From Silicon Valley to Phoenix Industries

Higher education in local and regional development

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The regional dimension of innovation is crucial to promote economic growth and competitiveness. Not every region can be a Silicon Valley, but all regions can improve their capacity to adapt knowledge for their regional innovation needs. Universities and other higher education institutions can play a critical role in making their cities and regions more innovative and globally competitive. To take full advantage of higher education for regional development, bridges need to be built between higher education institutions and the small companies that are creating the industries of the future. The OECD reviews of higher education in regional and city development help mobilize higher education institutions for economic, social and cultural development of their cities and regions.

As university leaders have long argued, the contribution of higher education to national and regional economies is considerable. For example, according to a 2009 economic impact statement by Tipp Umbach and Associates, Penn State is an economic powerhouse in Pennsylvania generating more than $17 billion in overall economic impact. For every $1 invested by the Commonwealth of Pennsylvania to support the operations of Penn State, the university returned more than $25 in total economic impact to Pennsylvania. (See http://econimpact.psu.edu.)

Although the importance of universities in their local economies is not usually contested, much more should and could be done to take full advantage of higher education in regional and city development. Why have the connections between the higher education institutions and their regions and the local industries been bent or broken?

In Europe, many higher education institutions developed to serve traditional industries in their regions during the first half of the 20th century were later incorporated into national systems of higher education. Universities focused on their national standing which weakened their local ties. In the United States, the "land grant" institutions connected their own welfare to that of the regions, and served the regions through industrial extension services. Over the years, these links were weakened as universities focused on technology transfer and diversifying their funding streams from products with limited relation to the local economy. In many cases the benefits of university inventions leaked out to other regions. What could be done to capitalize on these innovations within the region?

From Silicon Valley to "Phoenix Industries"

We are all familiar with the totemic examples of Silicon Valley and Route 128. The "Silicon Valley" approach is not only risky, but also more and more challenging since countries and regions throughout the world are focusing on the same few fields. Imitation and adaptation may sound like good ideas but they are no longer successful strategies in regional development. Unique advantages have to be actively constructed, and they have to be constructed on innovation.

Most regions have an industrial and economic base dominated by small and medium-sized enterprises. Under such conditions, economic growth will depend on upgrading the manufacturing base or diversifying it to nascent industries that can translate innovations into products for global markets.

Industry links with higher education institutions, particularly with research-intensive universities, are often in a few high-technology fields including information and communication technologies (ICT), health and biotechnology, and they often focus on multinational companies. But there are also other types of examples. They build on the competitive advantage of the region and "initial advantages" based, for example, on long-standing networks and technological skills.

In the province of Castellón in the Spanish region of Valencia, the ceramics research institute of the University Jaume has helped restructure the traditional ceramic-tile production cluster, which now employs 36,000 people in 500 small and medium-sized enterprises. To do this, the university had to build close links with these enterprises and support the growth of the ceramic cluster through multiple ways, including: technology transfer, quality-certification tests, spinoffs and work-based learning by students. The upgrading of existing technologies has enabled the region to become a global leader in the tile and ceramics industry.

In the United States, new advanced technology companies have emerged in the Rust Belt cities. They have witnessed the rise of what Susan Christopherson of Cornell University, has called "phoenix industries." She has noted, for example, that while Pittsburgh may have lost Big Steel, it has retained a globally engaged industry based on small and medium-sized steelmaking firms, now comprising more than 800 companies employing 13,000 workers. Another example is Rochester, N.Y., ranked as a world leader in optics,

producing almost six times as many patents per 1,000 workers as the U.S. average. These industries have initial advantage in their regions: longstanding networks, technological skills and links to higher education institutions.

Supporting industries of the future

The scope and extent of the regional engagement of a university depends on the role that the institution chooses for itself. The regional agenda is a tough challenge particularly for research-intensive universities, which often have a stronger focus on national and international excellence than on local utility. Still, there is a win-win situation for universities and regions. A thriving regional economy benefits universities in innumerable ways.

Industries of the future are built by small companies. Innovation is often seen linked to science-based research and intellectual property. But it could also be seen as the first step in a process of job creation. This would entail working closely with small- and medium-sized enterprises to improve their productivity and diversify and upgrade existing industries.

OECD's reviews of policy and practice were launched in 2004 to help build capacity at the national, regional and institutional levels and to make higher education institutions more active in and responsive to their cities and regions.

The OECD work, which started with 14 regions in 11 countries, has grown into a multiyear activity involving regions on five continents. The reviews offer mounting evidence of the need for closer links between higher education institutions and their regional economies.

The OECD reviews are interested not only in business-related competitiveness but also in the wide contribution of higher education institutions to their cities and regions. They look into the contribution of higher education institutions to regional innovation, learning and skills development as well as contribution to social, cultural and environmental development and capacity-building.

The reviews follow a standard four-step OECD methodology and have a strong element to boost partnerships in the regions. First, the region conducts a self-evaluation process following OECD guidelines. Second, the region establishes a regional steering committee of representatives from the higher education institutions and public and private sectors to oversee the review process and "take ownership" of the regional self-evaluation report. The idea is that the reviews bring together universities and other higher education institutions and the public and private stakeholders in the region to identify strategic goals and work together toward them. Third, international experts led by the OECD visit the region and assemble their findings and recommendations in a review report published on the OECD website at www.oecd.org/edu/imhe/regional development. Finally, knowledge-sharing meetings are organized to bring together the stakeholders at different levels.

From Nordic countries to Americas

The first set of regions were reviewed in 2005-07. The first 14 regions to be reviewed included Atlantic Canada, Busan Metropolitan City in Korea, Canary Islands in Spain, Jutland-Funen in Denmark, the Jyväskylä region in Finland, the northeast of England, the state of Nuevo León in Mexico, the Sunshine-Fraser coast region in Australia, Trøndelag in Norway, Twente in the Netherlands, the region of Valencia in Spain, and Värmland in Sweden. In addition, the cross-border region of Öresund between Denmark and Sweden and Northern Paraná in Brazil, the only region outside the OECD area, were reviewed between 2005 and 2007.

The ongoing second round of reviews in 2009-10 has a wider geographical focus. It is reaching out to 15 regions in 11 countries and also includes non-OECD economies. Two regions in the United States—Southern Arizona and the Paso del Norte area, a cross-border region with Mexico—are involved. There are also regions in Australia, Chile, Brazil, Mexico, Malaysia and Israel that will participate, as well as European regions and cities, including Andalusia, Amsterdam, Catalonia, Berlin, Lombardy and Rotterdam.

The OECD is now inviting applications for the third round that will take place in 2011-12. The call has already attracted a lot of interest, despite—or perhaps because of—the economic downturn. Regions and their higher education institutions are keen to identify industries of the future, to build on their competitive advantages and to learn from one another.

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