

ASEAN Nations need indigenous innovation to transform their economies but are doing little about it.

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With the exception of Singapore, which can be considered a developed city-state, most members of ASEAN are still developing nations, with a few still in the under-developed phase of growth. In addition, there is great range in the level of prosperity within each ASEAN nation, particularly between rural and urban areas. On face value¹ the ASEAN region looks potentially poised to become a major trading partner within the global economy, or is it?

Economic development within the individual ASEAN states has been heavily dependent upon government infrastructure (rather than private) development, foreign direct investment, and the growth and diversification of local conglomerate firms.

Very few ASEAN governments adopted the "*Hong Kong*" infrastructure development model which in many cases turns infrastructure from a cost to a profit centre. ASEAN governments have opted to borrow and provide basic infrastructure from their own fiscal budgets. Where some infrastructure projects were privatized in countries like Malaysia, most were undertaken by firms with little or no experience in developing infrastructure like roads, water distribution, and ports. Actual construction work is often sub-contracted to foreign firms which bring in turnkey technology in with them and return to their home countries with it when projects are completed. In addition, infrastructure projects are seen by some officials as an opportunity to personally benefit where costs often blow out . There have been numerous scandals reported over the years in many ASEAN countries over infrastructure development.

The second driver of economic development, foreign direct investment (FDI) has been primarily attracted to the region because of the availability of infrastructure, semi-skilled labour, and a relative low cost base. Innovation has been rarely on the agenda, where the region has been seen by international manufacturers more as a production rather than research and development hub. Thus many hi-tech clusters have not successfully catalyzed the creation of vibrant local innovation based companies as sub-contractors and suppliers, except for local freight forwarding industries.

Foreign MNCs that have set up to focus upon ASEAN as a market would set up a head office in a platform country like Singapore and establish agents, distributors, joint ventures, manufacturing facilities and distribution networks in the other ASEAN markets. Again there is little local innovation as most products and brands MNCs launch within ASEAN are adapted from other markets.

The third facet of ASEAN economic development are the locally owned Chinese conglomerates which commonly started off with some form of simple trading or natural resource exploitation. As the ASEAN economies grew and diversified so did these activities. The Chinese families of the region vertically integrated into both manufacturing and supply chain activities, later evolving into property, real estate, banking, and finance opportunities. These firms primarily developed through selecting low risk opportunities as the economy expanded and diversified, undertaking very little, if any real innovation, except in the area of branding. The advancement of these businesses in the past has often relied upon strong connections with politicians, the military, or royalty. Today many of these conglomerates prefer to expand in the lucrative service industries rather than develop costly and risky new technology.

As a consequence, the present capability to develop transformative innovation indigenously within the ASEAN region is low. There is very little new innovative technology being developed and emerging industries like mobile communications are consumers of turnkey technology rather than producers of new innovations.

As the ASEAN economies will still need to rely upon the global market for continued economic growth in the future, there is a great need for businesses and researchers within ASEAN to develop the capability for indigenous innovation. Without indigenous innovation long term per-capita income may even decline relative to other regions as the traditional agro, resources, and manufacturing sectors cease to contribute substantial growth to the economy. Foreign firms and the local Chinese conglomerates within ASEAN show no signs of providing this necessary indigenous innovation that is needed to produce a competitive economy and assist the transformation into a fully developed region.

If indigenous innovation is to be a future key driver of economic development, then future ASEAN government economic, research, education, and industrial policies and subsequent implementation strategies need to be reconsidered. This requires the abandonment of many existing economic and social assumptions held by those in executive power and at the public administration levels².

What's the reality on the ground?

As mentioned in the introduction, most industries within the ASEAN region have been developed as consumers rather than innovators of technology. The communications, computer, aviation, and automobile industries are all consumers reliant upon outside technologies, either through the purchase of turnkey plants or licensing. As such there is little organizational learning that actually takes place and thus the development of internal innovation competencies within ASEAN firms is inhibited. Indigenous technological development just

doesn't occur. Likewise, many studies have shown that ASEAN SMEs are users rather than creators of technology.

The industries of the future will be in the hands of those who control the technology. Whether manufacturing, exploiting natural resources, or providing services, the key to any competitive advantage will be control of present and access to future technology. Without this any industry will struggle to contribute to a nation's global competitiveness, and enhance the export base.

One of the major differences between the ASEAN region and other major trading nations like China, Japan, Korea, the US, and EU is in the area of research and development. The ASEAN region is still nascent when it comes to research. Researchers at higher education and other research institutions tend to imitate previous research undertaken in other regions of the world. Much research is undertaken on an *ad hoc* basis aimed toward fulfilling career and promotion requirements rather than focusing on commercially orientated and national development issues. There is very little collaboration with industry and most research projects are abandoned at conceptual level where even prototypes are not built.

Expert panels screening applications from research funding agencies are conservative and discourage *avant-garde* research projects, usually knocking them back due to lack of evidence or from commercial ignorance, preventing researchers pursuing new ideas. Consequently research output within the ASEAN region lags greatly behind other major trading nations indicating an horrendous gap in indigenous innovation as measured by resident patent applications filed through the Patent Cooperation Treaty procedure with various nation patent offices.

	2004	2005	2006	2007	2008	2009	2010
ASEAN	2,573	2,737	2,904	3,100	3,286	3,572	4,114
US	189,536	207,867	221,784	241,347	231,588	224,912	241,977
CHINA	65,786	93,485	122,318	153,060	194,579	229,096	293,066
INDIA	4,016	4,721	5,686	6,296	6,425	7,262	-
JAPAN	368,416	367,960	347,060	333,498	330,110	295,315	290,081
EU	103,367	101,232	100,678	110,731	111,880	110,319	98,894
Korea	368,416	367,960	347,060	333,498	330,110	295,315	290,081

Figure 1. resident patent applications filed through the Patent Cooperation Treaty procedure of major trading nations³

With the exception of Singapore, university standards are low in the region. In contrast, Chinese, Korean and Hong Kong universities are rapidly rising within the world rankings. This research gap is likely to widen rather than narrow.

At the industry cluster level the Malaysia's Multimedia Super Corridor (MSC), regional corridors, and Biotech clusters have to date achieved very modest results, and it is still too early to tell

whether Singapore's massive gamble on the Biopolis will bring enough biotechnology IPOs to bring sufficient financial returns from the research being undertaken.

The development of mega-cities within some ASEAN countries should be hotbeds of creativity and innovation⁴. However as the patent figures above indicate, the growth of mega-cities within ASEAN has not brought with it a culture of creativity that many other growing mega-cities around the world have experienced⁵. Further, ASEAN mega-cities have brought traffic jams and urban problems of crime and poverty. This appears to be corroborated by performance within other creative domains like the arts, theatre, music, and sport. This apparent lack of any culture of creativity will potentially cost the region dearly in the quest to participate in the next stage of world development based on innovative sustainability.

What needs to be done?

The ability to develop indigenous technology is a capability that may be more important than the issues of trade liberalization and implementing Western notions of democracy within the region. However ASEAN governments have been employing losing strategies in their policy initiatives. This all requires a rethink.

The ASEAN region has been bureaucratized almost to the extent of stalled effectiveness. For example the Ministry of Science and Technology (MOSTI) and Higher education (KPT) in Malaysia centrally control the allocation of scarce research funds which usually end up funding projects that have little benefit to industry or national development. This ego-centric, '*government knows all approach*' to technology and industrial development is something akin to the old Soviet era "GOSPLAN" apparatus.

Another great tragedy is the lack of regional research cooperation with few existing mechanisms to encourage it. ASEAN has a very poor track record of collaborating as a group ever since the pull out of all the individual nations of the Malaysian initiated ASEAN car project back in the early 1980s. There are deep attitudes of complacency within the ASEAN leadership, contributing to the failure to synergize knowledge generation within the region.

The key to developing indigenous innovation seems to be culturally linked, which leads to the question of *what type of culture do ASEAN nations need to nurture for the next generation?*

A creative society is bound up in the norms, values and lifestyles embedded within the structure of society and this has been deeply influenced by the social directions ASEAN governments have encouraged over the last generation.

Creating change involves battling the inertia of society and this must begin with education which is vital to change. However ideas and curriculum are years behind other regions. Talent

and diversity needs to be cultivated rather than conformity. It's no longer enough to guarantee a place in the classroom and achieve high national examination scores, real creativity must be encouraged and nurtured. This doesn't necessarily require a massive increase in funding, but rather reallocation and a cathartic change in the bureaucratic mindset to adopt new curricula. It may not be a funding problem, but a priority and allocation issue.

Creativity is fundamentally a social process where new ideas are more likely to come through rest and relaxation rather than strenuous formal meetings. Consequently workplaces need to be redesigned so that an environment of serendipitous sharing becomes the norm. This must be supported by the correct motivation systems that reinforce and truly reward new ideas and promotes high productivity - something deeply lacking in the region today. Nepotistic structures must be overturned with the practice of true meritocracy, where it should be recognized that creativity doesn't necessarily increase with experience. Nepotism is a curse that prevents peer recognition of creative acts and suppresses excellence at the very time collective creativity needs to be developed within organizations in the region. The above calls for an almost total revolution within the ASEAN workplace, which would be strongly resisted by the by the '*Hongs*', '*Toukays*', and '*powerbrokers*' within organization hierarchies.

Through ASEAN citizens studying abroad, travelling, and experiencing the values of other societies through the media and consumerism, the exposure is there for change. However the experience of other cultures has yet to bring a complete open mindedness within the region, enabling the mental flexibility needed to be creative as a society. We are eating the *Big Mac* without understanding how and why it came to be.

ASEAN is still plagued by inward thinking which is preventing the possibility of the region breaking out of old patterns, growing and maturing to become an influential trading block. Leadership in the region is still taking a risk adverse approach to issues of ASEAN integration and currently without the visions necessary to create the society as a platform that facilitates the synergy of new ideas that can potentially lead to untapped *multiplier effects* and greater diversity. ASEAN members are still locked within the *psychic prison of tribalism and the belief of what has worked in the past will do so in the future*.

This is not about *freedom and democracy* as some in the "*West*" deem necessary, as alternative models of growth and development like China now exist.

Development based upon imported technology will never be able to enable competitive advantage over the technology providers. The inability to develop indigenous agro technologies concerned with food production in the face of the changes rising population and climate change is a future disaster waiting to happen. At the very least, future agro-industry development without indigenous technology, being solely reliant upon foreign technology may

even challenge the very notion of sovereignty over resources that ASEAN governments have so zealously protected. The lack of indigenous innovation may play into the hands of China and the US, where ASEAN will be militarily dependent upon hardware suppliers thus ensuring the region is weak militarily, at a time where a new Asia-Pacific order is emerging.

¹ One can see that ASEAN exports to the world are not far away from the US, EU, and China and surpass India and Japan.

² Currently most ASEAN governments must act to restrain wage growth so that FDI will find the country attract to set up and maintain manufacturing operations. This indirectly encourages the transfer of inefficient and outdated rather than the most up to date technology. Government policy is also at the mercy of external economic factors such as the state of the global economy, particularly the most important trading partners. Consequently government policy tends to be reactive to external conditions rather than proactive in seeking new technologically driven industries.

³ See World bank data: <http://data.worldbank.org/indicator/IP.PAT.RESD/countries/1W?display=graph>

⁴ See the hypothesis of Richard Florida (2012) in *The Rise of the Creative Class Revisited*, New York, Basic books

⁵ A culture of creativity could be best described as an environment where people can interact creative synergies may occur as the result.