**Innovation or Improvisation**

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Education in general and higher education in particular has always been an area of neglect in Pakistan. Mostly, the education system is based on rot learning of decades-old curriculum. Similarly, the higher education system, especially dealing with pure/ applied sciences and engineering has been churning out graduates with limited analytical and creative abilities. Concurrently the industry that employed these scientists and engineers was based on obsolete technology needing little or no analytical skills. Were there any international collaboration, local scientists and engineers’ primary jobs were to do operational maintenance of the imported technologies. When any scientific or technological upgrade was required, foreign experts were called in to do the job, which further limited and inhibited the need for creativity and improvisation.
Fortunately, the scenario of higher education changed with the arrival of President Musharraf, who appointed Prof. Atta-ur-Rehman as head of HEC and provided generous funding to HEC to send competent students abroad for higher studies. For the first time in the history of Pakistan, all and sundry could compete on merit and go abroad to pursue their dreams of higher education. Many of these scholars returned and got employed in local HEIs to increase the local academic talent pool. Thus, a couple of decades later, we have a talented pool of academics who are imparting education on modern lines to the young generation of Pakistan.
In the developed world, HEIs are the primary source of innovation and they actively collaborate with industry to further enhance knowledge and develop new technologies. This collaboration is symbiotic. HEIs may develop patents and technologies that are a source of continuous revenue and thus help fund future research, and industrial collaboration also helps academics write papers that are practical and industry-related. Similarly, the industry gets new processes and products by collaborating with academia. Thus, this industry-academia linkage not only is beneficial for the industry but also helps academia build up its knowledge base for future industrial collaborations and endeavours.
Contrary to international practices, while HEIs in our country progressed and prospered on the generous fees of their students, they failed to develop any solid, meaningful connections with the industry. Resultantly, presently, academia has a wealth of academic knowledge but lacks the skills to apply the available knowledge for the benefit of local industry and thus local economy. Most of the linkages revolve around finding placements for their students for undergraduate and master students. Similarly, academia is churning out hundreds of journal papers but their effect in terms of contribution to original knowledge and uplift of local scientific and engineering industry is not very palpable, to say the least. Likewise, the industry has its problems: is intertiatic, risk-averse, complacent and not willing to change. Some entrepreneurs would like to discuss their problems but are not sure how to explain them to academia, which generally lacks industrial research exposure.
To further add to the confusion, in all the academic moots and conferences, academia keeps tossing the word ‘innovation’ around without pining down what ‘innovation’ should mean in our context: a developing country with an obsolete scientific and engineering industry. ‘Innovation’ in a knowledge-based economy is inventing or bringing about something new to the world, which, obviously given our present academic, scientific and industrial capabilities, cannot be the remit of ‘innovation ‘ in our context.
Thus, instead of ‘innovation’, academia and industry needs to synthesise and improvise our existing capabilities to come up with solutions facing our industry. We need to learn from others as well and improvise that learning to our benefit. A very fine and sublime improvisation example is Chandrayaan-3, which recently made a historic landing near Moon’s South Pole. It cost only 74.6 million USD, and instead of going for any fancy, innovative technologies, used simpler, available technologies, and improvised them based on their previous experiences and failures to achieve success and greatness.