

**Info Sys 237, Final Paper:**

**By Ijaz A. Qureshi**

**Prepared for: Dr. Larry Downes  
School Of Information Management and Systems  
UC Berkeley**

## **Intellectual Property and Strategic Management:**

Before I start exploring my paper in detail I would like to explain the topic of my paper just to ensure the readers and I have full understanding of my research work. I would be discussing the “Intellectual Property and Strategic Management”. I would explain the Intellectual Property first and then Strategic Management. After explaining these two important sets of my topic I would go deep in detail to explore the unexplored avenues in this topic with the help of studies and articles published in the Harvard Business Review, Sloan Management Review, California Management Review, several books and websites.

### **Intellectual Property (IP):**

In a broad term Intellectual Property includes Inventions, discoveries, know-how, methods, materials, copyrightable works, original data and other creative or artistic works, which may have commercial value<sup>1</sup>.

What is Intellectual Property? Probably this question would be helpful to understand the word Intellectual Property (IP). Intellectual Property is the term used for any intangible property rights, which are the results of someone’s intellectual efforts<sup>2</sup>. Intellectual Property rights include Patents, trademarks, designs, service marks and copyrights. For example, McDonald’s “M” with golden arch is a trade mark, any book, publication or article written by scholars is a copyright material and in case of “Java Language” or “J2EE” Sun Micro Systems holds all the Patents rights.

Since creative ideas and the expressions of the human mind possess the commercial value and anyone can benefit financially, so, law provides protection to the

creators and researchers Intellectual Property in the form of Patents, Copyrights and Trademarks<sup>3</sup>. Intellectual Property rights enable the owners to select who may use their Intellectual Property for how long, at what terms and conditions and to protect it from unauthorized use by anyone.

The reason that law provides protection to the creator and researcher is simply to ensure the creativeness and innovation continues in the future and those who do invent and create something unique are rewarded financially for their extra ordinary capabilities.

### **Strategic Management:**

The Strategic Management is a process by which any organization determines how to proceed in the future to ensure careful formulation, effective and efficient implementation and continuous evaluation of strategy and performance takes place<sup>4</sup>. Strategic Management integrates organizational functions and processes and it is the interaction and interdependence of the functions and processes that helps and contributes in the improvement of the organization.

Strategic Management is an organization-wide task that involves the development and implementation of strategy in the organization<sup>5</sup>. Strategic Management demands the ability to shake-up the whole organization through strategic change under conditions of uncertainty and complexity. In the United Kingdom a well-known high-end retail giant known as Marks and Spencer (M&S) is going through this uncertain and complex whole shake-up just to ensure the organization maintain its image in the market.

In the United States we have seen JC Penny (a retail merchandise company with nation-wide presence) has gone through this uncertain and complex shake-up and is back on the road of profitability and success.

In this paper I would focus on the Strategic Management and Intellectual Property rights in the organization. This intangible asset (IP) has been of least consideration to the organizations and hardly anyone in the top management would look on the papers that talk about Intellectual Property of the organization. Few specialized attorneys were dedicated to Intellectual Property matters. One simple reason was that the top management was not prepared to deal with this kind of business matters related to Intellectual Property and the other main reason was that the business schools hardly had any money left to pay to the instructors who would come and lecture about Intellectual Property in the class rooms. So, most business schools neither created any interest nor made any effort to ensure tomorrow's global executives have at least some knowledge of intangible assets of the organization. Probably, business schools never realized that Intellectual Property would become a very large part of organization's market value. Since the Dot Com (information technology related firms in the US and Europe) firms generated economic boom in the USA from 1996 to 2000, suddenly, Intellectual Property has become of great importance to the organizations. Almost, small and big firms are talking about their Intellectual Property Rights. Recently, I studied the case of Sun Microsystems vs. Kodak. Kodak sued the Sun Microsystems for patents infringement and asked for one billion dollars in damages<sup>6</sup>. On October 1<sup>st</sup>, the U.S. District Court of Rochester, N.Y., found that Sun Microsystems infringed on three of Kodak's patents when it created Java<sup>7</sup>. This federal jury decision sends the whole Java community in

shock. However, Sun settled the case by paying ninety-two millions dollars to Kodak the same week to avoid further embarrassment for its state of the art technologies<sup>8</sup>.

To the surprise of many Americans, Alan Greenspan in his speech at Grand Rapid, Michigan mentioned the following at Gerald R. Ford Foundation and a local university in November 1999<sup>9</sup>.

Alan Greenspan is the Chairman of the US Federal Reserve (U.S. Federal Reserve is equivalent to central banks in many countries, Like, Bank of England, Bundus Bank and State Bank of India)<sup>10</sup>. Mr. Greenspan argues that the icons of the industrial might of the past – steel mills, petrochemical plants, car assembly plants and skyscraper office blocks, are being replaced with “economic value best symbolized by exceedingly complex, miniaturized, integrated circuits and the ideas – the software – that utilize them. Most of what we currently perceive as value and wealth is intellectual and impalpable.”

Mr. Greenspan’s speech is based on a realistic approach than emotional. The current USA economy is based on purely knowledge and it is no more agricultural, industrialized or service based society.

The following charts have been derived for study purposes from the weekly Economist, April 6<sup>th</sup> 2000 issue to support the research paper. The presentation of the charts from different sources would help us to understand the value of Intellectual Property and the role of Strategic Management. The objective to use the charts from different sources is to ensure we have full understanding of the topics covered.

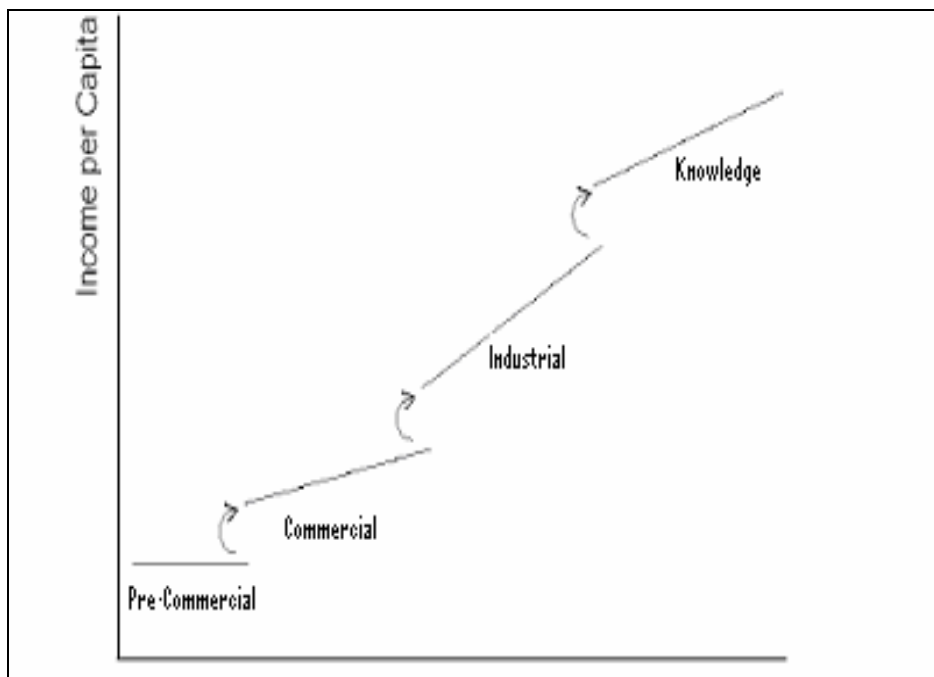
As Fed Chairman, Greenspan mentioned in his speech, we will see the firms discussed in the following charts and diagrams; almost all of them involved in the

Information Technology business have been using all their efforts to protect their Intellectual Property.

## Stages of Economic Development<sup>11</sup>:

**Professor Jeffrey D. Sachs**, Director, The Earth Institute at Columbia University, Speech at the Chinese Academy of Arts and Sciences, Beijing, June 19, 2004.

Professor Jeffrey Sachs in his speech at Chinese Academy of Art and Sciences, Beijing, China, last year presented the following diagram in his publication to show the economic development stages and its effect on per capita income.

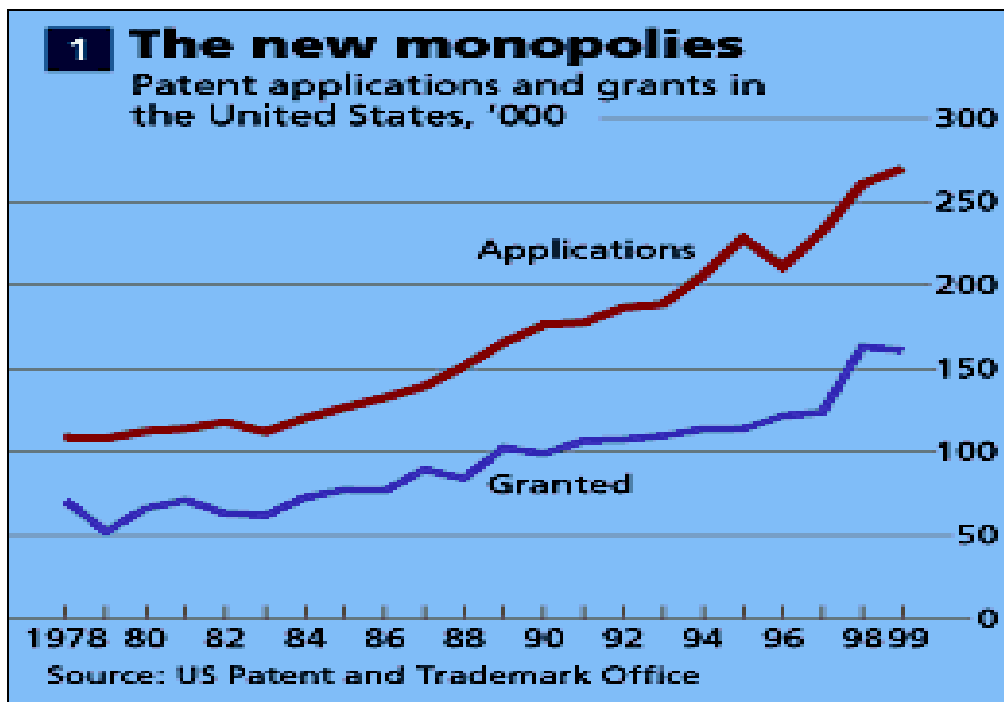


If we look at the diagram, it starts from the Pre-commercial stage then commercial followed by industrial and finally knowledge. It is exactly what Fed Chairman. Mr. Greenspan mentioned in his speech about the US economy.

By looking at this diagram presented by Prof. Jeffery Sachs in his conference paper we can conclude that when economies reach at this point (knowledge) which we would call here the stage four, then the knowledge based economies start worrying about their intellectual assets. One reason of this movement could be that in reality there is nothing left from manufacturing perspective in the country to be worry about because manufacturing facilities have already been transferred to less developed nations. For example, to support my point here, I would say in the case of USA, lots of manufacturing facilities have been moved to Mexico, China, India and other less developed nations around the globe to minimize the manufacturing costs. U.S. is at the fourth stage (knowledge) mentioned by Professor Sachs in his diagram. So, the first three stages are not for the developed nations, and the organizations in the developed nations would look on to Intellectual Property than anything else.

The following charts show the new kind of monopolies in the new kind of United States economy. Companies have been investing incredible amount of resources to protect their IP. These charts give us the opportunity to explore the Patents world in the U.S. market.

This chart is derived from Weekly Economist, April 6<sup>th</sup>, 2000 issue for our research purpose only<sup>12</sup>. The article was published as Patents War in the same issue.



US Patents and Trademark Office described in this article that the applications submitted to the office were approximately 2, 75,000 from 1978 to 1999. The US Patents office granted approximately 1, 60,000 patents in twenty-one years to different companies.

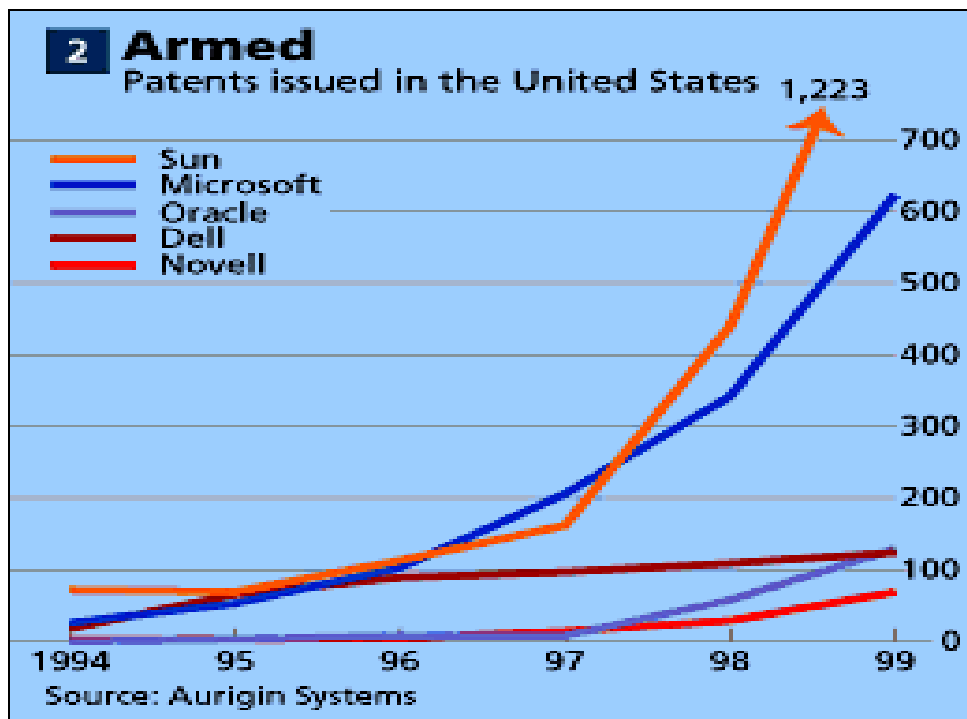
This chart is derived from Weekly Economist, April 6<sup>th</sup>, 2000 issue<sup>13</sup>. The article was published in the Economist as Patents War.

<b>Some of the lucky winners</b>				
<b>Number</b>	<b>Date issued</b>	<b>Invention</b>	<b>Inventors</b>	<b>Group</b>
Not yet issued	–	Group buying on the Internet	Not public	Accompany.com
6,029,141	Feb 22nd 2000	Click-through affiliate relationships on the Internet	Jeff Bezos et al.	Amazon.com
5,960,411	Sep 28th 1999	One-click buying	Jeff Bezos et al.	Amazon.com
5,862,223	Jan 19th 1999	Selling professional advice over the Internet	Jay Walker et al.	Walker Asset Management
5,797,127	Aug 18th 1998	Reverse auctions, where the buyer sets the price	Jay Walker et al.	Walker Asset Management
5,443,036	Aug 22nd 1995	Method of exercising a cat using light to stimulate it	Kevin Amiss	None
4,687,353	Aug 18th 1987	Generating paragraphs on a computer	Peter DeGeorge et al.	IBM
4,648,047	Mar 3rd 1987	Generating footnotes on a computer	James Repass et al.	IBM

Sources: US Patent and Trademark Office; Accompany.com

This chart shows some of the very important landmark Patents issued by the US Patents office to very famous companies or to individuals. One-click buying was disputed by Barnes and Noble and lost the case in the court against Amazon.com. Although US Patents office issued over 1, 60,000 patents in twenty-one years, very few of them got the amazing reputation. As mentioned above, Amazon.com's one-click was one of the very lucky one's that got the world attention after a famous law suit known as Amazon.com v Barnes and Nobel in 1999.

This chart is derived from Weekly Economist, April 6<sup>th</sup>, 2000 issue. The article was published as Patents War<sup>14</sup>.



This chart described the number of patents issued to different companies. Many big players are from the high-tech industry. Sun Microsystems holds more patents than any other company in the USA. Microsoft Corp is the second company to hold over six hundred patents.

These very innovative companies, industry leader in Information Technology field following the Strategic Management principles moved into exploring and implementing the new strategies for their business and took the serious risks to invest in the Internet market as innovators. While these companies took serious steps to innovate the technologies needed by the market, at the same time they made every effort to register their Intellectual Property with the Patents Office as explained in the chart two to ensure they benefit of their innovations that has commercial value in the future.

## The Ideas and Its Importance:

Information Week published the story of Sun and Kodak (briefly mentioned above) on October 11<sup>th</sup> 2004 mentioning the settlement of a law suit on the patents infringements. <sup>15</sup>In the year of 2003 SCO Group filed a law suit of \$3 billions against IBM, claiming IBM violated its trade secrets. Microsoft is planning to file application for 3000 patents in 2005 and it already holds 5000 patents. Microsoft did all the research and development and these patents are the result of this innovative work.

A compelling article (Strategies to Turn Advisory into Profits) published in the Sloan Management Review; winter 1999 by Allan Afuah assistant Professor of the corporate strategy at the University of Michigan Business School shows the major U.S. Semiconductor Product Innovations in the following table:

### Major U.S. Semiconductor Product Innovations with 1994 Sales Estimates:

Estimated 1994 Annual Sales (%)

Product	Innovator	Year Introduced	1994 Total Sales (US\$ millions)	United States	Japan	Europe	Other
SRAM	Intel (US)	1969	\$ 4,110	25%	52%	3%	10%
DRAM	AMS (US), Intel (US)	1971	23,050	15	54	3	28
Microprocessor	Intel (US)	1972	24, 080	66	29	3	2
EPROM	Intel (US)	1971	1,410	34	29	23	14
EROM	Xicor	1983	500	51	12	24	23
Gate Array	LSI (US)	1980	5,200	38	38	15	9
ROM	IBM (US)	1970	2,025	15	72	2	11

This table shows the innovation in the IT industry that has taken place in the U.S. since 1969. All of these companies hold the patents rights to these inventions that mean

anyone wishing to use these items would have to get the license from the innovators to use or to extend the research on the specific area of the item. This is the point regarding Intellectual Property (manufacturing to knowledge based economy) that Mr. Greenspan mentioned in his speech at Gerald R. Ford Foundation and a local university in November 1999. By looking at these industry leaders, we can analyze the current market trends and ask a question what are these companies manufacturing at the current moment? The answer would be probably nothing, because all the manufacturing is taking place in the overseas markets under the supervision of foreign manufacturers and all what innovators hold in the U.S. are the patents and copy rights.

In the spring 2004 issue of MIT Sloan Management Review, Markus Reitzig wrote an article title “Strategic Management of Intellectual Property”. Mr. Reitzig argued with reference to a source that “in the late 1990s, three quarters of the Fortune 100’s total market capitalization was represented by the intangible assets, such as patents, copyrights and trade marks<sup>16</sup>.”

Well, study seems really interesting and compelling as  $\frac{3}{4}$  of the market capitalization is represented by Intellectual Property. It simply means that IP can not be left for the corporate attorneys and IT executives in the organizations.

Mr. Reitzig brought several questions to ask to the senior executives about Intellectual Property. For example,

- How a company can use IP rights to gain and sustain competitive advantage?
- How do IP rights affect the industry’s structure?
- What options do IP rights offer vis-à-vis competitors?

- How can IP rights grant incumbency advantage and establish barriers to entry?
- What organizational design accommodates an IP strategy most effectively?
- How the IP rights help to gain the vertical power along the value chain?

These questions raised by the Prof. Reitzig give birth to new type of strategic management that we have not experienced before in the organizations. In light of these questions every manager in the strategic team must be capable of analyzing the IP value.

### **New Values and Organizations:**

Kevin G. Rivette and David Kline wrote a very convincing and compelling article in the Harvard Business Review (January – February issue), Title “Discovering New Value in Intellectual Property<sup>17</sup>”. The authors mentioned the statement of Chairman of Xerox Corporation, Mr. Richard Thoman, a \$ 20 billion company that Xerox’s future is not in the mergers and acquisitions, new product lines and traditional strategies development and implementation but the Intellectual Property. Mr. Thoman said “the future of Xerox is so invisible and intangible that it does not even appear on the company’s balance sheet”. Mr. Thoman said “those companies who would take advantage of Intellectual Property will win in the future and those who do not will lose.”

IBM’s annual patent licensing royalties jumped from \$30 million in 1990 to one billion dollars in 2000<sup>18</sup>. This amount was accounted for one-ninth of IBM’s total pre tax

profits. To make this much money IBM would have to sell roughly \$20 billion worth of products each year, or an amount equal to one-fourth its world wide sales.

However, authors in the article “Discovering New value in Intellectual Property, HBR JAN-FEB 2000<sup>19</sup>” suggested that strategic management can achieve un imaginable results when used with the patents to enhance a company’s success in three ways. First, the establishment of Proprietary market advantage, for example Amazon.com had the Proprietary Market Advantage in the one-click patent. Second; improving the company’s financial performance, for example, using the organization’s intangible assets to enhance company’s performance. In 1989 BTG reported that 67% of the U.S. organizational technological assets have never been exploited. Third, by enhancing overall competitiveness; eliminating the competitor’s threat. In the early 1998, S3 a small chip maker bought bankrupt chip maker Exponential Technologies for \$10 million to minimize the threat from Intel Corporation for patents infringement.

After studying the article in Harvard Business Review, Jan-Feb 2000, I would conclude that Intellectual Property has the real value for the companies in this day and age. As Mr. Thoman mentioned winners are going to be those who are good in managing Intellectual Property and I agree with his statement based on the arguments.

### **Competitive Advantage and Sustainability:**

Prof. Markus Reitzig mentioned in his article Strategic Management of Intellectual Property published in the MIT Sloan Management Review, Spring 2004, that organizations can gain competitive advantage with the help of Intellectual Property

rights. Author mentioned the following three ways for a company to maintain the competitive advantage and sustainability<sup>20</sup>.

- Intellectual Property rights can provide temporary technological lead to the organizations. For example, Denmark based Novo Nordisk A/S built a very strong market in the Europe based on its technology for manufacturing insulin from animal sources.
- Intellectual Property rights and their relationship to standards; in the mid-1990's Motorola had the exclusive control on the GSM (Groupe Speciale Mobile) technology. Motorola build the superior position in the European market through GSM technology and compelled the 13 competitors to follow the Motorola's GSM as the international standards.
- Combinations of Patents and Trademarks can help to sustain IP-based competitive advantage. Since patents expire, it is better for organizations to develop combinations of patents and trademarks to sustain Intellectual Property based competitive advantage. For example, Leo Paharma a Denmark based drug company developed a new product name Daivobet and started distributing to the clinics and hospitals three years before the patent for Daivonex is expired. (In Europe patents expired 20 years after the application was submitted to the patents office, in some specific cases in 25 years). A patent and a trade mark can be used complimentarily as in the case of Bayer AG. The patent for Aspirin expired at the beginning of last century but the company still makes a lot of money. The author

suggests that managers should be focused on patent to trade marks as the patent expires.

### **Intellectual Property and Licensing:**

Licensing the Intellectual Property is a popular way for the innovator to make money<sup>21</sup>. A license is issued by the person or group of people who owns the right to third party to perform an act which would otherwise be considered a breach of licensor's right. The right for which the license is granted can relate to any intellectual property right. It could be one or combination of patents, design, trade marks, copyright or design right. In most cases the licensor get the payments from the licensee as royalties. However, the Intellectual Property can be used as collateral. For example, in 1999, Dell used its patents as the collateral for a \$ 16 billion cross-licensing deal with IBM that provides it with lower cost components<sup>22</sup>.

There are several reasons for licensing the Intellectual Property. For example, the patents owner may not be able to fulfill the demand of its customers, may not have sufficient facilities to manufacture or produce, and may not be interested anymore in staying in the same business or company may not be doing so well. In these situations, the owner of the Intellectual Property may grant a license to gain income.

However, at the same time the licensee enjoys the privileges to use the patents without being sued by the patent owner for infringement. As we have seen in the above mentioned cases of Amazon.com v. Barnes and Nobles, Kodak v. Sun Microsystems that the companies were sued for patents infringement that caused hundreds of million dollars

to the infringers, in these cases Barnes and Nobles and Sun Microsystems infringed the patents.

There are three main types of licenses for Intellectual Property<sup>23</sup>:

- An exclusive license; granting a license to the exclusion of themselves and any other third party.
- Sole license; licensor grant the right to one other party and uses the patents right themselves.
- Non-exclusive License; licensor use the right themselves and issue number of licenses to any number of parties.

## **Intellectual Property Rights and Patent Policies in the United**

### **States:**

The Bayh-Dole Act of 1980 was created to provide special privileges and incentives to universities for patent research<sup>24</sup>. Because of this Act, applications for patents increased dramatically and research completed in the universities regarding the high tech advancement was forward to private sector.

However, a serious lawsuit Cellpro v. Hopkins got attention of the national media in the 1989 regarding a patent dispute. John Hopkins University received the broad patents about a technology that would be used in the cancer research. Hopkins licensed the technology to Baxter Healthcare cell separation instrument. Meanwhile, a new startup firm known as Cellpro utilized the research of University of Washington, to develop a product very similar to Hopkins. Hopkins lawsuit against the Cellpro in 1994 for patent infringement closed its door forever.

Federal government contributes 70% in the research of universities, and this 70% of the money that federal government contributed in the research has come from the public<sup>25</sup>. The question that we would like to raise here is more of ethics and social responsibility. Is it fair for the universities to use the federal funds for pure business purposes?

## Sources of Research:

---

<sup>1</sup> [www.siu.edu/orda/general/glossary.html](http://www.siu.edu/orda/general/glossary.html)

<sup>2</sup> [www.patent.gov.uk/design/glossary/](http://www.patent.gov.uk/design/glossary/)

<sup>3</sup> [usinfo.state.gov/topical/econ/ipr/ipr-glossary.htm](http://usinfo.state.gov/topical/econ/ipr/ipr-glossary.htm)

<sup>4</sup> [www.eplin.af.mil/46tw/StrategicPlan/glossary.htm](http://www.eplin.af.mil/46tw/StrategicPlan/glossary.htm)

<sup>5</sup> [wps.prenhall.com/wps/media/objects/213/218150/glossary.html](http://wps.prenhall.com/wps/media/objects/213/218150/glossary.html)

<sup>6</sup> [http://www.findarticles.com/p/articles/mi\\_zdewk/is\\_200410/ai\\_n7181676](http://www.findarticles.com/p/articles/mi_zdewk/is_200410/ai_n7181676)

<sup>7</sup> [eWEEK](#), [October, 2004](#) by [Steven J. Vaughan-Nichols](#)

<sup>8</sup> <http://att.com.com/Sun+settles+Kodaks+Java+suit+for+92+million/2100->

[1012\\_3-5401804.html](#)

<sup>9</sup> *From Knowledge Management Magazine* [November 1999](#)

<sup>10</sup> *From Knowledge Management Magazine* [November 1999](#);

<http://www.destinationkm.com/articles/default.asp?ArticleID=783>

<sup>11</sup>

[http://www.earthinstitute.columbia.edu/about/director/documents/china\\_speech061904.pdf](http://www.earthinstitute.columbia.edu/about/director/documents/china_speech061904.pdf) -

<sup>12</sup> [http://www.economist.com/PrinterFriendly.cfm?Story\\_ID=332256](http://www.economist.com/PrinterFriendly.cfm?Story_ID=332256) (Patents

War, Economist April 6<sup>th</sup> 2000 issue)

<sup>13</sup> [http://www.economist.com/PrinterFriendly.cfm?Story\\_ID=332256](http://www.economist.com/PrinterFriendly.cfm?Story_ID=332256) (Patents

War, Economist April 6<sup>th</sup> 2000 issue)

<sup>14</sup> [http://www.economist.com/PrinterFriendly.cfm?Story\\_ID=332256](http://www.economist.com/PrinterFriendly.cfm?Story_ID=332256) (Patents

War, Economist April 6<sup>th</sup> 2000 issue)

---

<sup>15</sup> The Cost of Ideas, Babcock and Foley published in Information Week, on Oct 11<sup>th</sup> 2004.

<sup>16</sup> Peter J. King managing partner of Arthur Anderson's IP Asset Management Practice quoted in the introduction to Rembrandts in the Attic: Unlocking the Hidden Value of Patents by K. Rivette and D. Kline; Boston: Harvard Business School Press, 1999.

<sup>17</sup> Discovering New Values in Intellectual Property by Kevin and David, Harvard Business Review, January-February 2000.

<sup>18</sup> HARVARD BUSINESS REVIEW, JAN-FAB 2000, Thinking About , BY Kevin and David

<sup>19</sup> HARVARD BUSINESS REVIEW JAN-FEB 2000, Discovering New Value in Intellectual Property by David and Kevin, page 56.

<sup>20</sup> MIT SLOAN MANAGEMENT REVIEW, SPRING 2003, Strategic management of Intellectual Property, page number 35-37.

<sup>21</sup> Bailey Walsh & Co LLP, 5 York Place, Leeds, LS1 2SD, United Kingdom

<sup>22</sup> HARVARD BUSINESS REVIEW JANUARY-BEBRUARY 2000.

<sup>23</sup> Bailey Walsh & Co LLP, 5 York Place, Leeds, LS1 2SD, United Kingdom

<sup>24</sup> MIT SLOAN REVIEW SPRING 2003, PAGE 8. Unintended Outcomes Of Patent Policy By, Peter Gwynne

<sup>25</sup> MIT SLOAN REVIEW SPRING 2003, PAGE 8. Unintended Outcomes Of Patent Policy By, Peter Gwynne.

