

We need all brains on deck

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Grieving the loss of his grandfather to a heart attack, a 14-year-old in India learned that a unique enzyme is found in victims of heart attack. Indeed, our bodies produce the enzyme in the hours beforehand.

Intrigued, he wondered, what if someone at high risk of a heart attack could watch for that enzyme in real time? What an advantage it would be to be forewarned in such a situation and to immediately take the medical steps known to avoid or reduce the impact of a heart attack.

The boy pursued his idea and learned that the enzyme can be detected on a patient's skin. Therefore, he reasoned, it's possible to create a non-invasive monitor for the telltale heart attack marker. The result of his curiosity was the recent award of a valuable patent for just such a device, now being clinically tested, with the potential to save many lives.

The story was told by India's legendary Kris Gopalakrishnan, co-founder of Infosys and chairman of Axilor Ventures during the inter-sessional meeting of Prime Minister Datuk Seri Najib Razak's Global Science and Innovation Advisory Council on Sept 30, making a point about breakthrough thinking — the Nobel mindset.

It illustrates well the sometimes simple makings and process of scientific innovation. Certainly, a genius mind helps, but isn't required. Education, observation and curiosity combine to create an idea for improving some aspects of our lives, leading to a test which, more often than not, will fail at first. But, with perseverance, good ideas succeed. And, even those that don't work out often lead to others that do.

Malaysia is blessed with many brilliant young minds and we owe it to them, and to ourselves, to create an environment in which they get their chance to change the world.

It was my proud honour, therefore, to join the British high commissioner, Vicki Treadell, to recognise some of our brightest researchers with the prestigious Newton-Ungku Omar Prize, one of five awards used to advance and scale up promising scientific ideas in Malaysia, India, Thailand and Vietnam.

There were five projects shortlisted for the prize in Malaysia this year, and the recipient of the RM635,000 award was Professor Dr Phang Siew Moi and her team from Universiti Malaya (UM). In partnership with researchers from Cambridge University, the UM team successfully demonstrated how tropical algae from agro-industrial wastewater could be used to create bioelectricity. It represents a true win-win-win: produce electricity, lower carbon dioxide emissions by using green energy and treat wastewater. The team's next challenge: power an entire rural house with this energy source in five years.

Others in prize contention:

A TEAM from City University of London and UM's Photonics Research Centre developed novel rain and humidity sensors to detect landslide movement, a way for Malaysians to mitigate future monsoon damage and casualties.

A TEAM from the United Kingdom's Cardiff University and the United Nations University's International Institute for Global Health, based in Kuala Lumpur, researched links between health in urban centres and such variables as a city's walkability, river restoration and food systems, identifying lessons urban planners might also draw from indigenous knowledge.

A TEAM from UK's University of Southampton and Universiti Sains Malaysia created a network focused on infectious disease vaccines that target a limited number of bacterial strains, which allows new, more pathogenic, antibiotic resistant strains to emerge, increasing the risk of epidemics. The problem is expected to grow with climate change, industrial air pollution and changes in seasonal monsoon patterns.

All four projects, supported by the London-based British Council and the Malaysian Industry-Government Group for High Technology (Might), through their joint Newton-Ungku Omar Fund, were dedicated to addressing climate change and sustainable urbanisation.

The UK's Royal Academy of Engineering and Malaysia's Academy of Sciences, meanwhile, partnered to support the fifth finalist project, led by researchers from Liverpool John Moores University and UM. They developed a way to make electronics systems, including wireless medical devices, more reliable and secure from, for example, the threat posed by hackers.

Seeing what our researchers can do, we are encouraged as we struggle to achieve the ambitious Sustainable Development Goals, and to adjust to the fourth industrial revolution (4IR). It may be trite to believe that there has never been a more pressing need for curious, innovative and creative thinkers. Perhaps every generation has considered their time more perilous and challenging than any before. But, it certainly feels justified saying so these days as we confront daunting issues stemming largely from our species' overwhelming success, to the point where humanity constitutes such a dominant force that we define a new geological epoch.

Pessimists have been a constant throughout human history. I'm not one of them. Ours is a smart species; we will find the way forward. My hope, though, for the sake of future generations, is that we, in our time, are smart and mature enough to anticipate and prevent the problems we're creating before they, in theirs, must react and cure.

In either case, we need all brains on deck. The maximised creative talents and innovative potential of every young person in Malaysia will be essential to success. And, we are grateful, therefore, to the many international colleagues and collaborators who share their resources and expertise with us in such effective ways.

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