

SHAPPING THE FUTURE THROUGH TECHNOLOGY MANAGEMENT

by

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The change in technology has played a central role in the economic growth, wealth and competitiveness of nations. This has also been largely acknowledged by the economists. However, integration of the elements of change demands a clear perception of the process of change on the part of political classes and beaurocracy. Exploitation of technology in an effective manner has provided the developed countries with great wealth and power.

The economic divide is widening despite globalization. The key reason is that there is a huge gap in technology between nations with developed economies and that still developing. Globalization has not resulted on its own in a harmonious and equitable distribution of technology. Pakistan is facing a formidable threat of marginalization, both economic and political. As far back as 1991, the World Development Report (WDR) stated that productivity growth, the best proxy for technological progress, accounted for as much as 30% of GDP growth in the East Asian Countries. Unfortunately our policy makers and planners did not realize that technology has changed the paradigm of economic activities. Therefore, it is imperative that the technology has to be managed, both at the macro and micro level, deliberately, purposefully and carefully. A prerequisite for strategic management of technology is the existing knowledge base, which would further enhance the capability to deploy new products and processes. Although technology is considered to be intangible, it has a profound capital value and should be treated as an indispensable key asset. It is estimated that 50% of the total expenditure on technologically innovative activities is embedded in plant, machinery and equipment procured by the enterprises.

It would be extremely educative to consider the definition of competitiveness of a country. According to the OECD it is “the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, whilst simultaneously maintaining and expanding the real incomes of its people over the long term”. The European Commission in 1994 came out with the concept more explicitly that it is “the capacity of business, industries, regions, nations or super-national associations exposed, and remaining exposed, to secure a relatively highly return on the factors of production and relatively high employment levels on a sustainable basis”.

As a first step towards formalizing technology management and structuring an organisation to achieve it, a thorough study of the models of East Asian Countries will be necessary. Japan recorded a fast economic growth rate during 1950s – 1980s. The NICs, so called four tigers, viz. South Korea, Taiwan, Hong Kong and Singapore, created an excellent example of sound economic growth during 1970s and 1990s. This was brought about a judicious use of foreign technology sourcing. The growth rate achieved by China in the recent times is exemplary. Concurrent focus on the education and training of its work force has paid enormous dividends. Dramatic increase in China in the Foreign Direct Investment (FDI), which is 80% in the form of technology, could only be realised by offering attractive infrastructure facilities, both physical and legislative.

The second step should comprise technology assessment. From a wide spectrum of commercializable technologies we have to identify what mature technologies are truly

needed. Their prioritization in the planning process is to be rigorously developed. In the short run economic returns in respect of employment, trade of goods and services, productivity, export and import substitution will be derived from the commercialization and application of the available technologies rather than from their indigenous development. Comprehensive analysis of the impacts of technology on the economy will be needed to prepare investment plans.

Study and evaluation of new technologies is the domain of technology assessment. It covers investigation about the use of new technologies within the social context. As a form of policy research the goal of technology assessment is to provide policy makers with adequate information on policy alternatives. All the developed countries have constituted TA organisations in aid of their national parliaments. The European Community has established EPTA, European Parliamentary Technology Assessment, in addition to the national bodies. There is a Washington based US Council on Competitiveness. These steps are ultimately aimed at the creation of national wealth.

The private sector should be assigned the role of a main player for technology application. Market-pull should become the key stimulating factor for future development planning. Public sector should primarily act as a facilitator, providing supporting facilities to improve technological level, constructing and managing data bases, setting standards for environment and safety, testing, consulting, management of information and training. Our conventional banking system is risk averse and technological assets are not considered as safe collaterals. Therefore, new financial institutions should be established that cater specifically for technology – related risk financing. They will have to develop their own technological capability in the first instance.

It is high time that we create an environment for successful transfer and application of new technologies in all the spheres of economic activities. The Ministry of Science and technology was established in early seventies. Practically it had no impact so far on the creation of national wealth or competitiveness. Pakistan does not even feature in the “Inclusive Wealth Report 2012”, recently issued by the United Nations. In fact in the past, there has been no institutional work on the technology assessment at the national level. Management of technology never received a serious thought. Therefore, we have to completely shift the paradigm of economic planning, bringing technology into focus.

In the present political turmoil. It may appear to be a futile exercise to communicate with our policy makers, the so called peoples representatives. However, some of them may be listening. Hopefully, they may realize that shaping the future of this nation is also their responsibility. We need to have an action plan to ward off the threat of marginalization. Briefly, here are some recommendations of fundamental nature:

- 1- Formation of a National Bureau of Technology Assessment reporting to the highest level of government authority i.e. the Chief Executive of the Government, in respect of Appraisal and Evaluation of Technology and formulation of policy guide lines.
- 2- Technology Management, as a set of disciplines, should be established with the status of divisions in all the ministries of the Federal Government to develop Technology Strategy, Roadmapping and Portfolio in their respective domains.

It would be indispensable that Technology Management Framework should be networked to permeate all sectors of our public life. It would be possible to achieve the badly needed symbiotic nexus between defence and civil production by creating common Technology Platforms.