



Policy Brief
August 2013

University – Industry – Government Partnership For Economic Development in Indonesia

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ADB recognizes “China” as the People’s Republic of China.

» Innovation and Economic Development

Promoting university - industry - government (UIG) partnerships for research and innovation has long been a key feature of economic development strategy in Organisation for Economic Cooperation and Development (OECD) countries - and now increasingly in developing countries.

In Indonesia, effective UIG partnerships have been very few, constrained by a weak enabling environment and limited capacities. However, the government’s Master Plan for Acceleration and Expansion of Indonesia Economic Development (MP3EI) 2011-25, provides an opportunity to change that. Strengthening human resources, and science and technology capability, is one of the three pillars of MP3EI.

The plan envisages a key role for universities and industry in research and innovation, as a spur to increased competitiveness and economic growth.

» Triple Helix in Indonesia?

The role universities can play in economic development depends to a large extent upon the level of interaction that they have with industry and government.

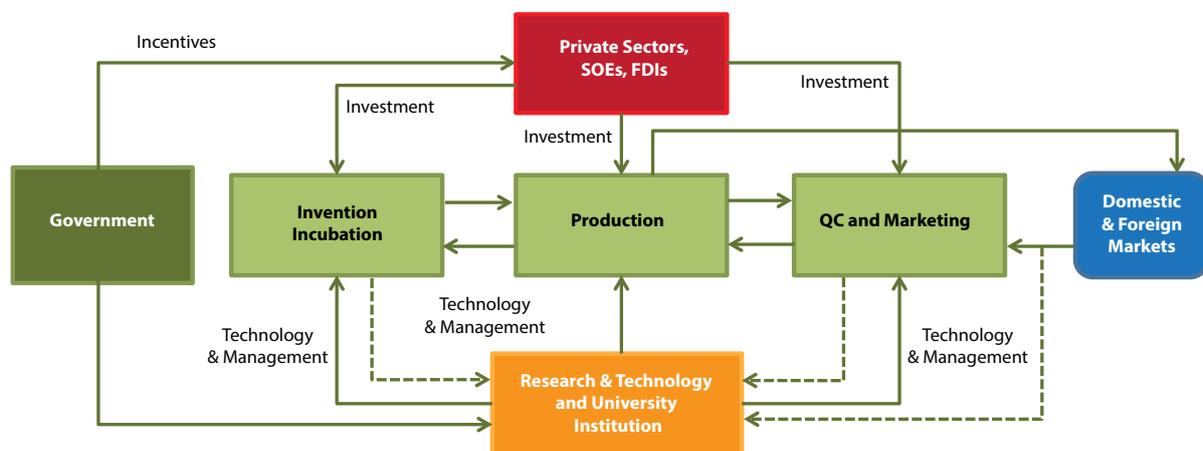
The concept of the “Triple Helix” suggests strategies for universities, industry and government to work together to promote innovations which can contribute to economic growth.

The Triple Helix comprises three elements:

1. A more prominent role for universities in innovation on a par with industry and government in a knowledge-based society.

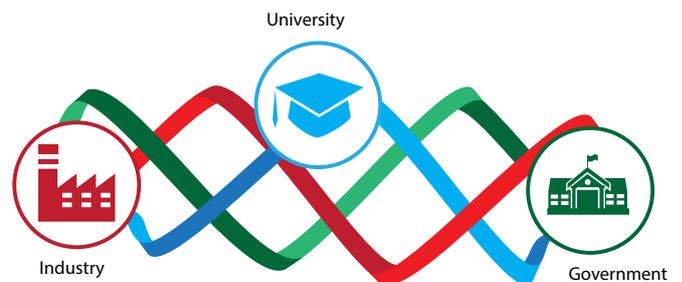
Figure 1 - Indonesia’s National Innovation System

Source: Master Plan for Acceleration and Expansion of Indonesia Economic Development (MP3EI) 2011-25, Coordinating Ministry for Economic Affairs, 2011.



2. A movement towards collaborative relationships among the three institutional spheres, in which innovation is increasingly an outcome of interaction rather than a prescription from government.
3. Each institutional sphere also “takes the role of the other”, performing new roles as well as their traditional functions (www.triplehelixassociation.org).

Figure 2 - The Triple Helix and its extended university-led model



However, the three spheres of UIG in Indonesia remain as separate sectors with very few examples of productive interaction in which knowledge is jointly developed and shared.

A fundamental constraint is a lack of understanding and mutual trust across the three sectors. Universities develop their strategies with little or no involvement or reference to industrial stakeholders, with many academics still looking down on industry as ‘greedy’ or ‘lacking idealism’.

Industrialists tend to see universities as ‘ivory towers’, bureaucratic, and too focused on consensus building to meet their needs.

A further constraint is that the institutional framework for public universities (which are those with the greatest potential for innovation) is not conducive to establishing partnerships with industry.



Photo: PIH Kemendikbud

Universities lack of financial autonomy means that efficiently running projects under contracts is difficult. Their lack of autonomous legal status begs the question of their credibility in negotiating contracts involving intellectual property rights.

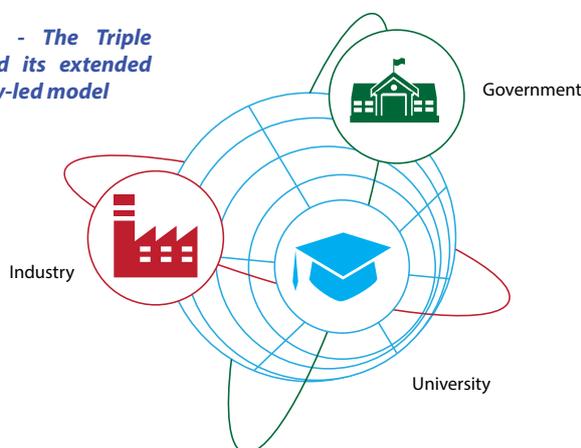
Because of its different political system and its lack of leading industries, Indonesia does not have the capacity to promote innovation compared with other Asian countries.

The government is unable to be as proactive or directive as in China or Singapore, and unlike Korea or Japan, Indonesia lacks industries which can lead on the creation of innovations. Despite some constraints, the university sector offers the greatest potential to initiate and lead UIG partnerships.

» University Potential to Lead Innovation

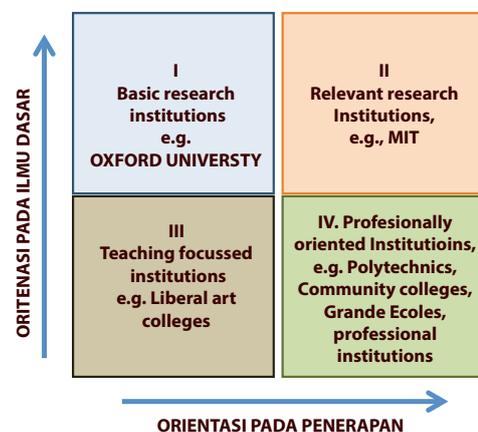
In a university-led developmental model, the university takes the lead and becomes the gravitational center that initiates the partnership, as illustrated in **Figure 3**.

Figure 3 - The Triple Helix and its extended university-led model



In order to understand different roles universities can play in economic development, a framework is adopted to distinguish between four types of institutions (see **Figure 4**). The types are distinguished by two dimensions which define the nature of their research interest: application orientation, and fundamental- science orientation.

Figure 4 - Institutional Characteristics [Stokes, 1997, Hatakenaka, 2008]



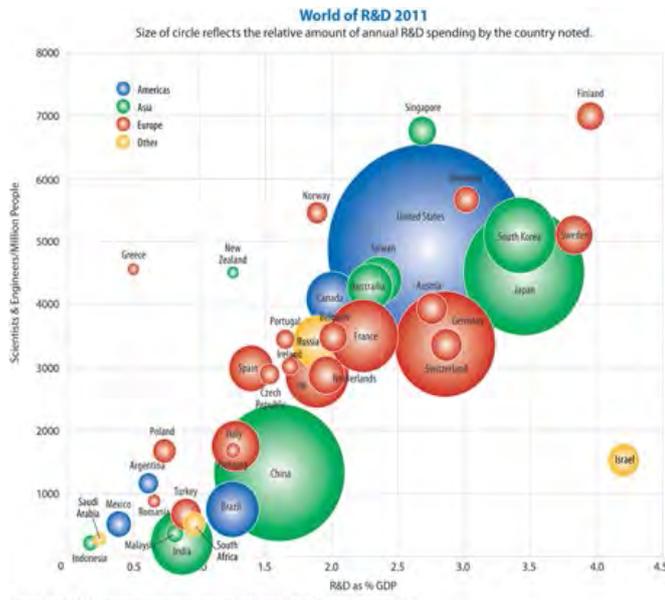
In many developing countries, most institutions fall into the teaching-focused category by default – simply because they do not yet have the resources or capacity to be highly active or effective in research.

Indonesia is no exception. If Indonesia's universities are to play a significant role in contributing towards the achievement of MP3EI objectives, it will be essential to establish at least a handful of well- developed relevant research institutions.

» Research and Development Capacity

A review of Research and Development (R&D) capacity highlights that investment in R&D is extremely low in comparison with neighboring countries.

(See Figure 5) R&D Spending and Science and Technology Personnel



Indonesia spends merely **0.08%** of its GDP for R&D activities, compared to **0.7%** in Malaysia, **0.85%** in India, and **1.6%** in China .

Universities represent an important player within the R&D sector, and while research funding has been increasing in the recent past, the overall level of research funding remains small.

Furthermore, little of this is strategically oriented to serve national economic development.

In addition, as **Figure 5** shows, the proportion of the engineers and scientists to population remains amongst the lowest in the world, representing a significant human resources capacity constraint to innovation.

Universities need to further differentiate their institutional mission towards high quality application oriented research for the most knowledge intensive industries. A small number of established universities have both sufficiently qualified human resources and the desire to be research-active.

A key constraint is that their natural direction is to simply become more focused on internationally publishable basic research.

A commensurate push for academics to work with industry, to develop relevant application-oriented thinking appears to be missing.

This, in an environment where even industrially active academics voice difficulties in identifying appropriate industrial partners, is a concern.

Regional disparity in university capacity is a debilitating factor which could undermine the vision of MP3EI.

The distribution is so uneven that unless concerted efforts are made, universities are unlikely to play meaningful roles in many Eastern regions.

Ideally each of the key economic corridors would have universities with relevant research capacity (at least in a limited range of fields critical to the region), professionally oriented institutions capable of offering industry-relevant education quickly, as well as teaching focused institutions capable of producing a pool of flexible human resource.

Within industry, there is a serious weakness in incentive structures to promote industrial R&D and to encourage industry to move downstream to embrace higher value added products, for instance in mining or agriculture.

MP3EI type development is unlikely to be feasible without developing strong affirmative policies and incentives to promote faster industrial upgrading.

» Creating Opportunities and Incentives

If effective UIG partnerships are to be realized in Indonesia, it will be necessary to create more structured opportunities for encounters between industrialists and universities.

Such engagement will build understanding of each other's functions and help to dispel adverse perceptions each sphere has of each other.

There is a need create 'hybrids' with industrialists joining academia, and academics taking leave to work in industry.

Governing boards and advisory committees in both universities and businesses, professional societies, joint projects, alumni interactions and consultancies all offer invaluable opportunities for individuals from the two sectors to gain exposure to the other sector. Universities can certainly endeavour to create more structured opportunities.

The Directorate General of Higher Education, MoEC, as well as other government bodies should enlist individual industrialists for advice on policies, strategies, program design and implementation.

Cultural change programs should be initiated by DGHE with a concerted effort to ensure that industrial views are solicited in :

- Program design through individual consultation with industrial experts,
- Selection, monitoring and evaluation by experimental engagement of industrial experts, and
- Individual grant proposals, through requirements that universities cannot submit proposals without consulting industry stakeholder.

The recommendation for the government more broadly is to win back the confidence of private businesses, by **firstly** establishing national forums with leaders from government, industry and universities.

Secondly, by developing a consistent set of policies and public investments to support the vision of economic growth with innovation, not only in ensuring university autonomy but also in affirmatively supporting the development of industries with higher value.

Thirdly, the government must dramatically revamp and increase its investment in R&D (see below).

» Strengthening Research and Development

How can universities become more strategically oriented institutions with a culture of innovation and relevance?

First, they must become much more strategic in ensuring that their distribution of expertise is appropriate to meet the needs of the surrounding region and/or the nation.

Secondly, universities must develop UIG support facilities, such as corporate relations or industrial liaison offices, effective support for external contracts, and specialized expertise for creating space for collaboration and commercialization such as science parks and incubation centres.

Thirdly, universities must be staffed with dedicated professionals who understand the world of academia, but also have specialist expertise to bring to the table well beyond what most part-time academics can offer.

Fourth, universities must offer appropriate incentives to encourage individual academics to engage in industrial partnership and undertake commercial activities.

It is clear that the regulations governing higher education institutions must be reoriented to allow universities to develop as fully autonomous institutions.

The 2012 Higher Education System Law provides a framework for increased autonomy however as this is unlikely to be addressed in the short-term, the government must develop workaround mechanisms to facilitate universities to work more effectively with industries, particularly as regards financing arrangements.



Photo: PIH Kemendikbud

It is likely that this will require many public institutions to establish new organization units to interface university work with industry.

Improving R&D investment is clearly a critical requirement. However, a simple expansion of existing types of research funding is not recommended. What is needed is an improvement in the fund channeling mechanisms, by pushing for block grants, faster disbursement, and allowing for multiple year projects, to increase effective use of funds.

Specifically, it is recommended that a set of **competitive funding programs** be developed to promote a new culture of industrial engagement and relevance among universities. Competition will provide incentives for institutions to innovate. Requirements that proposals be developed in consultation with industry stakeholder and government officials for all programs will encourage collaborative planning and creativity.

More specifically the following three types of programs are recommended:

1. The first type would be fellowships to be awarded to individual academics (both prospective and future) and industrialists to gain work exposure in each other's spheres - so that they develop 'hybrids' perspectives.
2. The second type would offer institutional grants for strengthening professional support functions for UIG partnerships, such as corporate relations/industrial liaison work and commercialisation support.
3. The third type would be for programs to develop capacity for university research expertise in new fields relevant to industry. 'Tiered' competition is recommended so that the regional disparity issue is addressed directly with a targeted support for universities in Eastern islands.

ACDP

The Government of Indonesia (represented by the Ministry of Education and Culture, the Ministry of Religious Affairs, and the Ministry of National Development Planning / Bappenas), the Government of Australia, through **Australian Aid**, the **European Union (EU)**, and the **Asian Development Bank (ADB)** have established the Education Sector **Analytical and Capacity Development Partnership (ACDP)**. ACDP is a facility to promote policy dialogue and facilitate institutional and organizational reform to underpin policy implementation and to help reduce disparities in education performance. The facility is an integral part of the **Education Sector Support Program (ESSP)**. EU's support to the ESSP also includes a sector budget support along with a Basic Education Minimum Service Standards capacity development program. Australia's support is through Australia's Education Partnership with Indonesia. This Policy Brief has been prepared with grant support provided by AusAid and the EU, through ACDP.

This policy brief was developed from a study supported by ACDP – 'Development of Strategies for University-Industry-Government Partnership in Indonesia' -undertaken in 2012. The full study report is available on the ACDP website. In addition to the study report, a paper entitled "University, Industry, and Government partnership: present and future challenges in Indonesia," was presented at the 10th Triple Helix Conference held in Bandung 8-10 August 2012 and published by the Elsevier Procedia Social and Behavioral Science Journal (<http://dx.doi.org/10.1016/j.sbspro.2012.09.468>).

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