STRATEGIC IMPORTANCE OF KNOWLEDGE & INTELLECTUAL PROPERTY IN EMERGING BUSINESS SCENARIO

Atulya Sinha
Director/MP, Ministry of Railways/RDSO, Lucknow

Article No: NRC202 **ISSN 0974 – 9497**

Year: August 2009 **Volume 3, Issue 3/4**

Abstract: Knowledge seeking is quintessential human behaviour. Individuals as well as groups derive benefits from possession of knowledge. Since the knowledge content is increasing in all kinds of goods and services, knowledge is getting recognized as the most important economic resource in contemporary organizations. Intellectual property includes copyright & related rights, patents, industrial design, trademarks and protection against unfair competition. Some countries are putting up technical barriers to trade as a protectionist measure in a rapidly globalizing marketplace.

The productivity and effectiveness of knowledge workers is becoming a key management issue across diverse industries. In the organizational context, empowerment refers to greater delegation of powers in a suitable environment, which ultimately enables the employees to perform new activities which they (or their predecessors) could not have performed earlier. Since knowledge is a source of power, the emergence of knowledge workers implies greater empowerment within the organization.

"Knowledge-driven empowerment" describes the phenomenon of knowledge workers achieving empowerment by means of job related knowledge. This concept can be further extended to organizations and even countries, who can empower themselves by acquiring and managing appropriate manifestations of knowledge.

Keywords: Knowledge, Intellectual Property, Technical Barriers to Trade,Knowledge Worker, Power, Empowerment, Knowledge, Driven Empowerment.

Objectives

There are three major objectives of this paper:

- To highlight the importance of knowledge and intellectual property for individuals and organizations in the contemporary business scenario
- To understand the basic concepts of power and empowerment
- To formulate a relationship between knowledge and empowerment, which can be used as a hypothesis for research

Methodology

The concepts presented in this paper are based on a wide range of secondary sources, including books, journals and websites.

The primary sources are the author's own experiences and observations during his career with Indian Railways, where he has dealt with operations, production, project management, plant maintenance, marketing, research & development, standardization and quality during the past nineteen years.

Quest for Knowledge

Access to Knowledge is the Superb, The Supreme Act of Great Civilizations.
- Toni Morrison (Nobel prize-winning novelist)

Knowledge seeking is quintessential human behaviour. *Homo sapiens*, the biological name for the human species literally means "thinking man", implying that **knowledge** is the key characteristic that differentiates humans from animals. As Peter Senge writes in *The Fifth Discipline*:

No one has to teach infants to learn. In fact, no one has to teach infants anything. They are basically inquisitive learners who learn to walk, speak, and pretty much run their households all on their own. [1]

The meaning of knowledge is usually dependent on the context, *e.g.* in the field of Information Technology (IT), knowledge evolves from data and information.

Data can be defined as *simple unqualified facts* [2] or *a set of particular and objective facts about an event or simply structured records of a transaction.* [3]

Information *tends to enrich data by giving it some context.* [4] Peter Drucker defined information as *data endowed with relevance and purpose.* [5] Information is often in the form of a message. [6]

Knowledge is what information becomes when it is connected to relevant know-how or know-why, and thus supports and informs key decisions. Knowledge is deeper, richer and more expansive than information. [7] *Knowledge is the resource that enables one to convert information into decisions and actions.* [8] Knowledge can be defined as a conclusion *drawn from data and information* [9] or simply as *actionable information.* [10] Many writers hold the view that knowledge should be action-oriented, *e.g.* the famous British scientist Thomas Huxley, who wrote: *The great end of life is not knowledge but action.* [11]

Wisdom is the intelligent application of knowledge. Lord Ritchie-Calder describes wisdom as *knowledge tempered with judgement.* To quote from *Locksley Hall*, Tennyson's epic poem: *Knowledge comes, but wisdom lingers.*

The preceding definitions may appear to be authoritative, but they are not universally accepted:

The idea that knowledge can be slotted in a data-to-wisdom hierarchy is bogus, for the simple reason that one man's knowledge is another man's data. For example, a lifetime of newspapers, magazines, conversations and experience may give a voter political beliefs that she considers to be knowledge – even wisdom. But what's knowledge for her is mere data

for the polltaker hired by a politician running for re-election. [12]

One may conclude that the concepts of data, information, knowledge and wisdom discussed so far are not absolute, but relative and context-specific. Beyond the limited context of IT, it is even more difficult to describe knowledge. For example:

Knowledge is that which we come to believe and value on the basis of the meaningfully organized accumulation of information … through experience, communication, or inference. [13]
…
Knowledge is a fluid mix of framed experience, values, contextual information, expert insight, and intuition… it originates in individual minds but is often embedded in organizational routines, processes, practices, systems, software and norms. [14]

Current writings on knowledge management use the terms Explicit and Tacit knowledge. **Explicit knowledge** is that component of knowledge which can be codified and transmitted in a systematic and formal language: documents, databases, webs, e-mail, charts, etc. **Tacit knowledge**, on the other hand, is personal, context-specific knowledge that is difficult to formalize, record or articulate [15].

Individual and Group Knowledge

If I can see further, it is because I am standing on the shoulders of giants.
- Sir Isaac Newton, English Scientist

History is replete with examples of individuals who rose from obscure or humble origins to great fame and exalted positions solely on account of their learning; *e.g.* Chanakya in ancient India, Leonardo da Vinci in mediaeval Italy and Albert Einstein in the 20th century.

While no one can deny the importance of knowledge in the success of an individual, there is an inherent limitation to the scope and depth of knowledge, which can be accumulated by an individual in a lifetime, especially in the present era of knowledge explosion:

Around 1800, the new "Conversation Lexicon for Educated Persons" was in fashion, a book of 2,000 pages and 4,300 headwords in which people could purportedly learn all of human knowledge. Now dictionaries on CD-ROM can store up to half a million entries, and anyone with access to a computer can surf the Internet in search of knowledge from all over the world. Nevertheless, the universally educated interlocutor has become extinct; one human lifetime is no longer enough to grasp the entirety of knowledge accumulated in this century alone. [16]

The individual's process of acquisition of knowledge begins at birth and continues throughout his lifetime. The world's oldest book, the *Rig Veda*, says that friends should save one another from error by sharing knowledge, just as they would save one another from hunger by sharing their food**.** [17]

An individual not only benefits from the knowledge of his group, but also contributes to it. This deceptively simple mechanism of give-and-take of knowledge is the bedrock of all fields of human development. In the words of the Soviet writer Pekelis: *The genius of Euclides and Pythagoras compares with that of Mendeleev or Einstein, it is the total body of knowledge growing from generation to generation that*

backs them up and which makes the only difference between them. [18]

Not only individuals, but also groups of individuals can succeed on the basis of knowledge. In traditional cultures across the world, the priesthood – regarded as the custodian of knowledge and wisdom - enjoyed privileges disproportionate to their material or financial contributions to society.

In organizational context, strategic flexibility demands a long-term commitment to the development and nurturing of critical resources. It also demands the company becomes a **learning organization** – "an organization skilled at creating, acquiring and transferring knowledge; and at modifying its behaviour to reflect new knowledge and insights". [19]

Learning organizations are skilled at four main activities: solving problems systematically; experimenting with new approaches; learning from their own experiences and past history as well as from the experiences of others; and transferring knowledge quickly and efficiently throughout the organization. [20]

Knowledge in Business Context

Knowledge Has Become The Primary Ingredient Of What We Make, Do, Buy, And Sell.

- Thomas Stewart
***Intellectual Capital* (1997)**

In the contemporary world, the advent of computers, Internet and telecommunications have culminated in the present Information Revolution, which is making an unprecedented impact on the contemporary business world. A survey of top business executives has identified the following trends, due at least in part, to the rise of the Internet:

1. *Companies are transforming themselves with electronic networking of customers, suppliers and partners.*

2. *New channels are changing market access and branding, causing the disintermediation of the traditional distribution channels.*

3. *The balance of power is shifting to the consumer, with unlimited access to information on the Internet.*

4. *Competition is changing as new technology-driven firms and older traditional competitors are exploiting the Internet to become innovative and efficient.*

5. *The pace of business is increasing drastically. Planning horizons, information needs and customer/ supplier expectations are reflecting the immediacy of the Internet.*

6. *The Internet is pushing corporations out of their traditional boundaries. The separation between suppliers, manufacturers and customers is becoming blurred.*

7. *Knowledge is becoming a key asset and a source of competitive advantage.* [21]

In his landmark work *Powershift*, the renowned social thinker Alvin Toffler identifies the following "elements of

the accelerative economy" which affect the process of wealth creation:

1. *Dependence on exchange of data, information and knowledge.*

2. *Flexible or customized production.*

3. *Reduction in the importance of conventional factors of production – land, labour, raw materials and capital – compared to symbolic knowledge.*

4. *Electronic information becoming the true medium of exchange.*

5. *Goods and services getting modularized and configured into systems.*

6. *Replacement of bureaucracies by small work units, temporary teams, complex business alliances and consortia.*

7. *Multiplication in number and variety of organizational units.*

8. *Workers becoming less interchangeable.*

9. *Innovator being the new hero.*

10. *Recycling of wastes into inputs for next production cycle.*

11. *Sharing of data, information and knowledge between customer and producer.*

12. *Changing balance between local and global scales.* [22]

These views are echoed by Prof Richard D'Aveni, who has coined the term **hypercompetition** to describe the contemporary business scenario. He says that it is becoming difficult to sustain a competitive advantage for very long, since market stability is threatened by short product life cycles, short product design cycles, new technologies, frequent entry by unexpected outsiders, repositioning of incumbents and tactical redefinitions of market boundaries, as diverse industries merge. [23]

The eminent business observer Thomas Stewart presents a graphic description of the transformations in present scenario, when he says: G*lobalization, computerization, economic disintermediation and intangibilization are related. Like logs on a fire, each causes the others to burn more brightly*. [24]

What is the role of knowledge in this rapidly changing and seemingly chaotic global business environment? The late Peter Drucker has been described as "an unfailing beacon, lighting the way toward the management issues of tomorrow". [25] This is what Drucker has to say on the role of knowledge in today's world:

The Information Revolution is actually a knowledge revolution. What has made it possible to routinize processes is not machinery; the computer is only the trigger. Software is the reorganization of traditional work based on centuries of experience, through the application of knowledge and especially of systematic logical analysis. The key is not electronics; it is cognitive science. [26]

Drucker's views are supported by a variety of authors from diverse academic and industry backgrounds:

Knowledge is rapidly displacing capital, monetary prowess, natural resources and labour as the quintessential economic resource. [27]
…

The quality of available and consolidated knowledge is the key to success… a company's intangible assets have increased in relative importance. [28]

…

The transformation of the world from an industrial to a knowledge economy means that jobs, exports, and economic activity with the highest value added will come from the knowledge sectors of the economy and countries that participate vigorously in these sectors will be rewarded with a growing and higher standard of living. [29]

Toffler says that knowledge can be used as a substitute for other resources, e.g. raw materials, energy, transportation, time, space and capital. [30] The World Trade Organization says that ideas and knowledge are an increasingly important part of trade, e.g. most of the value of new medicines and other high technology products lies in the amount of invention, innovation, research, design and testing involved. Films, music recordings, books, computer software and on-line services are bought and sold because of the information and creativity they contain, not usually because of the plastic, metal or paper used to make them. [31]

In his path-breaking book *Intellectual Capital*, Thomas Stewart highlights the **knowledge content** of several products and services. [32] Beginning with the examples of a Macintosh laptop computer, CNC machines and Boeing 777 airliners, he emphasises the growing content of knowledge in a diverse range of industries, *e.g.*

- *A typical automobile, powered by information-rich gasoline, has more microchips than spark plugs… A car's electronics cost more than the steel in it.*

- *About four out of five of the dollars Levi Strauss spends to make a pair of blue jeans go to information, not to make, dye, cut, and sew denim.*

- *More and more we buy pure knowledge in the service sector… In air transportation, all the profits are in information: The Official Airline Guide is profitable, but the airlines lost billions in the early 1990s – losses that would have been greater had they not been partly offset by profits from their reservation systems.*

Stewart has coined the term **intellectual capital** to describe the sum of an organization's human capital (talent), structural capital (intellectual property, methodologies, software, documents and other knowledge artefacts), and customer capital (client relationships). [33]

Intellectual Property

Copyright, trademark, patent - I believe in them all.
— Jonathan Schwartz , President of Sun Microsystems (2004)

Intellectual property refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.[34] The World Intellectual Property Organization (WIPO) describes intellectual property as follows:

Literary artistic and scientific works; performances of performing artists, phonograms, and broadcasts; inventions in all fields of human endeavor; scientific discoveries; industrial designs; trademarks, service marks, and commercial names and designations; protection against unfair

competition; and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields. [35]

In general, the owner of any property is free to use it as she/he wishes, provided the use is not against the law, and to exclude others from so using that owned item of property. **Intellectual property rights** (IPR) are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time.

Intellectual property is dealt under different heads due to historical and administrative reasons, but in all cases the creators of intellectual property can acquire rights as a result of their work and the the rights to that work may be assigned or licensed to others. The different types of intellectual property are as follows:

- **Copyright,** covering literary, artistic and scientific works e.g. books.

- **Copyright Related Rights**, covering performances, broadcasts e.g. concerts.

- **Patents,** covering inventions, e.g. a new form of jet engine.

- **Industrial Designs,** e.g. the shape of a soft drink bottle.

- **Trademarks**, service marks and commercial names and designations e.g. logos or names for a product with unique geographical origin, such as Darjeeling tea.

- **Protection against unfair competition**. e.g. false claims against a competitor or imitating a competitor with a view to deceive the customer.

Intellectual property rights generate much controversy. Robert Guest, the distinguished correspondent of *The Economist*, sums up the arguments as follows:

Poor countries rarely protect intellectual property. Some say they are right not to bother. Most patents are held by rich westerners. Poor countries, run the argument, will never scale the technology ladder if Merck and Microsoft extract royalties at every stage.

The counter argument goes like this. Piracy is a cheap way to climb the lower rungs, but it takes you only so far. Failure to respect intellectual property rights deters high-tech FDI. Firms will not bring technology to countries where it can be stolen with impunity. Furthermore, if poor countries do not reward innovation, their people will have no incentive to innovate. [36]

The basic rules of copyright date back to 1886, when the Berne Convention was signed by representatives of various countries. However, in recent years, there has been a dramatic increase in the national and international enforcement of copyright, which can be attributed mainly to rapid advances in digital technology and the increasing economic importance of the movement of goods and services protected by intellectual property rights in the realm of international trade.

In 1994, the World Trade Organization (WTO) brought together 141 countries who signed the Trade-Related Aspects of Intellectual Property or **TRIPS**, an

agreement which establishes minimum levels of protection that each government has to give to the intellectual property of fellow WTO members. In doing so, it strikes a balance between the long term benefits and possible short term costs to society. Society benefits in the long term when intellectual property protection encourages creation and invention, especially when the period of protection expires and the creations and inventions enter the public domain. Governments are allowed to reduce any short term costs through various exceptions, for example to tackle public health problems. And, when there are trade disputes over intellectual property rights, the WTO's dispute settlement system is now available. [37]

The TRIPS agreement covers five broad issues:

- how basic principles of the trading system and other international intellectual property agreements should be applied
- how to give adequate protection to intellectual property rights
- how countries should enforce those rights adequately in their own territories
- how to settle disputes on intellectual property between members of the WTO
- special transitional arrangements during the period when the new system is being introduced. [38]

Intellectual property rights in India are covered under the Indian Copyright Act, which was extensively amended in 1995. It is one of the most stringent laws in this field, and provides for heavy punishment for any infringement. [39] However, the commercial impact of intellectual property rights in India is still not significant. India received Rs. 116 cr as royalty and licence fee for patents received in 2004, compared to Rs. 72,964 cr received by Japan. [40]

Technical Barriers to Trade

GLOBALIZATION: diminishing role for national borders and gradual fusing of separate national markets into a single global marketplace.
***- The Economist* (2002)**

The twenty-first century is an era of globalization of markets, in which traditional trade barriers such as tariffs and quotas are rapidly losing their importance. However, technical regulations and product standards may vary from country to country, raising the possibility of non-tariff barriers to trade as a means of protectionism. As pointed out by Dr A.P.J. Abdul Kalam:

Developed countries have set up several non-tariff barriers which strike at the roots of "ideal" competition based on "market" forces. These are mostly aimed at denying opportunities to other countries to reach a developed status. Even when one country prepares to cope with a set of barriers introduced by these developed countries, either through their own laws or through multilateral treaties, a new set of complex barriers crops up. Even a simple analysis of many of these international or global transactions indicates a much deeper fact: the continuous process of domination over others by a few nations. India has to be prepared to face such selectively targeted actions by more powerful players even when it tries to march ahead to realise its vision of reaching a developed status. [41]

The Agreement on **Technical Barriers to Trade** (TBT) of the World Trade Organization (WTO) tries to ensure that regulations, standards, testing and

certification procedures do not create unnecessary obstacles. However, the agreement also recognizes countries' rights to adopt the standards they consider appropriate — for example, for human, animal or plant life or health, for the protection of the environment or to meet other consumer interests. Moreover, members are not prevented from taking measures necessary to ensure their standards are met. But that is counterbalanced with disciplines. A myriad of regulations can be a nightmare for manufacturers and exporters. Life can be simpler if governments apply international standards, and the agreement encourages them to do so In any case, whatever regulations they use should not discriminate. The agreement says the procedures used to decide whether a product conforms with relevant standards have to be fair and equitable. It discourages any methods that would give domestically produced goods an unfair advantage. The agreement also encourages countries to recognize each other's procedures for assessing whether a product conforms. Without recognition, products might have to be tested twice, first by the exporting country and then by the importing country. [42]

The implicit contradictions in issues pertaining to technical barriers to trade reflect powerful manifestations of economic exploitation of knowledge at national level.

Role of Knowledge Workers

The new knowledge economy will rely heavily on knowledge workers.
- Peter Drucker (1999)

Sveiby's model of intellectual capital posits that knowledge assets can be found in three places: the competencies of a company's people, its internal structure (patents, models, computer and administrative systems), and its external structure (brands, reputation, relationships with customers and suppliers). Stewart describes these three categories of knowledge assets as human capital, structural (or organizational) capital and customer (or relationship) capital respectively. [43]

Peter Drucker defines **knowledge workers** as "people whose jobs require formal and advanced schooling". He says that knowledge will be the key resource of what he calls "The Next Society" and suggests that knowledge workers will be the dominant groups in the workforce in the future. In Drucker's own words:

"Knowledge workers"… is widely used to describe people with considerable theoretical knowledge and learning: doctors, lawyers, teachers, accountants, chemical engineers. But the most striking growth will be in "knowledge technologists": computer technicians, software designers, analysts in chemical labs, manufacturing technologists, paralegals. These people are as much manual workers as they are knowledge workers; in fact, they usually spend more time working with their hands than with their brains. But their manual work is based on a substantial amount of theoretical knowledge that can be acquired only through formal education, not through apprenticeship. They are not, as a rule, much better paid than traditional skilled workers, but they see themselves as "professionals". [44]

Toffler speaks of a **spectrum of mind-work** and suggests three categories. At the top end are professions like research scientist, financial analyst, computer programmer, etc, whose work is "totally symbolic". At the

other extreme, purely manual jobs are disappearing. The middle of the mind-work spectrum consists of a broad range of "mixed" jobs – tasks requiring the worker to perform physical labour, but also to handle information. Such workers not only deal with people, but spend a considerable fraction of their time generating, getting, or giving out information. [45] Similarly, Stewart cites the examples of oil rig mechanics, construction workers, truck drivers, etc. whose work and tools are becoming more knowledge-intensive. [46]

It may be seen that Toffler's "mixed workers in the middle of the mind-work spectrum", Stewart's examples and Drucker's "knowledge technologists" are analogous to each other. Drucker further says that most large, knowledge-based organizations have different types of specialized workers and managing them effectively is a big challenge for the organization. Knowledge workers are not homogeneous, since knowledge is effective only if specialized. [47]

Stewart says that knowledge work has a "professional flavour" and that professionals are measured not by the tasks they perform but by the tasks they achieve. [48] The effectiveness and productivity of knowledge workers is an increasingly important issue in contemporary management. In the words of Peter Drucker:

How to make the knowledge worker more appropriately productive is a challenge we will need to face seriously over the next twenty years. With manual work, we start with the question "How do you do the work?" You take this work for granted. In knowledge work, you start with the questions "What do you do and what should you be doing?" [49]

Investment in IT may seem the obvious corollary of knowledge work. But the benefits of IT cannot be achieved without deep-rooted cultural changes:

Even the best new technologies depend on a strong information culture – one that is open, flexible and expansive. [50]

…

Effective knowledge management can not take place without extensive behavioural cultural and organizational change. The installation of Notes or the Web or case-based reasoning software will not in itself bring about that change. Technology alone won't make a person with expertise share it with others. Technology alone won't get an employee who is uninterested in seeking knowledge to hop onto a keyboard and start searching or browsing. The mere presence of technology won't create a learning organization, a meritocracy, or a knowledge creating company. [51]

…

KM requires an informal culture of sharing that information systems do not inherently support. Knowledge, as artificial intelligence research ironically reminds us, is not about machines but about culture. [52]

It is concluded that the success of investments in IT or other infrastructure must be measured primarily in terms of empowerment of the individuals working in that organization.

Power and Empowerment

Power is an inescapable aspect of every human relationship
- Alvin Toffler *Powershift* (1990)

The eminent philosopher Bertrand Russell defined **power** as the *production of intended effects*. Another definition of power is *the ability to bring about a change in the behaviour or attitudes of other individuals*. [53] Toffler describes power as *the ability to mobilize and use violence, wealth and/or knowledge, or their many derivatives, to motivate others in ways we think will gratify our needs and desires.* [54]

In the organizational context, there are five bases or sources of power [55]

1. **Reward power** based on one person (the influencer) having the power to reward another person (the influencee) for carrying out orders or meeting the influencer's requirements.

2. **Coercive power** based on the influencer's ability to punish the influence for not carrying out the influencer's requirements.

3. **Legitimate power** which exists when a subordinate or influencee acknowledges that the influencer has a "right" or is lawfully entitled to exert influence, while the influencee is obliged to accept this power.

4. **Referent power** based on the influencee's desire to identify with or imitate the influencer. The strength of referent power is directly related to factors such as the amount of prestige and admiration the influencee confers upon the influencer.

5. **Expert power** based on the perception or belief that the influencer has some expertise or special knowledge that the influencee does not.

Toffler's *Powershift* states that violence, wealth, and knowledge are the ultimate sources of social power. Toffler subsequently discusses the quality of each of these sources of power. The main weakness of violence is inflexibility, since it can only be used to punish and not to reward. Hence violence is described as "low-quality power". Wealth is considered a better tool of power since it is more versatile than violence and can be used in either a positive or a negative way. Thus wealth is treated as "medium-quality power". Finally, application of knowledge is described as "highest-quality power", since knowledge is efficient and infinitely expandable. Moreover, knowledge can be used as a multiplier for force and wealth. [56]

A simple comparison of the bases of power identified by French & Raven and the sources of power posited by Toffler shows that coercive power roughly corresponds to violence; reward and legitimate power correspond to wealth in its wider sense; while referent and expert power arise out of intangibles such as knowledge as well as prestige, admiration, etc. While French & Raven were describing power in the organizational context, Toffler's study of power was in the wider social context. However, there is a remarkable congruence in their views regarding the role of knowledge and intangibles in power relationships.

The verb "empower" was first used in the 17th century and has meanings like authorise, delegate or enable.

Nowadays, **empowerment** implies a transfer of power in a dynamic way over a period of time. [57]A formal definition of empowerment is as follows: *Process of enhancing feelings of self-sufficiency among organizational members through the identification of conditions that foster powerlessness and through their removal by formal organizational practices and informal techniques of providing efficacy information.* [58]

A much shorter definition of empowerment is *increased intrinsic motivation*. [59] In simplest terms, empowerment can be defined as *helping people to help themselves* or *leading people to learn to lead themselves.* [60] Empowerment can be in a socio-political context, *e.g.* the empowerment of women or the empowerment of the economically weaker sections of society, e.g. the government of India has a Ministry for Social Justice and Empowerment.

In the contemporary world, there is a greater trend towards empowerment, for the following reasons:

- *Making organizations more responsive to the market place.*
- *De-layering organizations in order to make them more responsive and cost-effective*
- *Getting employees of various disciplines to collaborate with minimum supervision, by communicating horizontally, rather than vertically*
- *Getting CEOs and top management to step back and do more strategic work*
- *Tapping all resources that can help maintain and improve competitiveness*
- *Fulfilling the higher expectations of an increasingly well-educated workforce.* [61]

Empowerment can also be seen in an organizational context, where implies greater delegation of powers to lower levels of the hierarchy. Luthans describes empowerment as the authority to make decisions within one's area of operations without having to get approval from anyone else. While this process is similar to that of delegated authority, there are two characteristics which make empowerment unique. One is that the personnel are encouraged to use their initiative. The second is that the employees are given not just authority, but resources as well, so that they are able to make a decision and see that it is implemented. [62]

One of the defining features of empowerment and a core feature of any claim to be different from involvement and participation is that empowerment is supposed to produce a psychological state. Empowerment by definition needs people to feel empowered. Empowerment provides employees with a sense of autonomy, authority and control together with the abilities, resources and discretion to make decisions. [63]

Many organizations have found that the initiation of empowerment is one of the most difficult parts of their quality programme. One of the most important factors inhibiting empowerment is learned helplessness, which is the passive behaviour which results from repeated failures or punishments. [64]

The opposite of empowerment has been described as **Organizationally Induced Helplessness** [65]. The main factors, which cause OIH, are as follows: [66]

1. Organizational structures and policies – employees often experience feelings of alienation, frustration and helplessness when working in relatively centralized, bureaucratic organizations with formal rules and policies.
2. Performance appraisal systems, if the outcome of performance evaluation does not appear to be related to performance.
3. Reward systems, where the relationship between performance and reward is unclear.
4. The job itself, when employees do not have control over the work process.

Knowledge-driven Empowerment

Nam et ipsa scientia potestas est *("Knowledge is Power")*
- Sir Francis Bacon (1597)

There is a very deep relationship between knowledge and power:

For thousands of years knowledge has been associated with hierarchy, and we see no evidence that things are any different today. Those who know have power; and those who have power will have control over who knows what. Knowledge management is a highly political undertaking. [67]

Toffler identifies knowledge as the source of the "highest-quality power" and "a wealth and force multiplier". Toffler also extends Bacon's view quoted above by saying "Knowledge is power is knowledge". [68]

Daniel Bell argues that the 'axial principle' – the organizing frame – of the post-industrial society is the intellectual capital and the centrality of theoretical knowledge. [69]

Despite the intuitive appeal of the association between knowledge and empowerment, it appears that very little theoretical work has been done so far on establishing and investigating this relationship. Prof Amartya Sen points out: *The fact that knowledge is often associated with power is a recognition that had received far too little attention in traditional social theories of knowledge.* [70]

Empowerment may be defined as sharing information, rewards, knowledge and power with front-line employees. [71] If knowledge is power and the present trend is towards increasing knowledge content in jobs, it is axiomatic that today's knowledge workers ought to be more highly empowered than their predecessors whose jobs had lower knowledge content. This implies that the ideas and opinions of knowledge workers should be taken into account for corporate decision-making: *If knowledge workers are a firm's primary capital, the companies and their boards need to have direct access to their thinking to be certain that they are getting a fair return on their human capital investments.* [72]

This researcher has coined the term "knowledge-driven empowerment", which is defined *the empowerment of a knowledge worker as a consequence of job-related knowledge***.** [73]

The basic concept of knowledge-driven empowerment can be extended to organizations themselves, who can derive commercial benefits from developing intellectual property such as patents, trademarks and geographical indications. In other words, the creation of intellectual property and appropriate use of intellectual property rights can greatly empower an organization.

The concept of knowledge-driven empowerment can be further extended to developing countries that are facing technical barriers to trade. Such countries can empower themselves to overcome such barriers by actively participating in the process of setting international standards.

Conclusion

It is now indisputable that knowledge, the source of the highest-quality power of all, is gaining importance with every fleeting nanosecond.
- Alvin Toffler *Powershift* (1990)

This paper begins with the concepts of data, information and knowledge; and explores the impact of knowledge on the fortunes of both individuals and groups. In the context of business, knowledge is becoming the key economic resource for emerging organizations across diverse industries. Thus organizations must develop their learning skills. There is an explosion in the number of knowledge workers, but the means for measuring their productivity and effectiveness are still inadequate.

Some of the new manifestations of knowledge are intellectual property rights and technical barriers to trade, which have acquired strategic importance for the success of organizations and countries.

In the organizational context, empowerment refers to the dynamic transfer of power and promotion of self-sufficiency amongst organizational members. Since knowledge is power, increasing role of knowledge workers in contemporary organizations implies greater empowerment amongst them. The author has coined the term *knowledge-driven empowerment* for describing the relationship between knowledge and empowerment. This concept of knowledge-driven empowerment can be further extended to organizations and even countries who can empower themselves by means of appropriate types of knowledge.

REFERENCES

1. Senge, Peter M. (1990) *The fifth discipline: The art and practice of the learning organisation* New York: Bantam Doubleday Dell
2. Papows, J.P. (1999) *Enterprise.com: Market leadership in the information age* London: Nicholas Brealey
3. Tiwana, A. (2002) *The knowledge management toolkit* 2/e Delhi: Pearson Education
4. Papows, *op. cit.*
5. Tiwana, *op. cit.*
6. Zack, Michael H. (1999) "Managing codified knowledge" *Sloan Management Review*, Vol 40 No. 4 Summer
7. Tiwana, *op. cit.*
8. Papows, *op. cit.*
9. Stewart, Thomas (1997) *Intellectual capital: The new wealth of organisations* New York: Currency Doubleday
10. Tiwana, *op. cit.*
11. Huxley, T. (1877) "Technical Knowledge". Quoted in John Bartlett (Ed.), *Bartlett's Familiar Quotations* 13/e Boston: Little, Brown & Company
12. Stewart, *op. cit.*
13. Zack, *op. cit.*
14. Davenport, Thomas H. & Prusak, L. (1998) *Working knowledge: How organizations manage what they know* Boston: Harvard Business School Press
15. Tiwana, *op. cit.*
16. Von Hardenberg, I. (1998) *Is knowledge power?* Life Sciences Forum at www.hoechst.de.

Retrieved on 30 Oct 2004 from www.archiv.hoeschst.de/txt_e/ls_forum/ knowledge/ artikel13.html
17. Weyer, R. de Van (Ed.) (2003) *366 Readings from Hinduism* Mumbai: Jaico Publishing House
18. Pekelis, Viktor (1987) *Realize your potential!* Moscow: Mir Publishers
19. Garvin, David A. (1993) Building a learning organization *Harvard Business Review*, Jul Aug
20. Garvin, *op. cit.*
21. Callahan, C.V. & Pasternack, B.A. (1999) "Corporate Strategy in the digital age" *Strategy & Business* Issue 15 2nd Quarter
22. Toffler, Alvin (1990) *Powershift: Knowledge, wealth and violence at the edge of the 21st century* New York: Bantam Books
23. D'Aveni, R. (1994) *Hypercompetition* New York: Free Press
24. Stewart, Thomas (1997) *Intellectual capital: The new wealth of organisations* New York: Currency Doubleday
25. Hamel, G. & Prahalad, C.K. (1994) *Competing for the future* Boston: Harvard Business School Press
26. Drucker, Peter F. (1999) Beyond the information revolution. In *Managing in the Next Society* Oxford: Butterworth-Heinemann
27. Hansen, M., Nohria, N. & Tierney, T.(1999) "What is your strategy for managing knowledge?" *Harvard Business Review*, Mar Apr
28. Barabaschi, S. (2003) *Knowledge based economy* Budapest Science Forum. Retrieved on 23 Sep 2004 from www.sciforum.hu/ sp_barabaschi_pr.html
29. Das, Gurcharan (2002) *India unbound* Rev. ed. New Delhi: Penguin Books
30. Toffler, *op. cit.*
31. World Trade Organization (www.wto.org)
32. Stewart, *op. cit.*
33. Stewart, *op. cit.*
34. World Intellectual Property Organization (www.wipo.org)
35. Convention Establishing the World Intellectual Property Organization, Signed at Stockholm on July 14, 1967; Article 2, § viii
36. Guest, R. (2002) How countries go high-tech. In Galbraith, K. (ed.) *The Economist – Globalisation*. London: Profile Books
37. World Trade Organization (www.wto.org)
38. World Trade Organization (www.wto.org)
39. Gill, S.S. (2002) *Information revolution and India: A socio-political critique.* New Delhi: Rupa & Co.
40. Rajkhowa, Khan & Raghunathan (2006) India, at 59. *India Today* Aug 21
41. Abdul Kalam, A.P.J. & Rajan, Y.S. (1998) *India 2020: A vision for the new millennium.* New Delhi: Penguin Books
42. World Trade Organization (www.wto.org)
43. Stewart, *op. cit.*
44. Drucker, Peter F. (2001) The new workforce. In *The next society: A survey of the near future / The Economist*, Nov 3
45. Toffler, *op. cit.*
46. Stewart, *op. cit.*
47. Drucker, Peter F. (2002) They're not employees, they're people. In *Managing in the Next Society* Oxford: Butterworth-Heinemann
48. Stewart, *op. cit.*
49. Drucker, Peter F. (1997) The CEO in the new millennium. In *Managing in the Next Society* Oxford: Butterworth-Heinemann
50. Davenport, Thomas H. (1994) Saving IT's soul: Human-centered information management *Harvard Business Review*, Mar Apr
51. Davenport, Thomas H. & Prusak, L. (1998) *Working knowledge:*

How organisations manage what they know Boston: Harvard Business School Press
52. Tiwana, *op. cit.*
53. Stoner, James A.F. (1978) *Management* Englewood Cliffs, N.J.: Prentice Hall Inc.
54. Toffler, *op. cit.*
55. French, J.R.P. & Raven, B. (1959) The bases of social power. In Dorwin Cartwright (ed.) *Studies in Social Power* Ann Arbor: University of Michigan
56. Toffler, *op. cit.*
57. Colin (2003) What is empowerment? Discussion on Empowerment at www. empowermentillustrated. com / mtarchive/000421.html
58. Conger, J.A. & Kanungo R.N. (1988) The empowerment process: Integrating theory and practice *Academy of Management Review*, Vol 13
59. Thomas & Velthouse (1990) Cognitive elements of empowerment: An 'interpretative' model of intrinsic task motivation *Academy of Management Review*, Vol 15
60. Colin, *op. cit.*
61. Clutterbuck, D. (1994) *The power of empowerment: Release the hidden talents of your employees* London: Kogan Page
62. Luthans, F. (1995) Organizational Behaviour 7/e New York: Mc Graw Hill
63. Heslin, P.A. (1999) "Boosting empowerment by developing self-efficacy" *Asia Pacific Journal of Human Resource Management* Vol 37, No.1
64. Mc Grath, R. (1994) Organizationally induced helplessness: The antithesis of empowerment *Quality Progress*, April
65. Martinko & Gardner (1982) Learned helplessness: An alternative explanation of performance deficits *Academy of Management Review*, Vol 7
66. Mc Grath, *op. cit.*
67. Davenport & Prusak *op. cit.*
68. Toffler, *op. cit.*
69. Bell, Daniel (1974) *The coming of post-industrial society.* Arnold Heinamann
70. Sen, Amartya (2005) *The argumentative Indian.* London: Penguin
71. Bowen, D.E. & Lawler, E.E.(1992) The empowerment of service workers: What, how, why and when *Sloan Management Review*, Vol 33 no.3
72. Conger, J.A., Lawler, Edward E. & Finegold, D. (2003) The Boardroom of the future. In Subir Chowdhury (ed.) *Organization 21C* Singapore: Pearson Education
73. Sinha, Atulya (2005) Knowledge-driven empowerment in the twenty first century. In M.I. Haque (Ed). *Strategic human resource management: Emerging dimensions and trends*. New Delhi: Excel Books