

**TRANSFORMING UNIVERSITY-INDUSTRY-GOVERNMENT
RELATIONS IN ETHIOPIA, 29th – 30th May, 2006**

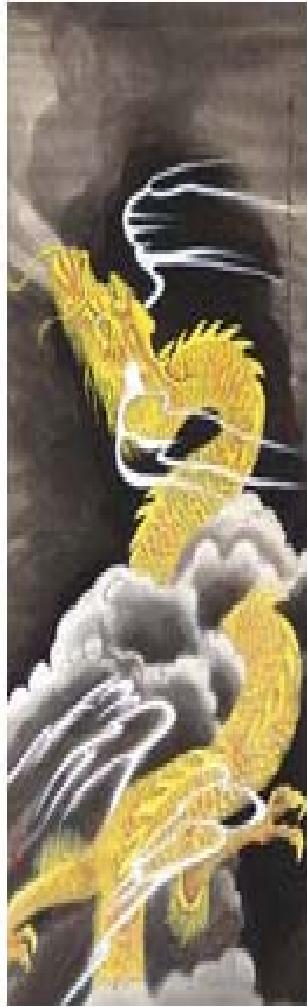
**The Entrepreneurial University
and the Future of Higher Education
in China**



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Introduction: Triple Helix in China



- Before Triple Helix book was published, a few people mainly from Tsinghua University, introduced the theory to China
- Systematic research has been started by faculty and students at other universities since Henry's Visit last year
- Now it has spread across the country

The Innovating Region

- Self Renewing
- Ability to move from one technological paradigm to another
- Synthesis of new fields with economic and theoretical potential

Prof. Henry Etzkowitz is giving a talk at Tsinghua University in China, Jan. 6-8, 2006

Spontaneous Triple Helix Regions in China : Coincide



Example: Northeastern University (NEU) and Shenyang Regional Innovation Triple Helix

Before 2000, U-I-G was separated:

- I: traditional industries, such as textile and steel, faded. The new and high-tech ones did not appear. State enterprises-oriented
- U(NEU): managed by Educational Ministry in national level, it ignored local G and I. Encourage UREs and consulting. (Aierpai) tried to fill the gap by industry
- G: less ability as a leader or an organizer to use the U's resources.

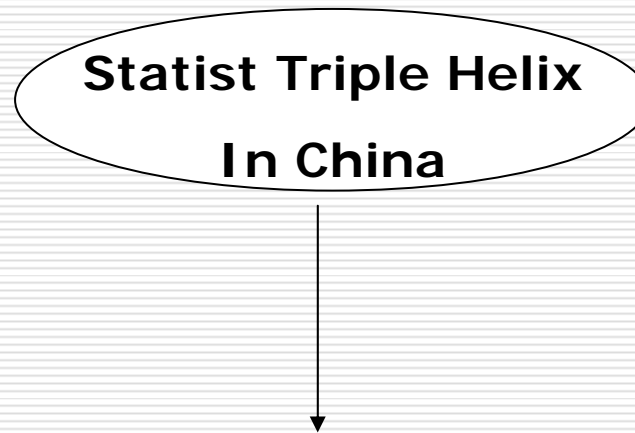
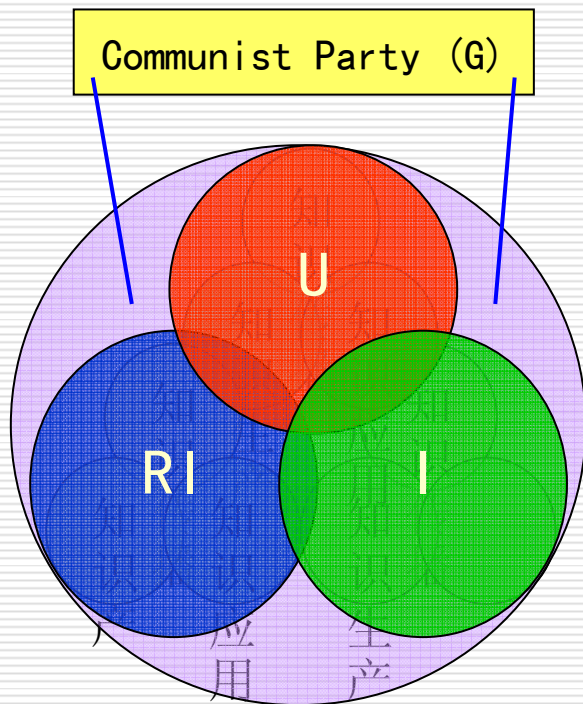


Since 2000, getting integrated by government policy

- G: decentralized higher education. central and local government work together to manage NEU. Propose strategy: pushing traditional industry by high-techs such as IT. Tried to make bridges between U and I
- NEU: have to build the linkage to local society. Not an ivory tower any longer. Find the way to support local economy
- I: needs more high-tech researchers and managers, as well as R&D results

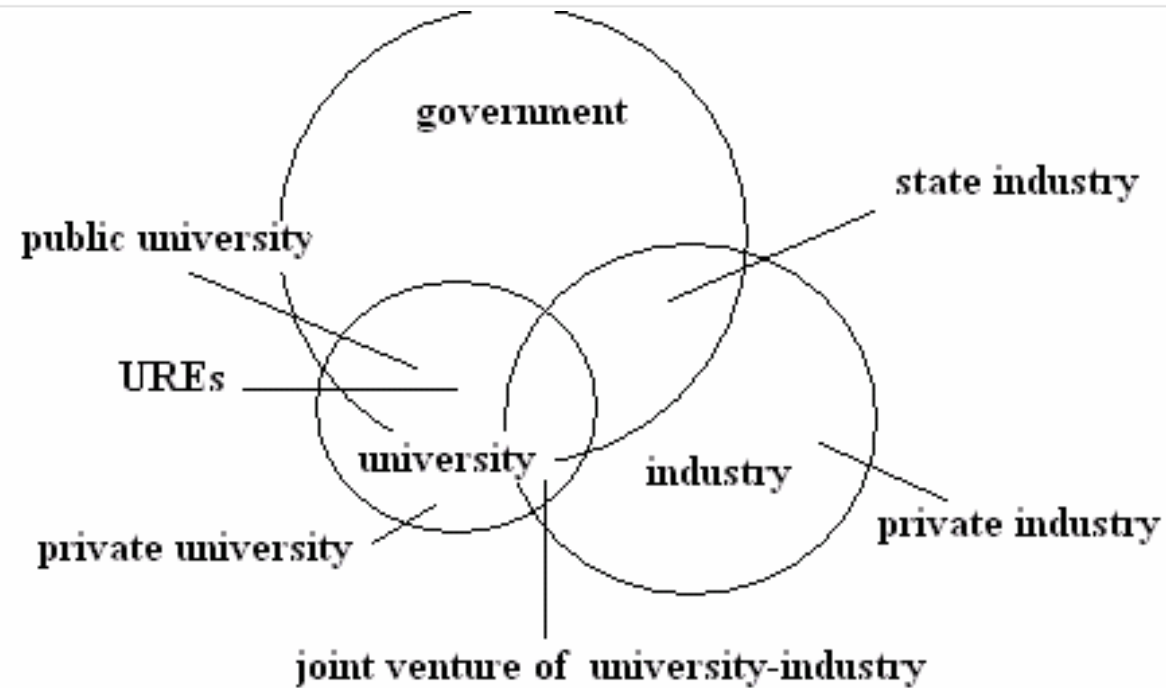


University-industry-government Recent Relationship in China



Party and Administration as a whole body

Recent Transformation



University-industry-government Triple Helix In China

Purposes of this Entrepreneurial University Research:

- to create and use a theoretical model of triple helix field interaction
- to illustrate entrepreneurial university and explore the future of higher education in China
- to develop a method to differentiate institutional spheres and interaction space among three helices

What's new? [I]

Core and outside field space

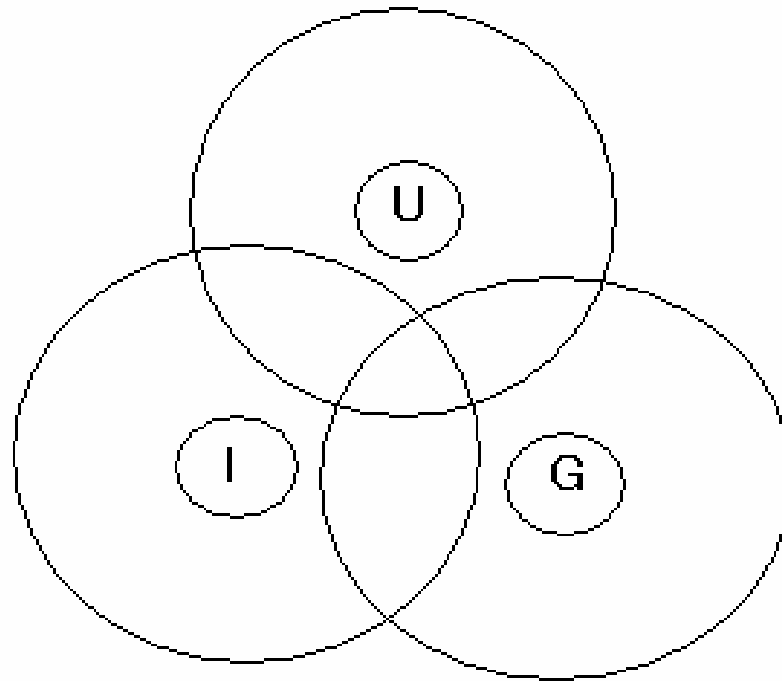
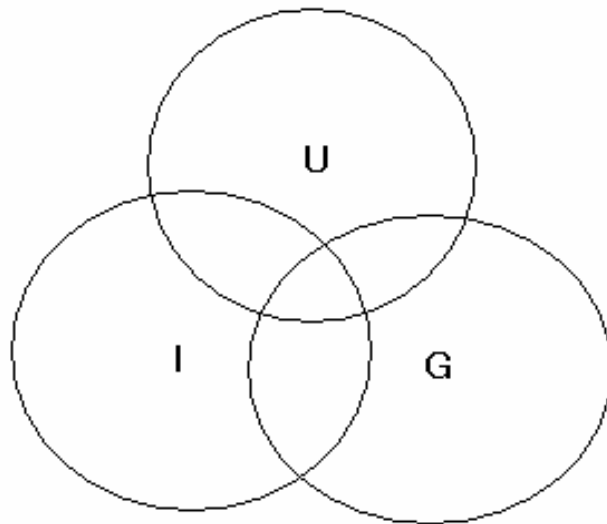


Figure 1 Theoretical Model of Triple Helix-Field Interaction

Explain the difference between spin-offs and university-run enterprises (UREs)



III

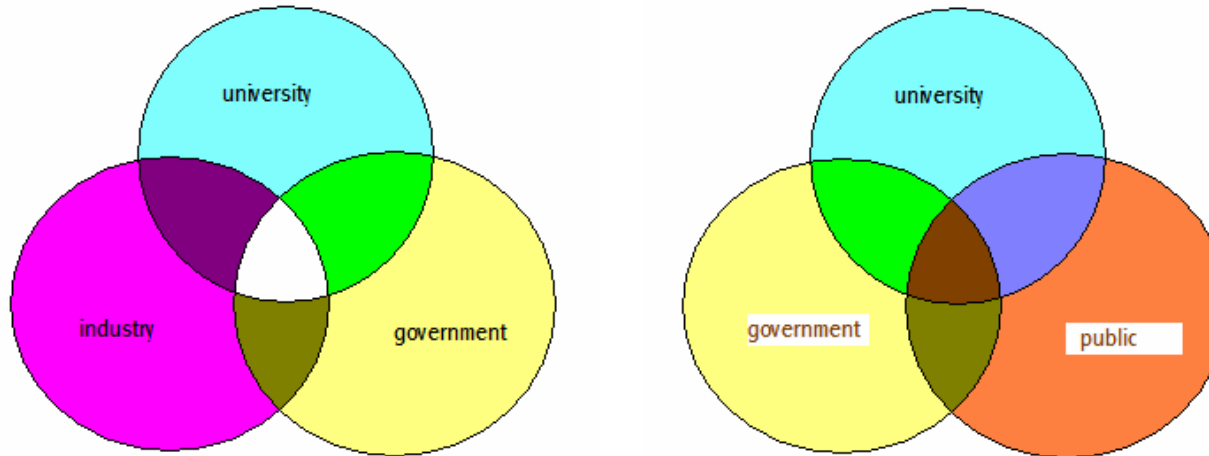
Figure 2 University-industry-government Triple Helix

Problem: three spheres may lose their core identities, resulting a mess. For example, university becomes an enterprise; the government also becomes an enterprise, as the largest holding company.

What's new? [II]

Triple Helix Twins

- See *Triple Helix Twins: Innovation and Sustainability*, (SCIENCE AND PUBLIC POLICY, Vol. 33 no. 1 Feb, 2006 pp77-83)



Is there a fourth helix?

What's new? [III]

Triple Helix-Field Interaction

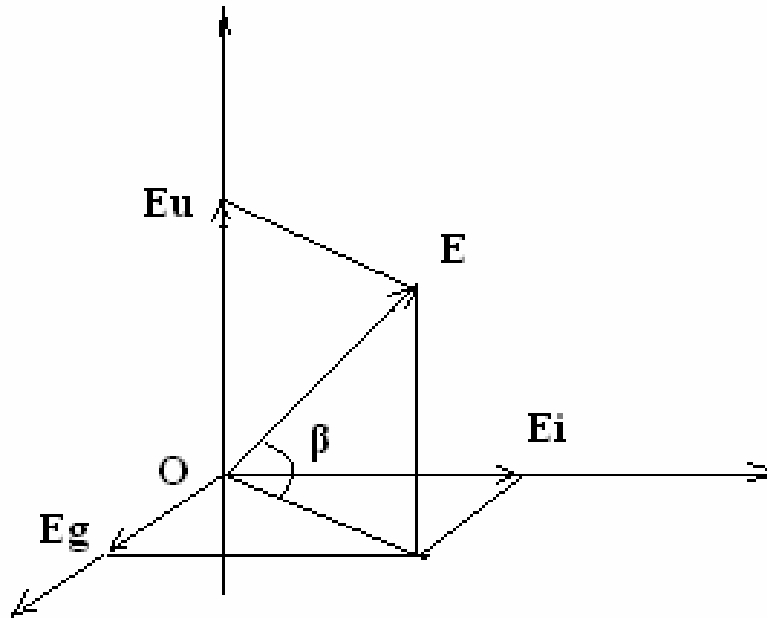



Figure 3 The Intensity of Triple Helix Field

Why is it helix?



I. Entrepreneurial University: Definition and Characteristics

From MIT and Stanford University case studies,

- An entrepreneurial university must have three missions: teaching, research and service for society.
- In fact, only the entrepreneurial university can participate in the whole society's innovation effort to improve the interaction process of the triple helix.

Circulation among the Helices

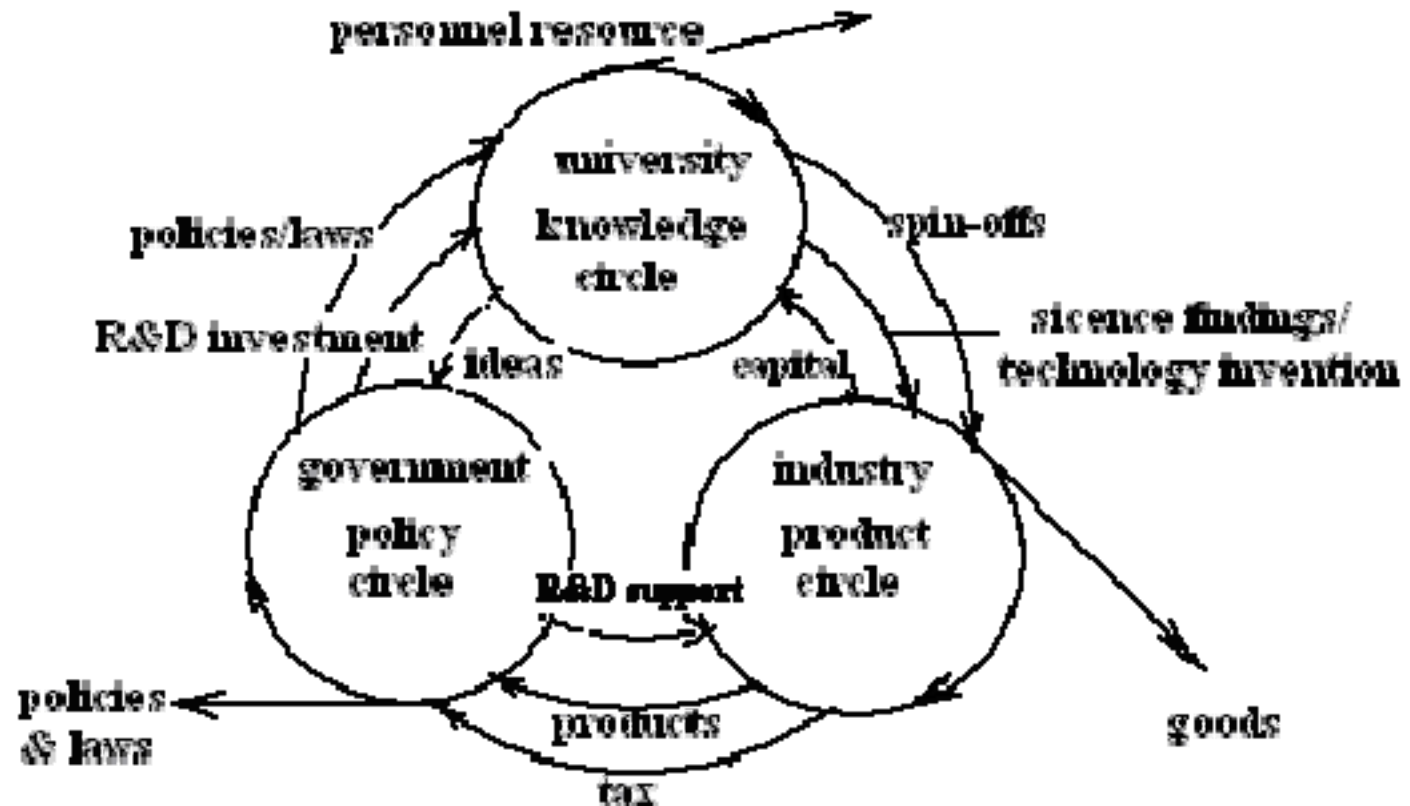


Figure 4 Triple helix-field interaction circles

Three primary characteristics:

1. Entrepreneurship activities are accepted and supported systematically.
2. There are interface mechanisms, e.g. a technology transfer office, such as Office of Technology License (OTL).
3. There are significant numbers of staff members to form firms, which can receive considerable income to support university's research and other activities.



II. What's the Difference between American and Chinese Triple Helix Spheres?

1. *University System*

US: >3000, China: 1176 (37 research U)

- The difference is not in educational scale, but quality; not in teaching, but research capability (postdoctoral fellows, graduate students)
- Firm formation:

US: spin-offs China: University-run Enterprises

start-ups low-tech → capital → high-tech firms



Government Policies

- US: stable and powerful
before the event
- China: less stable and continual
after the event



Industrial Firms

- US: Industry firms provide most of the researchers and expenditures to conduct research work possess broad R&D financial sources and pay more attention to training. (high-tech industries) typically view intellectual property right (IPR) as the core of their strategy for development, and attach importance to protecting IPR.
- China: operates at a low-technology level in a labor and natural resources economy. (manufacturer)
The transition to understand and respect IPR requires a longer time.

III. What will China learn from US as a developing country?

1. The Starting Point of Entrepreneurial University: Consultation

Who? Professors

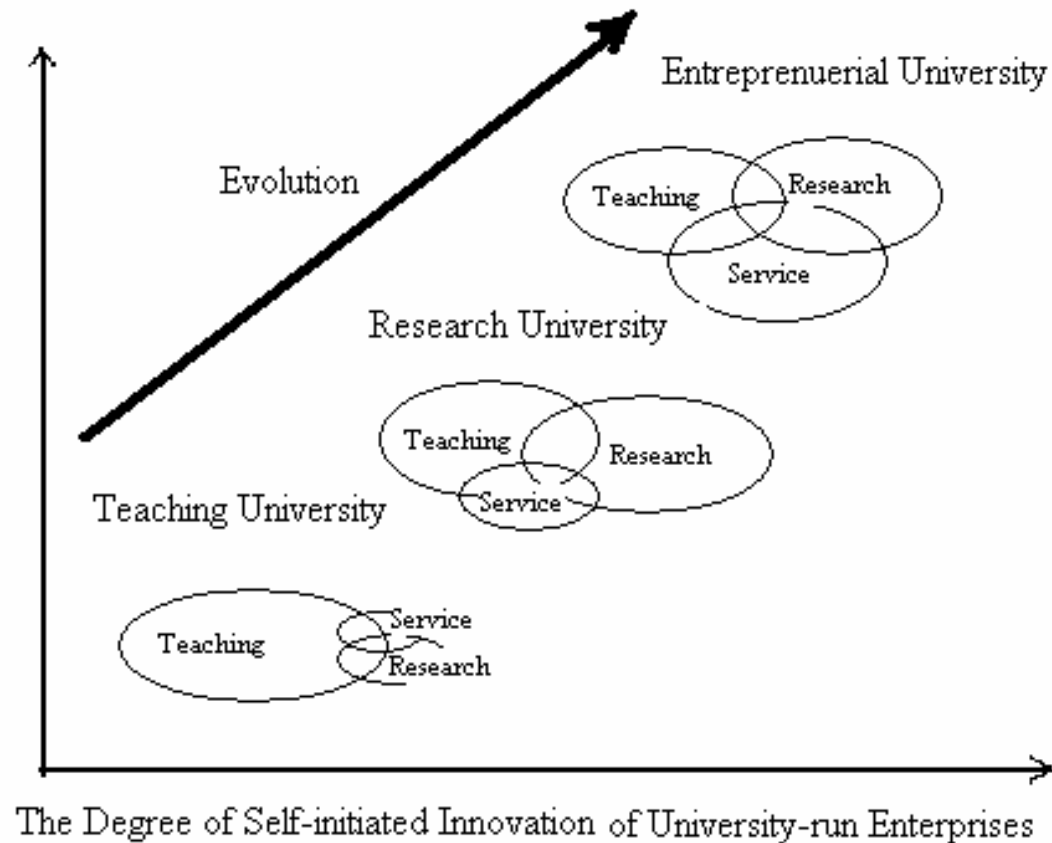
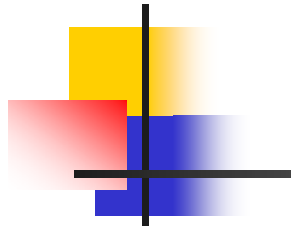
What? New technology or industry

Where? On-campus, off campus

When? One-fifth Rule

How? University policy, changing views of professors' responsibilities,...

2. From Entrepreneurship Activities of University to Entrepreneurial University



3. From UREs to Spin-offs

University-run Enterprises in China (1992-2001)

Year	Number of total UREs	Number of S&T UREs	Number of Non S&T UREs
1992	Not available	850	Not available
1996	Not available	2912	Not available
1997	6634	2564	4070
1998	5928	2355	3573
1999	5444	2137	3307
2000	5451	2097	3354
2001	5039	1993	3046

Source: Year 2001 Statistical Report of University-run Industry in China, 2002, P.10, China University Industry (Zhongguo Gaoxiao Chanye), 2000, No.6, P.10, University S&T Industry News (Gaoxiao Keji Chanye Tongxun), 1998, No.3-4, P.2

4. Periodic Character of University Entrepreneurial Role Following Industry Period

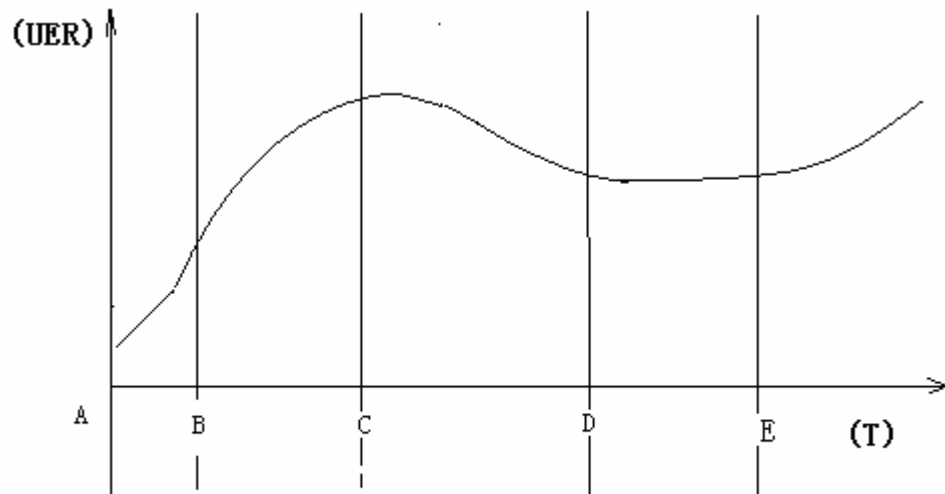


Figure 7 Periodic Character of The Third Mission of University

- University will play a more important role in the creation stage of a new technology and industry period.
- Industry will play a more important role in its later improvement stages.



Conclusion: What can we do?

- 1. Actively upgrade research universities and encourage the transition from teaching to research universities, especially in regional or local level.**
- 2. Encourage professors' consulting practice.**
- 3. Change UREs into spin-offs**
- 4. Make relevant policies more stable and continuous**
- 5. Work with government and industry to develop hybrid organizations, like science parks and incubators around the universities, while keeping their cores.**

Some suggestions for Ethiopia

Basic idea: to view forming Triple Helix as a process

- ❑ On one hand, take regional innovation strategy of Triple Helix through high-tech industries; on the other hand, fight poverty with low-tech industries
- ❑ Through strong and stable policies and laws, enhance government's roles; concentrate financial support in a few of public universities
- ❑ Understand triple helix better, for it is different from NSI
- ❑ Don't stare at the number of higher education institutions; pay more attention to what roles that university plays in innovation (“products examination”)

Thanks a lot!

