[Atta-ur-Rahman](https://www.thenews.com.pk/writer/atta-ur-rahman)

August 3, 2021

**Universities of the future**

Prime Minister Imran Khan inaugurates Pak Austrian University of Applied Science in Haripur.

Universities can be harbingers of change. We have seen how the Oxford and Cambridge universities contributed to the development of the United Kingdom; how Stanford and MIT have done the same for the US; and how the IITs helped boost Indian industry.

The associated technology parks with many of these universities have contributed to the emergence of thousands of industries in new and emerging fields that have earned billions of dollars for their respective national economies.

My association with the University of Cambridge goes back 56 years; this is reflected in my being awarded both PhD and DSc degrees by Cambridge University and being elected a Life Don at Kings College, Cambridge. I have therefore had the opportunity of watching its Science Park grow and contribute to the economic development of the United Kingdom.

Europe’s largest cluster of technology-based companies is closely associated with the Cambridge University Science Park. It employs more than 61,000 people, in more than 5,000 so-called “knowledge-intensive” companies that generate over GBP15.0 billion annually.

In Pakistan, we too must encourage university academics to transfer their research into business opportunities. We should allow our faculty to retain their university positions while working simultaneously in industry. The outdated ideas imposed by our Higher Education Commission – of preventing individuals within the university from making money in business – must be abandoned, as has already been done by leading academic institutions in the West and in Asia. Universities are now no longer confined to just teaching and research. Promotion of innovation and entrepreneurship has become an essential component of all modern universities.

A number of new universities are now under development in Pakistan under my supervision. I had previously established or expanded over 20 universities that include COMSATS, NUST, Virtual University and Balochistan University of Information Technology and Management Sciences, to name a few. They are now amongst the leading institutions in the country.

Our most exciting recent contribution is the Pak Austrian University of Applied Science and Engineering in Haripur Hazara which has established close collaboration with no less than eight foreign universities, three from Austria and five from China. The university is probably the first ‘hybrid’ university in the world involving three clear streams of activities.

The first stream is that of the ‘Fachhochschule’, which involves technical and engineering education at the Bachelors and Masters levels. A second stream is a postgraduate research stream with Centers of Excellence under development in several cutting-edge fields of engineering including Artificial Intelligence, High Speed Railways Engineering, Advanced Agriculture, biomedical engineering and other emerging fields. The university will benefit from training of its faculty and students by foreign partners.

Students will not only be trained within Pakistan; selected students will also undergo a part of their training in Austria and China. Ultimately, some of the students will be able to get dual degrees, once the university operations have been accredited by accreditation agencies in Austria and China.

But the most important stream of this university is focused on the activities of the technology park where a number of commercial products are already under development, although the university is only nine months old. So, the success of this university and the performance of its faculty will be judged not just by how many research publications or PhD students it produces but by the quality and number of products that are commercialized, and the volume of income it generates for Pakistan.

The integrated technology park will have Pakistani, Austrian and Chinese scientists and engineers working closely with industry in these countries with the objective of developing new and novel products for commercialization. The university has been provided liberal research and innovation funds to support the development of projects within the university and the technology park.

A Business Development Centre with experts in business, including investment and exploitation of intellectual property rights, will assist in new commercialization activities. The university has already started to function and was inaugurated by Prime Minister Imran Khan last summer.

Two other such ‘universities of the future’ with integrated technology parks are now under development in collaboration with foreign partners in industrialised countries. These are to be located in Sialkot and Islamabad. These new universities will set new standards for our other universities in terms of excellence in teaching, research and innovation, and will spearhead the development of the new heavily industrialised Pakistan.

This has become possible because of the vision and support of our Prime Minister Imran Khan, who has ensured the availability of the requisite funds for these projects. I have also convinced the prime minister to invest more funds in the higher education sector. These efforts have led to an additional allocation of Rs15 billion, a 23 percent increase in the budget for higher education after years of stagnation, which has risen from Rs99.8 billion last year to Rs123.9 billion this year. Kudos to Prime Minister Imran Khan!

Science, technology and innovation now play a pivotal role in the process of socio-economic development. Natural resources have diminishing importance as it is the creativity associated with the human capital that now determines the strengths of national economies. Each day brings a thousand discoveries and truth has become far stranger than fiction.

Here are a few examples: scientists have developed special ‘metamaterials’ which can make objects invisible. These metamaterials derive their amazing characteristics of being able to bend light waves away from an object because of their size and shape. The waves of light thus go around the object, like a stream of water going around a rock, and then meet again behind it, making the object completely invisible. Metamaterials are already being used to camouflage tanks, submarines and fighter aircraft.

New plant and animal species can now be ‘created’ in the laboratory by gene splicing technologies. The blind can today see with their tongue through a device that transfers optical signals from the tongue to the brain. Nanotechnology has led to the development of amazing new materials such as graphene, which is 200 times stronger than steel. The universities of the future must empower our youth with the necessary knowledge and creative skills needed to contribute to this fourth industrial revolution that is now upon us.

The roadmap for the socio-economic development of Pakistan was built under my supervision as a part of a two-year long exercise which involved consultation with thousands of scientists, agriculturists, industrialists and government officials. This 320-page document titled ‘Technology Based Industrial Vision & Strategy for Pakistan’s Socio-economic Development’ was approved by the cabinet in 2007. It is time we integrated it into our national development plans and implemented its recommendations.

Email: ibne\_sina@hotmail.com

The writer is chairman PM National Task Force on Science and Technology, former minister, and former founding chairman of the HEC.