The role of higher education in economic development and the role of economic development in higher education

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Every major recession triggers restructuring of specific industries

Resulting in changes in higher education's operating environment

At the same time ..... Educational achievement is key to economic growth

As is economic relevance—which is skill and competency based
Universities as multiproduct organizations
(in order of economic impact)

Educational services

Cultural products
quality of life

Transfer tacit knowledge
Learning by doing

Contract research

Epoch making invention
(Shockley's lab)

Curiosity-driven research
Why does the public expect higher education to be involved in economic development?

History

Counter the economics of product life-cycles

Stickiness of tacit knowledge and entropy in firm location
What is the main product of the institution?
Who are your customers?

Faculty view: The curriculum is our product
  - Curriculum: Faculty own content
  - Who owns the portfolio?
  - How do you invest and maintain flexibility

Student view: Degrees are the products
  - Should resources follow the customer?

Jack Cassidy’s challenge: Talent is your product
  - We [employers] are your customers; students are your products
Questions

Niche: What is the institution’s niche? Both current and aspiration

Governance and culture: Principle-agent problems

Why is the institution spending its resources on community or regional development?
- Mission
- Service
- Engaged scholarship
- Service leadership

Actions must be based on the long term interest of the institution

See Robert Greenleaf on the concept of servant leadership and the institution as servant.
Hypothesis: Universities are the engines of innovation & there is a large payoff to universities

Baumol: 80% of innovation from existing, often large, companies (patents—the instrument has become the goal);

Annual US Patents granted: ~ 150,000
Patents issued to US Universities: ~ 3,700 (2.5% of the 150,000)
Startups that license university IP: 400 - 500
Only 125 out of more than 20,000 university licenses (0.6%) yield more than $1M per year in revenue
50% Technology licensing offices lose money
Licensing revenue is 4-6% of total US research revenues
IP revenue will not transform university finances but can change university culture
Administrators & regional stakeholders need clear goals and reasonable expectations

Largest economic impact comes from regional labor pooling

From Lester, Universities, innovation and the competitiveness of local economies
ELMES: Experiential learning in math, engineering, and science

Math and Science Culture
Learning culture
Deductive learning
Value intelligence

TECHNICAL WORKERS ARE KNOWLEDGE WORKERS

Maker Culture
Problem solving culture
Experiential learning
Value grit and work

Source for figure: University of Toledo, College of Engineering

Ned Hill
Questions for the institution’s economic developer

What is your job?
Economic development?
Community development?

Why is it your job?
- Revenue for the university
- Enrollment: Part of the university's value proposition
- Change faculty culture
- Respond to political expectations?
- Change the university
Lester’s Typology: Four types of university-supported technology development

**Industry creation**
- Boston: Systems biology
- Silicon Valley: Personal computer

**Industry transplantation**
- I-85 corridor (NC/SC): Automotive assembly
- Taipai-Hsinchu corridor: Electronics

**Diversification existing industry**
- Akron: Tires to advanced polymers
- Rochester, NY: Cameras, copiers to opto-electronic

**Upgrade existing industry**
- Tampere, Finland: Industrial machinery
- Charlotte: Motor sports (NASCAR)
What is success? Why is each in the institution's interest?

1. Generate research support

2. Generate income
   - Technology transfers fees
   - University advancement

3. Change the institution’s culture

4. Student enrollment, satisfaction, and retention; Change the value proposition to potential students
   - Decrease crime
   - Stabilize property values
   - Improve visual appeal
   - Create community spaces

5. Respond to economic crisis: public/government relations

6. Advance the regional economy
   - Business formation
Roles of higher education in development

Traditional research action verbs
- Creating
- Attracting
- Unlocking
- Adapting
- Combining

Problem solving
- Analytical

Keeping current
- Educating

What is missing is control, or doing, the research. Universities should play a catalytic role and be willing to partner.

Adapted from Lester, *Universities, innovation and the competitiveness of local economies*
The move to servant leader

- How can universities strengthen the abilities of local firms to *take up and apply* new technological and market knowledge productively?
- The role of convening and network building can have as much economic impact as participating and doing.
- Can a higher educational institution move from reactive service or collaborative engagement to meaningful institutional service leadership?
- Service leadership becomes a central aspect of being an anchor institution. Challenge is finding a way to support the activity.
- How do you get paid?
A reality check

- Not all regions are like Silicon Valley
- Not all industries are like biotech and software
- Not all universities are like Stanford or MIT
  - Higher education has many ways to contribute
  - Universities should approach their role in innovation strategically—need to align with local economy
- Recognize the network role
  - Fountains to forums
  - Clusters to hubs
  - Problem solving to public space
  - Technology transfer to technology take-up
Economic development is more art than science