

Succeeding in Academic Medicine: A Roadmap for Diverse Medical Students and Residents

technological services, and projects that foster innovation for particular issues or in sub-regions.

Flanders also has programs aimed at addressing an aversion to entrepreneurial risk on the part of the domestic financial sector and business community, which is regarded as a serious obstacle to innovation.⁴¹⁶ The government created a program in 2001 called Arkimedes, which provides government guarantees and tax credits for investments in certain small denomination bonds. Money raised in the bond offerings goes into a "pool of pools" that is invested in several R&D funds. As with a venture capital fund, the risk is spread among a number of companies. The program is too young to draw conclusions about its effectiveness.⁴¹⁷

One question about Flanders' approach is whether its open attitude toward R&D generates enough domestic industrial activity. Although IMEC plays an important role in international semiconductor research, for example, there is debate over whether it is establishing a semiconductor cluster in Belgium, which was the center's original mission in 1984. There have been at least 20 spinoffs from IMEC through 2002, noted Kenneth S. Flamm of the University of Texas at Austin, only a few related to devices, materials, or equipment manufacturing. None were major players in their sectors, Dr. Flamm said.⁴¹⁸

IMEC Chairman de Proft noted while the economic impact so far is hard to measure directly, it is several times the level of government funding. He also said that the institute's concentration of 300 top researchers and 200 Ph.D. students from around the world are likely to make an impact as they develop networks and rise through their organizations.⁴¹⁹ Another indication of success, he noted, is that other nations have mimicked the public-private model of IMEC and other Flemish research institutions.

Finland

Despite its population of just 5.4 million, Finland has emerged as a global leader in innovation, consistently ranking the near top of the World Economic Forum's annual Global Competitiveness Index.⁴²⁰ Finland has been

⁴¹⁶ From remarks by Rudy Aernoudt, then Secretary-General of the Flemish Department of Economics, Science, and Bruno de Vyyst of the Free University of Brussels in Innovative Flanders.

⁴¹⁷ See presentation by Rudy Aernoudt of the Department of Economic, Science, and Innovation in Innovative Flanders.

⁴¹⁸ From presentation by Kenneth Flamm of University of Texas at Austin in National Research Council, 21st Century Innovation Systems for Japan and the United States: Report of a Symposium, Sadao Nagoka, Masuyuki Kondo, Kenneth Flamm, and Charles Wessner, editors, Washington, DC: The National Academies Press, 2009.

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419 Presentation by de Proft, op. cit.

420 Finland ranked No. 3 in innovation and No. 4 in overall competitiveness in the World Economic Forum Global Competitiveness Index for 2011-12.

Reference

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