Investing in and Building up Research and Innovation Capabilities are Long-term Efforts

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What are the most recent changes to innovation policy in Singapore?

Since 2001, Singapore has invested significantly in building up basic and applied research capacities. Starting with embryonic R&D capabilities residing in basic and applied research institutes and the two national universities, Singapore now has a good R&D spectrum of public sector research institutions in the biomedical and physical sciences and engineering institutes of our Agency for Science, Technology and Research (A*STAR), university-based institutes and laboratories, hospitals and academic medical centres, and corporate R&D laboratories.

How efficient Economic Strategies Committee is?

Our joint (public and private sectors) Economic Strategy Committee (ESC) established in 2009 identified four strategies, namely (i) to sustain knowledge creation, (ii) to grow innovation capital, (iii) to attract and develop talent and (iv) to increase GERD (Gross Expenditure in Research & Development) from 3% to 3.5% of GDP.

These underscore the awareness that investing in and building up research and innovation capabilities are long-term efforts. The emphasis on innovation to commercialise research and development is crucial to economic development.

Attracting and developing talent is a key success factor for building a knowledge-based economy. In terms of the number of PhDs (full time establishment, FTE) per 1000 labour force, Singapore lags other R&D intensive economies such as Finland and Sweden. (Finland – 3.6 (2006), Sweden – 3.0 (2005), Singapore – 1.5 (2007)). Today only about 35 percent of the PhDs in our universities are Singaporeans and Permanent Residents. Singapore intends to ensure that a fair share of the nation's talent pool will be in the science and engineering disciplines to address this issue.

The ESC has also focused attention on Productivity and Innovation. Incentive schemes have been introduced, the most recent being the Productivity and Innovation Credit (PIC). The PIC provides 250% tax deductions for investments in a broad range of activities, including purchase of automation equipment, training, R&D expenditure, intellectual property acquisition and registration and design expenditure.

Initiatives to help Small and Medium Enterprises (SMEs) include the Innovation Voucher Scheme (IVS). SMEs are encouraged to test out their ideas by collaborating with public research institutes. Innovation vouchers support SME innovation projects and for SMEs to secure services from public research laboratories. SMEs can adopt technology to either enhance or develop new products, processes, applications, practices or operations, or result in new technology innovation capabilities being developed e.g. acquiring new technology / upgrading staff through customised training & development courses.

A Technology Enterprise Commercialisation Scheme (TECS) catalyses the formation and growth of technologically innovative start-ups with intellectual property (IP) and scalable business models. By addressing early-stage funding gaps, TECS helps technology start-ups and entrepreneurs in Singapore grow past their embryonic phase, secure third-party funding and achieve growing revenues. It has encouraged commercialisation of public sector R&D, with a significant proportion of supported projects, some 40%, directly involving Intellectual Property developed in the public sector.

What do you think about Russian innovation policy and the Skolkovo project particularly?

Skolkovo should develop its own model, based on the unique strengths of the Russian research and innovation capabilities. The most sustainable competitive advantage that Russia can build is not in bricks and mortars but investing in its own human capital and attracting global talent.

To your mind, what research or technological developments may assure a technological breakthrough in the years to come? Do you think that such a breakthrough will happen?

Bright people are carrying out research globally in many diverse areas. In the biomedical sciences, there are potential areas of breakthrough here, including new treatments for hitherto incurable diseases like cancer and personalised healthcare for people with different genetic makeup. The search for alternative energy sources is another area where a lot of resources have been committed.

There is significant time-lag between the scientific discoveries and development of applied technologies. The existing petroleum-based infrastructure, the ability to find new exploitable sources of petroleum, and the existence of more established alternative energy sources such as nuclear energy, all mean that a new technological breakthrough in energy source will face multiple hurdles before it will become accepted. Similarly in biomedical sciences, the amount of regulatory hurdles for new treatments and drugs is well known. Scientific and technological breakthroughs do not guarantee immediate economic benefit.