

Challenges Facing the University in a Knowledge Economy

By

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1. INTRODUCTION

Western civilization has been impacted upon by three major transformative waves that have produced the agricultural society, the industrial society and the information/knowledge society. The change from an agricultural to an industrial society took approximately 100 years while the change from an industrial to an information society took just 20 years. Today's society in which technologies are changing at a revolutionary pace, the volume of knowledge doubles every 5 years compared to every 50 years in the nineteenth century. It is this knowledge generated mainly by the emerging technologies that have given rise to knowledge societies and a new engine of economic growth called the knowledge economy. Who are the major players involved in creating this new economy? What is the role of the university and in particular what are its challenges? How are developing countries faring in this new economy?

2. THE KNOWLEDE ECONOMY

We need to first differentiate between information and knowledge.

Knowledge is the sum of what is known as opposed to opinions and speculations. It is a person's understanding of something which comes about by processing of data, observations and information through perception, analyzing, learning, communicating, associating and reasoning. It is, in short, the internalizing of information. To quote a UNESCO publication, [1] "The distinction between knowledge and information would remain fairly simple if we were to focus simply on the transformation of information into knowledge. However, information is not only raw data but also the product of an operation by which it becomes such- namely, a shaping or packaging to make it manageable, transmissible and consumable. This operation can be performed equally in respect of knowledge and non-knowledge. Thus, the distinction between knowledge and information must also take into account the process whereby knowledge is shaped as information (known in the current jargon as the "informationalization" of knowledge). In this process of

commoditization, knowledge acquires a material dimension that makes it more operational and easier to process. It thus becomes the means of producing new knowledge. Information is what is transformed, through appropriate processing, whereas knowledge is what is produced – knowledge production always being based on a level of knowledge and on the transformation of information. While knowledge production arises from a kind of transmutation of information, knowledge itself is transformed into information so that it may be processed and produce new knowledge”.

Converting information into knowledge calls for certain skills that knowledge societies seek to develop. While the information society is based on technological breakthroughs, knowledge societies encompass much more - they are about capabilities to identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development. These knowledge societies are so organized that they can quickly generate or acquire information and use it to propel in a substantial way their economies. In fact, this knowledge associated with or generated by the new technologies such as information, biotechnology and nanotechnology is now a major engine of economic growth. One should note that

- i) The phrase “knowledge economy” came to prominence in New Zealand in the mid to-late 1990s as a way of referring to the manner in which various high technology businesses, especially computer software, telecommunications and virtual services, as well as educational and research institutions, can contribute to a countries economy. [The World Bank].
- ii) While there are several definitions of a knowledge economy the one that captures the essentials is the one from U.K. Dept Of Trade and Industry, 1998, “A knowledge driven economy is one in which the generation and exploitation of knowledge play the predominant part in the creation of wealth”.
- iii) While it may be desirable to quantify the knowledge economy say as a percentage of GDP, given its nature as a concept, there is no ready way of measuring its scale or extent in practical terms. On the other hand, it is easier to quantify knowledge workers (workers that produce and manipulate knowledge). In advanced economies such as the US, more than 60 percent of workers are knowledge workers.

3. THE UNIVERSITY IN A KNOWLEDGE ECONOMY

Universities are the traditional repositories of knowledge. They are best positioned to create and disseminate knowledge. Hence, in a knowledge driven economy, one expects universities to play a major role even though the culture of academia and the culture of the private sector do not quite overlap.

Universities have evolved over the centuries and have adjusted to the transformative waves mentioned earlier. From the early universities where knowledge was pursued for the sake of knowledge to the early nineteenth century modern university which combined teaching and research to the technological universities of the 20th century which undertook strategic research for industry. It has been said for example that the roots of MIT are in the boardroom of America. We have even witnessed the emergence of the entrepreneurial university in countries such as South Korea.

The last two decades have been characterized by an internationally increasing competitive environment, a so-called “massification” of higher education and an economy more and more driven by knowledge – once the preserve of the university. This has resulted in the blurring of the boundaries of the once distinct institutional spheres, the university and the industry, and the emergence of a triple helix of academia – industry-government relations. An unmediated role between science and the economy is a new feature of this triple helix. To quote Judith Sutz [2] “The increasing demand for funds from universities and research institutes gets a similar response worldwide: Support yourselves! That is to say, connect yourselves with industries and government, offer your knowledge and your capacity to generate new knowledge, and charge for it. Only in this way will you be able to extend your laboratories, hire young people, and increase your salaries”. In other words, focus more on the “national good” of economic competitiveness rather than the “universal good” of knowledge. While it might be difficult to argue with this, there are concerns and challenges.

4. CHALLENGES FACING UNIVERSITIES IN DEVELOPING COUNTRIES

By the very nature of a knowledge-based economy Universities, as I said earlier, do have a major role to play and, in fact, some are already playing a role. The major challenge facing the Universities, to quote Judith Sutz [2], “is how to preserve their innermost identity within the framework of a world that is undergoing a dramatic transformation that demands sweeping changes

from them”. In addition to their traditional roles, Universities particularly in developing countries are now called upon to assist with

- a. societal development such as focusing on the Millennium Developmental Goals.
- b. the “massification” of education which in some instances results in specialization in tertiary education at the expense of research.
- c. economic development.

While these are legitimate claims, most Universities simply do not have the wherewithal to effectively engage in all these roles. However, involvement in the knowledge economy does provide them with an opportunity to engage in their traditional research role while at the same time generate funds for themselves and contributing to economic development. They would need here to interface and collaborate with the private sector and government and assume a new role of entrepreneur. They would have to reconcile their new role with the academic objectives of the University, balancing traditional academic values with the needs of the nation’s economical developmental goals and equally important striking the right balance between basic and applied research. There has always been a deep seated fear within Academia that a shift towards linkages with business and industry would bias Universities towards applied research. The need to reconcile the new role with the traditional role is a continuing challenge.

As with any other entrepreneurial activities, engagements in the knowledge industry require finance. Given the fact that venture capital is almost non-existent in developing countries and banks are risk-adverse, raising funds is another major challenge. Partnership with the private sector therefore becomes almost inevitable. But in most developing countries there is a disconnect between the private sector and researchers. Bridging that gap is another challenge. And that brings us to the role of the Government in the knowledge economy. Governments should provide incentives, facilitate, rationalize regulations and develop infrastructure. In other words, they need to create an environment to attract investment. In the case of Ireland which leap-frogged from a largely agrarian society, the government played a major role with massive investment in education, science and technology and public infrastructure. The market place certainly did not do it alone.

If we genuinely want to work towards creating knowledge-based societies, we must for a start intensify our efforts to bring poorer countries into the system of affordable electronic communications. Poor countries continue to have little or no access to the internet while the number of persons connected in industrialized countries is growing rapidly. In Bangladesh, the annual cost of connection to internet is sufficient to feed a

family for one year while in the Philippines the cost of internet connection is not within reach of the middle class. One notes that in China, Brazil, India and the Russian Federation, the spread of new technologies have speeded up significantly. Bridging the digital divide must be a priority objective if countries are to participate in a knowledge economy.

Minor challenges facing the University in a global economy are:

- a. Intellectual Property Rights
- b. Avoid creating a “hierarchy of affluence” or a “salary divide” between faculty members
- c. Monitoring scientific misconduct.

5. THE TRIPLE-HELIX

While there are a number of models a country can adapt to create a knowledge economy, the model in my view that is best suited for developing countries is the so-called Triple-Helix. However, in developing countries there are some barriers to the emergence of a triple-helix partnership

- Policy and decision makers generally lack an awareness of the importance of S&T development in the whole economic development process
- Few champions for S&T partnerships are to be found outside the S&T community itself

Partnerships, however, will require the individuals in business, government and universities make a genuine attempt to know one another, understand their differences and most importantly appreciate their common interest.

6. CONCLUSION

Universities in developing countries apart from being repositories of knowledge normally represent the largest potential of research capabilities. In addition to their traditional roles they must, as far as possible, utilize these capabilities to assist with the socio-economic development of the society in which they are embedded. They must at times take the initiative, provide leadership and act as an agent of transformation. This is what they must now do to create a knowledge society, a triple-helix and be part of the knowledge economy. They must confront and overcome the challenges identified. To do nothing will result

in poorer societies falling further and further behind and the continued widening gap between the haves and the have-nots.

REFERENCES

[1] "Towards Knowledge Societies", UNESCO World Report" 2005.

[2] H. Etzkowitz & L. Leydesdorff, "Universities and Global Knowledge Economy," Continuum, 2001