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KNOWLEDGE MANAGEMENT AND INTELLECTUAL PROPERTY MANAGEMENT AS STRATEGIC BUSINESS TOOLS: AN ANALYSIS

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ABSTRACT

Knowledge is definitely a Capital, as it can be used to produce more wealth with defined value, measurement and future course of use. It contributes significantly to human, organizational and relational capital of an organization. Hence Knowledge Management (KM) is an organizational strategic tool that can create competitive advantage. At the same time any Intellectual Property need to be managed by the organization strategically to sustain its position in the market. Intellectual Property Management (IPM) helps companies to make an effective decision on what products to create as well as when and how to protect them. This paper tries to conceptually analyze how the processes of KM and IPM are interrelated and result in competitive advantage through better knowledge flow. The paper also tries to explain the constructs Intellectual Capital, Intellectual Asset and Intellectual Property from a Knowledge Management framework. The study uses secondary data from sources such as World Intellectual Property Organisation (WIPO), Organisation of Economic Co-operation and Development (OECD) to analyse the Indian IP statistics. The Indian Human Capital is valued globally and therefore it is important to motivate its generation, storage and dissemination effectively by organizations and this analysis tries to bring more clarity on that objective. The paper also identifies a future scope for an empirical inquiry in the area.

KEYWORDS

knowledge management (KM), intellectual capital(IC), intellectual asset (IA), intellectual property management (IPM)

INTRODUCTION

Knowledge can be generally defined as the theoretical or practical understanding of a subject. This understanding could be obtained from experiences based on data, information and interpretation. A number of organizations believe that by focusing exclusively on people, technologies, or techniques, they can manage knowledge. The study says that exclusively focusing on people, technologies, or techniques does not enable a firm to sustain its competitive advantages. It is, rather, the interaction between technology, techniques, and people that allow an organization to manage its knowledge effectively. Knowledge Management (KM) is therefore included creation, storage, transfer and dissemination of Knowledge in organizations with the support of enablers such as management support, technological infrastructure and shared culture. KM is definitely a strategic tool, as the transformation of data and information into useful knowledge result in organizational value creation in terms of strategic decision making and innovation.

If knowledge results in ideas of novelty, innovation, newness and useful in application, then it can be called as Intellectual property, which has to manage strategically through Intellectual Property Management (IPM). Therefore, IPM and KM are both mutually related and one can be called a part of the other. A simultaneous flow of KM and IPM would complement and integrate the knowledge flow in organizations resulting in competitive advantage.

Considering the current Indian business scenario, Honorable Prime Minister Narendra Modi had assured that India would be committed to protect Intellectual Property Rights of all innovators and entrepreneurs and that a comprehensive National IPR policy is being finalized. This was as a part of certain initiatives of our government as being in line with some of our research interests, specifically, the "Make in India" and "Digital India" initiatives. This came at a time when several countries and multinational corporations want India to bring its patent laws at par with global standards. In this context, it is important to throw insights over KM and IPM as strategic business tools. This study not only brings a conceptual framework, but also analyzes the Intellectual Property Statistics and India's stake in it.

LITERATURE REVIEW

Knowledge Management (KM) is the process of capturing, distributing, and effectively using knowledge (Davenport, 1994). KM efforts overlap with organisational learning and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge. Organizations are starting to understand and appreciate knowledge as the most valued assets in the emerging competitive environment (Nonaka & Takeuchi 1995).

In a company, knowledge can be explicit and tangible work accomplishments and tasks of employees (Smith, 2001) and also consider the tacit minds and interactions of the employees (Newell et al., 2002). A good KM can develop an appropriate strategy to create value in the knowledge assets through acquisition, storing and retaining the knowledge assets, including expertise, ideas and concepts of employees in an efficient way (Schulz & Jobe, 2001). Alavi & Leander (2001) stated that KM could contribute to building core competencies, understanding the strategic advantage of know-how, and creating intellectual assets. Hence, KM is a critical part of IPM to share, retain and create knowledge assets in the most efficient way. The knowledge processes, which are knowledge creation, knowledge retention, knowledge transfer and knowledge utilization (Nonaka, 1994), can be articulated into the IPM processes.

As knowledge can be non-exclusive to access, it suffers from the free rider problem and thus the under-provision of knowledge. KM processes, including the proactive creation and management of value creating intangible assets, will be a core competency in successful organizations of the 21st century. Intellectual Assets will become a larger part of a corporation's value because intellectual property law enforcement will improve, and there will be higher business value in securing global intellectual property rights. (McConnachie, 1997). In order to manage Intellectual Property (IP) assets in a most effective and efficient way, Intellectual Property Management (IPM) should involve the management of personnel and information in generating, protecting and disseminating IP assets and services (Yang, 2008).

IP becomes an important knowledge asset of the company due to the growth of information technology and competitive business environment (Teece, 1998; Rodriguez et al., 2011). Companies should have a well-organized Intellectual Property Management (IPM) to protect its IP assets, in order to gain and strengthen the competitive advantages in the market. This is particularly true for the technology development industries as they are knowledge intensive industries and need to manage large amount of IP assets, such as patents, copyright and trademarks. The organizations can be aware of their value, benefits or risks of IP when the appropriate management of IP is exercised (Pisano, 2006; Zhao, 2006).

OBJECTIVES

Mostly the construct KM is used in line with organizational learning, although it is much different in meaning and application with regard to its processes. KM definitely is a strategic tool that enhances Organisational learning and results in value creation of an organization irrespective of the industry. The objectives of this study include 1. To conceptually analyze KM and IPM as strategic business tools 2. To differentiate the constructs Intellectual Capital (IC), Intellectual Asset (IA) and Intellectual Property (IP) as they are interchangeably used in many contexts. 3. To analyze the contribution of India in the IP generation and management.

METHODOLOGY

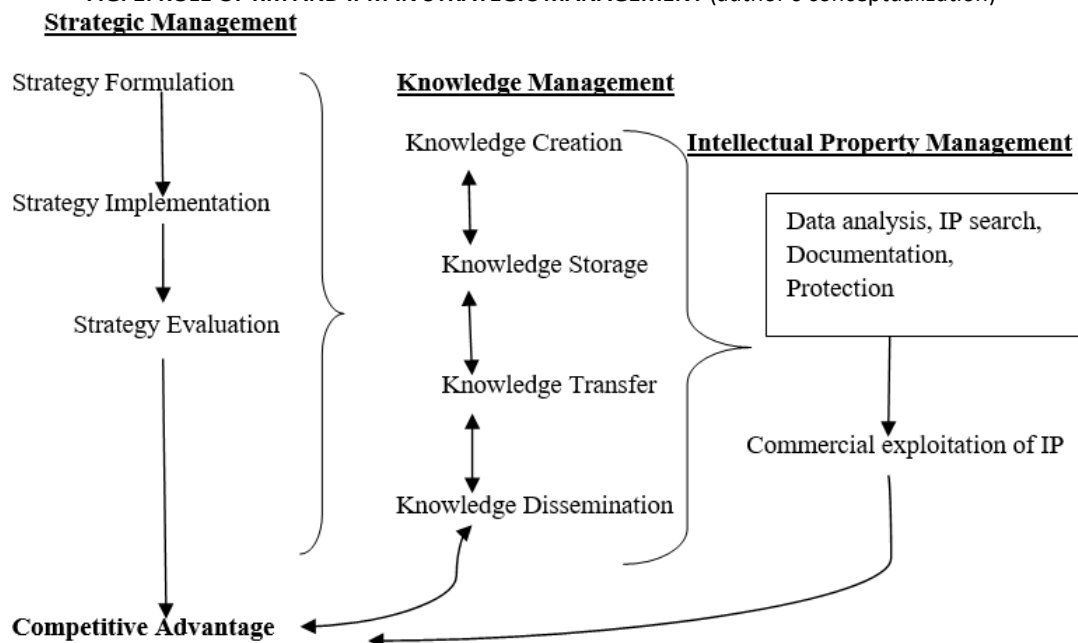
The concept of KM and IPM and its mutual dependence is analyzed through literature review. The review extends in explaining the constructs IC, IA and IP. This could give a better clarity of differences and interrelationships of these constructs in a KM framework. The secondary data is being collected from various sources such as World Intellectual Property Organization (WIPO 2015), Organization of Economic Co-operation and Development (OECD 2015) which include annual reports on IP statistics. The data pertaining to India is being separately segregated and analyzed for the study.

KM AND IPM AS STRATEGIC TOOLS

Strategic Management is an integrated process of formulating, implementation and evaluation an organization's objective so as to bring value to products and services and thus improve the competitive advantage. The current business scenario focuses more on a value network than value chain as a competitive strength. The value chain focuses more on the physical flow of goods and services, but value network included the flow of financial, digital, logical and informational flow along with the physical flow of goods and services. It creates value through the exchange of information and knowledge through relationship in the value chain among stakeholders. Since this exchange of Knowledge and Information results in better ideas of problem solving, decision making and innovation effective KM is definitely a strategic tool. The KM includes processes such as Knowledge Creation, Knowledge Storage, Knowledge Transfer and Knowledge Dissemination. It is obviously supported by Knowledge Enablers such as Shared Culture, Management Support, Leadership and Technology Infrastructure. Effective KM overlaps and integrates the people, technology and processes in an organization.

The Intellectual Capital includes the knowledge, skill and expertise of the entire Human Resource in the organization. Knowledge itself is a capital and there KM adds value in all sense. When Knowledge results in innovation, novelty and newness which can be made useful and protected by law it becomes an IP. IP can definitely increase the market value of an organization and therefore it is important to protect and effectively disseminate the IP assets of an organization strategically. This shows the strategic role of IPM. IPM is definitely integrated in the KM process as Creation, Storage, Transfer and Dissemination of Knowledge also include the intellectual assets of the organization as a subset. The conceptual model (Fig 1) explains how the KM process acts as a subset of strategic management and in turn, the role of IPM in Knowledge Management resulting in Competitive Advantage

FIG. 1: ROLE OF KM AND IPM IN STRATEGIC MANAGEMENT (author's conceptualization)



INTELLECTUAL CAPITAL (IC), INTELLECTUAL ASSET (IA) AND INTELLECTUAL PROPERTY (IP)

Intellectual Capital (IC) in the economic sense is any type of intellectual wealth or property that can be used to produce more wealth with defined value, measurement and future course of use. When we consider intellect as a property and we use them to produce more value or gain with defined and measurable quantum. Another aspect of intellectual capital is its timely use. The IC term was first introduced by Galbraith (1969) as a form of knowledge, intellect, and brain power activity that uses knowledge to create value. Edvinsson and Sullivan (1996) consider IC as a knowledge that can be converted into value. Stewart (1997) refers to IC as the aggregation of all knowledge and competencies of employees that enable an organization to achieve competitive advantages. IC basically consists of three basic interrelated dimensions: human capital (HC), organizational (or structural) capital (OC), and relational (or customer) capital (Dzinkowski, 2000; Cortini and Benevene, 2010).

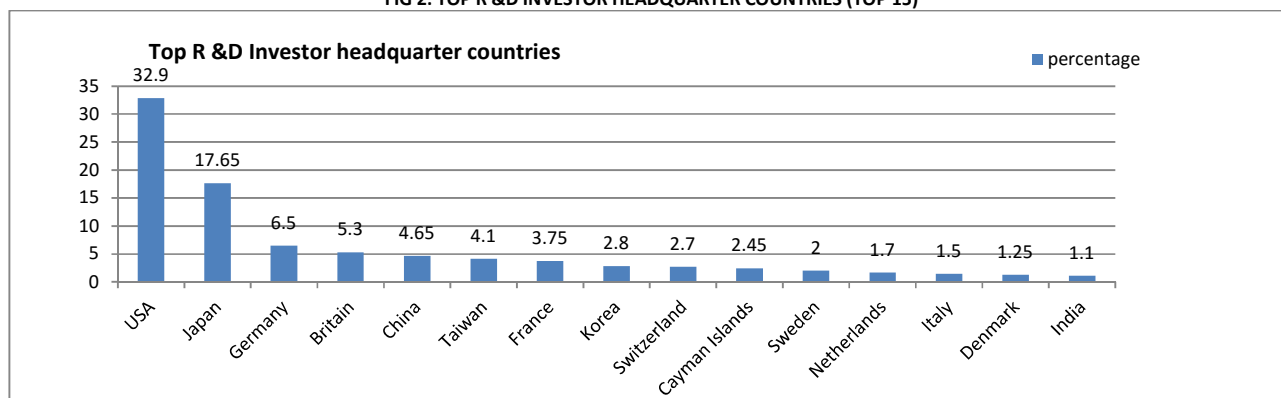
Asset means a valuable or useful quality or skill; it can be a thing or an entity. In a general sense it is a property of a company that has value and used or sold to pay debts. Here it is evident from the meaning of asset that asset is primarily tangible, but when we use the word intellectual asset which is also called as intangible asset the major element involved in this denoted word is 'the value' and its future use. So Intellectual Asset (IA) can be defined as a valuable and useful intangible asset in which intelligence has the prime role. Intangible Assets can be divided into generative and commercially exploitable intangibles (Ahonen, 2000).

Intellectual Property (IP) is any property/quality or valuable thing in which newness, novelty, innovation, and social usefulness exists and which are now mostly legally protected by rights. Intellectual property is divided into two categories: 1. Industrial Property which includes patents for inventions, trademarks, industrial designs and geographical indications. 2. Copyright which covers literary works (such as novels, poems and plays), films, music, artistic works (e.g., drawings, paintings, photographs and sculptures) and architectural design. Rights related to copyright include those of performing artists in their performances, producers of phonograms in their recordings, and broadcasters in their radio and television programs. The intellectual property system helps strike a balance between the interests of innovators and the public interest, providing an environment in which creativity and invention can flourish, for the benefit of all.

THE IP STATISTICS: AN OVERVIEW

Analysis is based on the report generated by OECD (Organization of Economic and Co-operative Development) -*World Corporate Top R&D Investors: Innovation and IP bundles*. The report looks at the innovative output of world's top Research and Development (R&D) investors using patents and trademarks as proxy indicators. It presents statistics about the patent portfolio of companies, and their trademark strategies to launch new products, and looks at the extent to which companies bundle these two forms of Intellectual Property Rights (IPR) to protect and appropriate the returns of their knowledge-based assets. This provides interesting insights about the innovation strategies of the world's leading corporate R&D investors. IP bundle refers to the combined use of patents and Trademarks. There are five patent families represented as IP5 namely; European Patent Office (EPO), United States Patent and Trademark Office (USPTO), Korean Intellectual Property Office (KIPO), SIPO (the State Intellectual Property Office of the People's Republic of China) and Japan Patent Office (JPO). Top corporate R&D investors differentiate their filing strategies across the IP5 offices depending upon the technological field of the invention to protect. Patent families filed at the Korean Intellectual Property Office (KIPO), the USPTO and the SIPO (the State Intellectual Property Office of the People's Republic of China) are largely oriented towards *Electrical engineering* applications, whereas EPO patent family members show a stronger orientation towards *Mechanical engineering* and *Chemistry*. A Patent family member at the Japan Patent Office (JPO) are the most oriented towards *Instruments*, and also account for the second highest share in the field of *Mechanical engineering*.

FIG 2: TOP R & D INVESTOR HEADQUARTER COUNTRIES (TOP 15)



The figure above is the graphical representation of data (Fig 2) extracted from the report on the geographic distribution of the headquarters of the top corporate R&D investors. In 2012, more than 60% of these companies (i.e. 1247) were headquartered in four countries, namely the United States, Japan, Germany and the United Kingdom, and about 9% (i.e. 175 companies) in China and Chinese Taipei. India is the headquarters for 22 corporate R & D investors, which form only 1.1 percent of the total investors in the world. The number of subsidiaries refers to the subsidiaries of R & D investors in different countries.

TABLE 1: TOTAL COMPANIES AND SUBSIDIARIES OF R & D INVESTOR COMPANIES BASED ON GEOGRAPHICAL LOCATION

Countries	No of companies	Percentage	No of subsidiaries
USA	658	32.9	113753
Japan	353	17.65	73933
Germany	130	6.5	21574
Britain	106	5.3	55897
China	93	4.65	10006
Taiwan	82	4.1	2330
France	75	3.75	67707
Korea	56	2.8	3260
Switzerland	54	2.7	2480
Cayman Islands	49	2.45	1057
Sweden	40	2	7667
Netherlands	34	1.7	11676
Italy	30	1.5	5217
Denmark	25	1.25	3099
India	22	1.1	2192

Considering the position of the world IP statistics, the contributing industries include Advertising and business services, Agricultural products, Construction, Health, Cosmetics and Pharmacy, Transport and Textiles. The total companies contributing to R & D are comparatively more when compared to the percentage of subsidiaries. The data indicate that the corporate are more interested to apply for patents and Trademarks at the headquarter level rather than at subsidiary level. Table 1 gives an overview of IP statistics of India in particular where it explains membership of the companies in IP5. The IP bundle application limits to 40 (20 patent applications and 20 trademark applications) in India, which is comparatively a very low rate.

TABLE 2: AN OVERVIEW OF IP STATISTICS OF INDIA

No. of Companies	22
No. of subsidiaries	2192
Patent families with at least one member in the IP5	667
Patent families with at least two members in the IP5	619
Top R & D performers (Companies)	22
Matched Patent Applicants	20
Matched Trademark Applicants	20
Contributing Industries in IPR application	Advertising and business services, Agricultural products, Construction, Health, Cosmetics and Pharmacy, Transport, Textiles

In India IP offices are controlled by the Office of Controller General of Patents, Designs and Trade Marks (OCGPDTM) which has its offices at Kolkata, Delhi, Mumbai, Chennai and Ahmadabad. The Rajiv Gandhi National Institute on IPM works in support of it for training professionals in the area.

Indian Trends in IPR as per the annual report 2013-14 of Office of Controller General of Patents, Designs and Trade Marks says that out of 2,51,564 total IP applications filed, include 42951 patent applications, 8533 design application, 200005 trademark applications and 75 geographical indications. Out of these, 4227 patents, 7178 designs, 67876 trademarks and 22 geographical locations are registered. Table 2 illustrates an overview of IP statistics in India.

The filing of patents in India has gone up from around 35,000 to around 43,000 from 2007 to 2014, and the resident filing has gone up from 17% to 25%. In the year 2011-12, 11,000 patent applications were examined while in 2013-14, the number was 18,000. On a comparative basis, in India one patent examiner examined 140 patent applications in 2014 against 50 and 70 in the US and EU respectively. Therefore, it is the lack of human resources that is creating a backlog in the processing of patents in India compared to other countries.

FINDINGS

The conceptual analysis based on literature review has clearly identified the role of KM and IPM in creating competitive advantage. The KM acts as a subset of strategic management process right from strategy formulation to implementation and evaluation. The IPM forms a critical part of KM as any novel idea or innovation generated through KM contributes to the IP asset of a company. Thus, IPM leads to commercialization of IP assets which further leads to competitive advantage. Although the constructs IC, IA and IP are interchangeably used, each has distinct meanings, although are interrelated. IC forms the overall Knowledge Capital, when adds value becomes an IA and when further adds novelty and innovation protected by law, results in IP. The analysis of Indian IP statistics based on secondary data proves that although the country is rich in knowledge capital it has a long way to go in terms of R & D investment to develop IP assets. The lack of Human Resources would also accrue to the backlog of applications and therefore more professional training is aspired in the field.

CONCLUSION

Although KM has been considered as an inevitable ingredient in achieving competitive advantage most of the organizations has not been identifying the strategic value of KM. This paper has tried bringing its strategic importance along with a concept of IPM, which acts as a critical subset of KM in organizations. This aspect is very important in India in the context of "Make in India" and "Digital India" as the knowledge assets resulting in production innovation needs to be protected. A stronger, but not too strong IPR protection may increase the incentive of the inventors, thus the production of knowledge and economic growth of our country. The study also paves way for scope of empirical inquiry on the interrelationship of KM and IPM in the organizations.

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