

# REGIONAL INNOVATION NETWORKS THAT MEET REGIONAL NEEDS

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## The Key Question

How to Translate Innovation Into Businesses and Jobs

Evidence of a Problem:

- The US Bureau of Labor Statistics predicted in the 1990s that 2.8 million jobs would be created in leading-edge industries. Instead, the number is in the tens of thousands.
- Key high-tech industries – bio-tech, bio-sciences – produce few jobs.



## Two Iconic Models Approach Innovation Differently

### **In the business network / industrial district model:**

- ✓ Innovation is a product of shared continuous learning and likely to be incremental.
- ✓ Innovation may take the form of process as well as product innovation.
- ✓ Science-based market disrupting innovation is rare.



## Two Iconic Models Approach Innovation Differently

### **In the science driven, technology transfer model:**

- ✓ the goal is development of intellectual property or a product that “breaks through” and alters markets.
- ✓ knowledge is captured for the profit of an individual enterprise not shared among firms in an industry.
- ✓ process innovation is not on the agenda.



## Evidence from Cases: #1 The Italian Industrial District

### Assets:

- Regional resilience and ability to absorb labor in SME base
- History of adaptation through moving higher on the value chain
- Emphasis on regional social cohesion

### Limitations:

- Individual firms have limited technical or science-based capacity to produce breakthrough products
- Technical personnel in regional industries have a low level of degree attainment by comparison with other comparable European regions.



## Evidence from Cases: #2 Anglo-American Science-based Technology Transfer

### Assets:

- University-based research and development capacity is used to develop new, potentially market altering, products.
- Spin-off firms have high science-based and technological capacity.

### Limitations:

- University research and development is focused on IP industries, particularly bio-sciences, and disconnected from mature industries that require technological reinvention in order to compete.
- The benefits of research and development flow to a few regions that are combined R&D and financial centers.



## What is the Potential for Alternative and Hybrid Models That Link Innovation Capacity to Business Development and Job Creation?

### What Role Can Higher Education Institutions Play?



### Approach: Connect to Regional Industries

University science and engineering programs and their tech transfer office intermediaries ally with regional industries to build their innovative capacity and ability to spin-off firms using new technologies. This is more common in HEIs outside the metro centre and among polytechnics.

#### Examples:

- Milan Polytechnic University technology transfer office work with industrial designers.
- Connections between the University Rovira I Virgili (URV) in Catalonia and the regional chemical industry, include human capital development and research on new technologies and process innovations.
- The Science University of Malaysia is engaged in bio-science research on the nation's key industry, agriculture, to increase its productivity and develop new industries, such as bio-plastics.



## Approach: Make R&D Capacity More Accessible to Regional Enterprises

University tech transfer offices recognize the wide variation in faculty research and development potential and adjust IP practices to make more types of inventions accessible to regional entrepreneurs.

### Examples:

- The University of California at Berkeley has identified a variety of approaches to research transfer, including open collaboration, philanthropy and industry affiliates. The university has altered contractual requirements to fit these different approaches.
- University College London has expanded services and support to faculty wanting to transfer process or product innovations with long-term potential for commercial success.



## Recommendations

The key to change is looking for realistic points of leverage that can:

- 1) make university-based research and development on new technologies and process easier to access in the regions where universities are located.
- 2) create ties between research-oriented higher education institutions and regional industries.

### More specifically:

- Develop regional inter-institutional cooperation between research institutions and polytechnics.
- Evaluate and reform strategies for transferring the full range of process and product innovations, including in the social sciences.
- Develop a capacity to foster low tech and "frugal" innovation.
- Make technology transfer part of a regional economic development strategy.



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