europe meet these new demands – and still preserve and strengthen their autonomy?

Universities should be learning organisations and autonomy is required to so be. Universities need to be autonomous to meet the new demands. It is NOT because they are required to meet them that they will lose autonomy.

Universities need to be autonomous to decide on their organisation and management if they are to respond in a timely way to the needs of society and fostering integration of innovation with education and research is a particularly demanding issue. Truly implementation of the knowledge triangle requires universities to go from education to innovation and back closing the circle by integrating in their curriculum development activities the knowledge gained in the process.

Society must demand that accountability goes hand in hand with funding in a sufficient and appropriate manner. It is essential that institutions know (can calculate and demonstrate) the cost of its activities and are sustainable.

There is not a single model of university. Differences in mission and profile are essential in today world. Therefore Institutions should be allowed to develop accordingly.

How can/ should politicians on different levels in Europe stimulate and support stronger integration of the elements in the Knowledge Triangle?

Policies and instruments should foster the integration. Programmes supporting, R&D and Innovation must themselves be related.

One understands the value of instruments promoting the EHEA and the ERA and the Innovation Area but the crux of the matter is integration. Hence the need to guarantee that those programmes have a high degree of coordination and although supporting mainly one leg of the KT are aware of the need to relate to the other dimensions.

Universities are the institutions that are better situated to respond to the challenges and integrate successfully the 3 elements of the Knowledge Triangle and at the same time maintain the unique importance of each one of those elements. Education, Research and Innovation.