



<http://www.usc.edu/apru>

Technology Transfer and Wealth Creation: The Role of Research Universities in the Asia-Pacific Region (10/25/01)

An APRU Research Project Co-sponsored by:

Steven B. Sample
President
University of Southern California

Shih, Choon Fong
President and Vice Chancellor
National University of Singapore

Motivation for Research

It is well recognized that technological innovation lies at the heart of a nation's ability to sustain a high rate of economic growth and productivity and to maintain competitiveness in the increasingly knowledge-based global economy (see e.g. OECD, 2001; Porter and van Opstal, 2001; and WEF, 2000). It is also being increasingly recognized, at least among the more advanced industrial economies, that research universities play a pivotal role in stimulating technological innovation by the business sector through technology transfer (Stern, Porter and Furnam, 2000; AUTM, 2000). For example, the level of patenting and technology licensing activities by universities has increased significantly in the U.S. since the mid-1980s, as a result of the Bayh-Dole Act. The Association of University Technology Managers (AUTM) estimated that North American universities contributed over US\$40 billion in economic activity and supported more than 270,000 jobs in 1999.

In spite of the growing importance of technology transfer from universities, there has been a dearth of information on the scope, pattern, trends and impacts of technology transfer activities by universities in the Asia-Pacific region outside North America. In addition to a lack of in-depth research on university technology transfer in many individual countries in the Asia-Pacific region, there has also been inadequate comparative analysis and information exchange about technology transfer among countries in the Asia-Pacific region.

It is thus timely for APRU to initiate a comparative study on the technology transfer role of research universities in the Asia-Pacific region. We believe that APRU is uniquely well-placed to conduct such a study, given the strong representation of APRU's 34 members among the leading research universities in the Asia-Pacific region.

Scope and Objective of Research Project

The aims of the proposed research project are:

- 1) To document and profile the scope, pattern, trends and impacts of university technology transfer activities in the Asia-Pacific region, using a uniform analytical framework and a common set of measurement metrics;
- 2) To identify and highlight the key constraints and challenges faced by APRU member universities in further strengthening their technology transfer role in the future;
- 3) To propose recommendations for improving national policy environments for university technology transfer in the Asia-Pacific region, including policies for facilitating regional cooperation among APEC economies.

The principal product of this study is a research report that will serve as a basis for discussion at APRU's sixth annual meeting, which will be held at the University of California at Berkeley in June, 2002. An executive summary of the report, which incorporates recommendations from APRU CEOs for improving national policy environments for university technology transfer in the Asia-Pacific region, will be subsequently distributed at regional forums like APEC, as well as among policy makers in member national governments, such as the National Science Foundation in the U.S. and the National Science and Technology Board in Singapore.

Research Methodology and Schedule

A Research Coordinating Group (RCG) of eight to ten senior technology transfer administrators will be appointed by APRU's Steering Committee. The composition of the RCG will reflect the regional balance of APRU's Steering Committee and be co-chaired by NUS Professor Casey Chan, Senior Director of NUS Enterprises (Singapore Division) and USC Professor Neal Sullivan, Vice Provost for Research.

A common comparative research framework, in the form of a uniform data compilation guide and a structured questionnaire survey, will be developed by the RCG. This research framework will draw upon published literature on university technology transfer and measurement metrics already in use by relevant organizations such as the OECD and the North America-based Association of University Technology Managers (AUTM). This framework will be developed so as to take into consideration the diverse national contexts and university missions among APRU members.

Each participating APRU member will be requested to appoint a participant to a Research Working Group (RWG), preferably the director of the member's Technology Licensing Office (or his/her equivalent designee who is responsible for technology commercialization). This person will oversee the data compilation exercise, administer the survey questionnaire in each APRU university, and maintain communications with the RCG. The data to be collected will pertain largely to APRU member universities, although some supplementary, secondary data on other universities in the member countries may also be requested. The Research Coordinating Group will consolidate the

information submitted by APRU's 34 members and will be responsible for generating the statistical analysis and report writing. To provide contextual interpretations, the RCG will collect additional data on various relevant socio-economic environmental variables on the member countries through standardized data sources such as the "Global Competitiveness Report" and related publications by the World Bank.

To facilitate the research process, two workshops will be held--one at the beginning to develop the preliminary research design, and one after the first draft of the research findings are produced. Due to the fortuitous scheduling of an international trip by the NUS project leaders, it is proposed that teams from the NUS and USC co-sponsors hold the first workshop at USC on November 15. This preliminary planning workshop would be open to any other APRU representatives who might be able to participate on short notice.

For the second workshop, which would be held in April or May of 2002, Research Working Group members from all 34 APRU members will be invited, as well as the members of the Research Coordinating Group. Also, venture capitalists, high-technology corporate leaders, and public policy makers from APRU member economies will be invited to participate in order to solicit their recommendations.

Research Budget and Administration

The cost of participating in this study for each APRU member is expected to be relatively modest, comprised mainly of administrative costs for internal data compilation/survey, travel, and per diem expenses for one or more of its researchers to participate in the 2002 research workshop. There will also be some costs for the local host of the two workshops and the administrative overhead expenses for supporting the Research Coordinating Group, i.e., project administration, statistical data analysis, and report production.

It is proposed that each participating APRU member will cover the cost of their own participation in the study, including the administrative cost of data compilation in their university and the cost of travel and per diem expenses for their researchers who participate in project workshops. The APRU members that host the research workshops will cover local hosting expenses, in part, by charging a registration fee to cover the variable costs per participant. Project co-sponsors NUS and USC will share the overhead cost of coordinating the work of the Research Coordinating Group.

References

AUTM(2000), *AUTM Licensing Survey FY 1999*

OECD(2001), *Science, Technology and Industry Outlook: Drivers of Growth: Information Technology, Innovation and Entrepreneurship*, Paris: OECD

Stern, S., Porter, M.E. and J.L. Furnam(2000), "The Determinants of National Innovative Capacity," NBER Working Paper 7876

Porter, M.E. and D. van Opstal (2001), *US Competitiveness 2001: Strengths, Vulnerabilities and Long-term Priorities*, Washington D.C.: Council on Competitiveness

World Economic Forum (WEF) (2000), *Global Competitiveness Report 2000*, Oxford Univ. Press