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VIABILITY OF THE KNOWLEDGE BASED ECONOMIC PARADIGM: A CASE STUDY OF THE INDIAN ECONOMY

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ABSTRACT

This paper reviews the rationale for the emergence of the Knowledge Management (KM) paradigm, and establishes the role of KM in enabling the knowledge based economy of the 21st century. This paper discusses the evolution of the knowledge based economy and its impact on developing countries. The Indian economy is adopted as a case study to illustrate the linkages, and the impact of KM concepts in enabling a traditional economy, like the Indian economy, in its ambition to become a knowledge based economy. This paper examines the impact of knowledge as a factor of production on the Indian Economy. The initial findings indicate that by 2030, despite a marked increase in Indian GDP per head (which is likely to be led by India's knowledge industries such as its software industry), there is a very real possibility that India would continue to suffer from widespread poverty. Consequently, this paper argues that the knowledge based economic model may not be an appropriate economic model for developing countries like India that have a huge population. The paper concludes by arguing that the captains of India's economic, industrial and political bastions need to recognise this challenge.

Keywords: Knowledge Management; Resource-based view of the firm; Knowledge-based view of the firm; Indian Economy.

Background on the History of the Knowledge Based Economy

There is widespread agreement that since the onset of the 19th century, human civilization has witnessed major changes in its economic systems. About 60 years ago, Hayek was among the earliest thinkers who brought to the forefront the importance of "knowledge" in an economic context when he stated that decisions are generally made upon dispersed bits of incomplete and frequently contradictory knowledge (Hayek, 1945).

Today, we have shifted from an economy that was based upon traditional factors of production to an economy where the major factor of production is knowledge (Covin and Stivers, 1997; Drucker, 1993; Nonaka, Umemoto and Senoo, 1996). There is a growing body of literature focusing on the advent and impact of the new information age on the new economy of the millennium, which has been depicted as the Knowledge Economy (Department of Trade and Industry, 1999; Seybold, 1995). These changes have been summarized in Table 1.

This paper argues that that this millennium shall witness a new economic world order – one, which would be based upon knowledge that societies possess and not technology. This stand is supported by Stiglitz (1999) former Senior Vice President and Chief Economist of the World Bank and the Nobel Laureate for Economics in 2001. Stiglitz (1999: p. 38) had stated

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that one of the main reasons that the 1998 World Bank World Development Report was devoted to the theme of Knowledge for Development was due to the fact that the World Bank has recognised that they have to shift their emphasis so as to deal with the “intangibles of knowledge, institutions and culture”

Table 1: Economic Evolutions. Adapted from (Drucker, 1993)

| Economic structures | Industrial | Service | Knowledge |
|-------------------------------|--------------------------|----------------------------|------------------|
| Time frame | 1850-1900 | 1920-1990 | > 2000 |
| Major Factor of Production | Land Labour | Capital Human Capital | Information |
| Dominant Factor of Production | Capital | Technology, Information | Knowledge |
| Major Innovations | Steam Engine Railroad | Automobiles Microchip | Internet |

Vaitilingam (1999) quotes the competitiveness White Paper of the U.K. Government to reiterate that, in the new knowledge economy, the most important factor influencing the creation of wealth would be the generation and exploitation of knowledge. Coates and Warwick (1999) quote the World Bank to mention that today the most important economies in the world are knowledge based. They also refer to the Organisation for Economic Co-operation and Development (OECD) to say that the concept of knowledge-based economies will bring out an emergence of new organisational orientations in employment, production and human resource development.

A number of authors (Alavi and Leidner, 2001; Grover and Davenport, 2001; Zack, 1999) have argued that the only way for an organisation to thrive is to invest in its internal resources, particularly in the tacit knowledge of its employees, its stakeholders and in existing organisational processes. This viewpoint has been labelled as the knowledge based view (KBV) on strategic management.

The combined impact of the shift in our economic structures in-conjunction with a shift in strategic management thought, has resulted in two irrevocable changes in the modern day organisational landscape:

1. Organisations are moving into a era wherein knowledge is as the only resource/factor of production which can enable organisation to create and maintain sustainable competitive advantages
2. Incorporation of KM as the new management mindset by the 21st century organisations is essential for them if they wish to make a successful transition to the knowledge economy of the future.

Project Description - Indian Economic Structure

Currently, India, despite having 17.1% of the world’s population only possess about 1.8% of the world’s GDP (see Table 2). However, as per recent growth estimates, India’s population is expected to become largest in the world (EIU ViewsWire, 2005a). This has resulted in tremendous pressure for creating employment opportunities. The challenge of providing employment to its ever increasing population (see Table 3) is being further exacerbated by the fact that in India, rates of rural under-employment and urban unemployment are high (EIU ViewsWire, 2005a; 2005b).

Table 2: India Income and market size (EIU ViewsWire, 2005b)

| Income and market size | 2005 | 2010 | 2020 | 2030 |
|---|-------|-------|-------|-------|
| Income and market size | | | | |
| Population (m) | 1,095 | 1,170 | 1,315 | 1,442 |
| GDP (US\$ bn at market exchange rates) | 763 | 1,238 | 3,328 | 9,341 |
| GDP per head (US\$ at market exchange rates) | 700 | 1,060 | 2,530 | 6,480 |
| Exports of goods & services (US\$ bn) | 114 | 255 | 1,152 | 4,834 |
| Imports of goods & services (US\$ bn) | 152 | 318 | 1,167 | 4,536 |
| Share of world population (%) | 17.1 | 17.3 | 17.7 | 18.1 |
| Share of world GDP (% at market exchange rates) | 1.8 | 2.3 | 3.4 | 5.2 |
| Share of world exports (%) | 0.9 | 1.4 | 3.0 | 5.9 |

Given the current difficulty that India faces in finding employment for its current working population, the entry of an extra 40-50 million people in the next five years is likely to aggravate the challenges facing India. This challenge is further exacerbated in light of the fact that the working age population in India is set to witness a huge growth (see Table 3). It is clear that the challenge of providing employment is not going to be easy (EIU ViewsWire, 2005a).

Table 3: India changes in its demographic profile (EIU ViewsWire, 2005a)

| Demographic profile | 1999 | 2004 | 2009 |
|-------------------------------------|----------|----------|----------|
| Population (m) | | | |
| Total | 1,002.70 | 1,080.30 | 1,155.00 |
| Male | 518.6 | 557.4 | 594.5 |
| Female | 484.1 | 522.9 | 560.5 |
| Age profile (% of total population) | | | |
| 0-14 | 34 | 31.7 | 29.6 |
| 15-64 | 61.4 | 63.5 | 65.2 |
| 65+ | 4.6 | 4.8 | 5.2 |
| Working-age population (m) | 615.6 | 685.7 | 753.4 |
| Urbanisation (% of total) | 27.4 | 29.2 | 30.3 |
| Labour force (m) | 440.4 | 486.6 | 533.6 |

India, in order to meet the challenge of creating more employment opportunities has to attract higher amounts of foreign direct investments, and simultaneously ensure that it is able to obtain higher productivity from its resources (both people and capital). Despite the fact that the government led by the current Prime Minister Manmohan Singh has acknowledged this issue (Kirkland, 2005), no solution is in sight.

“What Actually Happened” – Emergence of KM Companies in India

According to Chandler (2005) as recently as 20 years ago both India and China were on “roughly equal footing. Both were large, predominantly agrarian countries with GDPs of less than \$ 1 trillion and per capita incomes of about \$300. Today China’s economy is more than twice as large as India’s and is posting average annual growth rates of 9% to 10%, compared with India’s 6% to 7%. Per capita income in China is now more than double what it is in India...China takes in 12 times as much in annual foreign direct investment as India (\$60 billion vs. \$5 billion), and it exports almost six times as much each year (\$600 billion vs. \$105 billion)”.

A large part of china’s success can be attributed to the improvements made in the manufacturing sector and the physical infrastructure to support the manufacturing sector. India, on the other hand has not able to improve its manufacturing sector. By and large, India’s manufacturing sector suffers from red tape, bureaucratic hurdles, restrictive labour laws, expensive power supplies and poor infrastructure (EIU ViewsWire, 2005b). India’s current government - the UPA government continues to focus on the agricultural sector and in manufacturing prefers the manufacturing sector to utilise the wider, less well-educated workforce (EIU ViewsWire, 2005b), which incidentally is the exact opposite of what the private sector desires in India.

An analysis of recent Indian manufacturing sector success stories like Bajaj Automotive and Bharat Forge indicate that their success could be traced to a shift in their economic model. They have shifted from an economic model that emphasised maximising production and revenues using large production workforces, who were semi-skilled and worked on low wages to a economic model where there is a vastly reduced workforce that is highly skilled, highly paid and uses the latest technology (Chandler, 2005). The resultant change in productivity is tremendous, as illustrated by the following two examples:

In the early 1990s, Bajaj Automotive built 1 million vehicles with 24,000 workers. The economic model emphasised maximising production and revenues using large production workforces, who were semi-skilled and worked on low wages. Now, Bajaj Automotive currently builds 2.4 million vehicles with 10,500 workers. This shift was brought about by employing vastly reduced workforce who is highly skilled, highly paid and uses the latest technology. In fact, it has been noted that Bajaj Automotive would be in a position to run an even leaner operation if the government would give it permission to do so (Chandler, 2005).

Another example that illustrates the impact between the two economic models is the case of Bharat Forge, who, currently, is India’s most successful auto-parts supplier. Bharat has the world’s largest single-site forging facility. In 1996, when the CEO of Bharat Forge noted that using his low-cost semi skilled workforce, the company was only able to raise productivity by 20% (under optimum conditions).

Bharat Forge then decided to shift to an economic model which used an elite cadre of highly skilled workforce (over 600 of his original 1800 workers were given financial incentives engineers to retire, who were then replaced by vastly superior qualified workers, who are paid substantially more) who used current technology. The result - instead of looking at productivity gains of about 20%, Bharat Forge was able to obtain productivity gains of 400% (Chandler, 2005).

Another case that highlights the importance of using an economic model that emphasises vastly superior qualified workers is the case of the Indian IT industry. The annual software exports from the Indian IT industry have risen from almost nonexistent levels to about US\$15

billion in about a decade and is predicted to reach US\$ 87 billion by 2008 (Chandler, 2005).

These cases clearly illustrate that to survive in the global market place, Indian companies would have to shift their economic model to a model, which instead of emphasising on low-cost semi skilled workforces, emphasises highly skilled workforces who use latest technology and which consequently are paid higher wages – a point also reiterated by the worldwide shift in academic thought on strategic management (see section 3).

Given the current emphasis in both: (1) management thought and (2) success stories of Indian companies using knowledge as the key source of competitive advantage, it can be argued in the future, only those Indian companies that employ highly skilled workforces will survive and indeed, thrive in the global market place.

However, this will also be source of a significant challenge for the captains of India's economic, industrial and political bastions. The focus on employers like the Indian IT sector the multinationals and Indian organisations akin to Bharat Forge and Bajaj Automotive will be on employing workers who are highly skilled. This would mean that a large section of the Indian working age population is likely to be employed in low wage jobs or be unemployed, which in-turn would further accentuate the urban-rural divide, skilled-unskilled workers divide, which in-turn would result in widening rich-poor divide for the middle class in India. An indicator of this can be seen that currently there are only about a million jobs skilled job opportunities in India (Chandler, 2005) whilst the total working age population in India is about 440 million (EIU ViewsWire, 2005a).

The captains of India's economic, industrial and political bastions will have to recognise the shift in economic model on which the knowledge based economy is based is being supported by both (a) global management thought and (b) the demands of the globalized market place. Failure to come up with a solution to this challenge could be detrimental to India and would result in a scenario, wherein in India by 2030, poverty will still continue to exist, despite having an estimated average GDP (US\$ at market exchange rates) per head of US\$6,500 (up from by GDP of US\$ 700 in 2005 (EIU ViewsWire, 2005b).

Sadly, the captains of India's economic bastions have not recognised this. Nandan M. Nilekani , CEO of Infosys observes that in the knowledge economy markets will trade in what has long been untradable "workers' education and skills", and that economic growth will be driven by capacity of economies to create knowledge and innovate (Nilekani, 2006). He goes on to remark that "India has poor infrastructure, low literacy levels for many people, and labor inflexibilities" and hence high-volume manufacturing (akin to china) has not taken off yet in a big way (Nilekani, 2006). This clearly implies that the future will call for skilled workers, and this would require high literacy levels amongst the population (which is not there in developing countries like India).

Successes and Failures

Another associated dilemma-facing developing countries like India to create a culture that supports knowledge sharing. Barring the Indian IT sector, which was forced to develop a knowledge sharing culture in-order to survive, none of the other Indian industrial sectors has adopted a knowledge sharing culture a big way. In the 1990's a number of Indian outsourcing firms adopted the "Capability Maturity Model" (CMM), adoption of which necessities open sharing and comparing processes. Adoption of CMM and creation of a knowledge sharing culture enabled Indian companies to "establish credibility, reduced risks for overseas buyers and made future sales easier" (Boisot, 2006).

Though there is wide-spread agreement amongst academics that sharing knowledge is essential, and the Indian IT companies have gained by it, most Indian companies do not know their knowledge assets and more significantly have not attempted to either to identify or articulate them. For example, India is one of the world's leading diamond centres and consequently the Indian diamond industry receives raw diamond stones from South Africa and Russia, which have to be cut and polished. The entire diamond industry in India is dominated by one caste (i.e. a particular social group): the Jain community from Surat, a small town in the state of Gujarat. Furthermore, they use angadias (people from a specific caste) as their couriers, not professional companies like DHL. Like the diamond merchants (i.e. the Jain community), the trade secrets of the angadias are not known. However, there is a widely held perception that that any item given to one of them will always be safely delivered. Most importantly, one has to belong to their community to be allowed to work as one either as an angadia or as a diamond merchant. The implication is clear: caste cannot be ignored in India (Boisot, 2006).

Ravi Trivedy, Director, eBusiness & IT Strategy, Pricewaterhouse Coopers (PwC) had noted that few Indian companies have adopted a knowledge culture and Ajoy Kurup, Human Resources Manager, Kale Consultants adds that though "in theory, most Indian companies have a clear understanding of the difference between information and knowledge. But in practice the lines are blurred" (Anonymous, 2001).

The late Peter Drucker, the noted management thinker too supported the notion being put forward by Indian CEO's like Nandan M. Nilekani and academic thought (RBV and KBV) when he stated that knowledge workers are exceedingly specialised, and that their knowledge has to be integrated into a team of knowledge workers (Anonymous, 2005). This is going to be difficult for any developing country like India, due to its literacy level and population and industrial demographics. According to (Muruganandan, 2004) the research agency, Evalueserve has predicted that by 2010, the global high-end BPO market will be worth \$50 billion and it projects that India's market share is likely to be around \$30 billion(i.e. 60% market share). However, the lack of a skilled manpower base is already crippling India's BPO market. According to KPMG, more than a million people would be required by 2008 to meet the BPO demand, but supply will fall short by more than 250,000.(Muruganandan, 2004)

The challenge facing developing countries like India is how to convert their huge population base into a pool of knowledge workers, and given the fact, future knowledge industries would require a small number of highly skilled knowledge workers, the knowledge-based economy could be the achilles heel for the developing countries.

Epilogue

The paper has argued that the rise of the knowledge-based economical paradigm can be traced to the two key drivers: (a) shift in the economic structures and (b) evolution in strategic management thought. The combined impact of these two drivers has further brought about two irrevocable changes in the modern day organisational landscape: (1) organisations are moving into a era where knowledge is as the only resource/factor of production, which can enable organisations to create and maintain sustainable competitive advantages and (2) that incorporation of KM as the new management mindset by the 21st century organisation is essential for them to make a successful transition to the knowledge economy of the future.

This paper has reviewed the impact of knowledge as a factor of production on developing countries. The Indian economy is adopted as a case study to illustrate the linkages and the impact of Knowledge Management concepts in enabling the knowledge based economy. The findings indicate that by 2030, despite a marked increase in Indian GDP per head (which is

likely to be led by India's knowledge industries such as its software industry), there is the possibility that India would continue to suffer from widespread poverty. The paper concludes by arguing that the captains of India's economic, industrial and political bastions need to recognise this challenge. Solution to this problem, will require a honest, sustained and a committed dialogue between the captains of India's economic, industrial and political bastions.

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