

## **Knowledge economy: Global or parochial?**

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### Abstract

We introduce the concept of “rising” and “flat” technologies. Broadly speaking, knowledge-based economy comprises rising techs of the day, dynamic upper-end flat techs and the services sector. Since it is innovation-driven, it cannot be global. This is so because innovation seeks prepared ground; it does not spring up randomly anywhere in the world. Parochiality of new economy adversely affects the world at large at both the low-skill and the high-skill end. Genuinely global economy will be one that ensures improvements in all sectors across the board.

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We can classify all technologies into two categories: “Rising” and “flat”. A rising tech is one which is currently in a rapid phase of development. A flat tech on the other hand is more-or less standardized, so that any innovation in it can only be incremental, Quite obviously, today’s rising tech is tomorrow’s flat tech. Conversely a flat tech can suddenly overcome its stagnation and become rising. We can further divide flat tech into two subsets: High-skill demanding upper end; and low-skill requiring lower end. An important rising tech of the day is the ensemble of information and communication technologies (ICT) which permits high speed, low-cost storage, processing and transmission of data. Since ICT makes it possible to replace vertical integration with horizontal networking, it is

also a powerful tool to foster innovation in upper-end flat techs, and in the service sector. USA tends to drive its economy through rising tech of the day, parceling out manufacturing based on flat tech to lesser countries down the line. These countries in turn tend to focus on upper-end flat tech and parcel out low-skill requiring flat-tech manufacturing to countries further down the line.

It is in the conceptual framework proposed above that we now seek to analyse knowledge-based (or new) economy. There is much oversimplification associated with the term. In their on-line Encyclopedia of the New Economy, John Browning and Spencer Reiss gushingly write: "When we talk of the new economy, we're talking about a world in which people work with their brains instead of their hands..... A world in which innovation is more important than mass production". Nokia would differ. To prop up its bottom line it is now aiming to mass produce below-the-top mobile sets for markets in India and China. In a similar vein it has been remarked that while steel is 90% material and 10% knowledge, Windows is 95% knowledge and 5% material. True, except that, to use Windows we must have computers and peripherals all of which are 100% material.

OECD in 1996 defined knowledge-based economies as "economies which are directly based on the production, distribution and use of knowledge and information". APEC (whose 21 members include Republic of Korea) has sought to broaden the definition. "A Knowledge-Based Economy is an economy in which the production, distribution and use of knowledge is [sic] the main driver

of growth, wealth creation and employment across all industries”. “In a truly knowledge-based economy, all sectors have become knowledge-intensive, not just those called “high technology”, “Knowledge itself is not merely information written in an organization’s files, but includes culture, the way in which people interact within the organization knowledge about the contacts they use to gain information from outside, and so on”.

It is not possible to define or describe knowledge economy in a precise and an entirely self-consistent manner. May be, a clearer picture will eventually emerge from the loose use of the term in different contexts. Broadly speaking, knowledge economy is an innovation-driven economy where growth is accomplished through capital and manpower as before but by assimilation and creation of new knowledge. Rising tech and services sector belong to the new economy which can also include dynamic sectors of upper-end flat tech. An innovation takes place when a new idea (or pre-existing floating knowledge) is incorporated into the mainstream, and combined with the existing knowledge in such a manner that future developments are influenced by this incorporation. Innovation pre-requires the existence of a mainstream which additionally must have in-built be invested with instruments and institutions for suitable incorporation of a new idea.

In November 1730, Thomas Godfrey, a “poor glazier” from Philadelphia, invented a navigational instrument, a reflecting quadrant, which was used in voyages to Jamaica and to Newfoundland. The next year, in May 1731, the

invention was independently made in England by John Hadley. America at the time did not need a sea-faring instrument; accordingly, Godfrey's invention remained a dead end. In contrast, Hadley's invention, independent or not, which soon evolved into a sextant, was immediately adopted by all European nations engaged in the hugely profitable maritime activity. Even if Godfrey had been recognized as the inventor of the sextant, it would have been a personal honour; all fruits of his invention would still have gone to Europe. In the closing years of the 18<sup>th</sup> century, the Indian princely state of Mysore kept British-led forces at bay for some time, using rocketry. Although this caused temporary setback to the British (and permanent psychological damage to the future Duke of Wellington), they benefited from the experience in the long run. Several Indian rocket cases were sent to Britain for analysis. Empirical rocketry from India was incorporated into the mainstream of science, providing the British with military advantage in their pursuits elsewhere, as for example in their wars against the French and Americans.

Human beings are naturally endowed with intellect and imagination. In what channels individual creativity finds expression is determined by cultural factors. It is a defining attribute of industrial societies that they value ideas pertaining to production of 'wealth. Otherwise, historically more effort has been expended in devising ways and means of appropriating wealth generated by others (through feudalism, stealth, cunning, crime) than in creating it oneself. I once received in Delhi what was meant to be a five-rupee coin. It was in fact

made by illegally soldering two half-rupee coins together. The economics of the exercise is very attractive. Maternal cost a rupee; add a quarter for soldering. Product sells at 300% profit. Obviously, we do not have such innovations in mind when we talk of new economy! In the present-day complex and hurried world, new ideas relevant for economic growth can emerge at a fast pace only in a social system that has a vibrant culture of industrial and intellectual activity, which directs individual creatives into productive channels, displays ability to recognize new ideas when they appear; and has the courage to experiment with them. In other words, innovation seeks prepared ground; it cannot spring up randomly anywhere in the world.

Parochiality of new economy is adversely affecting rest of the world at both, low-skill and high-skill, ends. There was a time when a country's economy tended to be complete in some respects. USA was not only making aeroplanes but also toys and jeans. Now, manual activity is being outsourced wholesale. Technological innovations are not possible in non-tech and very low-tech activities, which can be made competitive only by extraneous means, Chinese manufacturers are competing with one another in depressing wages to be able to offer best rates to WalMart. Adidas has been guilty of using child labour, forced overtime and sexual harassment in getting its sportswear made in Indonesia. India's position on the world BPO and software map may be exaggerated, but there can be no doubt about India's preeminence as a destination for such

hazardous tasks as ship breaking and dismemberment of discarded computers and mobile phones.

Globalization is encouraging imitation behaviour. Of all its aspects the one that has appealed the most to Indian middle class is access to consumption at international levels. In no way can these levels be supported by India's agricultural and flat tech economy. Consequently most young well-trained professionals are willingly taking up low-caliber work for international companies, at positions much below their skills and expertise would warrant and at ridiculously low dollar wages which still translate into pretty packets in local currency. Providing peripheral and even core support to rising techs elsewhere and in services sector is creating a brain sink in low-wage countries. A rising tech area quickly divides itself into more and more promising sub-areas leading to further division of labour and increased returns. Ideally, work in rising tech should trigger innovation in flat tech. In reality, high returns on rising tech coupled with its glamour tend to de-innovate and deglamourize flat tech areas to the detriment of a vast section of the world population. A knowledge-based economy is global only to the extent that the catchment area for its human resource requirement as well as the market for it has expanded. A truly global economy will be one that ensures improvement in all sectors across the board.

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